umweltbundesamt
ENVIRONMENT AGENCY AUSTRIA

Proficiency Testing Scheme für die Umweltanalytik

PFS01 Per- und polyfluorierte Alkylsubstanzen in Feststoffproben (Boden, Klärschlammkompost)

Proficiency Testing Scheme for Environmental Analysis

PFS01 Per- and polyfluoroalkyl substances in solid samples (soil, sewage sludge/compost)

BERICHT / REPORT

Probenversand / Sample dispatch: 27.08.2024

Ausgabe/Edition 1: 07.10.2024

Dieser Report umfasst 327 Seiten.
This report comprises 327 pages.

Anbieter der Eignungsprüfung / Provider of the proficiency test:
Anschrift / Address: Umweltbundesamt GmbH
Spittelauer Lände 5
1090 Vienna/Austria
E-Mail: ringversuche@umweltbundesamt.at
Tel: +43 (0) 1 31304 4334

Website deutsch: www.umweltbundesamt.at/ringversuche
www.ifatest.at

Website english: https://www.umweltbundesamt.at/en/proficiency-testing
www.ifatest.eu

Koordination und technische Leitung Eignungsprüfungen / coordinator and technical management:
Dipl.-Ing. Monika Denner

Verantwortlich für die Durchführung der Eignungsprüfungsrunde / Responsible for the implementation of this proficiency test:
Dipl.-Ing. Johannes Urteil, Martha Schmid MSc unter Mitarbeit von Mag. Vito Satrapa und Ing. Martina Wagner
Tel.: +43 (0) 1 31304 4334

Verantwortlich für die Freigabe des Berichts / Responsible for authorizing the report:
Dipl.-Ing. Monika Denner
Leitung Eignungsprüfungen für den Bereich chemische Analytik / Management for proficiency tests for chemical analysis

umweltbundesamt	**Signatory**	Monika Christine Denner
	Date/Time-UTC	2024-10-07T08:42:16+02:00
Note	According to EU regulation No 910/2014 (eIDAS) this qualified electronic signature is legally equivalent to a handwritten signature. Verification at: http://www.signature-verification.gv.at	

Inhaltsverzeichnis / Table of Contents

D1. Beschreibung des Ringversuchs

D1.1. Ausgestaltung und Durchführung

- Anzahl der Anmeldungen: 18
- Anzahl der übermittelten Datensätze: 17
- Probenversand: 27.08.2024
- Einsendeschluss der Daten: 24.09.2024

Die Ergebnisabgabe erfolgte auf elektronischem Weg mittels passwortgeschützter Online-Dateneingabe. Beim Abschluss der Dateneingabe bestätigten die Teilnehmenden die vollständige und korrekte Eingabe aller Daten und die Freigabe der Ergebnisse zur Auswertung.

Zur Anonymisierung der Ergebnisse wurde jedem Labor willkürlich ein Laborcode zugeteilt.

D1.2. Beschreibung der Prüfgegenstände

Bei den beiden Feststoffproben handelt es sich um Realproben mit natürlicher Belastung. Die bei max. 40°C vorgetrockneten Feststoffproben <2 mm wurden am 21. August 2024 mittels Fassmischer für 30 Minuten homogenisiert und durch fraktioniertes Schaufeln Abfüllungen zu je 0,1 kg hergestellt.

Das Probenmaterial umfasste:

- 1 Probe Boden (PFS01 A)
- 1 Probe Klärschlammkompost (PFS01 B)

Die Proben wurden bis zum Versand bei Raumtemperatur gelagert.

Die homogenen Prüfgegenstände wurden am 27.08.2024 verschickt.

Jedes teilnehmende Labor erhielt:

- 2 Proben zu je ca. 0,1 kg, abgefüllt in je 500 ml HDPE-Dosen.

D1.3. Anweisungen für die Teilnehmenden

Aus Stabilitätsgründen wurde empfohlen bis spätestens 03.09.2024 mit den Analysen zu beginnen.

Die Teilnehmenden erhielten im Zuge des Probenversand-Emails am 27.08.2024 folgende Informationen:

- Material: <2mm, lufttrocken
- Empfehlung: Mindest-Einwaage: 2,5 g – Einsatz der Probe ohne weitere Probenfeinvermahlung!
- Empfohlene Mindest-Bestimmungsgrenze: 0,1 µg/kg TM oder besser.
- Summe PFAS: berechnete Summe der 20 Parameter (PF4C–PF13C und PF4S–PF13S)
- Vorgegebene Einheit µg/kg TM bzw. % für die Trockenmasse

Zusätzlich zu den Angaben wie Analysenergebnis (ungerundet, bzw. mind. 3 sign. Stellen), kombinierte Messunsicherheit des Ergebnisses ohne Erweiterungsfaktor (in der Einheit des Analysenergebnisses, d.h. k=1, MUabs in Einheit des Messwertes, mind. 2 sign. Stellen), Analysendatum (Für Extraktionsverfahren: das Datum der Extraktion), Analysennorm bzw. die Methode (inkl. Kurzbezeichnung zum Messverfahren), akkreditiert (ja/nein) wurden folgende Angaben im Zuge der on-line-Abgabe abgefragt:

- Norm, Einwaage
- Lösungsmittel für die Extraktion der Festprobe (Volumen des Extraktionsmittels und Art bezogen auf die Einwaage)
- Extraktionsverfahren
- Sonstige relevante Angaben
    - Extraktreinigung ja/nein/welche?
    - Kalibrierung mit externem Standard?
    - Kalibrierung mit internem Standard (C13-markierte Verbindungen)?
    - Wiederfindungskorrektur ja/nein?
    - Blindwertabzug ja/nein?

Desweiteren stand den Teilnehmenden die Wahl der Analysenmethode bzw. der verwendeten Norm frei, welche mit ihrem Routineverfahren übereinstimmen sollte. Eine Übersicht der angewendeten Methoden und findet sich unter E9.

D1.4. Kontrollanalytik zur Bewertung der Homogenität

Aus allen Abfüllungen der beiden Proben wurden über die Abfüllreihe zufällig verteilt jeweils 5 Aliquote pro Probe zur Kontrollanalytik entnommen und dem Labor zur Analyse übergeben.

Alle Parameter wurden in der Prüfstelle am Umweltbundesamt zeitnah zum Probenversand analysiert (10 ml ACN (HFA) zu 2,5 g Probe; Ultraschallbad (45 min);

Extraktreinigung mit Aktivkohle; Surrogatezusatz/Wiederfindungskorrektur). Die Prüfstelle für Umwelt-, GVO- & Treibstoffanalytik ist akkreditiert für PF4C–PF13C und PF4S–PF10S.

Im Zuge der Auswertung wurde die relative Standardabweichung zwischen den Kontrollprobenabfüllungen bewertet und mit der Vergleichsstandardabweichung beim aktuellen Ringversuch verglichen.
Die Ergebnisse der Kontrollanalytik sind in der parameterorientieren Auswertung (E7) in Form von Mittelwerten ± Messunsicherheit als Kontrollwert (control test value) ± U gelistet (jeweils angegeben als erweiterte Messunsicherheit, k=2).

D1.5. Trendtest zur Bewertung der Stabilität

Um die ausreichende Stabilität der Prüfgegenstände der aktuellen Eignungsprüfungsrunde bis zum Abgabetermin zu überprüfen, wurde die Darstellung der Ergebnisse der Teilnehmenden nach Analysendatum ausgewertet und auf systematische Trends geprüft (unauffällig). Durch Darstellung der Ergebnisse der Teilnehmenden nach Abfüllreihenfolge wurde auf das Vorliegen möglicher systematischer Trends der Ergebnisse geprüft (unauffällig).

Aufgrund der bisherigen Erfahrungen und aufgrund der Bewertungsgrundlagen der aktuellen Eignungsprüfungsrunde gilt die Stabilität der Prüfgegenstände im empfohlenen Zeitraum für die Analyse bis zum Abgabeschluss als gewährleistet.

D1.6. Ermittlung des zugewiesenen Wertes

Die Ergebnisse der Analysen mussten spätestens bis zum 24.09.2024 beim Veranstalter vorliegen. Später eingehende Werte wurden nicht berücksichtigt.

Im Zuge der Plausibilitätsprüfung der Daten (z.B. Check korrekte Einheiten, Messunsicherheitsangabe, …) wurden die Teilnehmenden mit auffälligen Ergebnissen zum erneuten Datencheck der Eingabe und um Rückmeldung binnen 24 h aufgefordert.

Nach Abschluss der Plausibilitätsprüfung, wurde der Ausreißertest nach Hampel durchgeführt und die Ausreißer ermittelt. Die von diesem Test auffällig eingestuften Werte wurden in der Auswertung gekennzeichnet („H“). In begründeten Fällen, z.B. wenn der Ausreißertest nach Hampel nicht anwendbar ist (z.B. Ergebnisse liegen sehr eng beieinander oder überwiegend selber Zahlenwert bzw. bei wenig abgegebenen Daten mit sehr hoher Streuung), kann eine Ausreißereliminierung nach weiteren Kriterien erfolgen (z.B. Dean- und Dixon Test bzw. manuelle Ausreißerdefinition aufgrund Expertenbefund). Diese Vorgangsweise wird nach Anwendung unter Punkt D4 des Berichts dokumentiert.

Die weitere Auswertung erfolgte gemäß ISO 5725-2. Eine statistische Auswertung der Ringversuchsdaten erfolgte erst ab zumindest 6 gültigen, nummerischen Ergebnissen pro Parameter. Ergebnisse kleiner Bestimmungs- oder Nachweisgrenze wurden bei den Berechnungen zur Ableitung des zugewiesenen Wertes nicht berücksichtigt.

Der zugewiesene Wert wird im Normalfall jeweils als der ausreißerbereinigte Mittelwert über alle übermittelten Ergebnisse gebildet.

Bei sehr hohen Streuungen der Ergebnisse der Teilnehmenden von über 50 % oder bei mangelhafter Rückführbarkeit der statistischen Kenndaten aus den ausreißerbereinigten Ergebnissen der Teilnehmenden auf den Mittelwert des Kontrolllabores bzw. einer zu geringen Anzahl an ausreißerbereinigten Ergebnissen über die Gruppe der akkreditierten Labore, kann die Situation auftreten, dass kein zugewiesener Wert für den aktuellen Ringversuch festgelegt werden kann und daher keine Bewertung der Ergebnisse der Teilnehmenden für diesen Parameter möglich ist.

Ein entsprechender Hinweis wird im Bericht unter E7 bei der informativen Auswertung angebracht. Im Rahmen der internen Qualitätssicherung der Teilnehmenden kann ein Vergleich mit den Ergebnissen des Kontrolllabors durchgeführt werden. Diese Vorgehensweise wird bei Anwendung jeweils parameter- und probenbezogen unter Punkt D4 des Berichts dokumentiert.

D2. Kriterien der Leistungsbewertung

D2.1. Leistungskriterium z-Score

Als Basis zur Berechnung der Wiederfindungsraten sowie der z-Scores wurde der ausreißerbereinigte Mittelwert über alle übermittelten Ergebnisse herangezogen.

Die Ermittlung der z-Scores erfolgte gemäß nachfolgender Formel:

$$z - score = \frac{x_i - \overline{X}}{Kriterium}$$

Dabei ist:

x_i	Messergebnis des teilnehmenden Labors
$\overline{X}$	zugewiesener Wert Sollwert für die Leistungsbewertung der Teilnehmenden (angegeben auf 3 signifikante Stellen); im Regelfall: ausreißerbereinigter Mittelwert der

Ergebnisse der Teilnehmenden. Eine davon abweichende Vorgehensweise wird unter Punkt D4 des Berichts beschrieben.

Kriterium Vergleichsstandardabweichung berechnet aus den Statistiken für reale Proben der vorangegangenen Runden im Zeitraum aus den ausreißerbereinigten Ergebnissen der Teilnehmenden (sR) des aktuellen Ringversuchs.
In begründeten Fällen (z.B. Ergebnisse Realproben nahe an Mindestbestimmungsgrenze oder regulatorischer Vorgaben) erfolgt die Festlegung nach Expertenbefund und die Vorgangsweise wird unter Punkt D4 des Berichts beschrieben.

D2.2. Leistungskriterium E_n-Score

Für die realen Proben erfolgen zusätzliche Bewertungen unter Einbeziehung der erweiterten Messunsicherheiten der Teilnehmenden und der erweiterten Messunsicherheit des zugewiesenen Wertes, gemäß E_n-Score. Diese Auswertungen werden für die Teilnehmenden im Bericht unter Punkt E8, jeweils im Anschluss an die z-Score Auswertung dargestellt.

Die Ermittlung der E_n-Scores erfolgte gemäß nachfolgender Formel:

$$E_n - score = \frac{x_i - \bar{X}}{\sqrt{U(x_i)^2 + U(\bar{X})^2}}$$

Dabei ist:

x_i Messergebnis des teilnehmenden Labors

$\overline{X}$ zugewiesener Wert
Sollwert für die Leistungsbewertung der Teilnehmenden (angegeben auf 3 signifikante Stellen); im Regelfall: ausreißerbereinigter Mittelwert der Ergebnisse der Teilnehmenden. Eine davon abweichende Vorgehensweise wird unter Punkt D4 des Berichts beschrieben.

U(x_i) erweiterte Messunsicherheit des Messergebnisses (Ergebnisse der Teilnehmenden), k=2

U($\bar{X}$) erweiterte Messunsicherheit des zugewiesenen Wertes, k=2

D2.3. Leistungsbewertung z-Score und E_n-Score

Interpretation der z-Scores:

- |z-Score| ≤ 2.0 Ergebnis gut

- 2.0 < |z-Score| < 3.0 Ergebnis fragwürdig
- |z-Score| ≥ 3.0 Ergebnis nicht zufriedenstellend

Hinweis: Bei der Bewertung mittels z-Score wird die Messunsicherheit der Teilnehmenden nicht mitberücksichtigt. Der Vergleich der Abweichung zum zugewiesenen Wert erfolgt über das Kriterium.

Interpretation der E_n-Scores:

- $|E_n\text{-Score}| \leq 1.0$ zufriedenstellende Leistung
- $|E_n\text{-Score}| > 1.0$ nicht zufriedenstellende Leistung

Hinweis: Bei der Bewertung mittels E_n-Score erfolgt die Berücksichtigung der erweiterten Messunsicherheiten der Teilnehmenden und des zugewiesenen Wertes. $|E_n\text{-Score}| > 1.0$ können darauf hinweisen, dass die Unsicherheitsschätzungen überprüft oder ein Messproblem korrigiert werden muss.

D3. Darstellung und Interpretation der Messergebnisse

In der parameterorientierten Auswertung ist eine tabellarische Übersicht mit den Messergebnissen inklusive der Unsicherheit (± U), der Wiederfindung zum zugewiesenen Wert und dem berechneten z-Score dargestellt. Weiterhin werden unter Anmerkungen die Ausreißer gekennzeichnet. Die in der Tabelle angeführten Ergebnisse werden auch grafisch dargestellt.

In der laborientierten Auswertung werden pro Labor in anonymisierter Form die Ergebnisse der einzelnen Labore als Messergebnis ± U sowie die Wiederfindungen und die ermittelten z-Scores bezugnehmend auf das Kriterium dargestellt. Weiters werden die E_n-Scores unter Berücksichtigung der erweiterten Unsicherheiten in unabhängigen Tabellen ausgegeben. Die laborientierten Auswertungen enthalten jeweils die Bewertungsgrundlagen wie zugewiesener Wert samt erweiterter Messunsicherheit sowie das Kriterium.

Eine Erläuterung zu den Tabellen und Grafiken kann Punkt D5 entnommen werden.

D4. Anmerkungen zur Auswertung

Wie unter Punkt D2 ersichtlich, können die z-Scores auch unter Einbeziehung der Vergleichsstandardabweichung der ausreißerbereinigten Ergebnisse der Teilnehmenden des aktuellen Ringversuchs berechnet werden. Das kann zur Folge haben, dass es bei Parametern mit hoher Ergebnisstreuung dazu kommen kann, dass der Bereich z-Score - 2 bis z-Score + 2 einen ungewöhnlich hohen Wiederfindungsbereich abdeckt. Umgekehrt führt eine sehr geringe Streuung der

Ergebnisse der Teilnehmenden dazu, dass z-Score - 2 bis z-Score + 2 einen ungewöhnlich kleinen Wiederfindungsbereich abdeckt.

Die Wiederfindungsrate wird unabhängig von der Streuung der Ergebnisse, als prozentuelle Abweichung vom zugewiesenen Wert berechnet und sollte bei der Bewertung von Ergebnissen im Rahmen des internen Qualitätsmanagementsystems der teilnehmenden Labore berücksichtigt werden.

Bei nachfolgenden Parametern und Proben erfolgte die Berechnung der Scores nach D2. Als Kriterium wurde die aktuelle Vergleichsstandardabweichung (vR), gerundet auf 2 signifikante Stellen gewählt:
Parameter PF4C, PF5C, PF8C, PF9C, PF10C, PF4S, berechnete Summe PFAS bei Probe PFS01 A und Parameter PF5C, PF6C, PF8C, PF9C, PF10C, PF11C, PF12C, PF4S, berechnete Summe PFAS bei Probe PFS01 B.

Parameter PF7C bei Proben PFS01 A und PFS01 B:
Die auf Basis der Ergebnisse der Teilnehmenden berechneten Sollwerte lagen außerhalb der Messunsicherheit des Kontrollwertes und es ist über das Kontrolllabor keine Rückführbarkeit möglich. Der zugewiesene Wert wurde daher über die ausreißerbereinigten Mittelwerte aus der Gruppe der akkreditierten Teilnehmenden berechnet. Als Kriterium wurde für PF7C 20 % für PFS01 A und 31 % für PFS01 B gewählt.

Parameter PF5S, PF6S, Total PFHxS, PF7S, PF9S, PF10S, PF11S, PF12S, PF13S bei Proben PFS01 A und PFS01 B:
Aufgrund des geringen Gehaltes in der Realprobe konnte kein Sollwert berechnet werden. Für diese Parameter empfehlen wir einen Vergleich mit den in D6.1 angeführten informativen Werten.

Parameter PF6C, PF7C, PF11C, PF12C, Total PFOS, Trockenmasse bei Probe PFS01 A und Parameter PF4C, Total PFOS, Trockenmasse bei Probe PFS01 B:
Für diese Parameter wurden als Kriterium die relativen Vergleichsstandard-abweichungen (vR) von 15 % für PF6C Probe PFS01 A, 20 % für PF7C Probe PFS01 A, 20 % für Total PFOS Probe PFS01 A und PFS01 B, 25 % für PF11C Probe PFS01 A, 20 % für PF12C Probe PFS01 A, 2 % für Trockenmasse Probe PFS01 A und PFS01 B und 30 % für PF4C Probe PFS01 B für die Bewertung herangezogen.

Parameter n-PFOS bei Proben PFS01 A und PFS01 B:
Die auf Basis der Ergebnisse der Teilnehmenden berechneten Sollwerte lagen außerhalb der Messunsicherheit des Kontrollwertes und es ist über das Kontrolllabor keine Rückführbarkeit möglich. Bei diesem Parameter gab es nicht ausreichend akkreditierte Ergebnisse der Teilnehmenden ($n < 6$) um einen zugewiesenen Wert zu berechnen. Für diese Parameter empfehlen wir einen Vergleich mit den in D6.1 angeführten informativen Werten, die über die verfügbaren Ergebnisse der akkreditierten Teilnehmenden ermittelt wurden.

Parameter PF13C bei Proben PFS01 A und PFS01 B:
Die relative Vergleichsstandardabweichung der erhaltenen Ergebnisse der Teilnehmenden mit Werten über der Bestimmungsgrenze lag hier deutlich über 50 %, zugleich wurde eine Vielzahl an Ergebnissen mit Werten unter der Bestimmungsgrenze (< BG) übermittelt.
Bei gegenständlichem Realproben-Ringversuch wurden daher für PF13C zusätzliche Berechnungen zur Ableitung von Informationswerten durchgeführt. Hierfür erfolgte eine „Worst Case-Betrachtung“, indem alle zur Verfügung stehenden ausreißerbereinigten Daten der Gruppe der akkreditierten Teilnehmenden mit Ergebnissen unter der empfohlenen Mindest-Bestimmungsgrenze von 0,1 µg/kg TM mit dem Wert der angeführten BG zur Abschätzung eines Informationswertes berücksichtigt wurden (siehe PFS01 A MW (n=9; akkr.): < 0,10 µg/kg TM sowie PFS01 B MW (n=10; akkr.): 0.175+/-0.12 µg/kg TM). Diese Informationswerte können zum Vergleich im Rahmen der internen QS-Maßnahmen herangezogen werden.

D5. Erläuterung zu Tabellen und Grafiken

D5.1. Angaben und Abkürzungen in Tabellen

Parameter	Allgemeine Bezeichnung des Analysenparameters
Probe	Bezeichnung der übermittelten Probe
Einheit	Vorgegebene Einheit für Messwert und Ergebnisunsicherheit (z.B. hier µg/kg TM oder %)
Zugewiesener Wert	Sollwert für die Leistungsbewertung der Teilnehmenden (angegeben auf 3 signifikante Stellen)
U (k=2)	erweiterte Unsicherheit (k=2) des zugewiesenen Wertes, (angegeben auf 3 signifikante Stellen)
Kriterium	Vorgabewert zur Ermittlung des z-Scores in der angegebenen Einheit (angegeben auf 3 signifikante Stellen)
Kriterium [%]	Vorgabewert zur Ermittlung des z-Scores in % des zugewiesenen Wertes (angegeben auf 2 signifikante Stellen)
Mittelwert	Ausreißerbereinigter Mittelwert über die Ergebnisse der Teilnehmenden (angegeben auf 3 signifikante Stellen)
VB (99%)	99 % Vertrauensbereich (angegeben auf 3 signifikante Stellen)
Minimum	Minimales abgegebenes Messergebnis, ausreißerbereinigt (angegeben auf 3 signifikante Stellen)
Maximum	Maximales abgegebenes Messergebnis, ausreißer-bereinigt (angegeben auf 3 signifikante Stellen)

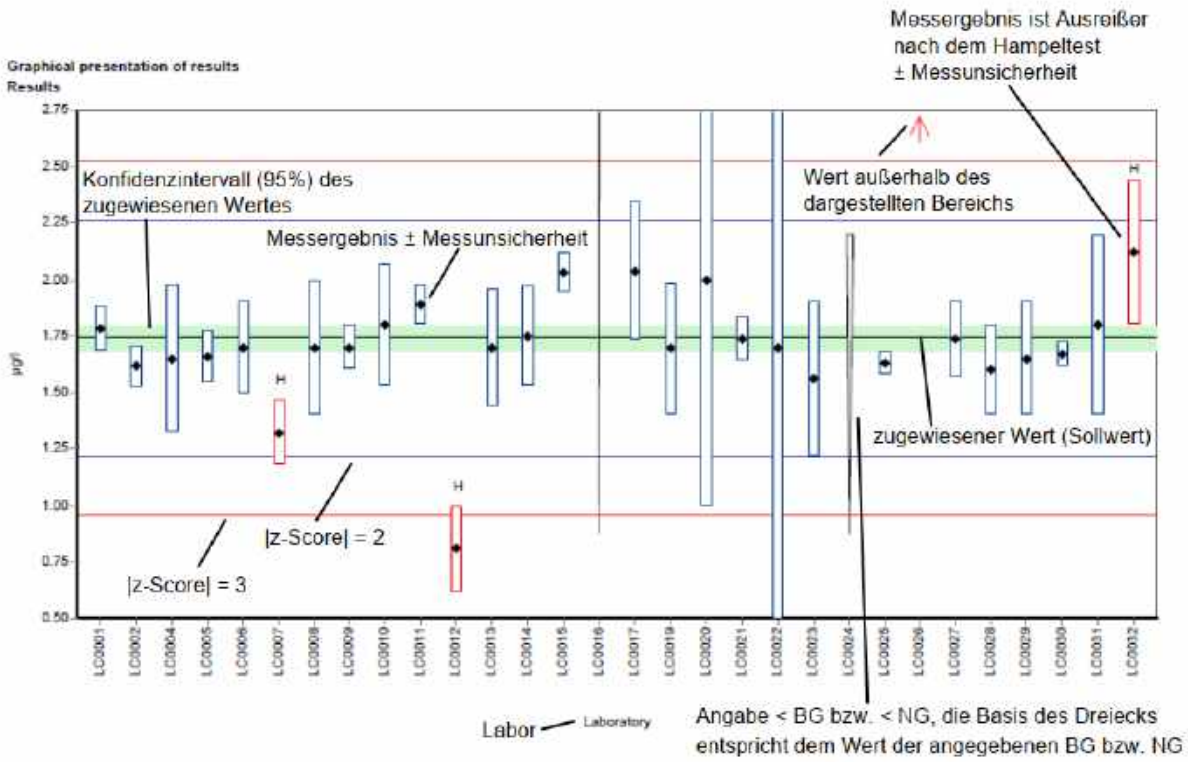
sR	Vergleichsstandardabweichung, berechnet aus den ausreißerbereinigten Ergebnissen der Teilnehmenden des aktuellen Ringversuchs (angegeben auf 3 signifikante Stellen)
vR	relative Vergleichsstandardabweichung in %, berechnet aus den ausreißerbereinigten Ergebnissen der Teilnehmenden des aktuellen Ringversuchs bezogen auf den Mittelwert (angegeben auf 2 signifikante Stellen)
Kontrollwert ± U (k=2)	Mittelwert der Kontrollmessungen des Veranstalters ± erweiterte Ergebnisunsicherheit des Kontrollwertes (jeweils angegeben auf 3 signifikante Stellen)
Laborcode	anonymisierte, eindeutige Kennung des teilnehmenden Labors im jeweiligen Ringversuch
Messwert	einzelne(r) Messwert(e) lt. Angabe der Teilnehmenden (maximal 5 Nachkommastellen dargestellt)
Messergebnis	Für die Bewertung herangezogenes Ergebnis lt. Angabe der Teilnehmenden (maximal 5 Nachkommastellen dargestellt). Bei Eignungsprüfungsrunden mit Vorgabe von unabhängigen Mehrfachbestimmungen, entspricht dies dem berechneten Mittelwert aus den einzelnen Messwerten der Teilnehmenden.
± U	kombinierte Messunsicherheit ohne Erweiterungsfaktor (k=1) lt. Angabe der Teilnehmenden (maximal 5 Nachkommastellen dargestellt)
BG	Bestimmungsgrenze
NG	Nachweisgrenze
WF	Wiederfindungsrate in %, bezogen auf den zugewiesenen Wert (angegeben auf 3 signifikante Stellen, dargestellt maximal 1 Nachkommastelle)
MW	Mittelwert
z-Score	Abweichung des Messergebnisses zum zugewiesenen Wert, ausgedrückt als Vielfaches des Kriteriums (angegeben auf 3 signifikante Stellen, dargestellt maximal 2 Nachkommastellen)
E_n-Score	Abweichung des Messergebnisses zum zugewiesenen Wert, ausgedrückt als Vielfaches der kombinierten Messunsicherheiten, bestehend aus erweiterter Unsicherheit des zugewiesenen Wertes und der erweiterten Unsicherheit der Messergebnisse der Teilnehmenden (angegeben auf 3 signifikante Stellen, dargestellt maximal 2 Nachkommastellen).

	Beim E_n-Score erfolgt die Berücksichtigung der Messunsicherheit der Teilnehmenden.
-	Keine Daten übermittelt bzw. keine Berechnung möglich
Anmerkungen	Anmerkungen zum jeweiligen Messergebnis (z.B. H, FN, FP)
H	Ausreißer nach dem Hampel-Test
FN	Falsch negativ – Messergebnis kleiner Bestimmungs- bzw. Nachweisgrenze dessen Betrag die Bedingungen eines Ausreißers nach dem Hampeltest erfüllt.
FP	Falsch positiv – Falls aufgrund des geringen Analytgehalts kein zugewiesener Wert ermittelt werden kann (n < 6), wird der Median der Beträge der übermittelten Nachweis- bzw. Bestimmungsgrenzen ermittelt. Als falsch positiv wird ein Messergebnis bewertet, welches diesen Median um mehr als 100 % übersteigt.
Standardabweichung	Vergleichsstandardabweichung berechnet aus den Ergebnissen der Teilnehmenden des aktuellen Ringversuchs (angegeben auf 3 signifikante Stellen)
rel. Standardabweichung	relative Vergleichsstandardabweichung in %, berechnet aus den Ergebnissen der Teilnehmenden des aktuellen Ringversuchs bezogen auf den Mittelwert (angegeben auf 3 signifikante Stellen)
n	Anzahl der Messergebnisse
*	Kennzeichnung für Hinweise zur Erläuterung (hier: zu geringer Gehalt vorliegend, < BG)
**	Kennzeichnung für Hinweise zur Erläuterung (Informationswerte, abgeleitet via Worst Case Betrachtung analog D.4)
***	Kennzeichnung für Hinweise zur Erläuterung (berechnete Mittelwerte über Daten der akkreditierten Labore)

D5.2. Graphische Darstellung der Ergebnisse

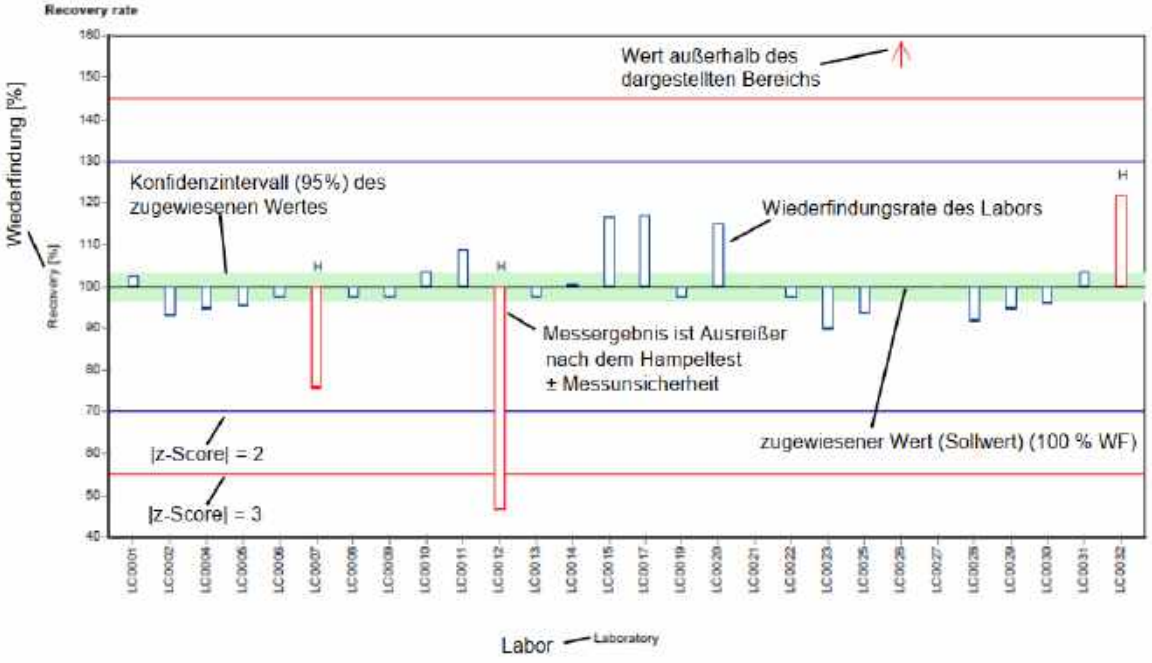
Nachfolgend wird die graphische Darstellung anhand von kommentierten Beispieldiagrammen erläutert.

Beispieldiagramm: Messwerte



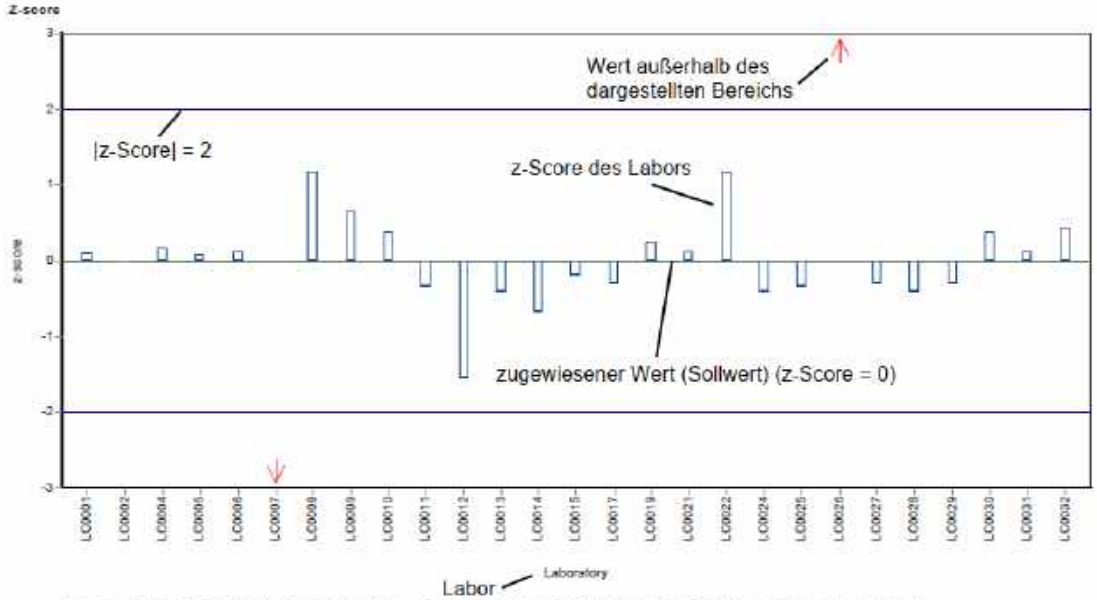
Unterschiedliche Analysenmethoden werden mit unterschiedlichen Farben kenntlich gemacht.

Beispieldiagramm: Wiederfindung zum zugewiesenen Wert



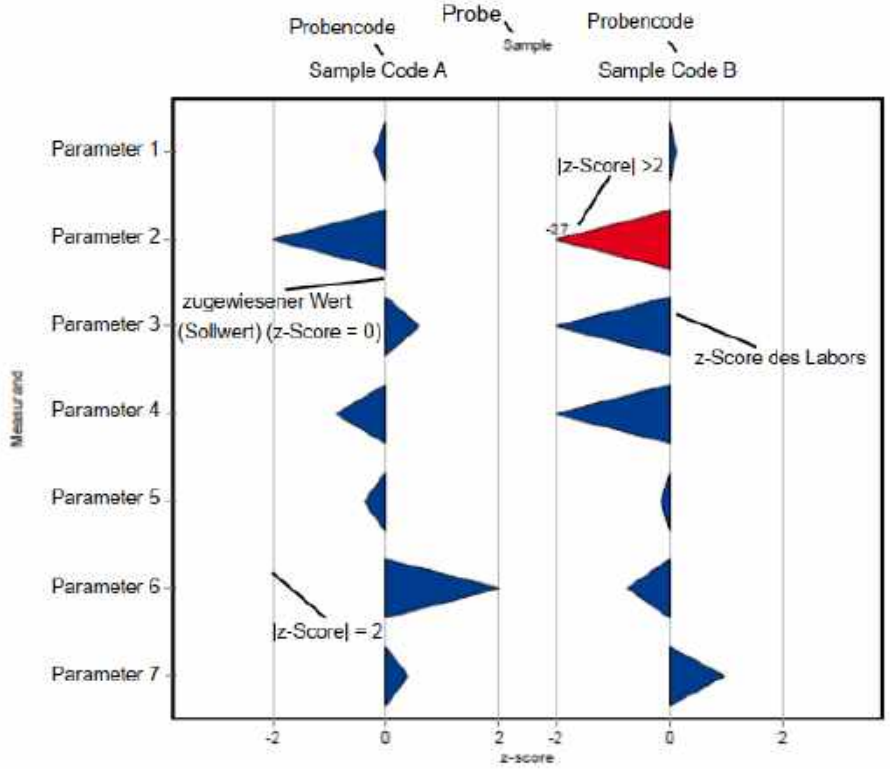
Unterschiedliche Analysenmethoden werden mit unterschiedlichen Farben kenntlich gemacht.

Beispieldiagramm: z-Score

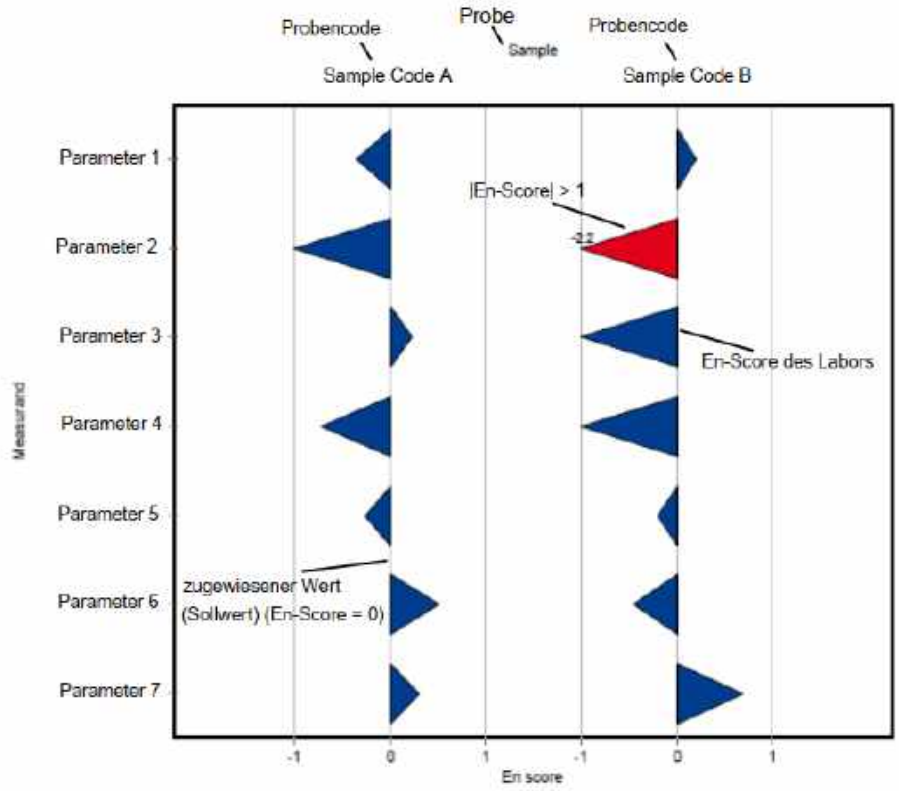


Unterschiedliche Analysenmethoden werden mit unterschiedlichen Farben kenntlich gemacht.

Beispieldiagramm: z-Score (laborientierte Auswertung)



Beispieldiagramm: En-Score (laborientierte Auswertung)



D6. Zusammenfassung

D6.1. Tabelle der zugewiesenen Werte

Parameter	Probe	Einheit	zugewiesener Wert	±	U (k=2)	Kriterium	Kriterium [%]
Trockenmasse	PFS01 A	%	94.8	±	0.775	1.9	2
	PFS01 B	%	93.9	±	0.941	1.88	2
Perfluorbutansäure (PFBA) - PF4C	PFS01 A	µg/kg TM	1.09	±	0.281	0.445	41
	PFS01 B	µg/kg TM	1.28	±	0.213	0.384	30
Perfluorpentansäure (PFPeA) - PF5C	PFS01 A	µg/kg TM	1.3	±	0.359	0.597	46
	PFS01 B	µg/kg TM	1.35	±	0.338	0.592	44
Perfluorhexansäure (PFHxA) - PF6C	PFS01 A	µg/kg TM	4.98	±	0.355	0.746	15
	PFS01 B	µg/kg TM	12	±	1.49	2.88	24
Perfluorheptansäure (PFHpA) - PF7C	PFS01 A	µg/kg TM	0.274	±	0.0361	0.0548	20
	PFS01 B	µg/kg TM	0.368	±	0.0704	0.114	31
Perfluoroctansäure (PFOA) - PF8C	PFS01 A	µg/kg TM	0.724	±	0.105	0.203	28
	PFS01 B	µg/kg TM	1.03	±	0.1	0.186	18
Perfluornonansäure (PFNA) - PF9C	PFS01 A	µg/kg TM	0.159	±	0.0302	0.0542	34
	PFS01 B	µg/kg TM	0.212	±	0.0469	0.0849	40
Perfluordecansäure (PFDA) - PF10C	PFS01 A	µg/kg TM	0.355	±	0.041	0.0781	22
	PFS01 B	µg/kg TM	0.605	±	0.069	0.127	21
Perfluorundecansäure (PFUnDA) - PF11C	PFS01 A	µg/kg TM	0.152	±	0.0235	0.038	25
	PFS01 B	µg/kg TM	0.35	±	0.0519	0.0944	27
Perfluordodecansäure (PFDoDA) - PF12C	PFS01 A	µg/kg TM	0.2	±	0.0229	0.0401	20
	PFS01 B	µg/kg TM	0.406	±	0.097	0.162	40
Perfluortridecansäure (PFTrDA) - PF13C**	PFS01 A	µg/kg TM	-	±	-	-	-
	PFS01 B	µg/kg TM	-	±	-	-	-
Perfluorbutansulfonsäure (PFBS) - PF4S	PFS01 A	µg/kg TM	2.52	±	0.326	0.656	26
	PFS01 B	µg/kg TM	3.31	±	0.465	0.895	27
Perfluorpentansulfonsäure (PFPeS) - PF5S*	PFS01 A	µg/kg TM	-	±	-	-	-
	PFS01 B	µg/kg TM	-	±	-	-	-
Perfluorheptansulfonsäure (PFHpS) - PF7S*	PFS01 A	µg/kg TM	-	±	-	-	-
	PFS01 B	µg/kg TM	-	±	-	-	-
Perfluornonansulfonsäure (PFNS) - PF9S*	PFS01 A	µg/kg TM	-	±	-	-	-
	PFS01 B	µg/kg TM	-	±	-	-	-
Perfluordecansulfonsäure (PFDS) - PF10S*	PFS01 A	µg/kg TM	-	±	-	-	-
	PFS01 B	µg/kg TM	-	±	-	-	-
Perfluorundecansulfonsäure (PFUnDS) - PF11S*	PFS01 A	µg/kg TM	-	±	-	-	-

Parameter	Probe	Einheit	zugewiesener Wert	±	U (k=2)	Kriterium	Kriterium [%]
Perfluorundecansulfonsäure (PFUnDS) - PF11S*	PFS01 B	µg/kg TM	-	±	-	-	-
Perfluordodecansulfonsäure (PFDoS) - PF12S*	PFS01 A	µg/kg TM	-	±	-	-	-
	PFS01 B	µg/kg TM	-	±	-	-	-
Perfluortridecansulfonsäure (PFTrDS) - PF13S*	PFS01 A	µg/kg TM	-	±	-	-	-
	PFS01 B	µg/kg TM	-	±	-	-	-
Total PFHxS*	PFS01 A	µg/kg TM	-	±	-	-	-
	PFS01 B	µg/kg TM	-	±	-	-	-
Total PFOS	PFS01 A	µg/kg TM	0.796	±	0.0764	0.159	20
	PFS01 B	µg/kg TM	1.96	±	0.192	0.393	20
lineare Perfluoroctansulfonsäure (n-PFOS)***	PFS01 A	µg/kg TM	-	±	-	-	-
	PFS01 B	µg/kg TM	-	±	-	-	-
lineare Perfluorhexansulfonsäure (n-PFHxS)*	PFS01 A	µg/kg TM	-	±	-	-	-
	PFS01 B	µg/kg TM	-	±	-	-	-
Summe PFAS	PFS01 A	µg/kg TM	13.5	±	2.06	3.77	28
	PFS01 B	µg/kg TM	23	±	2.86	5.07	22

* Für nachfolgende Substanzen liegt ein zu geringer Gehalt in den Proben vor. Die angeführten Werte dienen zur Information und können zum Vergleich im Rahmen Ihrer QS-Maßnahmen herangezogen werden.

Perfluorpentansulfonsäure (PFPeS) - PF5S:
PFS01 A: < 0,10 µg/kg TM
PFS01 B: < 0,10 µg/kg TM
Perfluorheptansulfonsäure (PFHpS) - PF7S:
PFS01 A: < 0,10 µg/kg TM
PFS01 B: < 0,10 µg/kg TM
Perfluornonansulfonsäure (PFNS) - PF9S:
PFS01 A: < 0,10 µg/kg TM
PFS01 B: < 0,10 µg/kg TM
Perfluordecansulfonsäure (PFDS) - PF10S:
PFS01 A: < 0,10 µg/kg TM
PFS01 B: < 0,10 µg/kg TM
Perfluorundecansulfonsäure (PFUnDS) - PF11S :
PFS01 A: < 0,10 µg/kg TM
PFS01 B: < 0,10 µg/kg TM
Perfluordodecansulfonsäure (PFDoS) - PF12S:
PFS01 A: < 0,10 µg/kg TM
PFS01 B: < 0,10 µg/kg TM
Perfluortridecansulfonsäure (PFTrDS) - PF13S:
PFS01 A: < 0,10 µg/kg TM
PFS01 B: < 0,10 µg/kg TM
Total PFHxS:
PFS01 A: < 0,15 µg/kg TM
PFS01 B: < 0,15 µg/kg TM
lineare Perfluorhexansulfonsäure (n-PFHxS):
PFS01 A: < 0,15 µg/kg TM
PFS01 B: < 0,15 µg/kg TM

**Für nachfolgende Substanz sind die auf Basis der Ergebnisse der Teilnehmenden abgeleiteten Informationswerte angeführt:

Perfluortridecansäure (PFTrDA) - PF13C:

PFS01 A: MW (n=9; akkr.): < 0,10 µg/kg TM
PFS01 B: MW (n=10; akkr.): 0.175+/-0.12 µg/kg TM

*** Für nachfolgende Substanz können keine zugewiesenen Werte ermittelt werden, da zu wenige akkreditierte Laborergebnisse vorliegen (n<6). Daher sind zur Information die berechneten Mittelwerte MW+/- U(k=2) über die Daten der akkreditierten Labore (n) nach Ausreißerbereinigung angeführt.

Diese können zum Vergleich im Rahmen Ihrer QS-Maßnahmen herangezogen werden.

lineare Perfluoroctansulfonsäure (n-PFOS):
PFS01 A: MW (n=4; akkr.) +/- U(k=2): 0.432+/-0.138 µg/kg TM
PFS01 B: MW (n=3; akkr.) +/- U(k=2): 1.353+/-0.526 µg/kg TM

D6.2. Zusammenfassung der ausreißerbereinigten Ringversuchsergebnisse

Parameter	Probe	Anzahl Labors für Berechnung	Anzahl Ausreißer Labors	Einheit	Mittelwert	±	VB (99%)	Minimum	Maximum	sR	vR [%]
Trockenmasse	PFS01 A	14	3	%	94.8	±	1.16	93.4	98.1	1.45	1.5
	PFS01 B	14	2	%	93.9	±	1.41	92.3	97.5	1.76	1.9
Perfluorbutansäure (PFBA) - PF4C	PFS01 A	10	2	µg/kg TM	1.09	±	0.421	0.438	1.97	0.444	41
	PFS01 B	10	1	µg/kg TM	1.28	±	0.319	0.7	1.77	0.336	26
Perfluorpentansäure (PFPeA) - PF5C	PFS01 A	11	3	µg/kg TM	1.3	±	0.538	0.451	2.31	0.595	46
	PFS01 B	12	1	µg/kg TM	1.35	±	0.507	0.5	2.66	0.585	43
Perfluorhexansäure (PFHxA) - PF6C	PFS01 A	15	2	µg/kg TM	4.98	±	0.532	3.61	6.06	0.687	14
	PFS01 B	15	1	µg/kg TM	12	±	2.23	6.9	16.5	2.88	24
Perfluorheptansäure (PFHpA) - PF7C	PFS01 A	13	2	µg/kg TM	0.268	±	0.0415	0.175	0.345	0.0499	19
	PFS01 B	13	1	µg/kg TM	0.332	±	0.0869	0.192	0.535	0.104	31
Perfluoroctansäure (PFOA) - PF8C	PFS01 A	15	1	µg/kg TM	0.724	±	0.158	0.389	1.11	0.204	28
	PFS01 B	14	1	µg/kg TM	1.03	±	0.151	0.641	1.3	0.188	18
Perfluornonansäure (PFNA) - PF9C	PFS01 A	13	0	µg/kg TM	0.159	±	0.0452	0.0994	0.273	0.0544	34
	PFS01 B	13	1	µg/kg TM	0.212	±	0.0704	0.105	0.418	0.0846	40
Perfluordecansäure (PFDA) - PF10C	PFS01 A	14	1	µg/kg TM	0.355	±	0.0615	0.224	0.49	0.0767	22
	PFS01 B	14	1	µg/kg TM	0.605	±	0.103	0.34	0.799	0.129	21
Perfluorundecansäure (PFUnDA) - PF11C	PFS01 A	10	1	µg/kg TM	0.152	±	0.0353	0.0855	0.219	0.0372	24
	PFS01 B	13	0	µg/kg TM	0.35	±	0.0778	0.187	0.54	0.0935	27
Perfluordodecansäure (PFDoDA) - PF12C	PFS01 A	10	1	µg/kg TM	0.2	±	0.0344	0.13	0.249	0.0362	18
	PFS01 B	11	1	µg/kg TM	0.406	±	0.145	0.156	0.714	0.161	40
Perfluortridecansäure (PFTrDA) - PF13C	PFS01 A	4	3	µg/kg TM	-	±	-	0.0483	0.22	-	-
	PFS01 B	4	5	µg/kg TM	-	±	-	0.0661	0.39	-	-
Perfluorbutansulfonsäure (PFBS) - PF4S	PFS01 A	16	1	µg/kg TM	2.52	±	0.488	1.69	4.29	0.651	26
	PFS01 B	15	1	µg/kg TM	3.31	±	0.698	2.13	5.29	0.901	27
Perfluorpentansulfonsäure (PFPeS) - PF5S	PFS01 A	3	0	µg/kg TM	-	±	-	0.099	0.15	-	-

Parameter	Probe	Anzahl Labors für Berechnung	Anzahl Ausreißer Labors	Einheit	Mittelwert	±	VB (99%)	Minimum	Maximum	sR	vR [%]
Perfluorpentansulfonsäure (PFPeS) - PF5S	PFS01 B	3	0	µg/kg TM	-	±	-	0.01	0.102	-	-
Perfluorheptansulfonsäure (PFHpS) - PF7S	PFS01 A	3	0	µg/kg TM	-	±	-	0.017	1.76	-	-
	PFS01 B	5	1	µg/kg TM	-	±	-	0.025	0.318	-	-
Perfluornonansulfonsäure (PFNS) - PF9S	PFS01 A	3	0	µg/kg TM	-	±	-	0.013	0.12	-	-
	PFS01 B	3	0	µg/kg TM	-	±	-	0.017	0.143	-	-
Perfluordecansulfonsäure (PFDS) - PF10S	PFS01 A	4	0	µg/kg TM	-	±	-	0.014	0.198	-	-
	PFS01 B	2	0	µg/kg TM	-	±	-	0.041	0.509	-	-
Perfluorundecansulfonsäure (PFUnDS) - PF11S	PFS01 A	4	0	µg/kg TM	-	±	-	0.014	0.32	-	-
	PFS01 B	3	0	µg/kg TM	-	±	-	0.011	0.426	-	-
Perfluordodecansulfonsäure (PFDoS) - PF12S	PFS01 A	3	0	µg/kg TM	-	±	-	0.014	4.12	-	-
	PFS01 B	2	0	µg/kg TM	-	±	-	0.022	0.24	-	-
Perfluortridecansulfonsäure (PFTrDS) - PF13S	PFS01 A	4	0	µg/kg TM	-	±	-	0.023	0.369	-	-
	PFS01 B	4	0	µg/kg TM	-	±	-	0.02	0.915	-	-
Total PFHxS	PFS01 A	4	1	µg/kg TM	-	±	-	0.065	0.226	-	-
	PFS01 B	3	4	µg/kg TM	-	±	-	0.0618	0.364	-	-
Total PFOS	PFS01 A	13	2	µg/kg TM	0.796	±	0.115	0.631	1.12	0.138	17
	PFS01 B	12	2	µg/kg TM	1.96	±	0.288	1.31	2.48	0.332	17
lineare Perfluoroctansulfonsäure (n-PFOS)	PFS01 A	7	1	µg/kg TM	0.441	±	0.111	0.313	0.63	0.0983	22
	PFS01 B	7	0	µg/kg TM	1.47	±	0.375	0.913	1.88	0.331	23
lineare Perfluorhexansulfonsäure (n-PFHxS)	PFS01 A	2	0	µg/kg TM	-	±	-	0.161	0.292	-	-
	PFS01 B	3	0	µg/kg TM	-	±	-	0.0618	2.24	-	-
Summe PFAS	PFS01 A	13	1	µg/kg TM	13.5	±	3.09	7.02	19.2	3.71	28

Parameter	Probe	Anzahl Labors für Berechnung	Anzahl Ausreißer Labors	Einheit	Mittelwert	± VB (99%)	Minimum	Maximum	sR	vR [%]
Summe PFAS	PFS01 B	13	1	µg/kg TM	23	± 4.28	13.7	31	5.15	22

E1. Description of the proficiency test

E1.1. Design and implementation

- Number of registrations: 18
- Number of submitted data records: 17
- Dispatch of samples: August 27th, 2024
- Closing date for submission of data: September 24th, 2024

The results were submitted electronically by a password-protected online data entry. Upon completion of the data entry, the participant confirmed the complete and correct entry of all data and the authorization of the results for evaluation.

To anonymize results, each laboratory was given a laboratory code on a random basis.

E1.2. Description of the proficiency test items

Both solid samples were real samples with natural contamination. On August 21st, 2024 the pre-dried (max. 40°C) solid samples < 2mm were homogenized for 30 minutes using a drum mixer and fillings of 0,1 kg each were prepared by fractionated shoveling.

The following samples were made available

- 1 soil sample (PFS01 A)
- 1 sewage sludge compost sample (PFS01 B)

The samples were stored at room temperature until shipment.

The homogeneous proficiency test items were dispatched on 27th of August 2024.

Each participant received:

- 2 samples each 0,1 kg, filled in 500 ml HDPE-vessels.

E1.3. Instructions for the participants

For reasons of stability, it was recommended to start the analysis by the 03rd of September 2024 at the latest.

- Material: < 2 mm, airdry
- Recommendation: minimum sample intake: 2.5 g (without further fine grinding of the sample!)
- Recommended minimum limit of quantification: 0.1 µg/kg dm or better.

- Sum PFAS: calculated sum of the 20 parameters (PF4C–PF13C and PF4S–PF13S)
- Specified unit µg/kg dm or % for dry matter

The participants received the following information in the course of the sample dispatch email on 27.08.2024:

Additionally to the required data per result as analysis result (unrounded, at least 3 significant digits), combined measurement uncertainty for the result without expansion factor (same unit as result, k=1; at least 2 significant digits), date of analysis (for extraction: date of extraction), applied standard/method (incl. measurement technique) following information was requested (on-line):

- Sample intake in g
- Solvent for the extraction of the solid sample (volume/type of the extraction solvent in relation to the sample weight)
- Extraction method
- Other relevant information
    - extract purification yes/no/which?
    - Calibration with external standard?
    - Calibration with internal standard (C13-labeled compounds)?
    - Recovery correction yes/no?
    - Blank substraction yes/no?

Furthermore the participants were expected to use the test method or measurement method of their choice, which should be consistent with their routine procedures. In E9 you will find the overview of applied methods in course of the proficiency testing.

E1.4. Control testing for homogeneity evaluation

From all fillings of the two samples, 5 aliquots per sample were randomly selected and submitted to the laboratory for control testing.

All parameters were tested in the testing laboratory at the Environment Agency Austria (Prüfstelle für Umwelt-, GVO- & Treibstoffanalytik) close to the time of sample dispatch (10 ml ACN (HFA) for 2.5 g sample; ultrasonic bath (45 min); extract purification with activated carbon, addition of surrogates and recovery correction; measurement of PF4C–PF13C and PF4S–PF10S in solid samples are accredited according to ISO EN 17025).

During evaluation the relative standard deviation between the individual results of the control test samples was assessed for each parameter by comparison with the reproducibility standard deviation of the actual proficiency test.

In the parameter-oriented evaluation (E7), the results of the control testing are given in the form of arithmetic means of the detected concentrations ± expanded measurement uncertainty as control test value ± U (expanded uncertainty, k=2).

E1.5. Trend test for stability evaluation

The assessment of the stability of the proficiency test items of the current round was carried out by evaluation of all participant results sorted by analysis date (until submission deadline): No systematic trends were identified.

Using all participants results, it was furthermore tested if systematic trends could be detected depending on the order in which the bottles were filled for the proficiency test: No systematic trends could be identified.

Based on previous experience and on the trend test evaluation of the current round, the stability of the test items for proficiency testing can be confirmed for the recommended analysis period until deadline for submission of data.

E1.6. Determination of the assigned values

The analytical results had to be made available to the organiser not later than 24th of September 2024. Any values received at a later date were not considered.

In the course of the plausibility assessment of all received data (e.g. check for correct units, indication of measurement uncertainty, …) the participants with noticeable results were asked to perform a subsequent data check and to give a prompt feedback within 24 h.

After plausibility assessment an outlier test according to Hampel was performed to identify outliers. Values identified as conspicuous are marked specifically in the parameter-oriented evaluation (‘H’).

In justified cases, for instance, when the outlier test according to Hampel is not applicable (e.g. many similar or identical results of the participants or in case of a very limited number of highly scattering results) a different outlier identification method can be applied (e.g. Dean and Dixon outlier test or manual outlier elimination by expert judgement). In such a case, this procedure is documented in section E4 of the report.

Further data evaluation was performed in accordance with ISO 5725-2. A statistical evaluation of proficiency testing data was only carried out if at least 6 valid results per

parameter were available. Results < LOQ or < LOD are not included in the calculation for the assigned value.

The assigned values are normally calculated as the mean over all submitted results, after removal of outliers.

For real samples in some exceptional cases it might occur, that no assigned value based on participants' results can be calculated and no evaluation of the participants results can be made. E.g. due to large variations in the participant's results (vR > 50 %) and/or insufficient traceability of the calculated mean of all participants after outlier-clearing to the mean of control testing or if the number of results (without outliers) of the group of accredited testing laboratories is too low.

In this case, a clear statement in section E7 of the report is made and all provided statistical data are for information only. In section E4 further information is given, when applicable, for each parameter and proficiency test item. In course of the internal quality measures, the participants can compare their results with the control test values.

E2. Criteria of performance evaluation

E2.1. Performance criterion z-Score

The adjusted average value (after removal of outliers) for all submitted results was used as a basis for the calculation of recovery rates and z-scores.

z-Scores were calculated on the basis of the following formula:

$$z - score = \frac{x_i - \overline{X}}{Criteria}$$

In this context,

x_i	is the measurement value (result) of the participating laboratory;
$\overline{X}$	assigned value the target value for the assessment of the performance of the participants (3 significant digits), normally the average value of the participants' results after removal of outliers; if this approach is not applicable, the target value is assigned according to the procedure given in section E4
Criteria	is the reproducibility standard deviation calculated from the participants' results after removal of outliers (sR) in the current round. Where justified (e.g. results for real samples are close to minimum quantification limit or in case of regulatory requirements) the criteria is

defined by expert judgement and the procedure is clearly described in section E4 of the report.

E2.2. Performance criterion E_n-Score

Additional assessment of the participants' results using E_n-Scores for proficiency testing of real samples was also performed. This additional assessment takes into account the expanded measurement uncertainties of the participant's results and the expanded uncertainty of the assigned value and is provided in the laboratory oriented part of the report (see E8 after the z-scores evaluation).

E_n-Scores were calculated on the basis of the following formula:

$$E_n - score = \frac{x_i - \bar{X}}{\sqrt{U(x_i)^2 + U(\bar{X})^2}}$$

In this context,

x_i	is the measurement value (result) of the participating laboratory
$\overline{X}$	assigned value the target value for the assessment of the performance of the participants (3 significant digits), normally the average value of the participants' results after removal of outliers; if this approach is not applicable, the target value is assigned according to the procedure given in section E4
U(x_i)	expanded measurement uncertainty for the result of the participating laboratory, k=2
U($\bar{X}$)	expanded measurement uncertainty for the assigned value, k=2

E2.3. Performance evaluation z-Score and E_n-Score

Interpretation of z-Scores:

- |z-Score| ≤ 2.0 good result
- 2.0 < |z-Score| < 3.0 questionable result
- |z-Score| ≥ 3.0 unsatisfactory result

Note: In case of assessment of the participants' performance by z-scores the measurement uncertainty of the participants' results is not taken into account. The difference between result of participants and the assigned value is evaluated by the criteria.

Interpretation of E_n-Scores:

- |E_n-Score| ≤ 1.0 satisfactory performance

- $|E_n\text{-Score}| > 1.0$ unsatisfactory performance

Note: In case of assessment of the participants' performance by E_n-Scores the expanded measurement uncertainties for the results and for the assigned values are taken into account. $IE_n\text{-ScoreI} > 1.0$ might indicate to check the measurement uncertainty estimation or might point out to correct a measurement problem.

E3. Representation and interpretation of measurement results

The parameter-oriented report provides the measurement values (results) including uncertainty (± U), recovery rate, calculated z-Score and the outliers in tabular form. The results listed in the table are also represented graphically.

The laboratory oriented report shows the results of the individual laboratories (anonymous), including the measurement uncertainty (± U), recovery rates, z-Scores and additionally evaluation of E_n-Scores on separate pages.

The tables also contain the basis for the data assessment as the assigned values and expanded measurement uncertainties and the criteria.

An annotation of the tables and graphics is given in section E5.

E4. Explanatory notes

As explained in section E2, the z-Score can also be calculated using the reproducibility standard deviation, calculated from the participants' results (after removal of outliers) in the relevant test round. It might occur that the z-Score between -2 and 2 covers a large range of measurement values when the variance of the results is high. On the other hand, the range of good results can be very narrow, when the variation of the participants' results is small.
The recovery rate is calculated for the individual result based on the assigned value and is thus independent of the reproducibility standard deviation. In the case of a high variance of the results, participants should also consider recovery rates as additional criteria to decide on the necessity of internal quality assurance measures.

For the following parameters and samples, the scores were calculated according to E2. The actual reproducibility standard deviation, rounded to two significant digits, was selected as criterion:
Parameters PF4C, PF5C, PF8C, PF9C, PF10C, PF4S, Sum PFAS sample PFS01 A and parameters PF5C, PF6C, PF8C, PF9C, PF10C, PF11C, PF12C, PF4S, Sum PFAS sample PFS01 B.

Parameter PF7C in samples PFS01 A and PFS01 B:
The assigned values calculated based on the participant's results were outside of the measurement uncertainty of the control test value and thus traceability could not be proven by this procedure. Therefore, new assigned values were defined by the group of accredited participating laboratories after outlier-assessment. As criteria 20 % for PF7C in PFS01 A and 31 % for PFS01 B were selected.

Parameters PF5S, PF6S, total PFHxS, PF7S, PF9S, PF10S, PF11S, PF12S, PF13S for samples PFS01 A and PFS01 B:
Due to the low content in the real samples, no assigned value could be calculated. For these parameters, we recommend a comparison with the informative values listed in E6.1.

Parameters PF6C, PF7C, PF11C, PF12C, total PFOS, dry mass for sample PFS01 A and parameters PF4C, total PFOS, dry mass for sample PFS01 B:
For these parameters a reproducibility standard deviation (vR) of 15 % for PF6C sample PFS01 A, 20 % for PF7C sample PFS01 A, 20 % for total PFOS in samples PFS01 A and PFS01 B, 25 % for PF11C sample PFS01 A, 20 % for PF12C sample PFS01 A, 2 % for dry mass samples PFS01 A and PFS01 B and 30 % for PF4C sample PFS01 B were selected for assessment.

Parameter n-PFOS for samples PFS01 A and PFS01 B:
The assigned values calculated based on the participant's results were outside the measurement uncertainty of the control value and thus traceability could not be proven by this procedure. There weren't enough data of accredited participating laboratories to define the assigned values ($n < 6$). For these parameters, we recommend a comparison with the informative values listed in E6.1.

Parameter PF13C in samples PFS01 A and PFS01 B:
The relative reproducibility standard deviation of the results obtained from participants with values above the limit of quantification was well above 50 %, while at the same time a large number of results with values below the LOQ were submitted.
Additional calculations to derive information values were therefore carried out for PF13C in both samples by taking into account all available outlier-adjusted data of the group of accredited laboratories with results below the recommended minimum LOQ of 0.1 µg/kg dm as worst case approach using the respective value of LOQ for calculation of an information value (see PFS01 A MV (n=9, accr.): < 0,10 µg/kg dm and PFS01 B MV: 0.175 +/- 0.12 µg/kg dm). These information values can be used for comparison as part of the internal QA measures.

E5. Annotations on tables and charts

E5.1. Information and abbreviations in tables

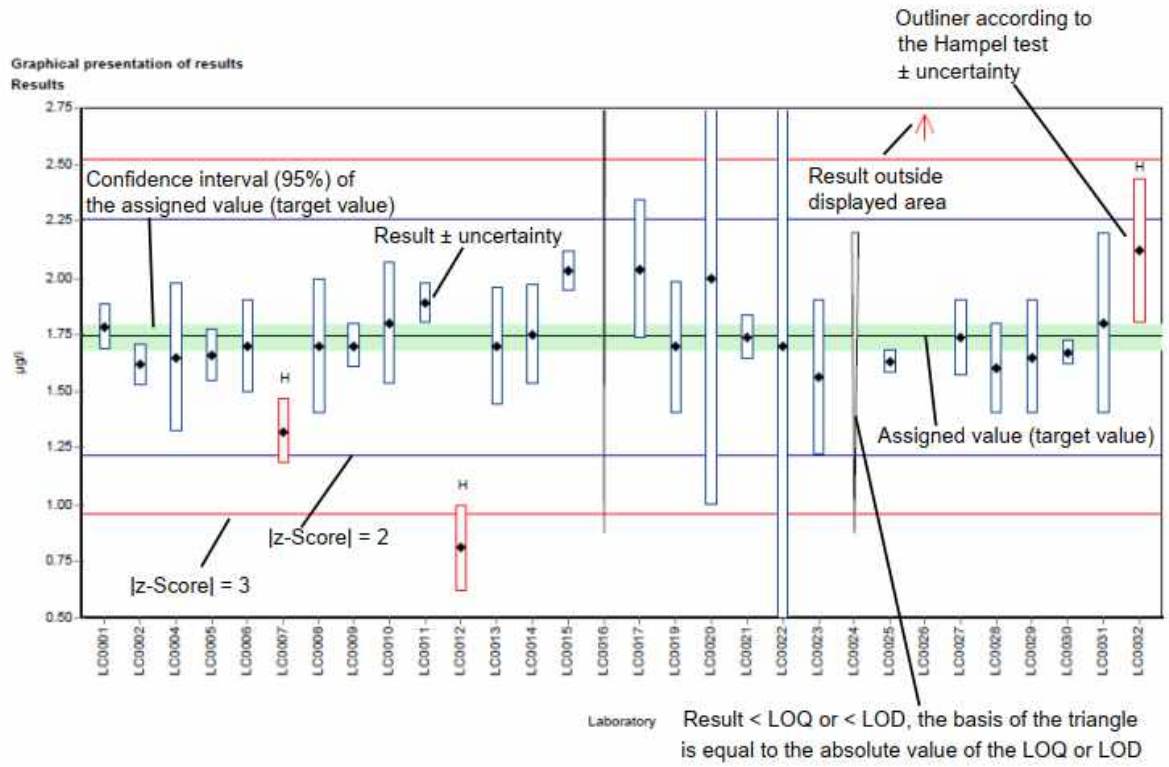
Parameter	Analyte identifier
Sample	Sample identifier
Unit	Given unit for result and uncertainty (e.g. µg/kg dm or % for dry mass)
Assigned value	Target value for proficiency assessment of the participants (3 significant digits)
U (k=2)	Expanded uncertainty (k=2) of the assigned value (3 significant digits)
Criteria	Specified value for the determination of the z-score in the given unit (3 significant digits)
Criteria [%]	Specified value for the determination of the z-score in % of the assigned value (2 significant digits)
Mean	Mean of the participants results, without outliers (3 significant digits)
CI (99 %)	99 % confidence interval (3 significant digits)
Minimum	Minimum of all submitted results, after removal of outliers (3 significant digits)
Maximum	Maximum of all submitted results, after removal of outliers (3 significant digits)
SD	Reproducibility standard deviation, calculated from the participants results, after removal of outliers (3 significant digits)
RSD %	Reproducibility standard deviation, calculated from the participants results relative to the target value, given in %, after removal of outliers (2 significant digits)
Control test value ± U (k=2)	Mean of control test value ± expanded measurement uncertainty (3 significant digits)
Labcode	Laboratory identifier (anonymized)
Result	Result as indicated by participant (max. 5 decimal places)
± U	combined measurement uncertainty without expansion factor (k=1), as indicated by participant (max. 5 decimal places)
LOQ	Limit of quantification
LOD	Limit of detection
Recovery	Recovery rate in % based on assigned value (target value) (3 significant digits, max. one decimal place given)
z-Score	Deviation of result based on the assigned value (target value) given as a multiple of the criteria (3 significant digits, max. 2 decimal places given)

E_n-Score	Deviation of result based on the assigned value (target value) given as a multiple of the combined expanded measurement uncertainty of the participant's results and expanded measurement uncertainty for the assigned value (3 significant digits, max. 2 decimal places given). Note: E_n-Score assessment takes into account the measurement uncertainty of the participants.
-	No data available or no calculation possible
Comments	Comment on the respective result (e.g. H, FN, FP)
H	Outlier according to Hampel-Test
FN	False negative – for a result < LOQ or result < LOD: The absolute value of the LOQ or LOD fulfils the condition of an outlier according to the Hampel test.
FP	False positive – for parameters where no target value is available because of a too low analyte content (n < 6): Result that exceeds the median of the absolute values of the transmitted LOQs or LODs by more than 100 %.
Standard deviation	Reproducibility standard deviation, calculated from the participants results (3 significant digits)
Rel. standard deviation	Reproducibility standard deviation, calculated from the participants results relative to the target value, given in %, (3 significant digits)
n	Number of results
*	mark for additional comments (for low contents; results < LOQ)
**	mark for additional comments (for information values, derived via worst case calculation taking into account values below minimum LOQ analogous to E.4)
***	mark for additional comments (for calculated mean using data from available accredited laboratories)

E5.2. Graphical presentation of results

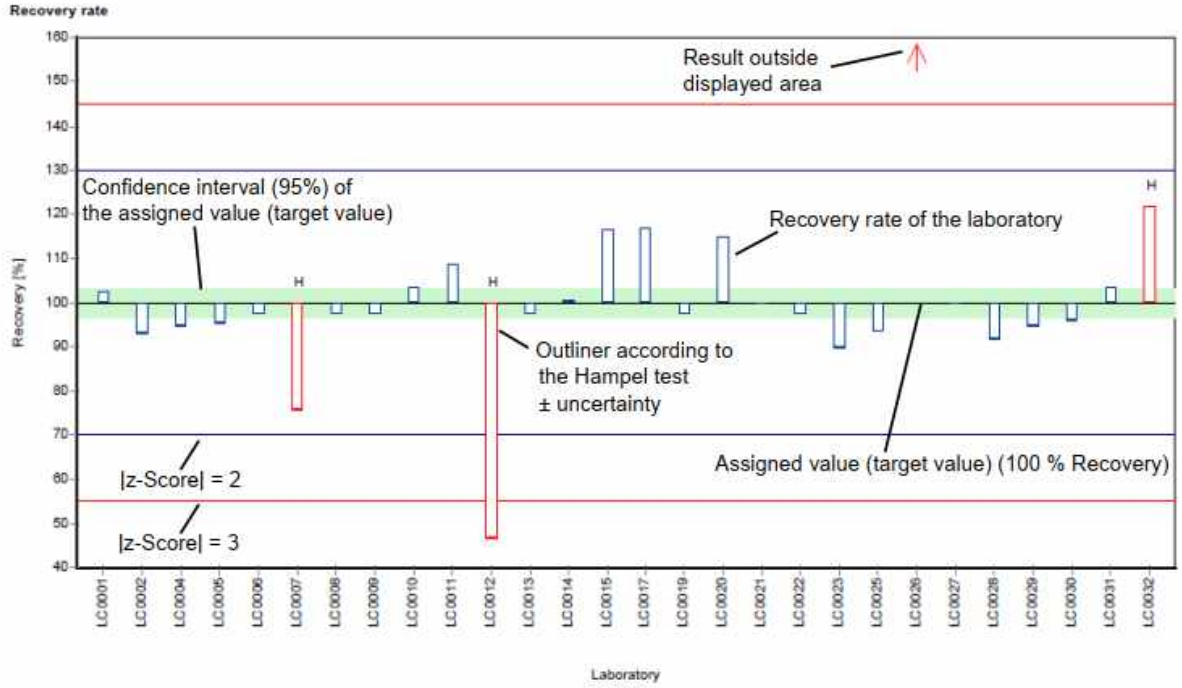
The graphic representation in the report is explained below by means of commented example diagrams:

Example chart: Results



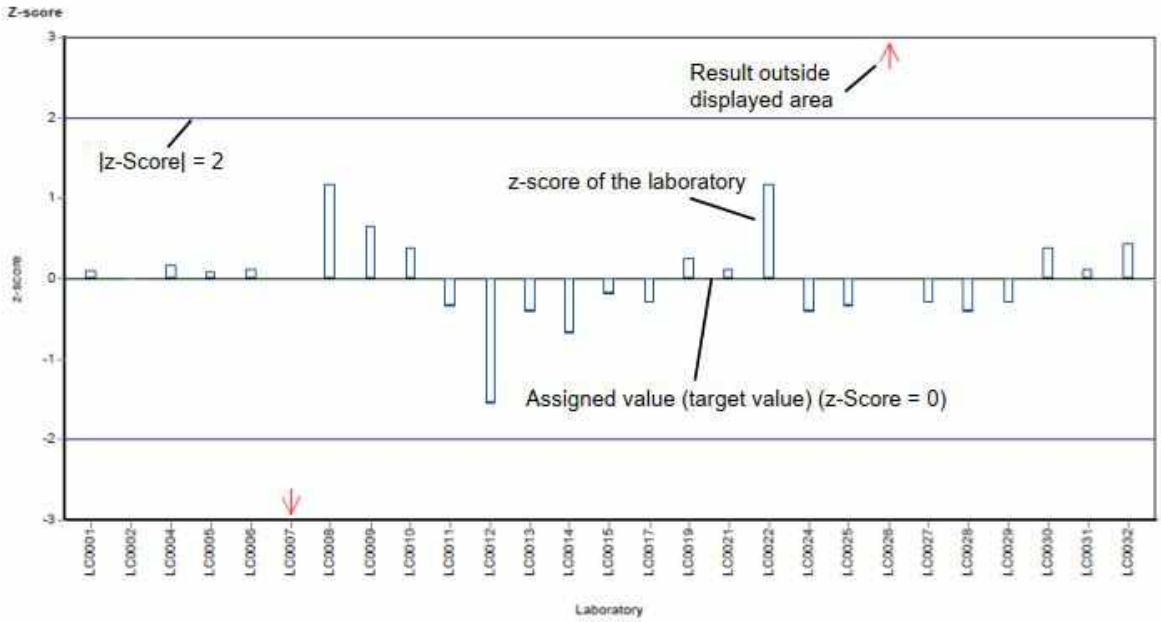
Different analysis methods are represented with different colors.

Example chart: Recovery



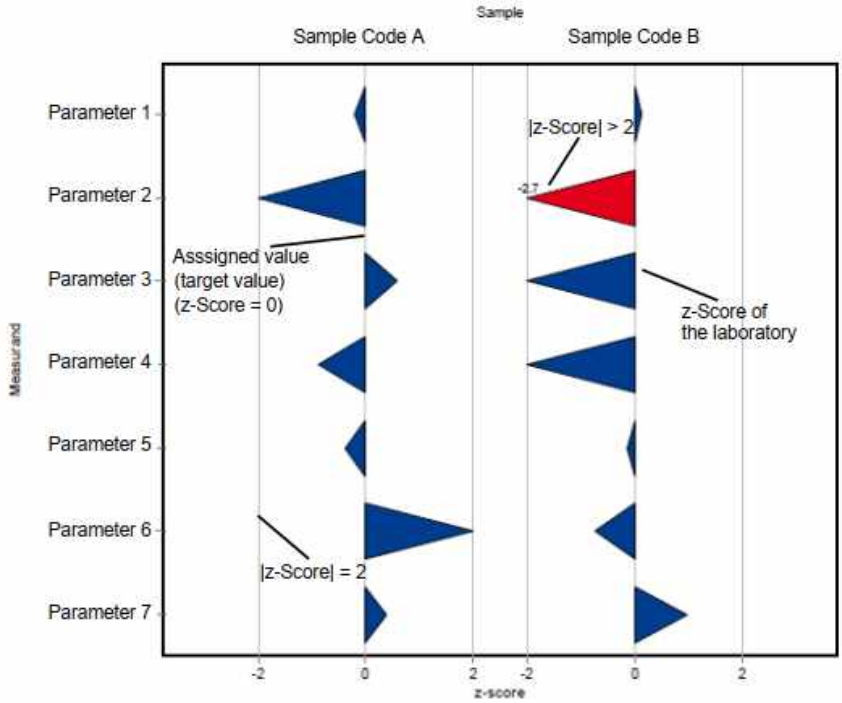
Different analysis methods are represented with different colors.

Example chart: z-Score

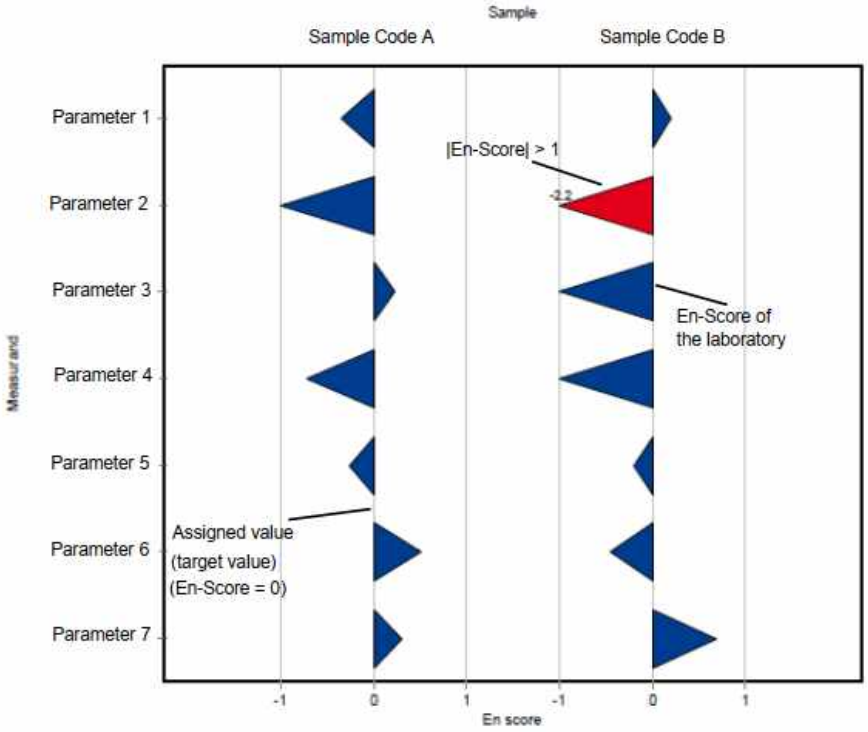


Different analysis methods are represented with different colors.

Example chart: z-Score (laboratory oriented report)



Example chart: En-Score (laboratory oriented report)



E6. Summary

E6.1. Table of assigned values

Parameter	Sample	Unit	Assigned value	±	U (k=2)	Criterion	Criterion [%]
Dry mass	PFS01 A	%	94.8	±	0.775	1.9	2
	PFS01 B	%	93.9	±	0.941	1.88	2
Perfluorobutanoic acid (PFBA) - PF4C	PFS01 A	µg/kg dm	1.09	±	0.281	0.445	41
	PFS01 B	µg/kg dm	1.28	±	0.213	0.384	30
Perfluoropentanoic acid (PFPeA) - PF5C	PFS01 A	µg/kg dm	1.3	±	0.359	0.597	46
	PFS01 B	µg/kg dm	1.35	±	0.338	0.592	44
Perfluorohexanoic acid (PFHxA) - PF6C	PFS01 A	µg/kg dm	4.98	±	0.355	0.746	15
	PFS01 B	µg/kg dm	12	±	1.49	2.88	24
Perfluoroheptanoic acid (PFHpA) - PF7C	PFS01 A	µg/kg dm	0.274	±	0.0361	0.0548	20
	PFS01 B	µg/kg dm	0.368	±	0.0704	0.114	31
Perfluorooctanoic acid (PFOA) - PF8C	PFS01 A	µg/kg dm	0.724	±	0.105	0.203	28
	PFS01 B	µg/kg dm	1.03	±	0.1	0.186	18
Perfluorononanoic acid (PFNA) - PF9C	PFS01 A	µg/kg dm	0.159	±	0.0302	0.0542	34
	PFS01 B	µg/kg dm	0.212	±	0.0469	0.0849	40
Perfluorodecanoic acid (PFDA) - PF10C	PFS01 A	µg/kg dm	0.355	±	0.041	0.0781	22
	PFS01 B	µg/kg dm	0.605	±	0.069	0.127	21
Perfluoroundecanoic acid (PFUnDA) - PF11C	PFS01 A	µg/kg dm	0.152	±	0.0235	0.038	25
	PFS01 B	µg/kg dm	0.35	±	0.0519	0.0944	27
Perfluorododecanoic acid (PFDoDA) - PF12C	PFS01 A	µg/kg dm	0.2	±	0.0229	0.0401	20
	PFS01 B	µg/kg dm	0.406	±	0.097	0.162	40
Perfluorotridecanoic acid (PFTrDA) - PF13C**	PFS01 A	µg/kg dm	-	±	-	-	-
	PFS01 B	µg/kg dm	-	±	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	PFS01 A	µg/kg dm	2.52	±	0.326	0.656	26
	PFS01 B	µg/kg dm	3.31	±	0.465	0.895	27
Perfluoropentane sulfonic acid (PFPeS) - PF5S*	PFS01 A	µg/kg dm	-	±	-	-	-
	PFS01 B	µg/kg dm	-	±	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S*	PFS01 A	µg/kg dm	-	±	-	-	-
	PFS01 B	µg/kg dm	-	±	-	-	-

Parameter	Sample	Unit	Assigned value	±	U (k=2)	Criterion	Criterion [%]
Perfluorononane sulfonic acid (PFNS) - PF9S*	PFS01 A	µg/kg dm	-	±	-	-	-
	PFS01 B	µg/kg dm	-	±	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S*	PFS01 A	µg/kg dm	-	±	-	-	-
	PFS01 B	µg/kg dm	-	±	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S*	PFS01 A	µg/kg dm	-	±	-	-	-
	PFS01 B	µg/kg dm	-	±	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S*	PFS01 A	µg/kg dm	-	±	-	-	-
	PFS01 B	µg/kg dm	-	±	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S*	PFS01 A	µg/kg dm	-	±	-	-	-
	PFS01 B	µg/kg dm	-	±	-	-	-
Total PFHxS*	PFS01 A	µg/kg dm	-	±	-	-	-
	PFS01 B	µg/kg dm	-	±	-	-	-
Total PFOS	PFS01 A	µg/kg dm	0.796	±	0.0764	0.159	20
	PFS01 B	µg/kg dm	1.96	±	0.192	0.393	20
linear Perfluorooctane sulfonic acid (n-PFOS)***	PFS01 A	µg/kg dm	-	±	-	-	-
	PFS01 B	µg/kg dm	-	±	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)*	PFS01 A	µg/kg dm	-	±	-	-	-
	PFS01 B	µg/kg dm	-	±	-	-	-
Sum PFAS	PFS01 A	µg/kg dm	13.5	±	2.06	3.77	28
	PFS01 B	µg/kg dm	23	±	2.86	5.07	22

* The content of the following substances in the samples is too low. The values listed are for information purposes and can be used for comparison as part of your QA measures.

Perfluoropentane sulfonic acid (PFPeS) - PF5S:
PFS01 A: < 0,10 µg/kg dm
PFS01 B: < 0,10 µg/kg dm

Perfluoroheptane sulfonic acid (PFHpS) - PF7S:
PFS01 A: < 0,10 µg/kg dm
PFS01 B: < 0,10 µg/kg dm

Perfluorononane sulfonic acid (PFNS) - PF9S:
PFS01 A: < 0,10 µg/kg dm
PFS01 B: < 0,10 µg/kg dm

Perfluorodecane sulfonic acid (PFDS) - PF10S:
PFS01 A: < 0,10 µg/kg dm
PFS01 B: < 0,10 µg/kg dm

Perfluoroundecane sulfonic acid (PFUnDS) - PF11S :
PFS01 A: < 0,10 µg/kg dm
PFS01 B: < 0,10 µg/kg dm

Perfluorododecane sulfonic acid (PFDoS) - PF12S:
PFS01 A: < 0,10 µg/kg dm
PFS01 B: < 0,10 µg/kg dm

Perfluorotridecane sulfonic acid (PFTrDS) - PF13S:
PFS01 A: < 0,10 µg/kg dm
PFS01 B: < 0,10 µg/kg dm
Total PFHxS:
PFS01 A: < 0,15 µg/kg dm
PFS01 B: < 0,15 µg/kg dm
linear Perfluorohexane sulfonic acid (n-PFHxS):
PFS01 A: < 0,15 µg/kg dm
PFS01 B: < 0,15 µg/kg dm

**The information values derived on the basis of the participants' results are listed for the following substance.

Perfluorotridecanoic acid (PFTrDA) - PF13C:
PFS01 A: MV (n=9; accr.): < 0,10 µg/kg dm
PFS01 B: MV (n=10; accr.): 0.175+/-0.12 µg/kg dm

***No assigned values can be determined for the following substance, as too few accredited laboratory results are available (n<6). Therefore, the calculated mean values MV+/- U(k=2) based on the data of the accredited laboratories (n) after outlier removal are listed for information and can be used for comparison as part of your internal QA measures.

linear Perfluorooctane sulfonic acid (n-PFOS):
PFS01 A: MV (n=4; accr.) +/- U(k=2): 0.432+/-0.138 µg/kg dm
PFS01 B: MV (n=3; accr.) +/- U(k=2): 1.353+/-0.526 µg/kg dm

E6.2. Summary of results, after removal of outliers

Parameter	Sample	Number of results for calculation	Number of outliers	Unit	Mean	±	CI (99%)	Minimum	Maximum	sR	vR [%]
Dry mass	PFS01 A	14	3	%	94.8	±	1.16	93.4	98.1	1.45	1.5
	PFS01 B	14	2	%	93.9	±	1.41	92.3	97.5	1.76	1.9
Perfluorobutanoic acid (PFBA) - PF4C	PFS01 A	10	2	µg/kg dm	1.09	±	0.421	0.438	1.97	0.444	41
	PFS01 B	10	1	µg/kg dm	1.28	±	0.319	0.7	1.77	0.336	26
Perfluoropentanoic acid (PFPeA) - PF5C	PFS01 A	11	3	µg/kg dm	1.3	±	0.538	0.451	2.31	0.595	46
	PFS01 B	12	1	µg/kg dm	1.35	±	0.507	0.5	2.66	0.585	43
Perfluorohexanoic acid (PFHxA) - PF6C	PFS01 A	15	2	µg/kg dm	4.98	±	0.532	3.61	6.06	0.687	14
	PFS01 B	15	1	µg/kg dm	12	±	2.23	6.9	16.5	2.88	24
Perfluoroheptanoic acid (PFHpA) - PF7C	PFS01 A	13	2	µg/kg dm	0.268	±	0.0415	0.175	0.345	0.0499	19
	PFS01 B	13	1	µg/kg dm	0.332	±	0.0869	0.192	0.535	0.104	31
Perfluorooctanoic acid (PFOA) - PF8C	PFS01 A	15	1	µg/kg dm	0.724	±	0.158	0.389	1.11	0.204	28
	PFS01 B	14	1	µg/kg dm	1.03	±	0.151	0.641	1.3	0.188	18
Perfluorononanoic acid (PFNA) - PF9C	PFS01 A	13	0	µg/kg dm	0.159	±	0.0452	0.0994	0.273	0.0544	34
	PFS01 B	13	1	µg/kg dm	0.212	±	0.0704	0.105	0.418	0.0846	40
Perfluorodecanoic acid (PFDA) - PF10C	PFS01 A	14	1	µg/kg dm	0.355	±	0.0615	0.224	0.49	0.0767	22
	PFS01 B	14	1	µg/kg dm	0.605	±	0.103	0.34	0.799	0.129	21
Perfluoroundecanoic acid (PFUnDA) - PF11C	PFS01 A	10	1	µg/kg dm	0.152	±	0.0353	0.0855	0.219	0.0372	24
	PFS01 B	13	0	µg/kg dm	0.35	±	0.0778	0.187	0.54	0.0935	27
Perfluorododecanoic acid (PFDoDA) - PF12C	PFS01 A	10	1	µg/kg dm	0.2	±	0.0344	0.13	0.249	0.0362	18
	PFS01 B	11	1	µg/kg dm	0.406	±	0.145	0.156	0.714	0.161	40
Perfluorotridecanoic acid (PFTrDA) - PF13C	PFS01 A	4	3	µg/kg dm	-	±	-	0.0483	0.22	-	-
	PFS01 B	4	5	µg/kg dm	-	±	-	0.0661	0.39	-	-

Parameter	Sample	Number of results for calculation	Number of outliers	Unit	Mean	±	CI (99%)	Minimum	Maximum	sR	vR [%]
Perfluorobutane sulfonic acid (PFBS) - PF4S	PFS01 A	16	1	µg/kg dm	2.52	±	0.488	1.69	4.29	0.651	26
	PFS01 B	15	1	µg/kg dm	3.31	±	0.698	2.13	5.29	0.901	27
Perfluoropentane sulfonic acid (PFPeS) - PF5S	PFS01 A	3	0	µg/kg dm	-	±	-	0.099	0.15	-	-
	PFS01 B	3	0	µg/kg dm	-	±	-	0.01	0.102	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	PFS01 A	3	0	µg/kg dm	-	±	-	0.017	1.76	-	-
	PFS01 B	5	1	µg/kg dm	-	±	-	0.025	0.318	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	PFS01 A	3	0	µg/kg dm	-	±	-	0.013	0.12	-	-
	PFS01 B	3	0	µg/kg dm	-	±	-	0.017	0.143	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	PFS01 A	4	0	µg/kg dm	-	±	-	0.014	0.198	-	-
	PFS01 B	2	0	µg/kg dm	-	±	-	0.041	0.509	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	PFS01 A	4	0	µg/kg dm	-	±	-	0.014	0.32	-	-
	PFS01 B	3	0	µg/kg dm	-	±	-	0.011	0.426	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	PFS01 A	3	0	µg/kg dm	-	±	-	0.014	4.12	-	-
	PFS01 B	2	0	µg/kg dm	-	±	-	0.022	0.24	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	PFS01 A	4	0	µg/kg dm	-	±	-	0.023	0.369	-	-
	PFS01 B	4	0	µg/kg dm	-	±	-	0.02	0.915	-	-
Total PFHxS	PFS01 A	4	1	µg/kg dm	-	±	-	0.065	0.226	-	-
	PFS01 B	3	4	µg/kg dm	-	±	-	0.0618	0.364	-	-
Total PFOS	PFS01 A	13	2	µg/kg dm	0.796	±	0.115	0.631	1.12	0.138	17
	PFS01 B	12	2	µg/kg dm	1.96	±	0.288	1.31	2.48	0.332	17
linear Perfluorooctane sulfonic acid (n-PFOS)	PFS01 A	7	1	µg/kg dm	0.441	±	0.111	0.313	0.63	0.0983	22
	PFS01 B	7	0	µg/kg dm	1.47	±	0.375	0.913	1.88	0.331	23
linear Perfluorohexane sulfonic acid (n-PFHxS)	PFS01 A	2	0	µg/kg dm	-	±	-	0.161	0.292	-	-
	PFS01 B	3	0	µg/kg dm	-	±	-	0.0618	2.24	-	-

Parameter	Sample	Number of results for calculation	Number of outliers	Unit	Mean	±	CI (99%)	Minimum	Maximum	sR	vR [%]
Sum PFAS	PFS01 A	13	1	µg/kg dm	13.5	±	3.09	7.02	19.2	3.71	28
	PFS01 B	13	1	µg/kg dm	23	±	4.28	13.7	31	5.15	22

E7. Parameterorientierte Auswertung / Parameter oriented report

Parameter oriented report

PFS01 A

Dry mass

Unit	%
Assigned value ± U (k=2)	94.8 ± 0.775
Criterion	1.9 (2 %)
Minimum - Maximum	93.4 - 98.1
Control test value ± U (k=2)	94.8 ± 1.9

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	94.5	1.89	99.7	-0.17	
LC0002	93.5	10	98.6	-0.7	
LC0003	93.97	0.153	99.1	-0.45	
LC0004	97.6	0.5	103	1.46	
LC0005	93.6	4.68	98.7	-0.64	
LC0006	93.67	0.024	98.8	-0.61	
LC0007	-	-	-	-	
LC0008	95.6	12	101	0.41	
LC0009	94.65	3.79	99.8	-0.09	
LC0010	95.4	0.5	101	0.3	
LC0011	100	1	105	2.73	H
LC0012	94.74	4	99.9	-0.04	
LC0013	100	20	105	2.73	H
LC0014	98.1	10.8	103	1.73	
LC0015	43.7	2.62	46.1	-26.96	H
LC0016	94.2	5	99.3	-0.33	
LC0017	93.4	1.5	98.5	-0.75	
LC0018	94.58	5.67	99.7	-0.13	

Characteristics of parameter

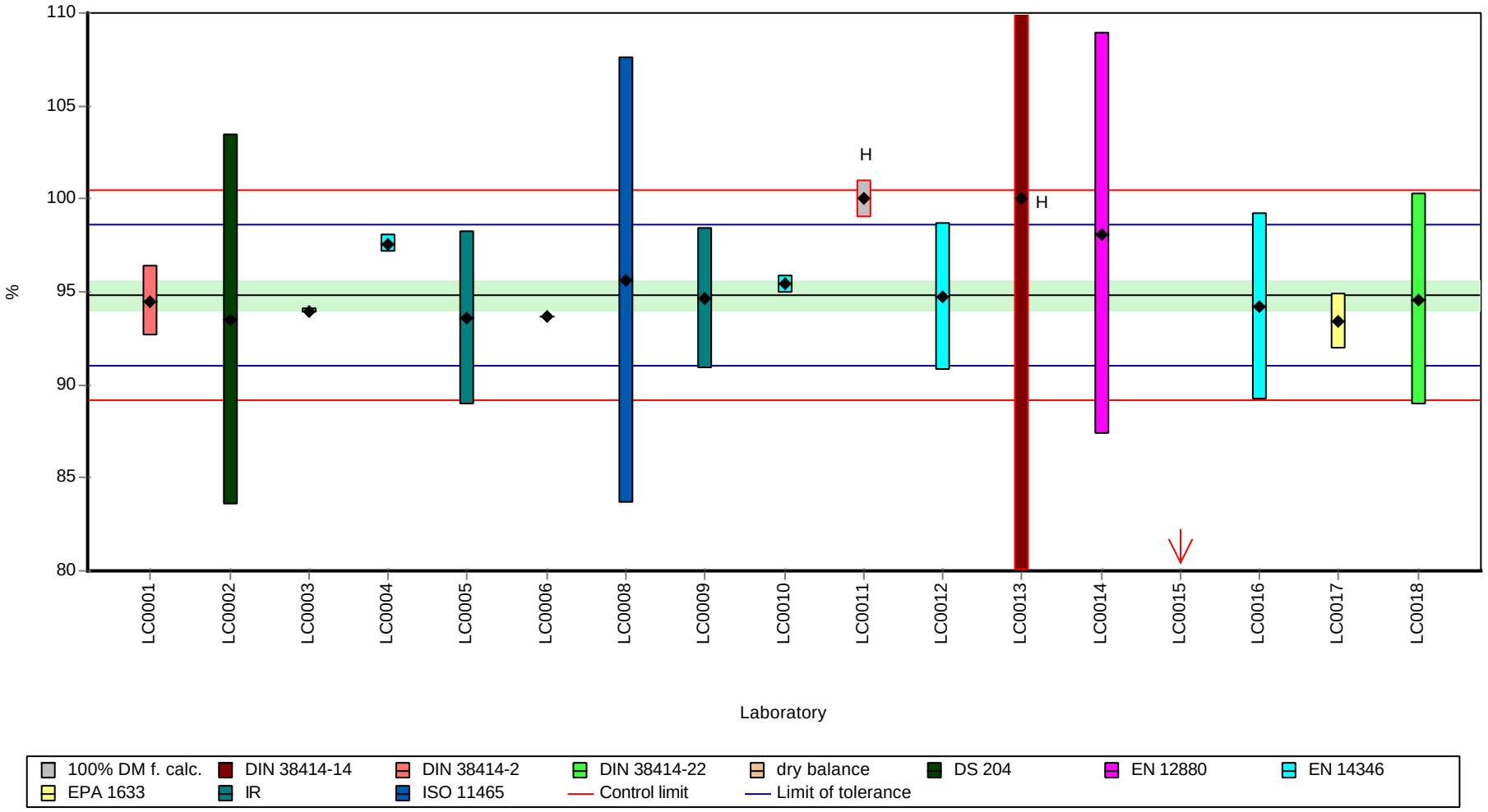
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	92.4 ± 9.27	94.8 ± 1.16	%
Minimum	43.7	93.4	%
Maximum	100	98.1	%
Standard deviation	12.7	1.45	%
rel. standard deviation	13.8	1.53	%
n	17	14	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: Dry mass

Graphical presentation of results

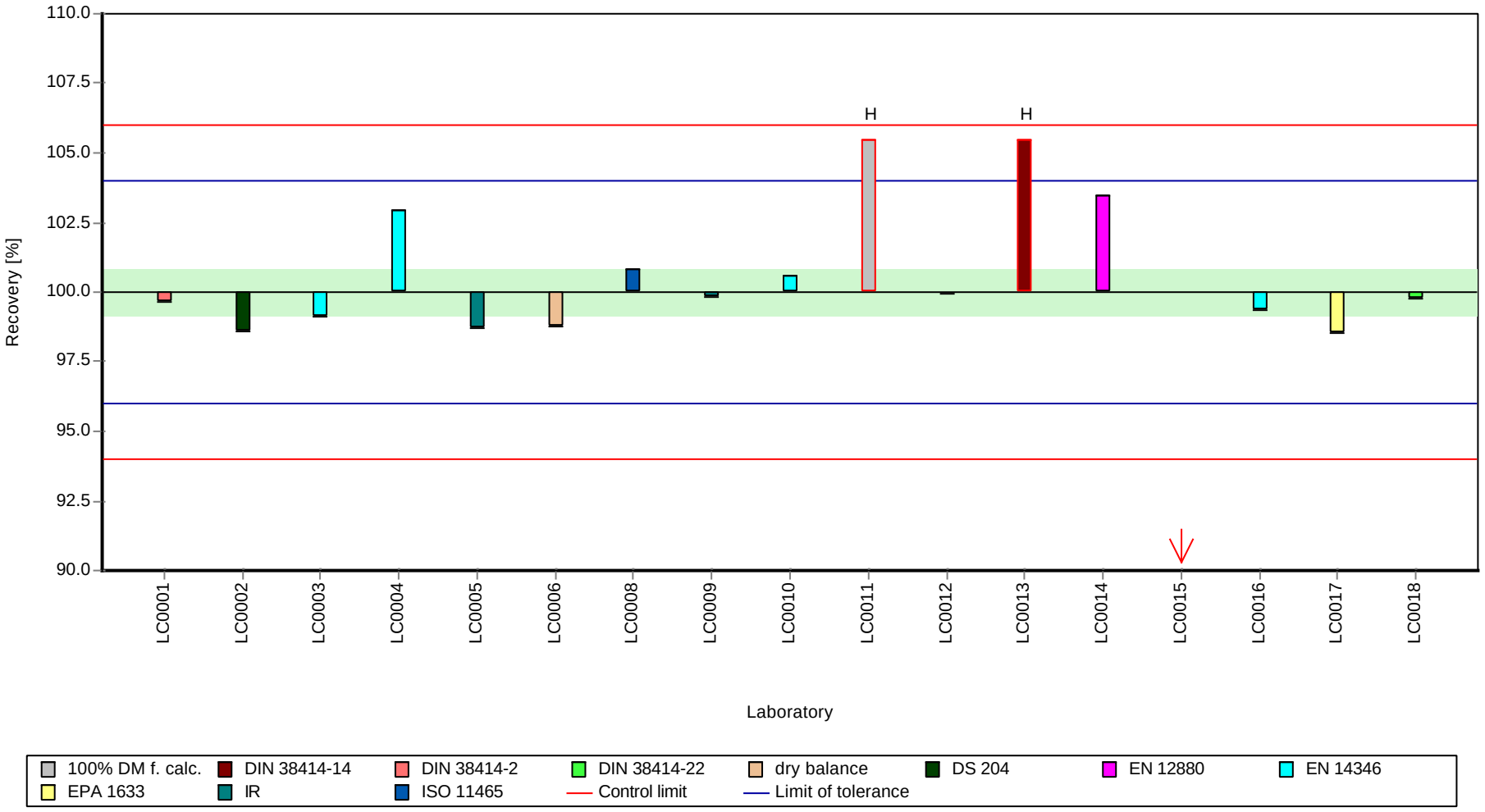
Results



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

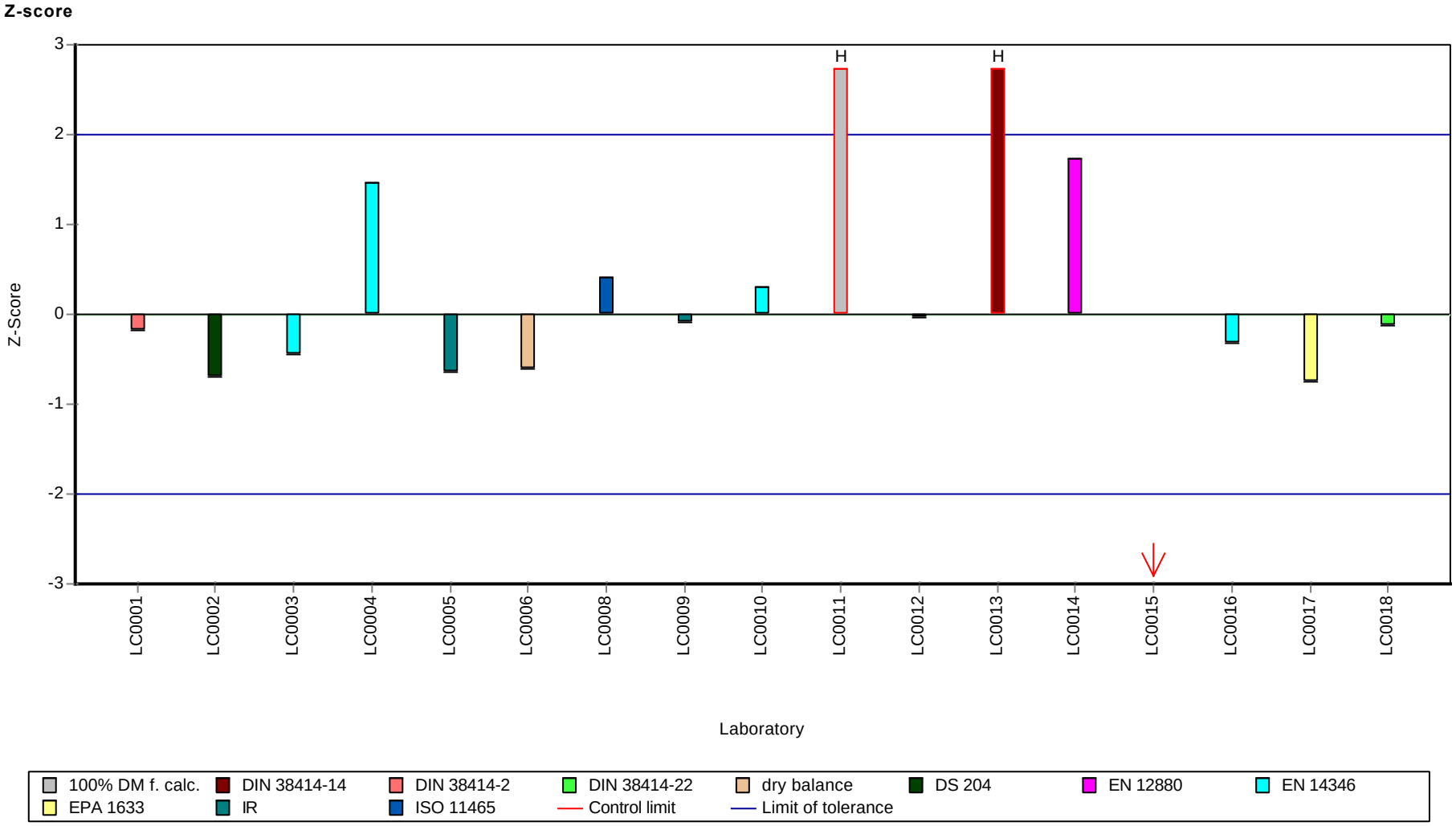
Sample: PFS01A, Parameter: Dry mass

Recovery rate



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: Dry mass



Parameter oriented report

PFS01 B

Dry mass

Unit	%
Assigned value ± U (k=2)	93.9 ± 0.941
Criterion	1.88 (2 %)
Minimum - Maximum	92.3 - 97.5
Control test value ± U (k=2)	93.8 ± 1.76

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	94	1.87	100	0.08	
LC0002	92.3	10	98.3	-0.83	
LC0003	93.25	0.392	99.4	-0.32	
LC0004	97.5	0.5	104	1.94	
LC0005	92.4	4.62	98.4	-0.78	
LC0006	93.1	0.024	99.2	-0.4	
LC0007	-	-	-	-	
LC0008	95.2	12	101	0.71	
LC0009	92.86	3.714	98.9	-0.53	
LC0010	94.3	0.6	100	0.24	
LC0011	-	-	-	-	
LC0012	93.86	4	100	0	
LC0013	100	20	107	3.27	H
LC0014	97.5	10.7	104	1.94	
LC0015	99.7	5.98	106	3.11	H
LC0016	93.1	5	99.2	-0.4	
LC0017	92.3	1.5	98.3	-0.83	
LC0018	92.35	9.23	98.4	-0.8	

Characteristics of parameter

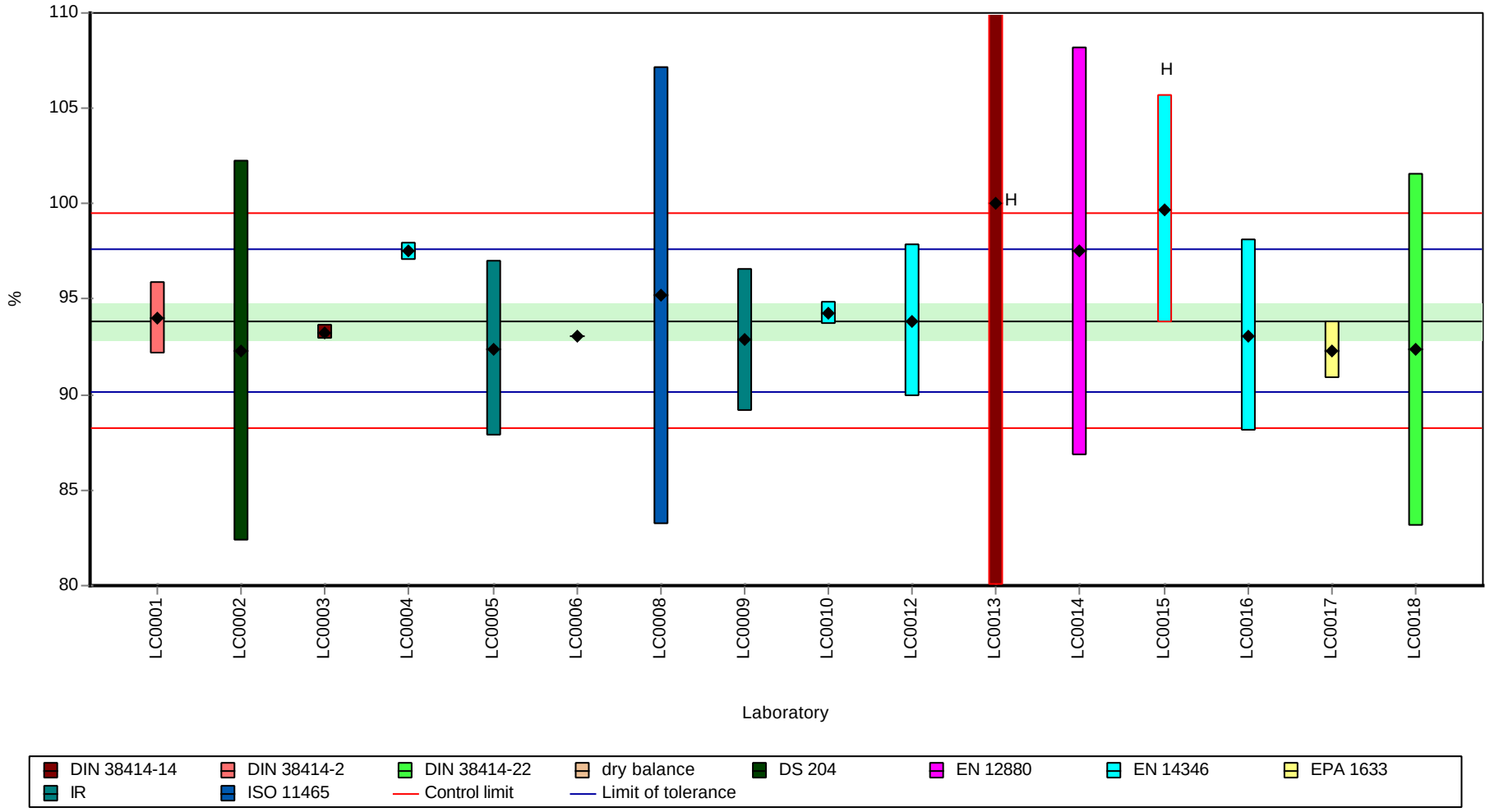
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	94.6 ± 1.97	93.9 ± 1.41	%
Minimum	92.3	92.3	%
Maximum	100	97.5	%
Standard deviation	2.62	1.76	%
rel. standard deviation	2.77	1.88	%
n	16	14	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Dry mass

Graphical presentation of results

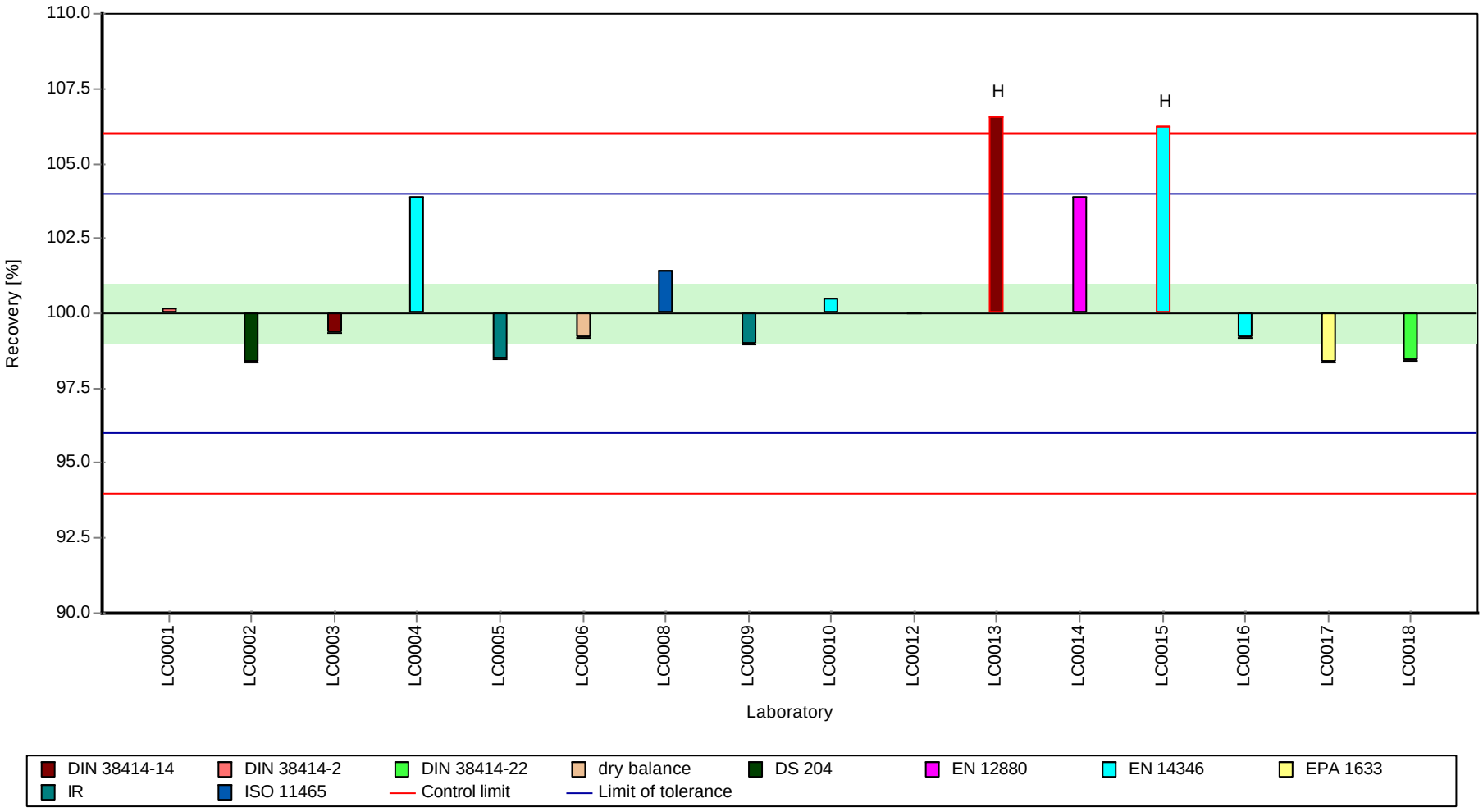
Results



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Dry mass

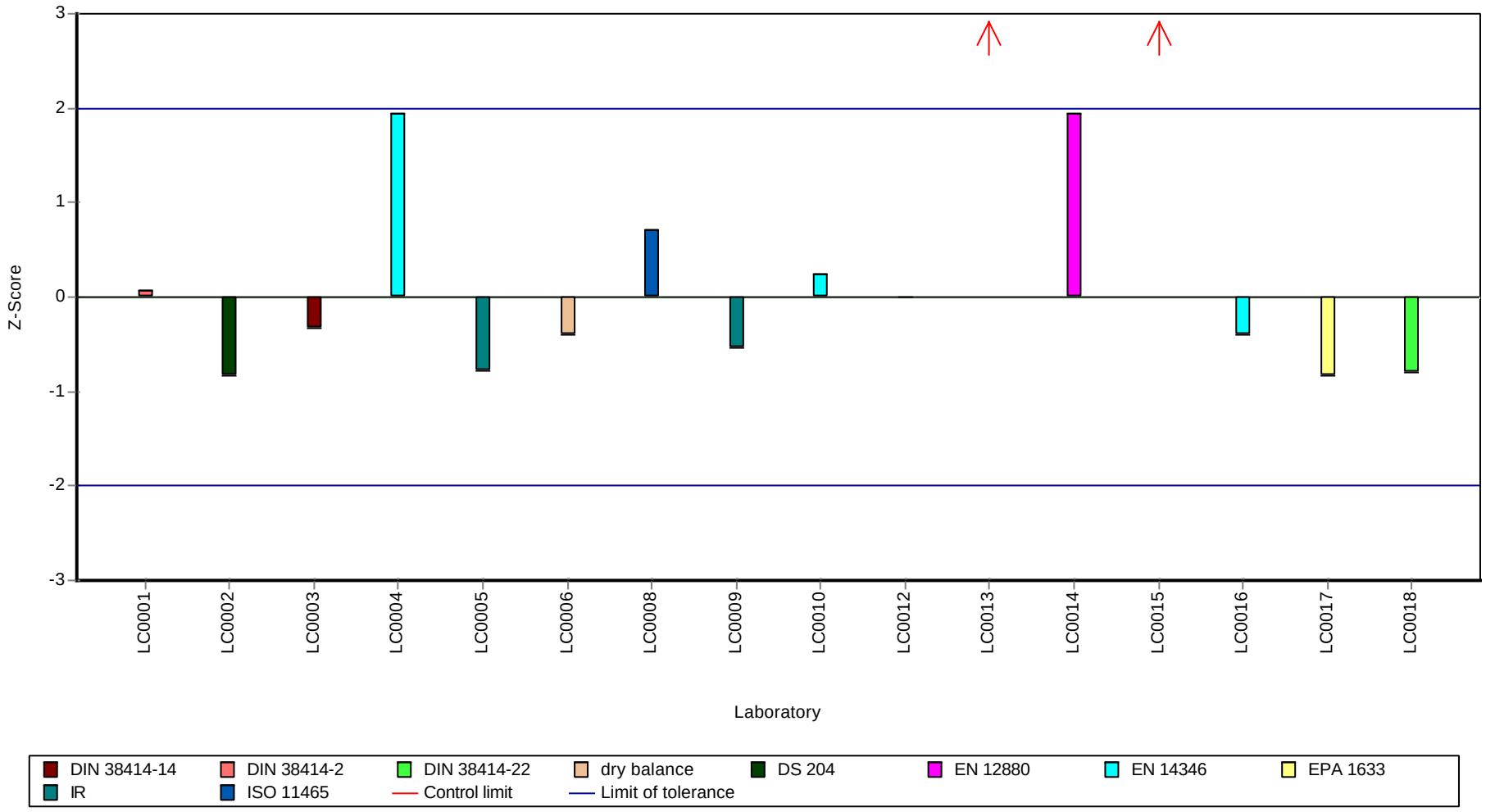
Recovery rate



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Dry mass

Z-score



Parameter oriented report

PFS01 A

Perfluorobutanoic acid (PFBA) - PF4C

Unit	µg/kg dm
Assigned value ± U (k=2)	1.09 ± 0.281
Criterion	0.445 (41 %)
Minimum - Maximum	0.438 - 1.97
Control test value ± U (k=2)	1.03 ± 0.465

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	0.998	0.18	92	-0.2	
LC0002	0.87	0.5	80.2	-0.48	
LC0003	-	-	-	-	
LC0004	< 0.1 (LOQ)	-	-	-	
LC0005	1.97	0.59	182	1.99	
LC0006	1.64	0.21	151	1.25	
LC0007	-	-	-	-	
LC0008	1.047	0.105	96.5	-0.09	
LC0009	1.279	0.461	118	0.44	
LC0010	5.49	1.65	506	9.9	H
LC0011	1.01	0.05	93.1	-0.17	
LC0012	< 1 (LOQ)	-	-	-	
LC0013	< 0.1 (LOQ)	-	-	-	
LC0014	2.576	1.13	237	3.35	H
LC0015	< 5 (LOQ)	-	-	-	
LC0016	0.84	0.15	77.4	-0.55	
LC0017	0.438	0.022	40.4	-1.45	
LC0018	0.7582	0.341	69.9	-0.73	

Characteristics of parameter

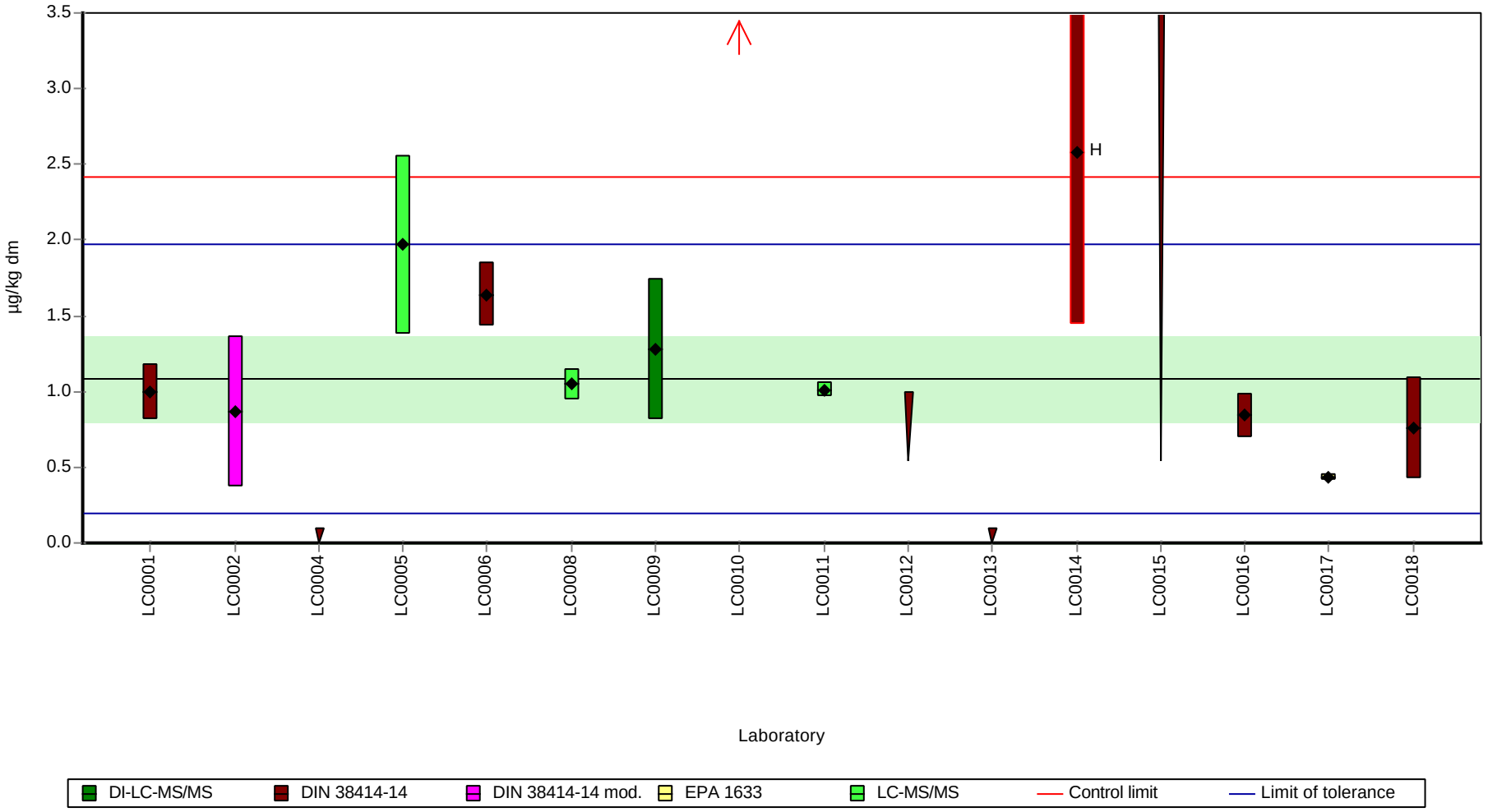
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	1.58 ± 1.18	1.09 ± 0.421	µg/kg dm
Minimum	0.438	0.438	µg/kg dm
Maximum	5.49	1.97	µg/kg dm
Standard deviation	1.37	0.444	µg/kg dm
rel. standard deviation	86.6	40.9	%
n	12	10	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: Perfluorobutanoic acid (PFBA) - PF4C

Graphical presentation of results

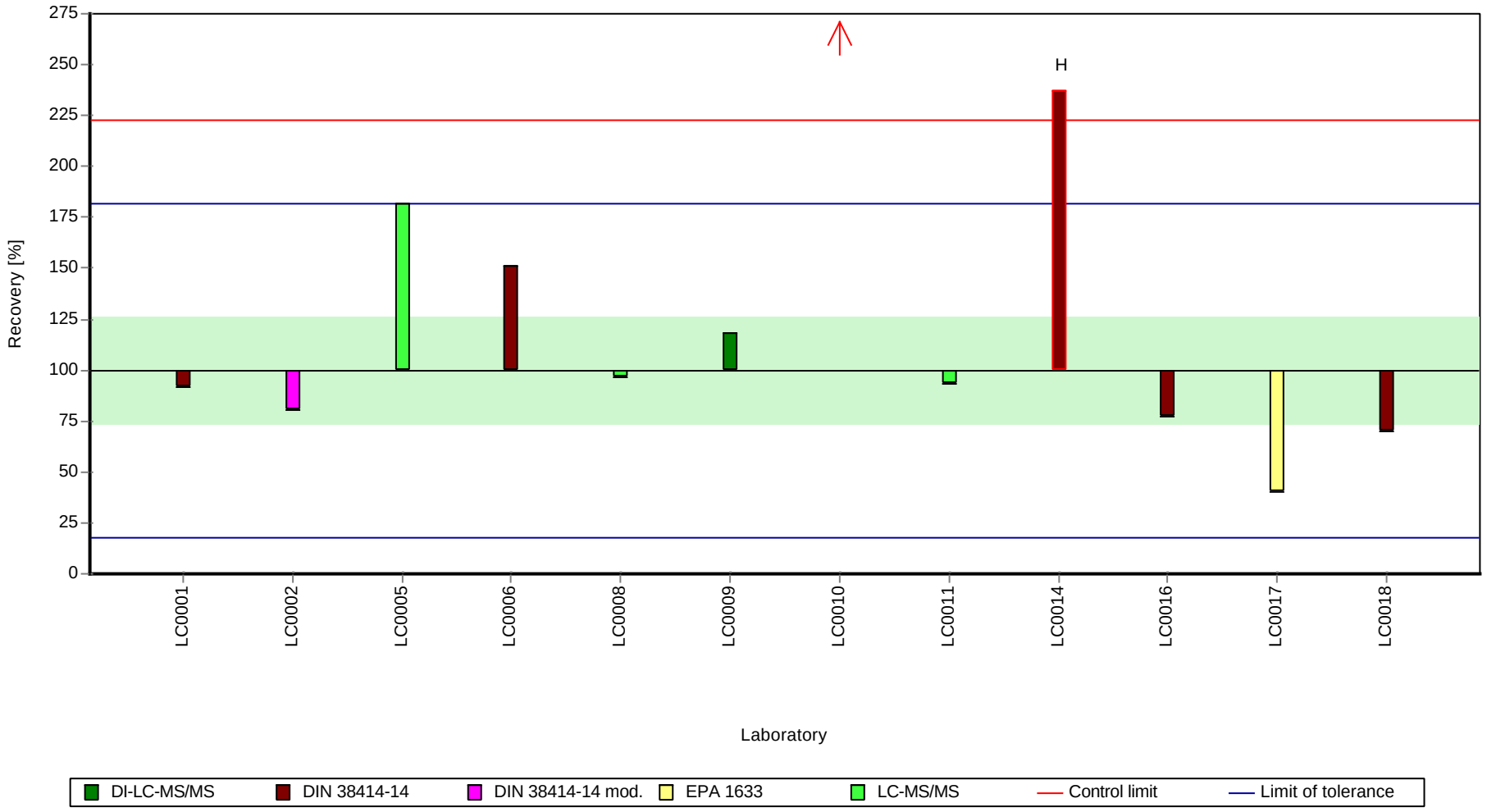
Results



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

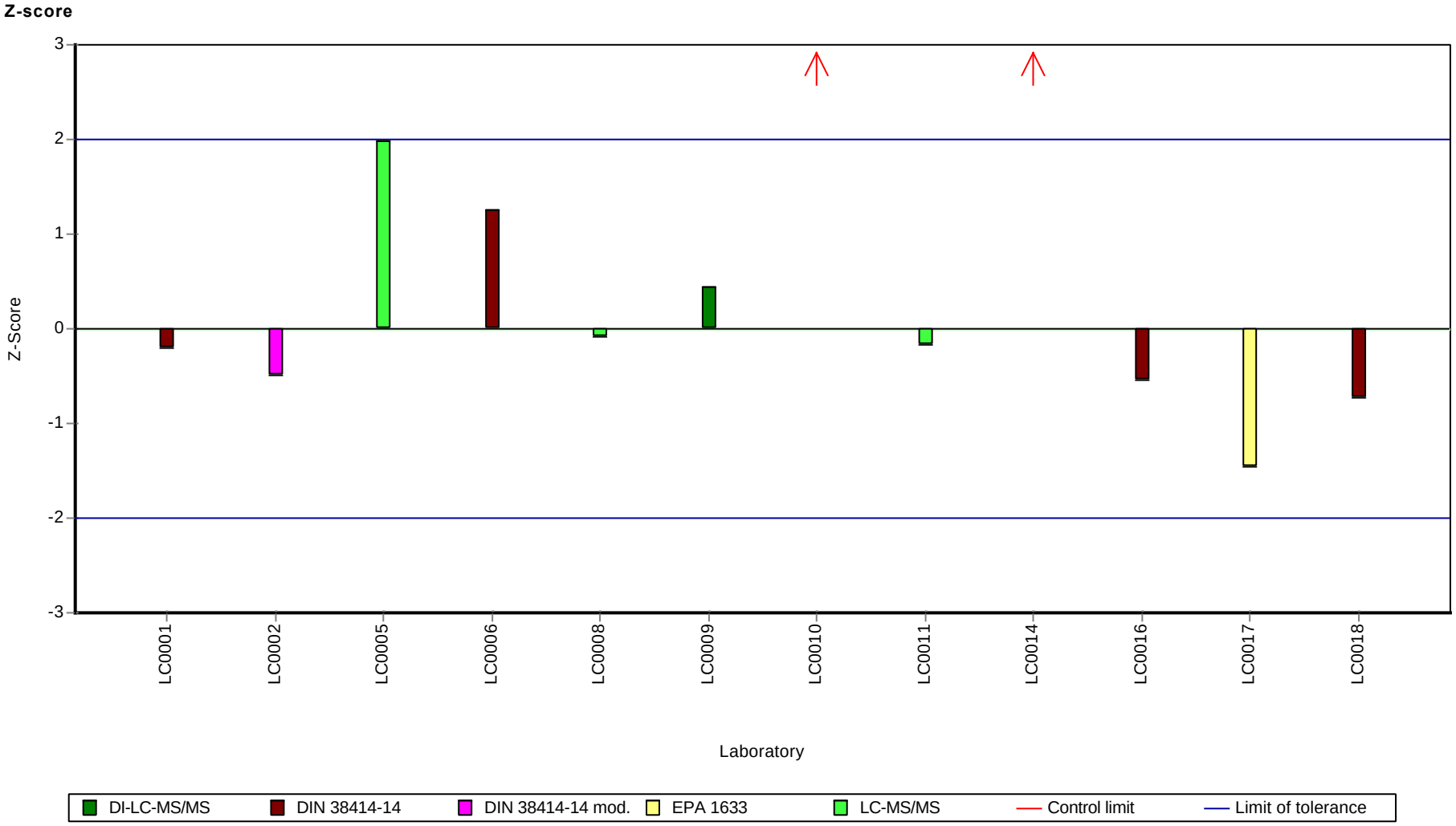
Sample: PFS01A, Parameter: Perfluorobutanoic acid (PFBA) - PF4C

Recovery rate



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: Perfluorobutanoic acid (PFBA) - PF4C



Parameter oriented report

PFS01 B

Perfluorobutanoic acid (PFBA) - PF4C

Unit	µg/kg dm
Assigned value ± U (k=2)	1.28 ± 0.213
Criterion	0.384 (30 %)
Minimum - Maximum	0.7 - 1.77
Control test value ± U (k=2)	1.22 ± 0.551

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	1.07	0.192	83.6	-0.55	
LC0002	1	0.5	78.1	-0.73	
LC0003	-	-	-	-	
LC0004	< 0.1 (LOQ)	-	-	-	
LC0005	1.6	0.45	125	0.83	
LC0006	1.65	0.21	129	0.96	
LC0007	-	-	-	-	
LC0008	1.091	0.109	85.2	-0.49	
LC0009	1.356	0.488	106	0.2	
LC0010	3.29	0.95	257	5.23	H
LC0011	-	-	-	-	
LC0012	< 1 (LOQ)	-	-	-	
LC0013	< 0.1 (LOQ)	-	-	-	
LC0014	1.429	0.63	112	0.39	
LC0015	< 5 (LOQ)	-	-	-	
LC0016	1.14	0.21	89.1	-0.36	
LC0017	1.765	0.138	138	1.26	
LC0018	0.6998	0.35	54.7	-1.51	

Characteristics of parameter

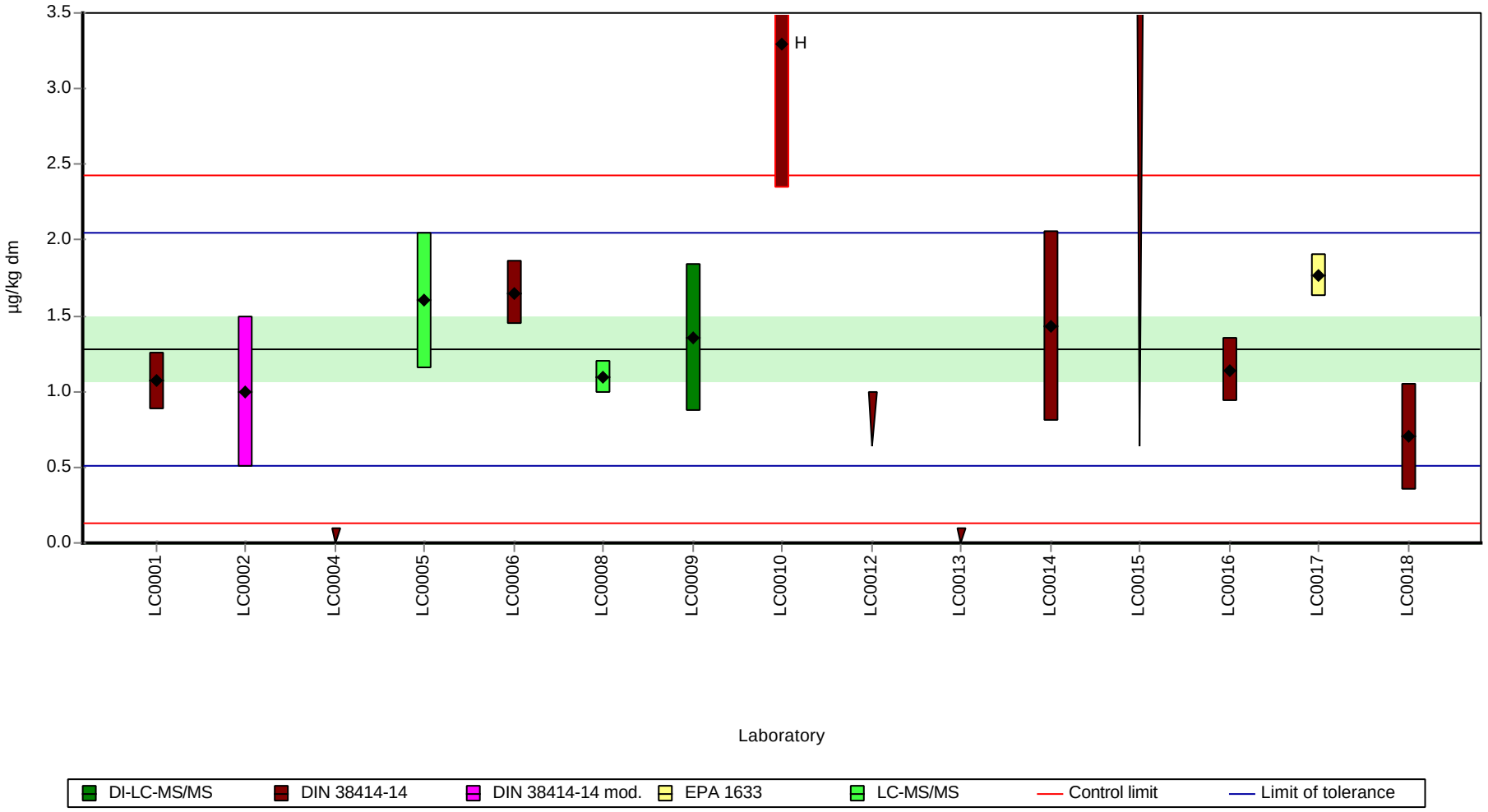
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	1.46 ± 0.619	1.28 ± 0.319	µg/kg dm
Minimum	0.7	0.7	µg/kg dm
Maximum	3.29	1.77	µg/kg dm
Standard deviation	0.685	0.336	µg/kg dm
rel. standard deviation	46.8	26.3	%
n	11	10	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Perfluorobutanoic acid (PFBA) - PF4C

Graphical presentation of results

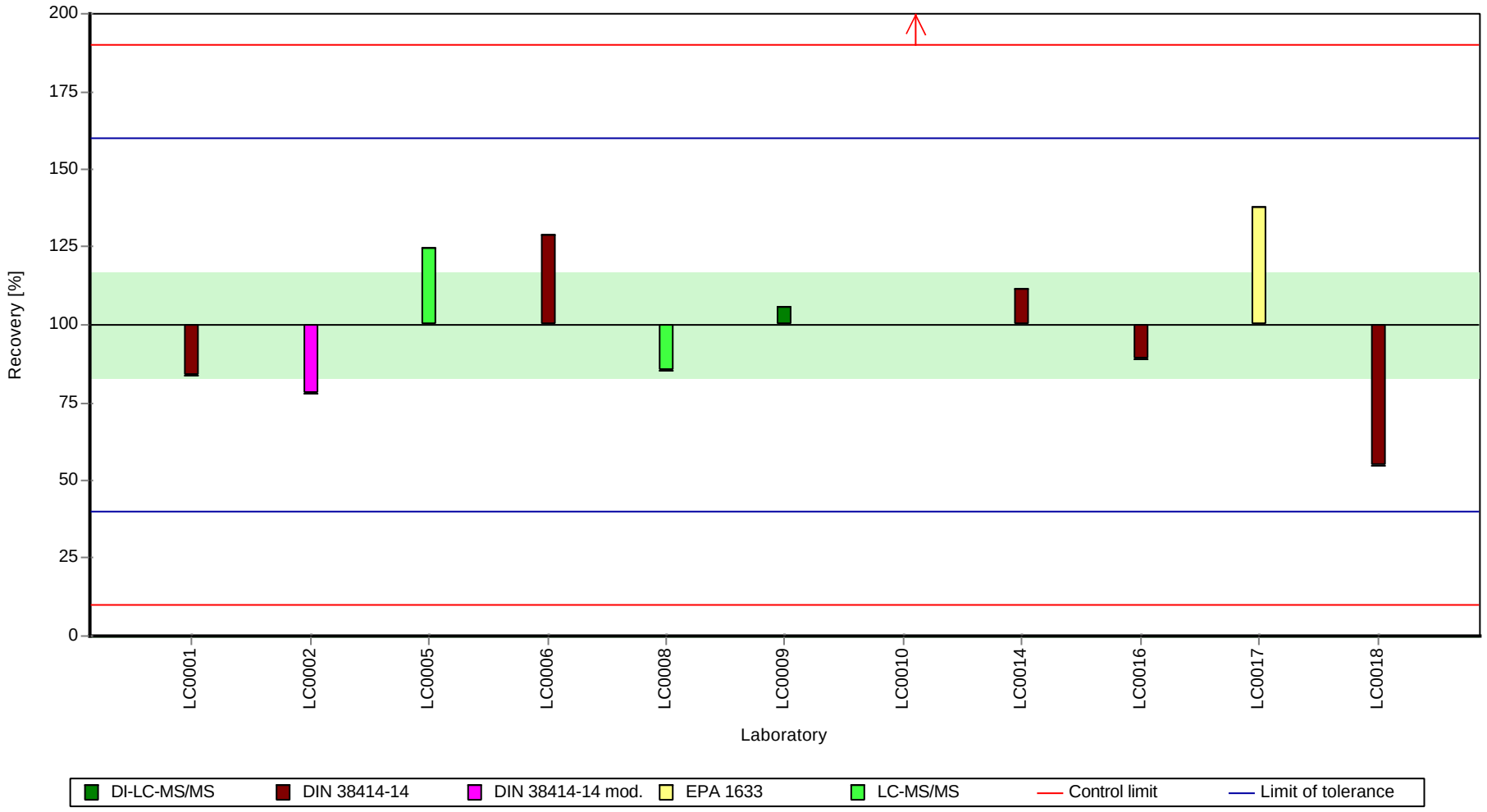
Results



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

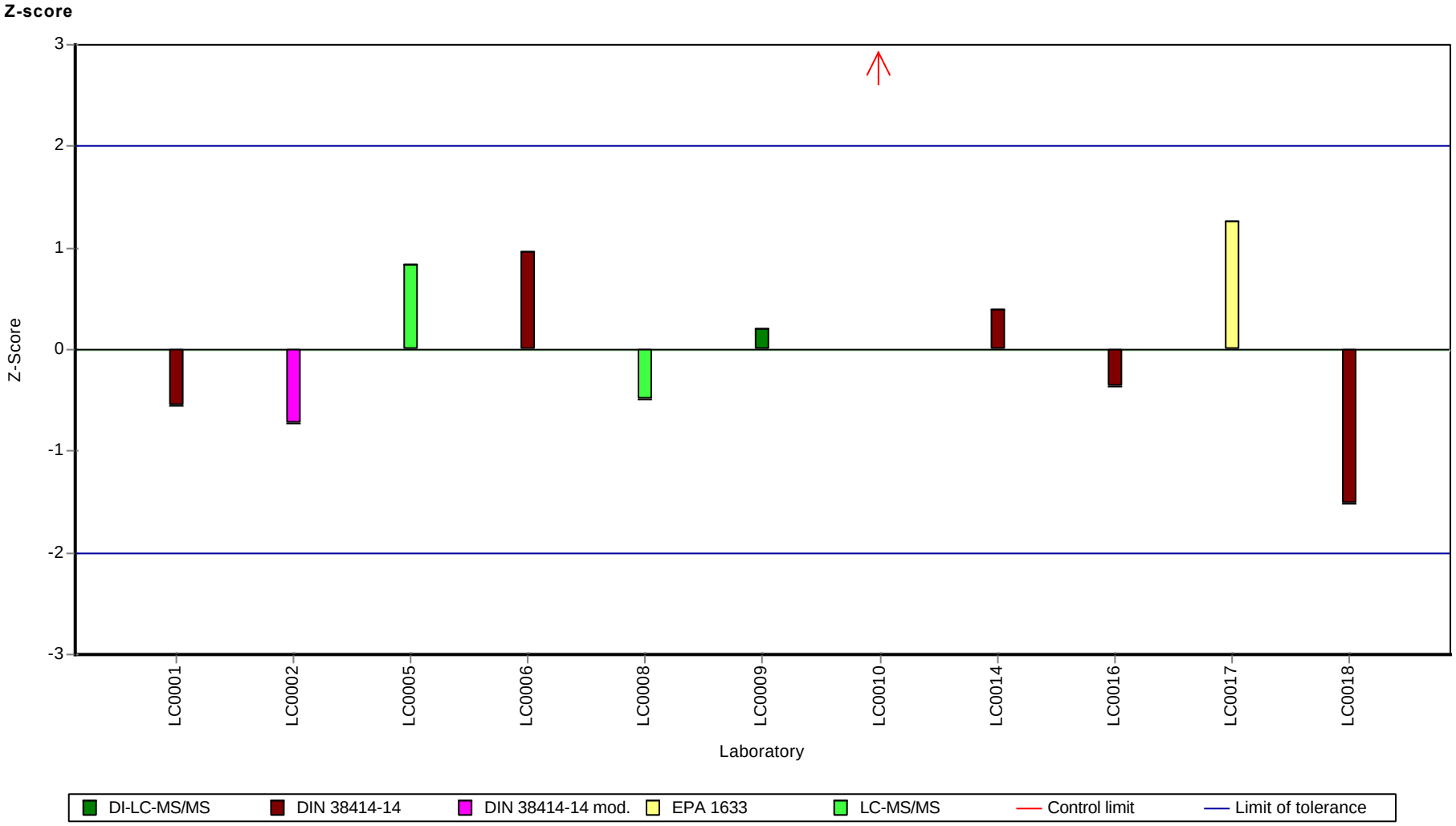
Sample: PFS01B, Parameter: Perfluorobutanoic acid (PFBA) - PF4C

Recovery rate



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Perfluorobutanoic acid (PFBA) - PF4C



Parameter oriented report

PFS01 A

Perfluoropentanoic acid (PFPeA) - PF5C

Unit	µg/kg dm
Assigned value ± U (k=2)	1.3 ± 0.359
Criterion	0.597 (46 %)
Minimum - Maximum	0.451 - 2.31
Control test value ± U (k=2)	1.16 ± 0.52

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	3.54	0.637	273	3.76	H
LC0002	1.122	0.5	86.4	-0.29	
LC0003	0.904	0.046	69.6	-0.66	
LC0004	0.451	0.135	34.7	-1.42	
LC0005	1.47	0.44	113	0.29	
LC0006	1.02	0.15	78.6	-0.47	
LC0007	-	-	-	-	
LC0008	1.2	0.12	92.5	-0.16	
LC0009	3.931	1.415	303	4.41	H
LC0010	2.31	0.69	178	1.69	
LC0011	0.907	0.45	69.9	-0.65	
LC0012	< 1 (LOQ)	-	-	-	
LC0013	< 0.1 (LOQ)	-	-	-	
LC0014	2.312	0.92	178	1.7	
LC0015	< 5 (LOQ)	-	-	-	
LC0016	1.69	0.34	130	0.66	
LC0017	6.694	0.157	516	9.04	H
LC0018	0.8918	0.312	68.7	-0.68	

Characteristics of parameter

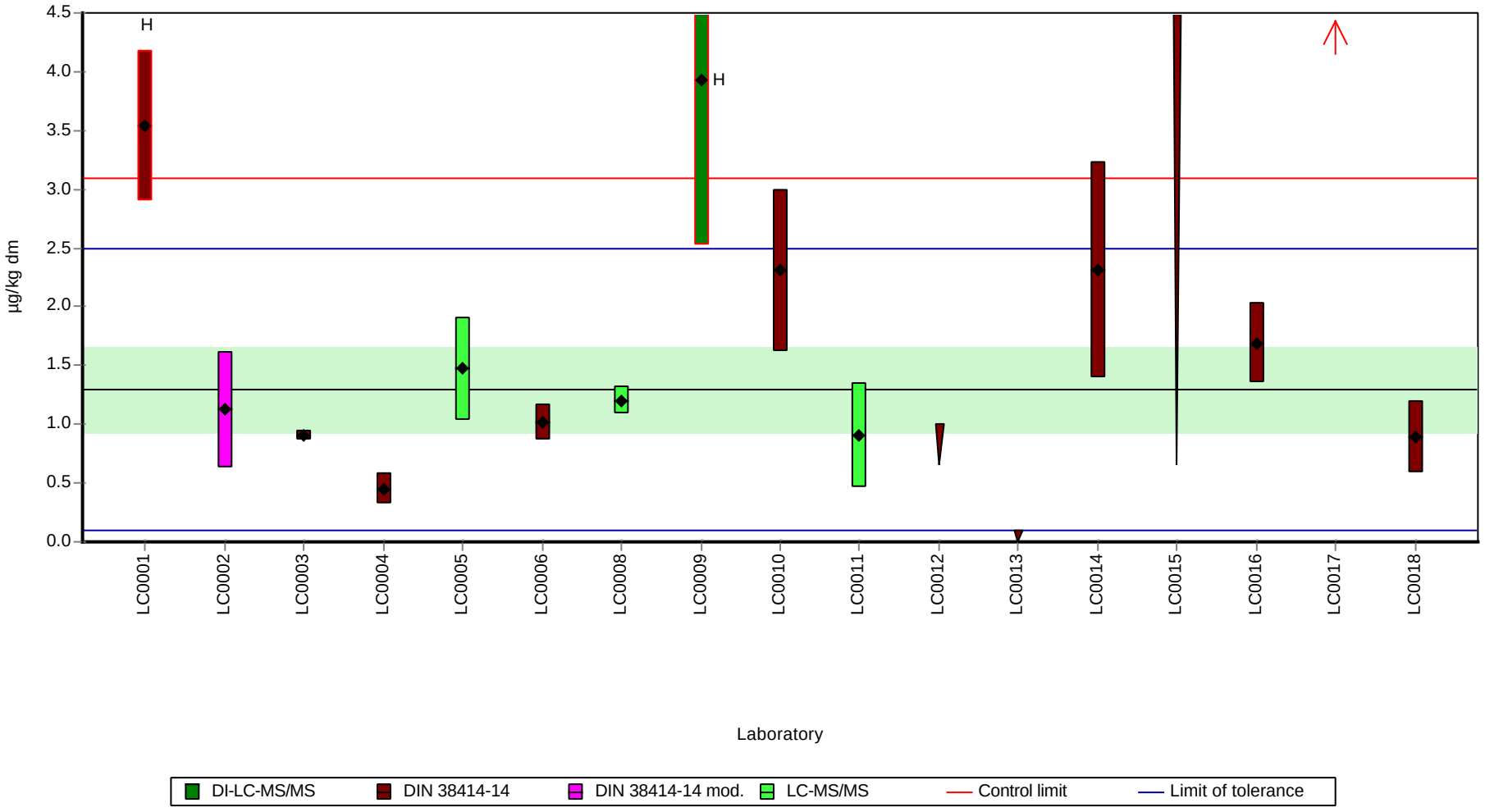
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	2.03 ± 1.35	1.3 ± 0.538	µg/kg dm
Minimum	0.451	0.451	µg/kg dm
Maximum	6.69	2.31	µg/kg dm
Standard deviation	1.69	0.595	µg/kg dm
rel. standard deviation	83.1	45.9	%
n	14	11	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: Perfluoropentanoic acid (PFPeA) - PF5C

Graphical presentation of results

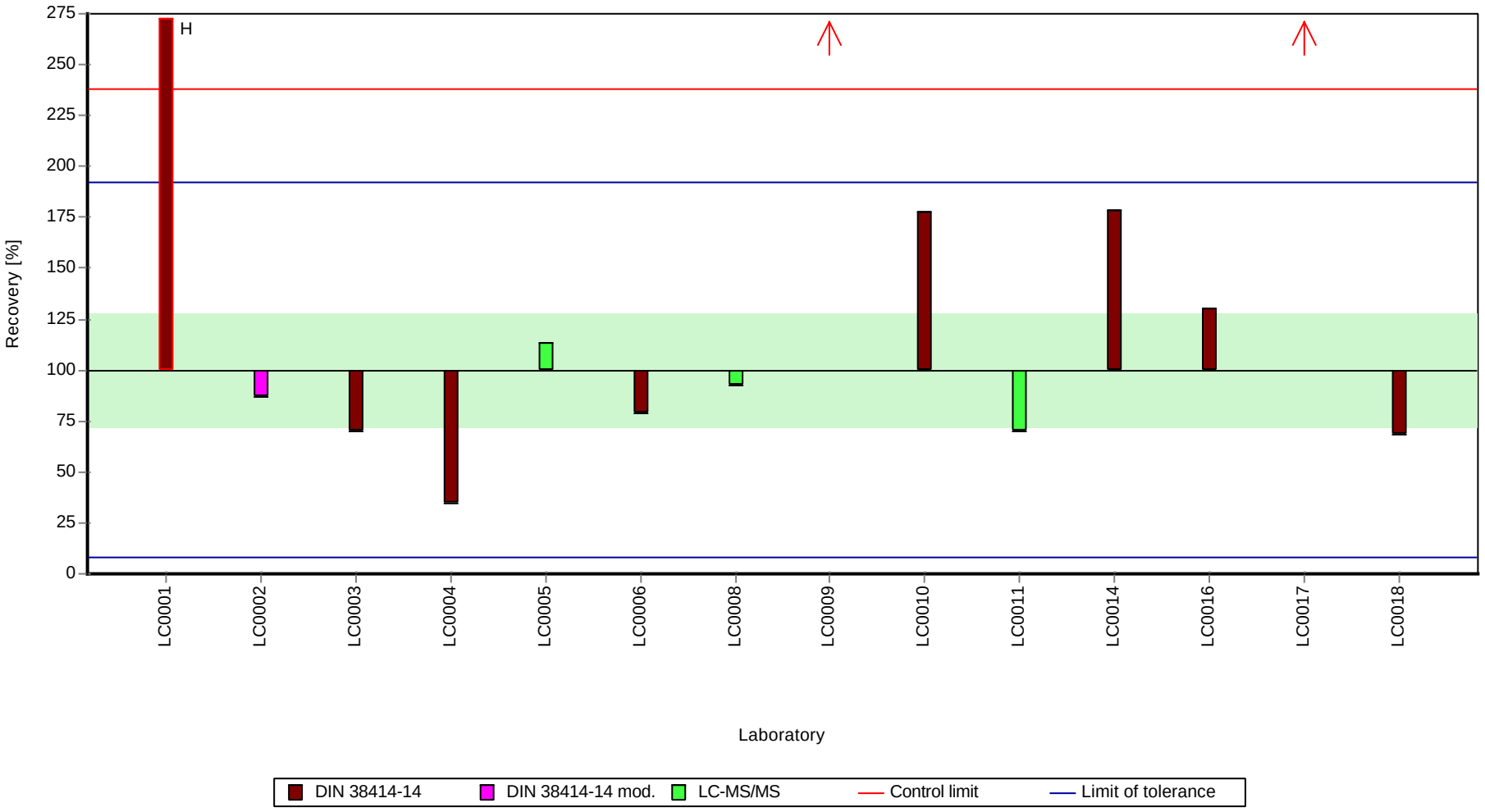
Results



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

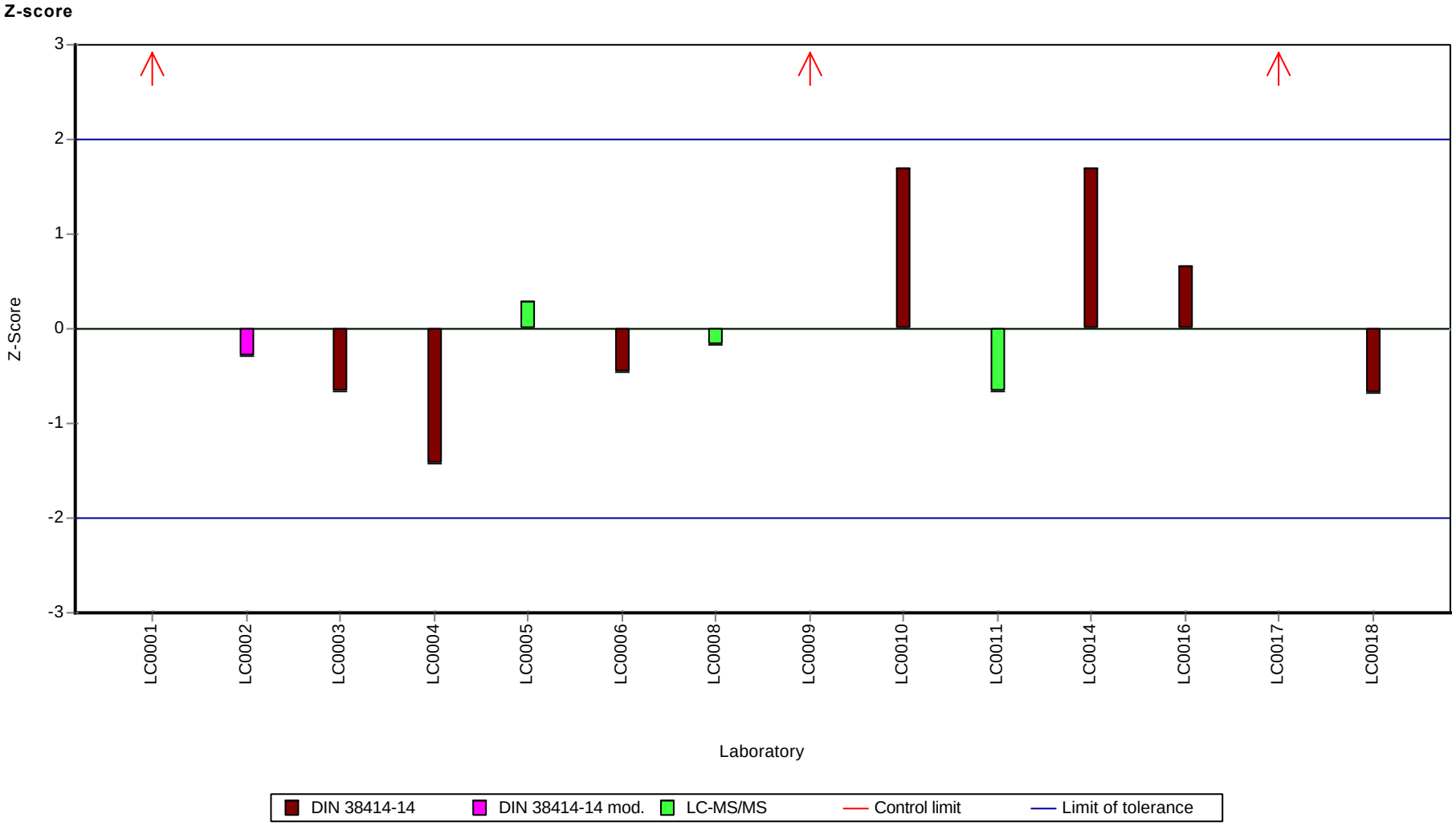
Sample: PFS01A, Parameter: Perfluoropentanoic acid (PFPeA) - PF5C

Recovery rate



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: Perfluoropentanoic acid (PFPeA) - PF5C



Parameter oriented report

PFS01 B

Perfluoropentanoic acid (PFPeA) - PF5C

Unit	µg/kg dm
Assigned value ± U (k=2)	1.35 ± 0.338
Criterion	0.592 (44 %)
Minimum - Maximum	0.5 - 2.66
Control test value ± U (k=2)	0.926 ± 0.417

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	1.35	0.243	100	0.01	
LC0002	1.17	0.5	86.9	-0.3	
LC0003	1.2	0.068	89.2	-0.25	
LC0004	0.5	0.15	37.1	-1.43	
LC0005	1.23	0.37	91.4	-0.2	
LC0006	0.664	0.1	49.3	-1.15	
LC0007	-	-	-	-	
LC0008	1.28	0.128	95.1	-0.11	
LC0009	1.767	0.636	131	0.71	
LC0010	1.39	0.41	103	0.07	
LC0011	-	-	-	-	
LC0012	< 1 (LOQ)	-	-	-	
LC0013	< 0.1 (LOQ)	-	-	-	
LC0014	2.658	1.06	197	2.22	
LC0015	< 5 (LOQ)	-	-	-	
LC0016	2.01	0.04	149	1.12	
LC0017	3.018	0.1	224	2.82	H
LC0018	0.9333	0.467	69.3	-0.7	

Characteristics of parameter

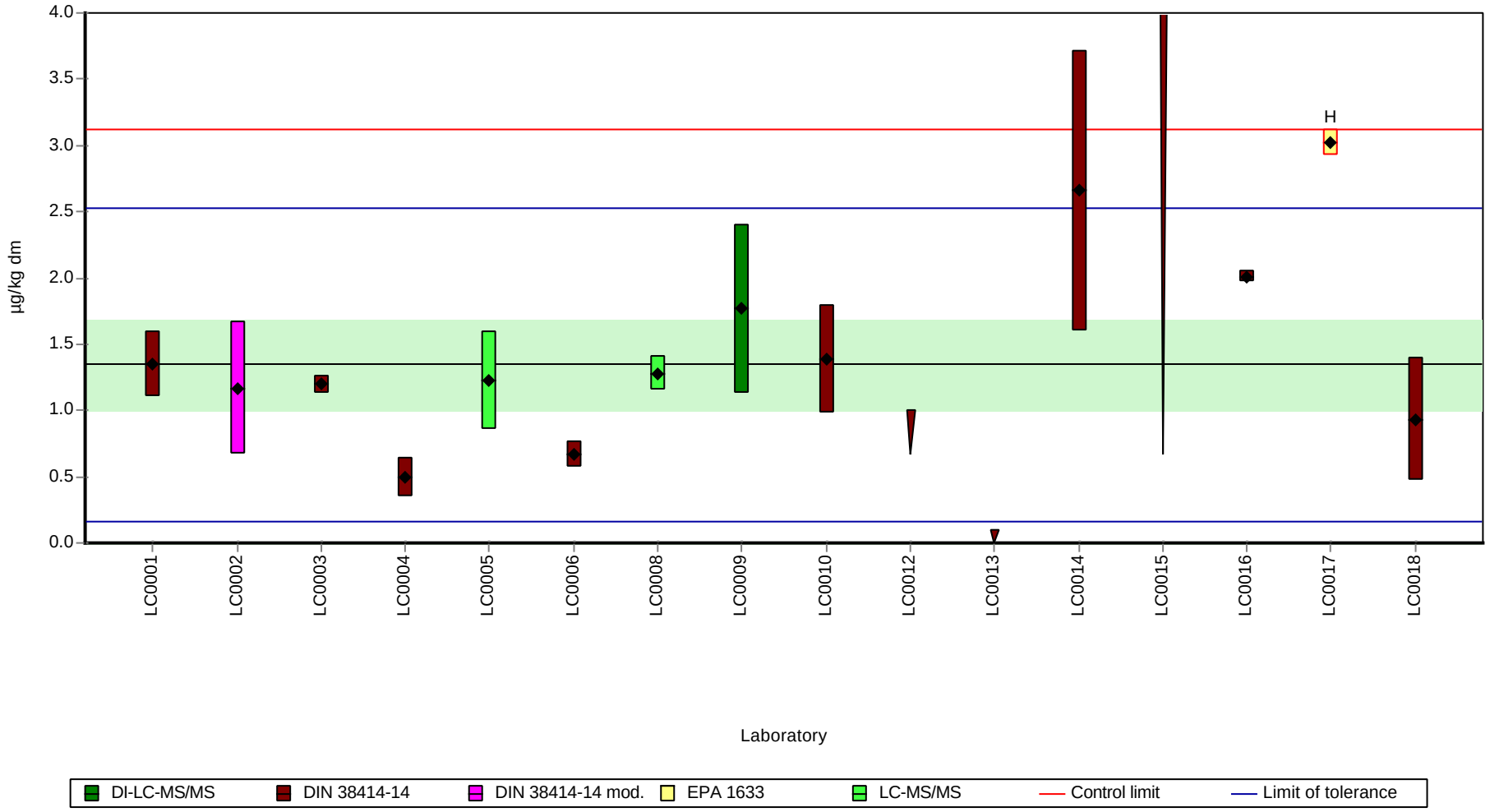
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	1.47 ± 0.605	1.35 ± 0.507	µg/kg dm
Minimum	0.5	0.5	µg/kg dm
Maximum	3.02	2.66	µg/kg dm
Standard deviation	0.727	0.585	µg/kg dm
rel. standard deviation	49.3	43.5	%
n	13	12	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Perfluoropentanoic acid (PFPeA) - PF5C

Graphical presentation of results

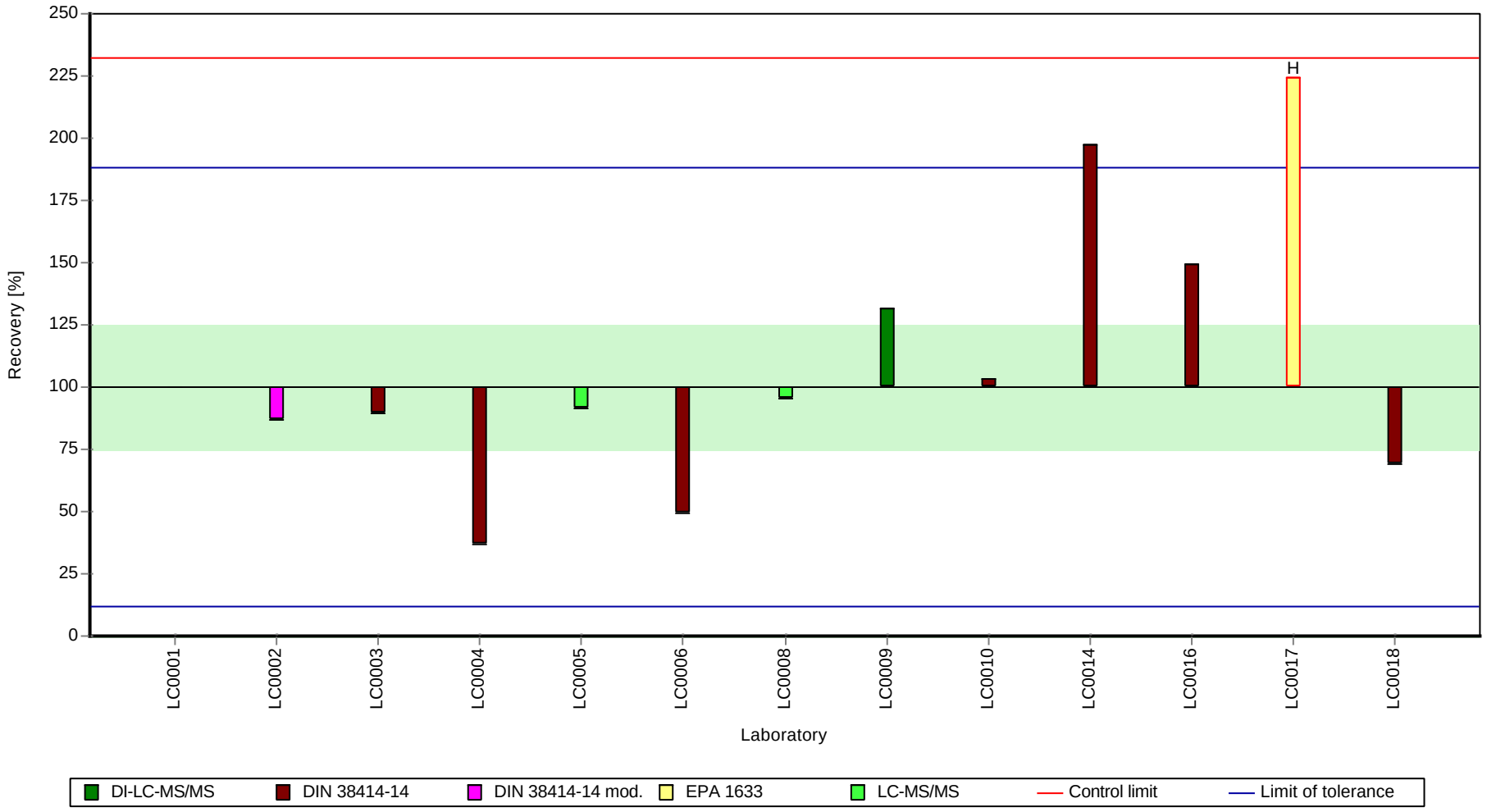
Results



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

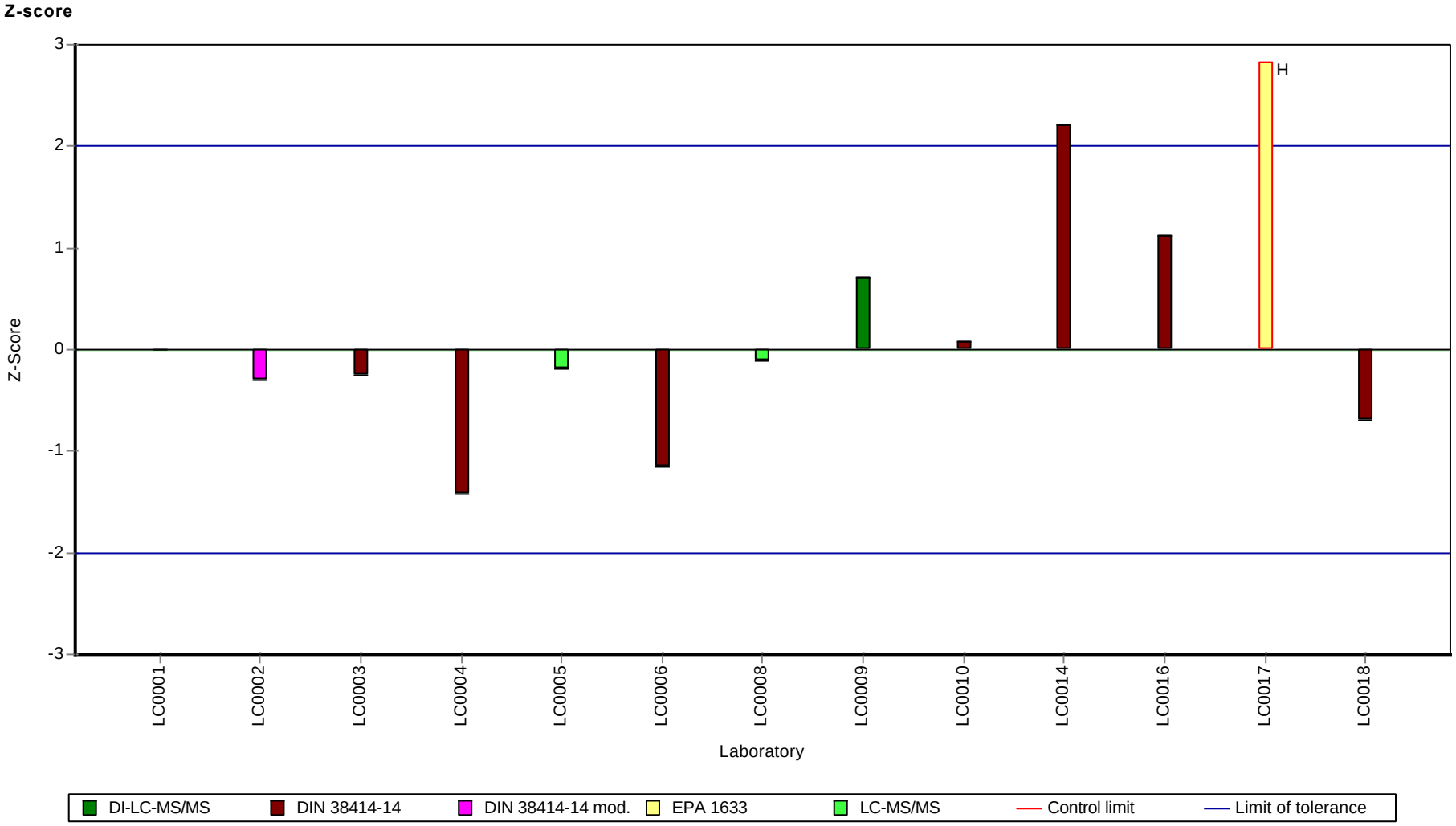
Sample: PFS01B, Parameter: Perfluoropentanoic acid (PFPeA) - PF5C

Recovery rate



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Perfluoropentanoic acid (PFPeA) - PF5C



Parameter oriented report

PFS01 A

Perfluorohexanoic acid (PFHxA) - PF6C

Unit	µg/kg dm
Assigned value ± U (k=2)	4.98 ± 0.355
Criterion	0.746 (15 %)
Minimum - Maximum	3.61 - 6.06
Control test value ± U (k=2)	4.24 ± 0.848

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	4.65	0.838	93.5	-0.44	
LC0002	5.41	0.5	109	0.58	
LC0003	5.42	0.277	109	0.6	
LC0004	3.09	0.93	62.1	-2.53	H
LC0005	5.85	1.75	118	1.17	
LC0006	3.61	0.54	72.6	-1.83	
LC0007	-	-	-	-	
LC0008	4.993	0.499	100	0.02	
LC0009	5.025	1.809	101	0.07	
LC0010	6.06	1.81	122	1.45	
LC0011	5.07	2.5	102	0.13	
LC0012	5.45	2.2	110	0.64	
LC0013	29.6	11.8	595	32.99	H
LC0014	4.784	1.1	96.1	-0.26	
LC0015	5.168	1.29	104	0.26	
LC0016	5.15	0.72	104	0.23	
LC0017	4.166	0.16	83.7	-1.08	
LC0018	3.8295	1.34	77	-1.54	

Characteristics of parameter

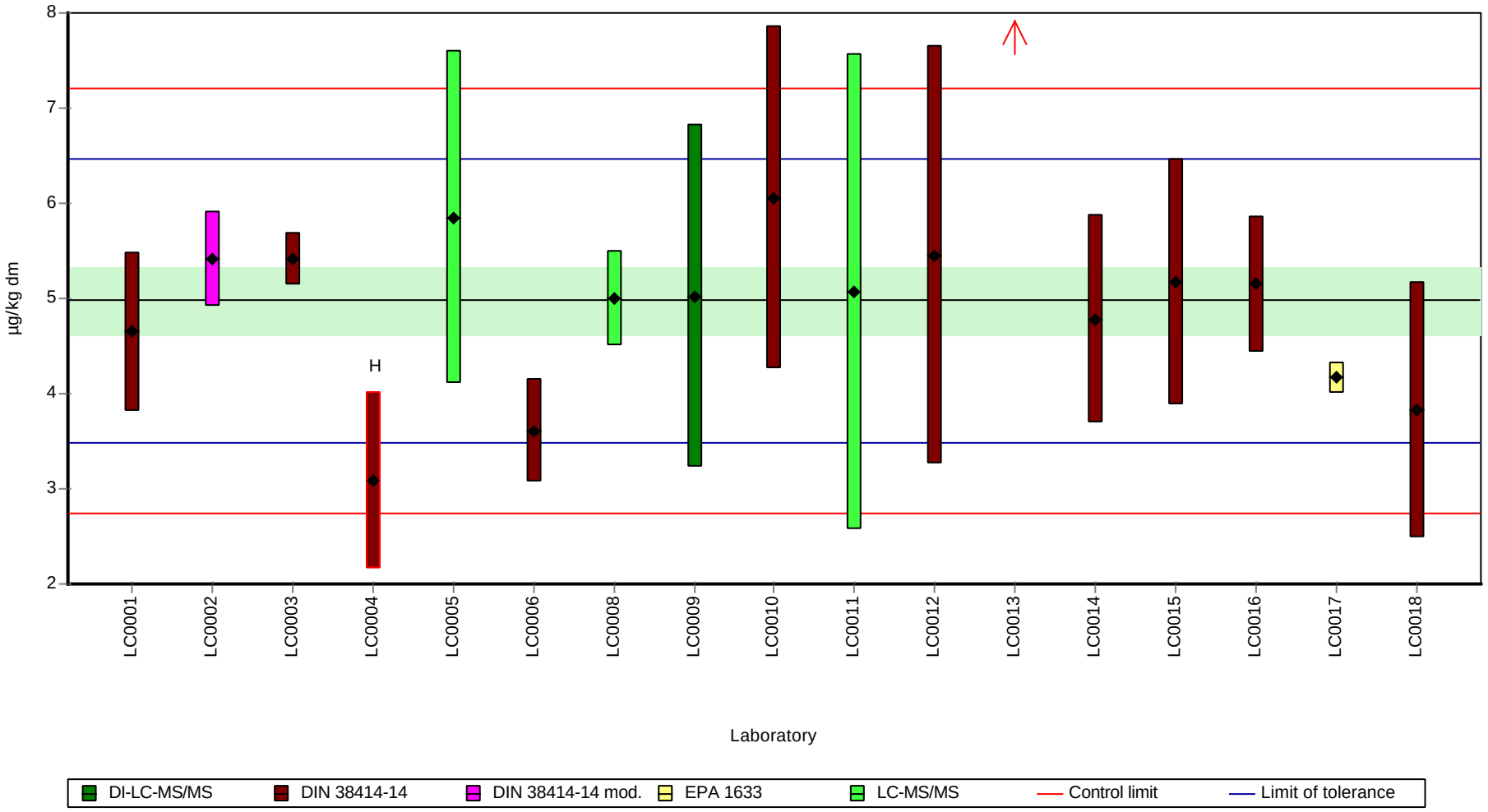
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	6.31 ± 4.4	4.98 ± 0.532	µg/kg dm
Minimum	3.09	3.61	µg/kg dm
Maximum	29.6	6.06	µg/kg dm
Standard deviation	6.05	0.687	µg/kg dm
rel. standard deviation	95.9	13.8	%
n	17	15	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: Perfluorohexanoic acid (PFHxA) - PF6C

Graphical presentation of results

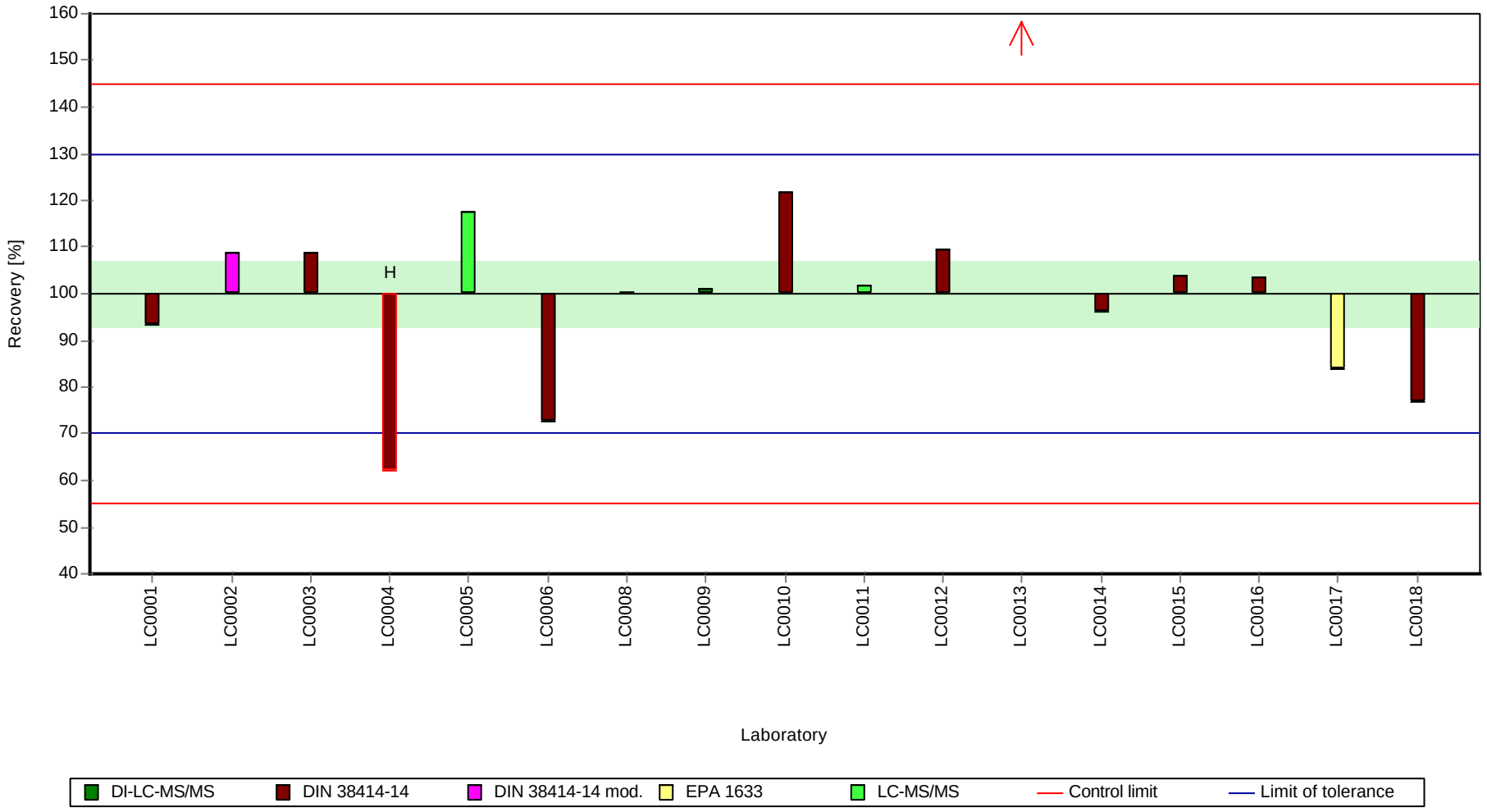
Results



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

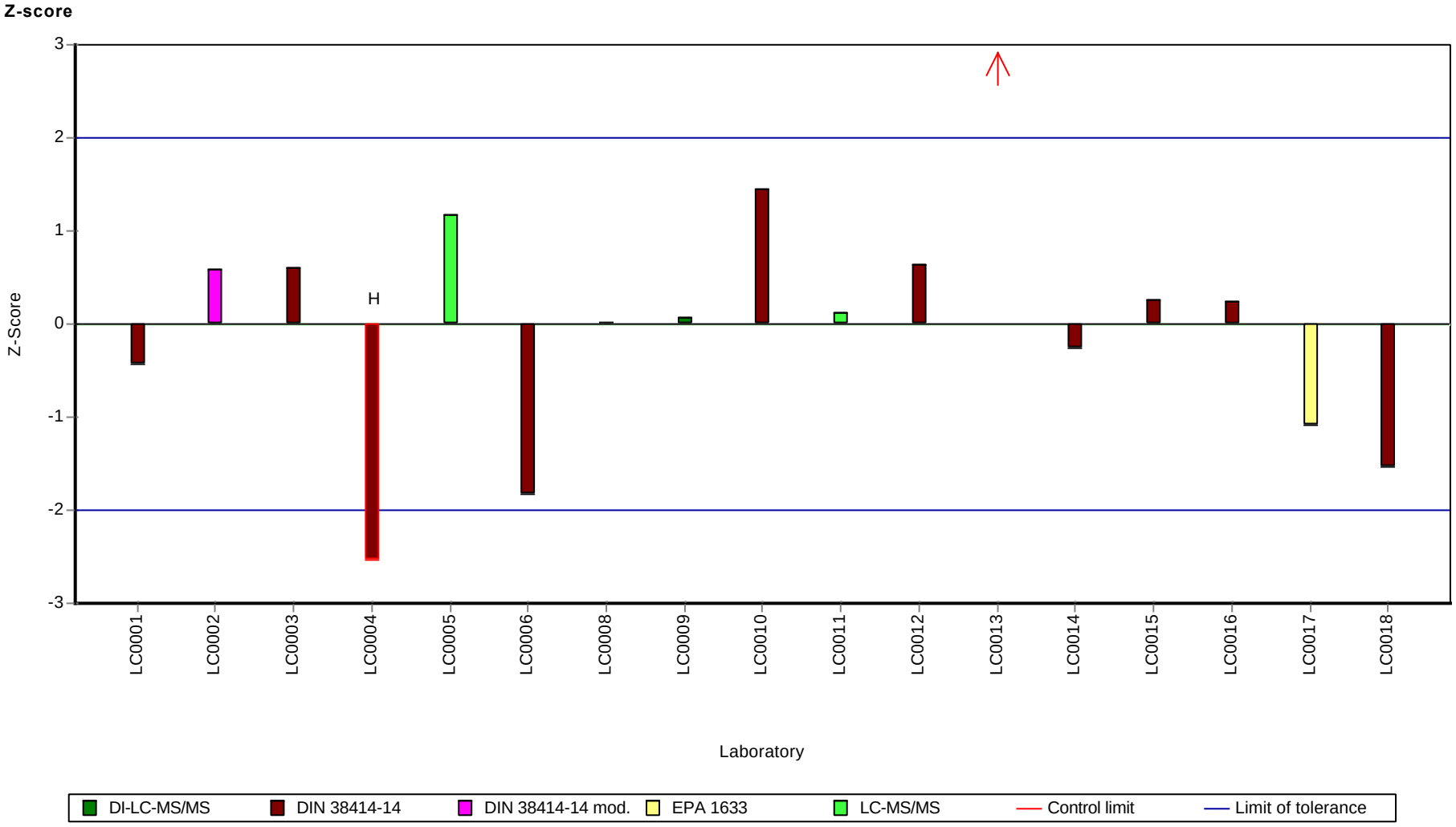
Sample: PFS01A, Parameter: Perfluorohexanoic acid (PFHxA) - PF6C

Recovery rate



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: Perfluorohexanoic acid (PFHxA) - PF6C



Parameter oriented report

PFS01 B

Perfluorohexanoic acid (PFHxA) - PF6C

Unit	µg/kg dm
Assigned value ± U (k=2)	12 ± 1.49
Criterion	2.88 (24 %)
Minimum - Maximum	6.9 - 16.5
Control test value ± U (k=2)	10.4 ± 2.09

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	11.5	2.07	96	-0.17	
LC0002	16.5	0.5	138	1.57	
LC0003	14.2	0.551	118	0.77	
LC0004	8.08	2.42	67.4	-1.36	
LC0005	13.5	4.06	113	0.53	
LC0006	6.9	1.03	57.6	-1.77	
LC0007	-	-	-	-	
LC0008	11.807	1.181	98.5	-0.06	
LC0009	13.819	4.975	115	0.64	
LC0010	14.3	4.3	119	0.81	
LC0011	-	-	-	-	
LC0012	10.8	4.3	90.1	-0.41	
LC0013	43.1	10	360	10.82	H
LC0014	9.773	2.25	81.6	-0.77	
LC0015	11.42	2.85	95.3	-0.2	
LC0016	13.7	1.9	114	0.6	
LC0017	15.496	0.322	129	1.22	
LC0018	7.959	3.98	66.4	-1.4	

Characteristics of parameter

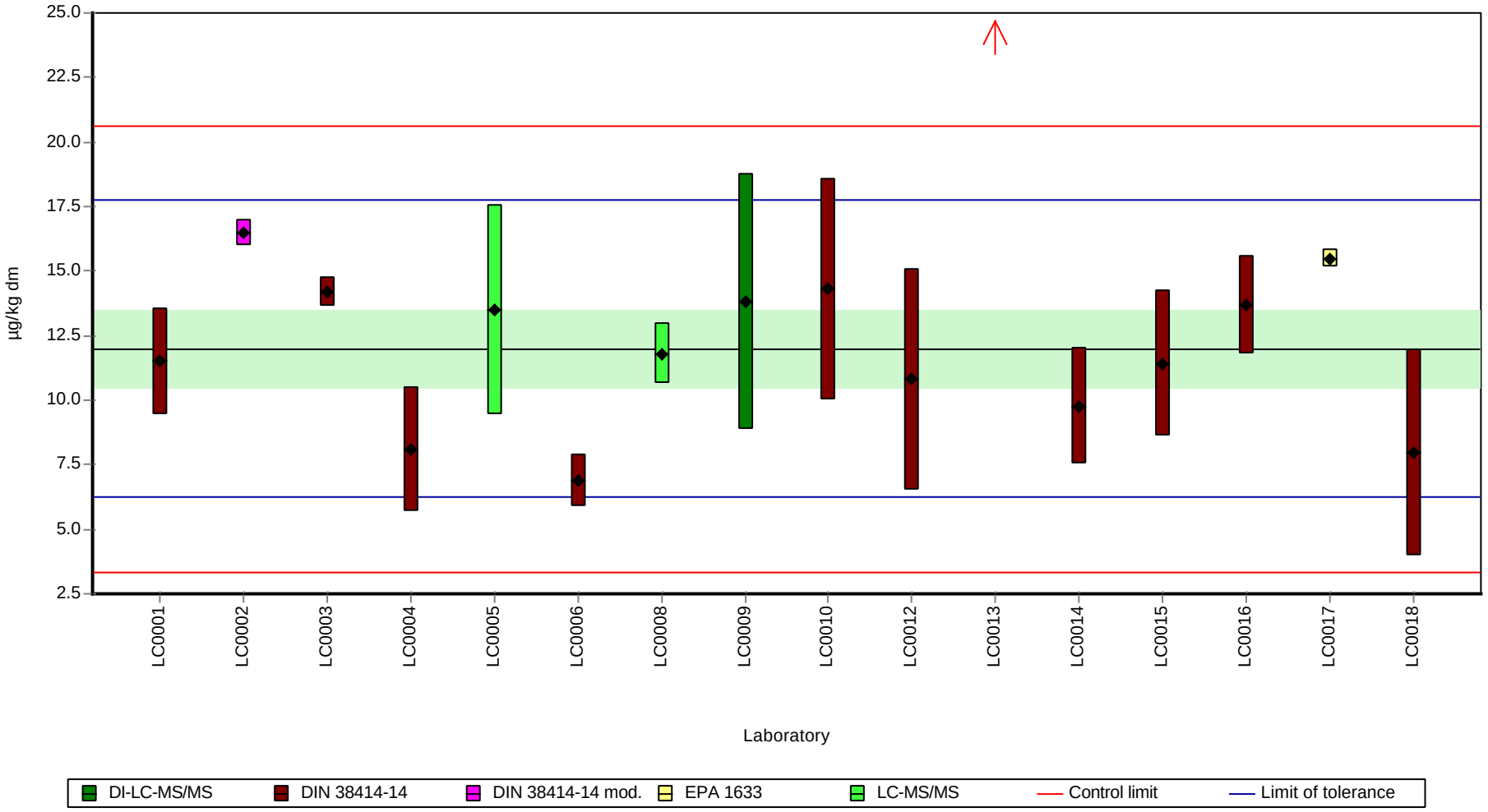
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	13.9 ± 6.2	12 ± 2.23	µg/kg dm
Minimum	6.9	6.9	µg/kg dm
Maximum	43.1	16.5	µg/kg dm
Standard deviation	8.26	2.88	µg/kg dm
rel. standard deviation	59.3	24	%
n	16	15	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Perfluorohexanoic acid (PFHxA) - PF6C

Graphical presentation of results

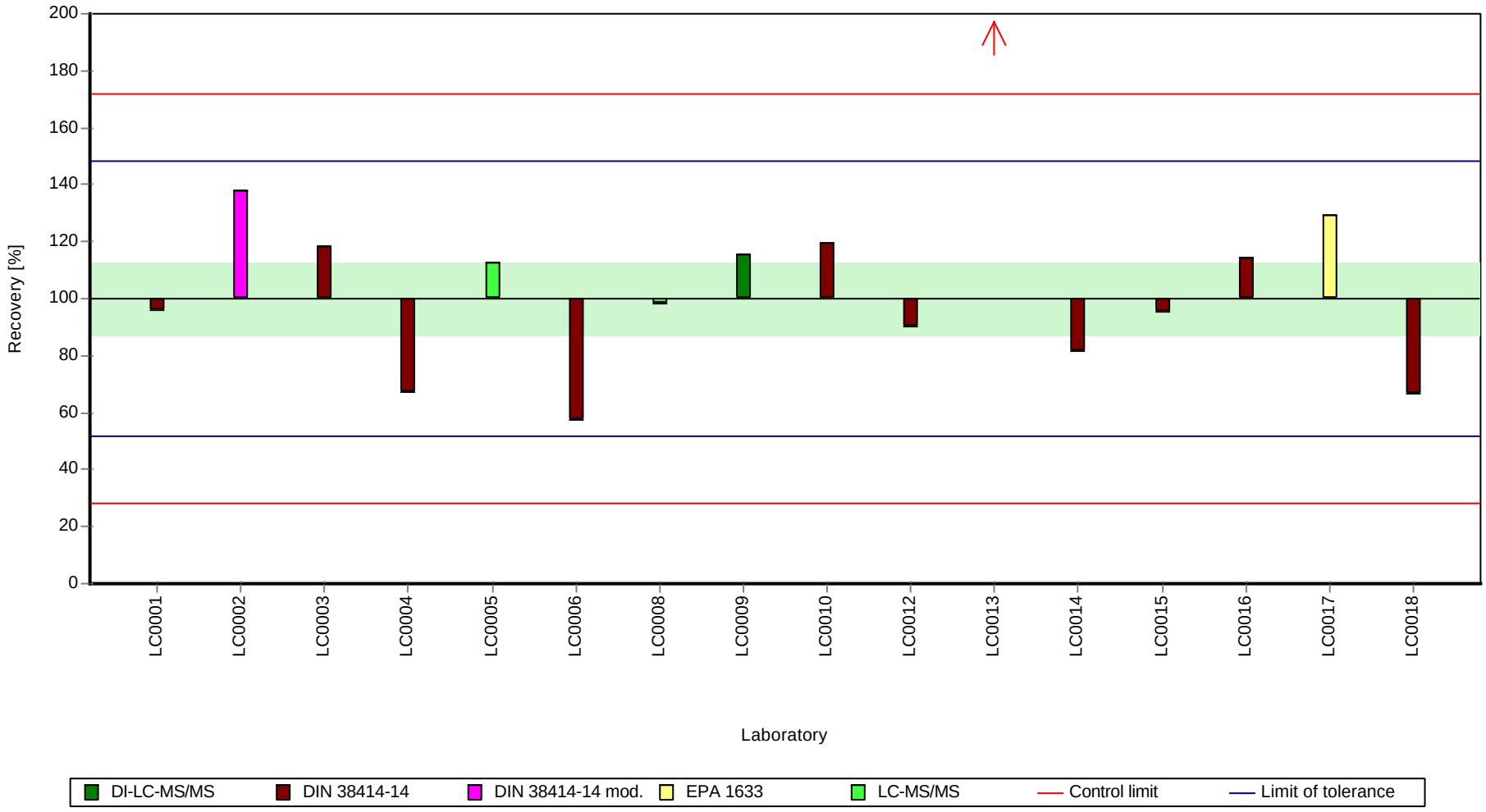
Results



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

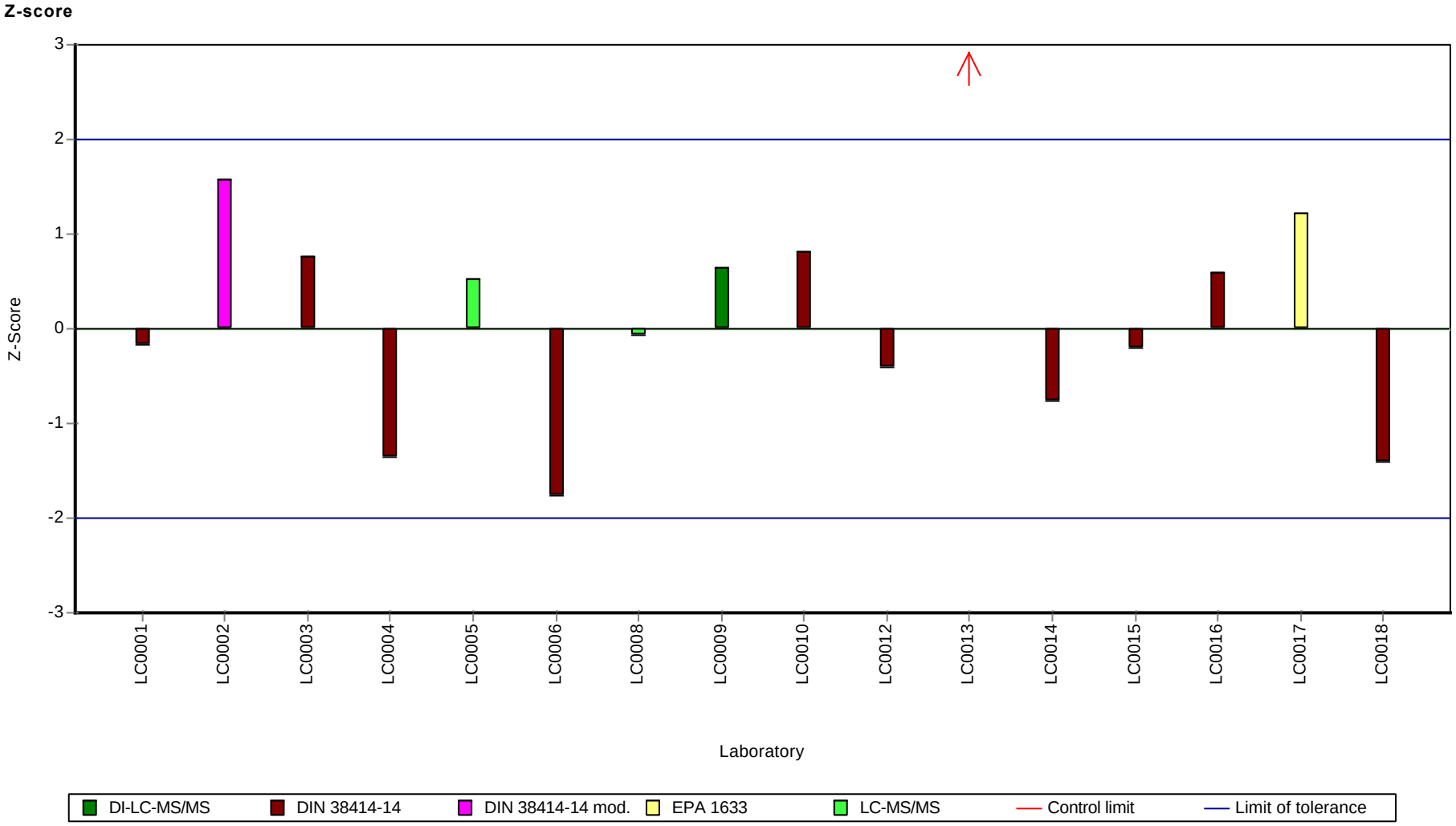
Sample: PFS01B, Parameter: Perfluorohexanoic acid (PFHxA) - PF6C

Recovery rate



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Perfluorohexanoic acid (PFHxA) - PF6C



Parameter oriented report

PFS01 A

Perfluoroheptanoic acid (PFHpA) - PF7C

Unit	µg/kg dm
Assigned value ± U (k=2)	0.274 ± 0.0361
Criterion	0.0548 (20 %)
Minimum - Maximum	0.175 - 0.345
Control test value ± U (k=2)	0.199 ± 0.0399

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	0.313	0.056	114	0.72	
LC0002	0.258	0.5	94.2	-0.29	
LC0003	0.287	0.069	105	0.24	
LC0004	0.233	0.07	85.1	-0.75	
LC0005	0.258	0.077	94.2	-0.29	
LC0006	< 0.27 (LOQ)	-	-	-	
LC0007	-	-	-	-	
LC0008	0.219	0.022	80	-1	
LC0009	0.302	0.109	110	0.51	
LC0010	0.345	0.104	126	1.3	
LC0011	0.285	0.14	104	0.2	
LC0012	0.34	0.14	124	1.21	
LC0013	0.636	0.25	232	6.61	H
LC0014	0.621	0.24	227	6.34	H
LC0015	< 5 (LOQ)	-	-	-	
LC0016	0.24	0.034	87.6	-0.62	
LC0017	0.228	0.012	83.3	-0.84	
LC0018	0.1745	0.0611	63.7	-1.81	

Characteristics of parameter

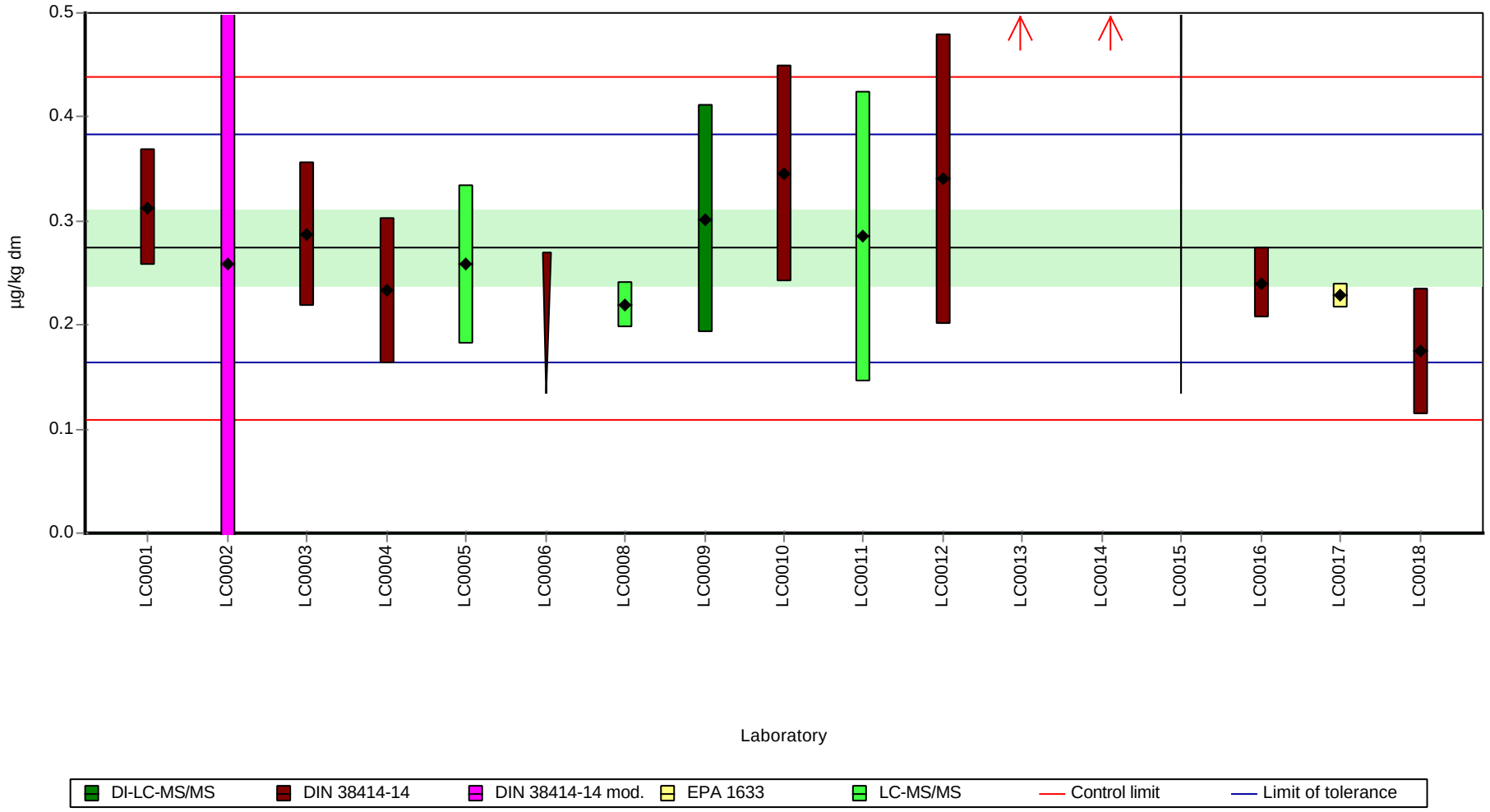
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	0.316 ± 0.105	0.268 ± 0.0415	µg/kg dm
Minimum	0.175	0.175	µg/kg dm
Maximum	0.636	0.345	µg/kg dm
Standard deviation	0.135	0.0499	µg/kg dm
rel. standard deviation	42.7	18.6	%
n	15	13	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: Perfluoroheptanoic acid (PFHpA) - PF7C

Graphical presentation of results

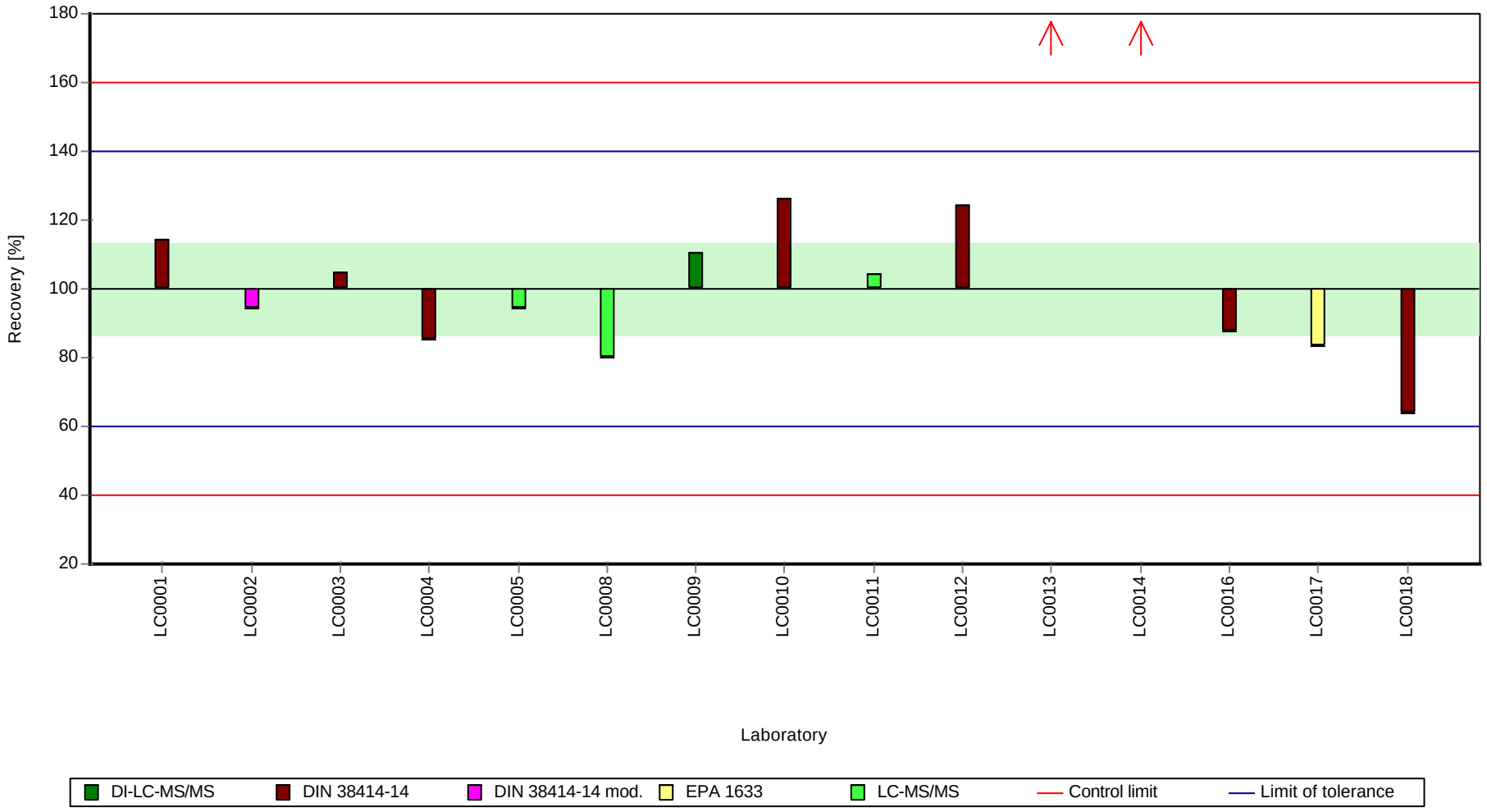
Results



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

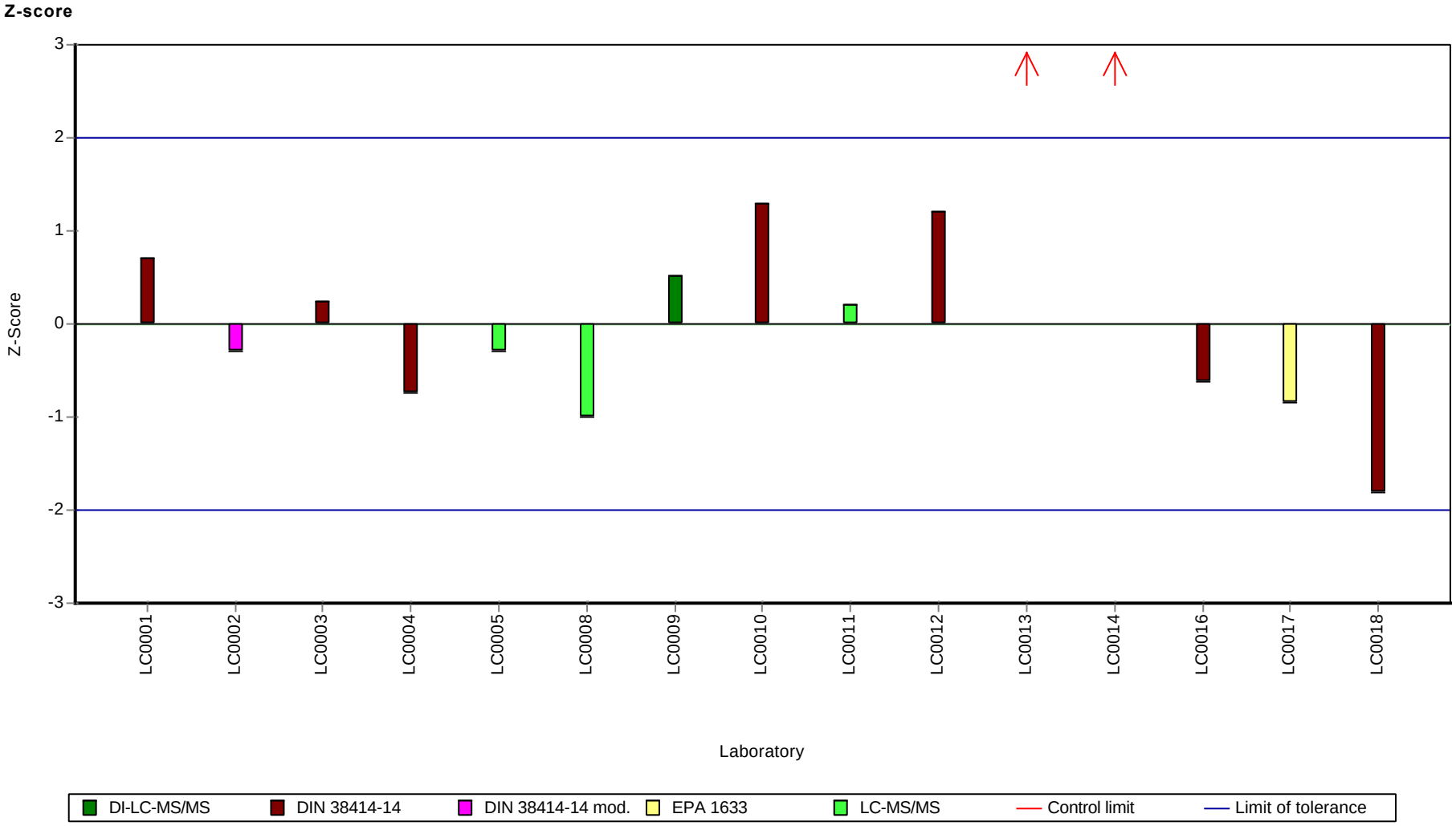
Sample: PFS01A, Parameter: Perfluoroheptanoic acid (PFHpA) - PF7C

Recovery rate



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: Perfluoroheptanoic acid (PFHpA) - PF7C



Parameter oriented report

PFS01 B

Perfluoroheptanoic acid (PFHpA) - PF7C

Unit	µg/kg dm
Assigned value ± U (k=2)	0.368 ± 0.0704
Criterion	0.114 (31 %)
Minimum - Maximum	0.192 - 0.535
Control test value ± U (k=2)	0.130 ± 0.026

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	0.223	0.04	60.7	-1.27	
LC0002	0.303	0.5	82.4	-0.57	
LC0003	0.331	0.029	90	-0.32	
LC0004	0.192	0.058	52.2	-1.54	
LC0005	0.26	0.078	70.7	-0.94	
LC0006	< 0.27 (LOQ)	-	-	-	
LC0007	-	-	-	-	
LC0008	0.223	0.022	60.7	-1.27	
LC0009	0.485	0.175	132	1.03	
LC0010	0.376	0.113	102	0.07	
LC0011	-	-	-	-	
LC0012	0.39	0.16	106	0.2	
LC0013	1.32	0.4	359	8.36	H
LC0014	0.41	0.16	112	0.37	
LC0015	< 5 (LOQ)	-	-	-	
LC0016	0.33	0.046	89.8	-0.33	
LC0017	0.258	0.012	70.2	-0.96	
LC0018	0.5347	0.267	145	1.47	

Characteristics of parameter

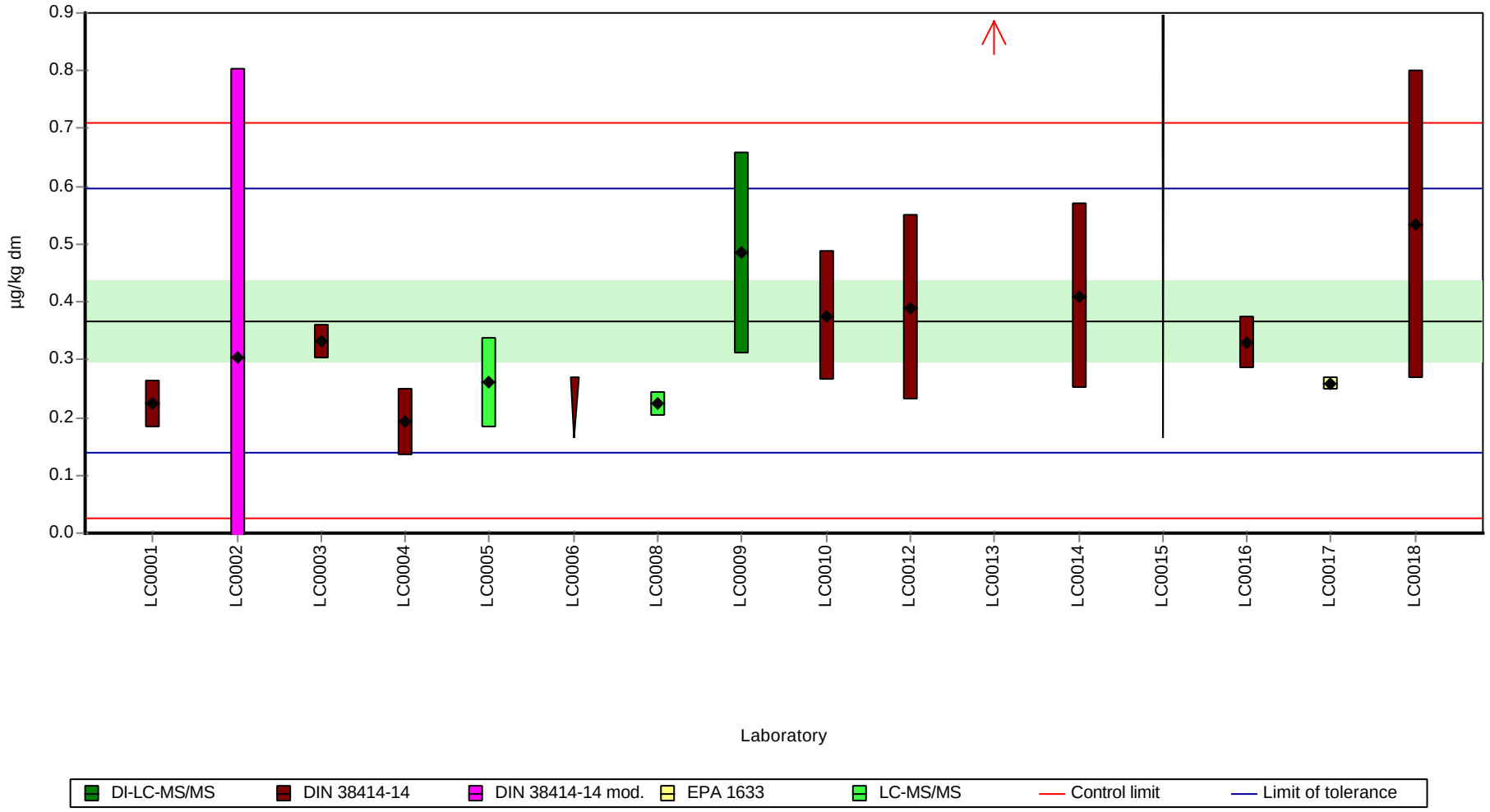
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	0.403 ± 0.226	0.332 ± 0.0869	µg/kg dm
Minimum	0.192	0.192	µg/kg dm
Maximum	1.32	0.535	µg/kg dm
Standard deviation	0.282	0.104	µg/kg dm
rel. standard deviation	70.2	31.4	%
n	14	13	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Perfluoroheptanoic acid (PFHpA) - PF7C

Graphical presentation of results

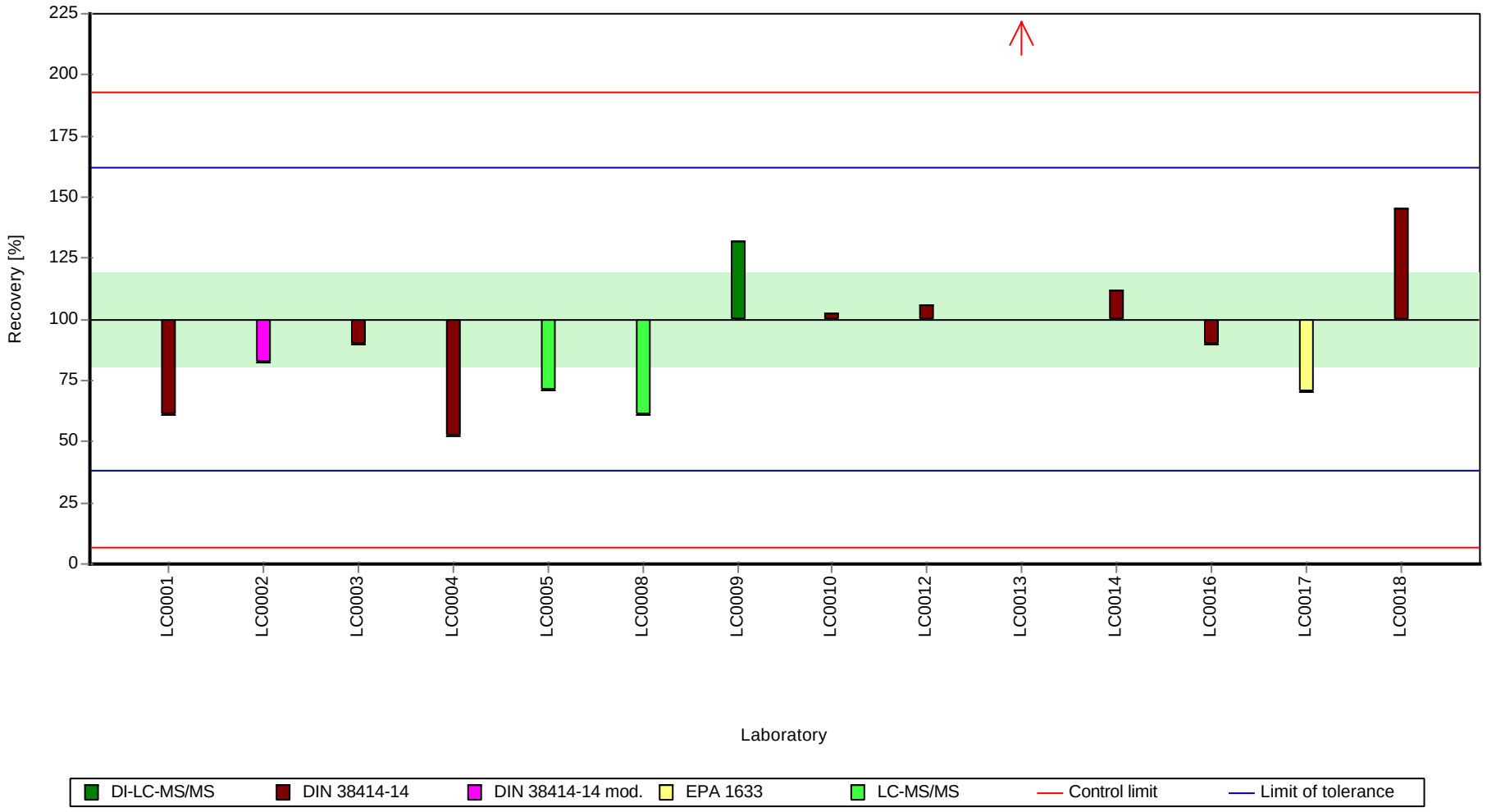
Results



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

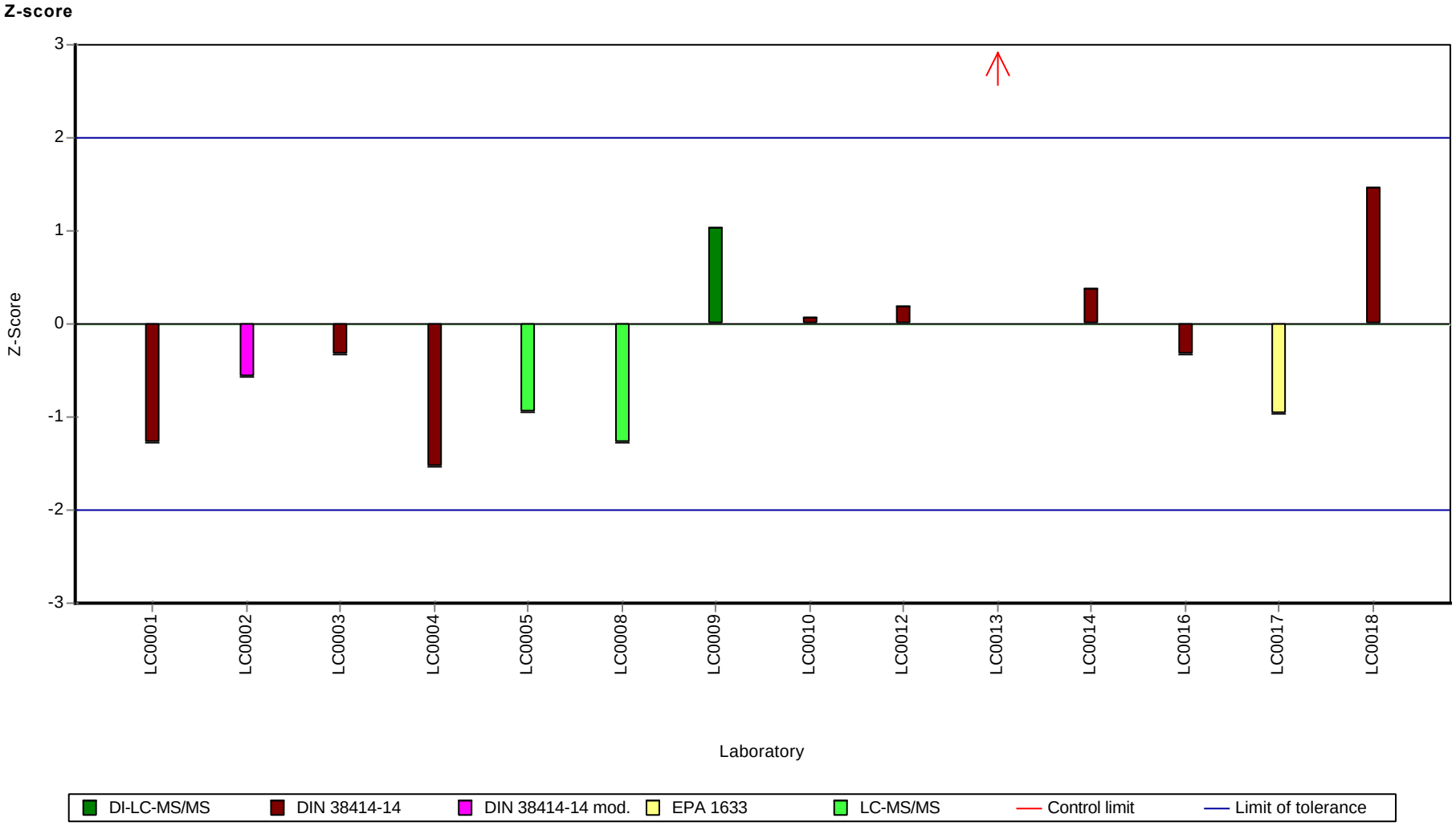
Sample: PFS01B, Parameter: Perfluoroheptanoic acid (PFHpA) - PF7C

Recovery rate



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Perfluoroheptanoic acid (PFHpA) - PF7C



Parameter oriented report

PFS01 A

Perfluorooctanoic acid (PFOA) - PF8C

Unit	µg/kg dm
Assigned value ± U (k=2)	0.724 ± 0.105
Criterion	0.203 (28 %)
Minimum - Maximum	0.389 - 1.11
Control test value ± U (k=2)	0.628 ± 0.157

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	0.695	0.125	96	-0.14	
LC0002	0.676	0.15	93.4	-0.24	
LC0003	0.724	0.015	100	0	
LC0004	0.521	0.156	72	-1	
LC0005	1.11	0.33	153	1.9	
LC0006	0.389	0.05	53.7	-1.65	
LC0007	-	-	-	-	
LC0008	0.74	0.074	102	0.08	
LC0009	0.717	0.258	99	-0.03	
LC0010	0.658	0.197	90.9	-0.33	
LC0011	0.556	0.28	76.8	-0.83	
LC0012	1.07	0.43	148	1.71	
LC0013	1.57	0.63	217	4.17	H
LC0014	1.036	0.31	143	1.54	
LC0015	< 5 (LOQ)	-	-	-	
LC0016	0.68	0.16	93.9	-0.22	
LC0017	0.727	0.027	100	0.01	
LC0018	0.5619	0.1966	77.6	-0.8	

Characteristics of parameter

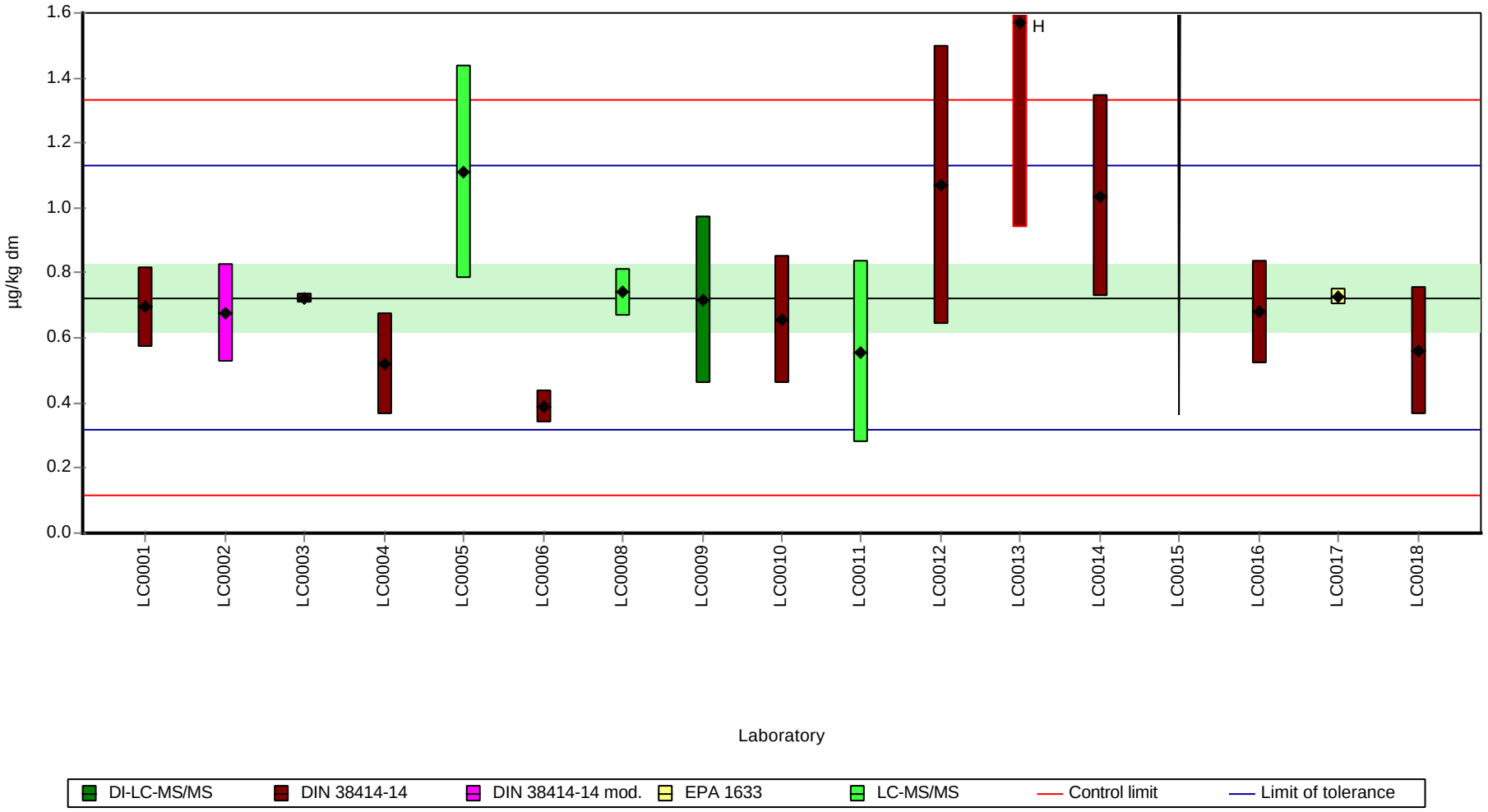
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	0.777 ± 0.217	0.724 ± 0.158	µg/kg dm
Minimum	0.389	0.389	µg/kg dm
Maximum	1.57	1.11	µg/kg dm
Standard deviation	0.289	0.204	µg/kg dm
rel. standard deviation	37.2	28.2	%
n	16	15	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: Perfluorooctanoic acid (PFOA) - PF8C

Graphical presentation of results

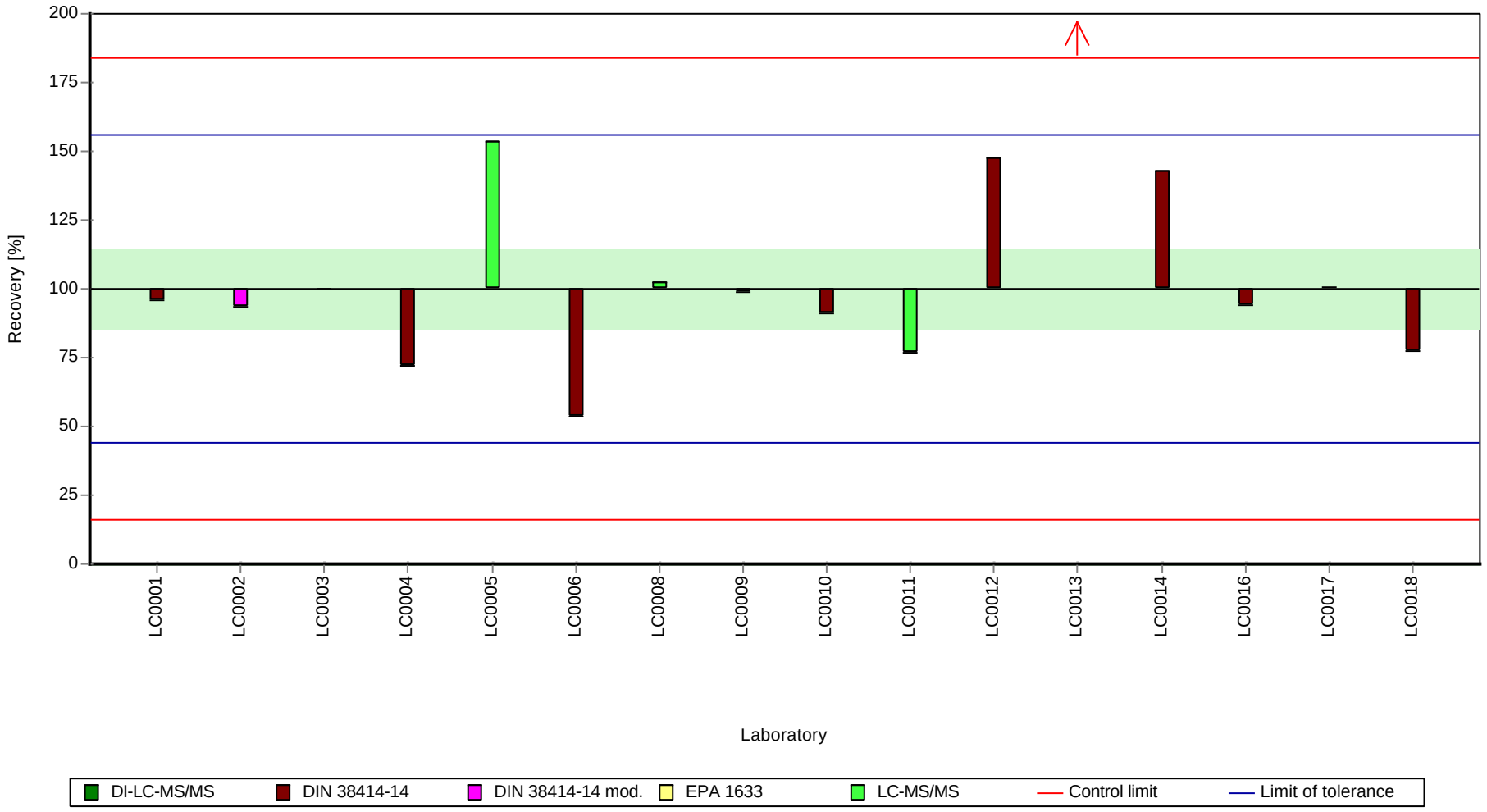
Results



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

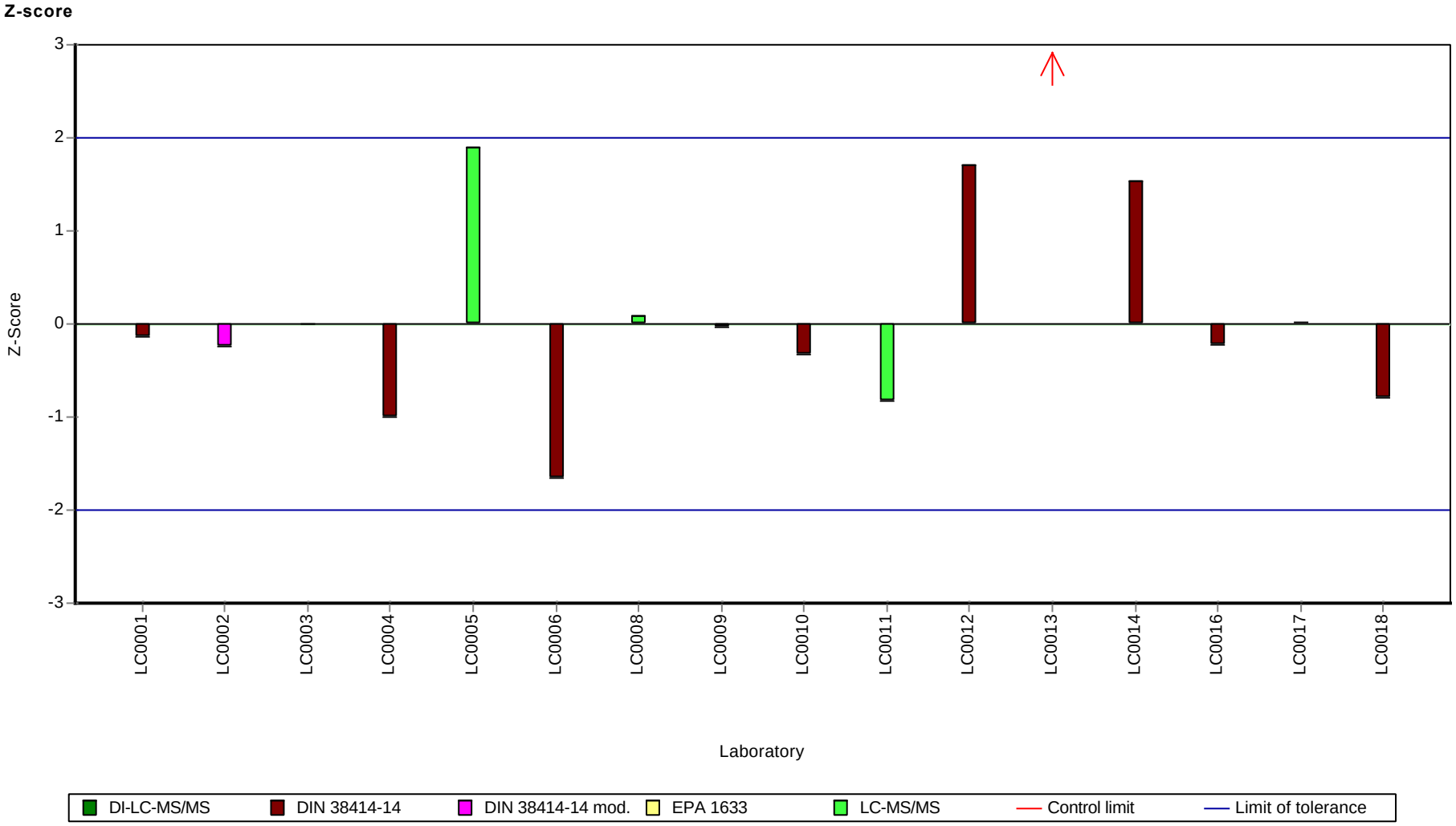
Sample: PFS01A, Parameter: Perfluorooctanoic acid (PFOA) - PF8C

Recovery rate



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: Perfluorooctanoic acid (PFOA) - PF8C



Parameter oriented report

PFS01 B

Perfluorooctanoic acid (PFOA) - PF8C

Unit	µg/kg dm
Assigned value ± U (k=2)	1.03 ± 0.1
Criterion	0.186 (18 %)
Minimum - Maximum	0.641 - 1.3
Control test value ± U (k=2)	0.835 ± 0.209

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	0.98	0.176	94.9	-0.28	
LC0002	0.966	0.15	93.5	-0.36	
LC0003	1.21	0.069	117	0.95	
LC0004	0.641	0.192	62.1	-2.11	
LC0005	1.26	0.38	122	1.22	
LC0006	0.76	0.11	73.6	-1.47	
LC0007	-	-	-	-	
LC0008	1.016	0.102	98.4	-0.09	
LC0009	1.108	0.399	107	0.4	
LC0010	1.02	0.31	98.8	-0.07	
LC0011	-	-	-	-	
LC0012	1.3	0.52	126	1.44	
LC0013	3.15	0.8	305	11.39	H
LC0014	1.232	0.37	119	1.07	
LC0015	< 5 (LOQ)	-	-	-	
LC0016	1.09	0.25	106	0.31	
LC0017	0.971	0.019	94	-0.33	
LC0018	0.9053	0.453	87.7	-0.69	

Characteristics of parameter

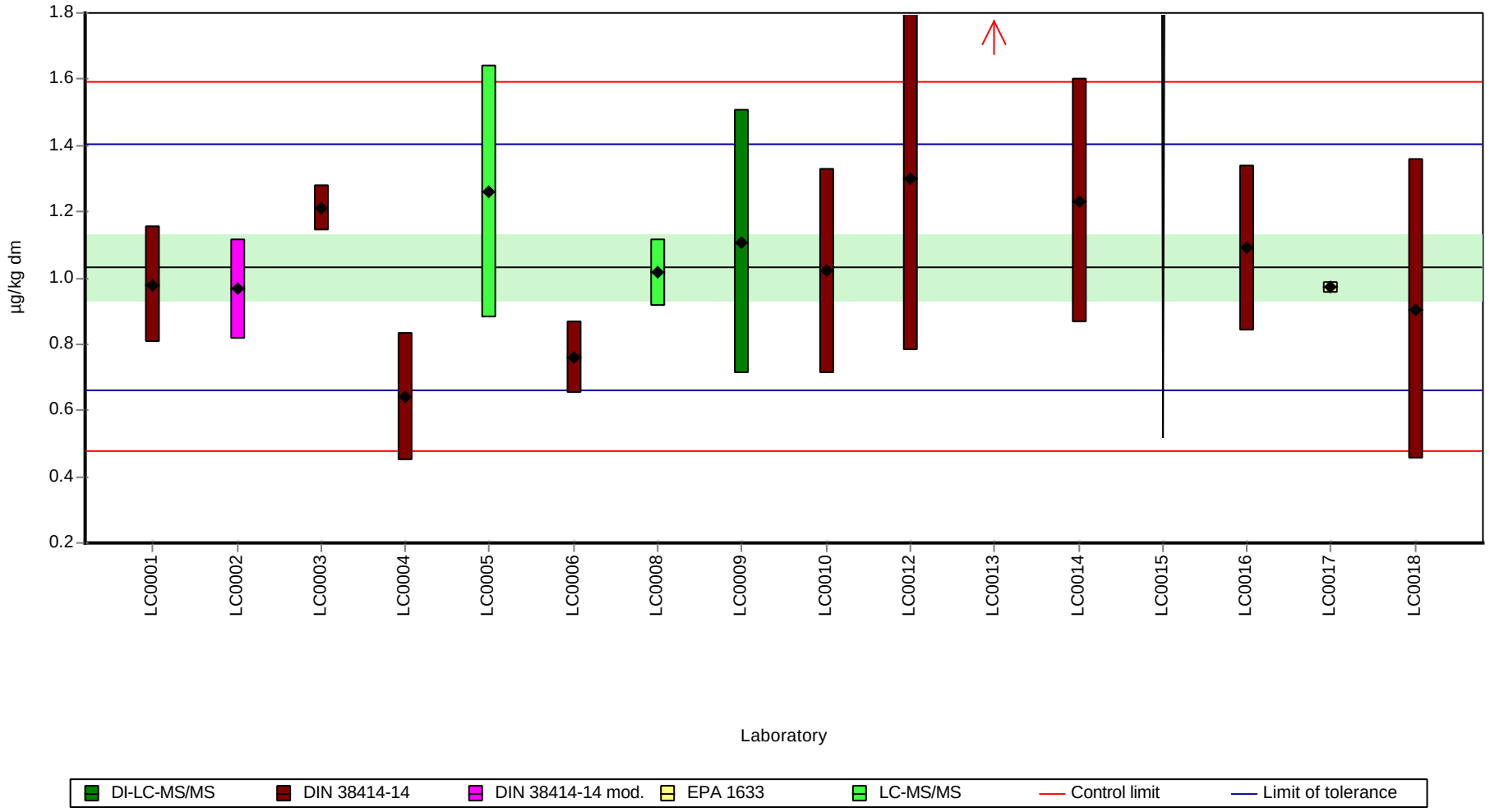
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	1.17 ± 0.446	1.03 ± 0.151	µg/kg dm
Minimum	0.641	0.641	µg/kg dm
Maximum	3.15	1.3	µg/kg dm
Standard deviation	0.576	0.188	µg/kg dm
rel. standard deviation	49.1	18.2	%
n	15	14	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Perfluorooctanoic acid (PFOA) - PF8C

Graphical presentation of results

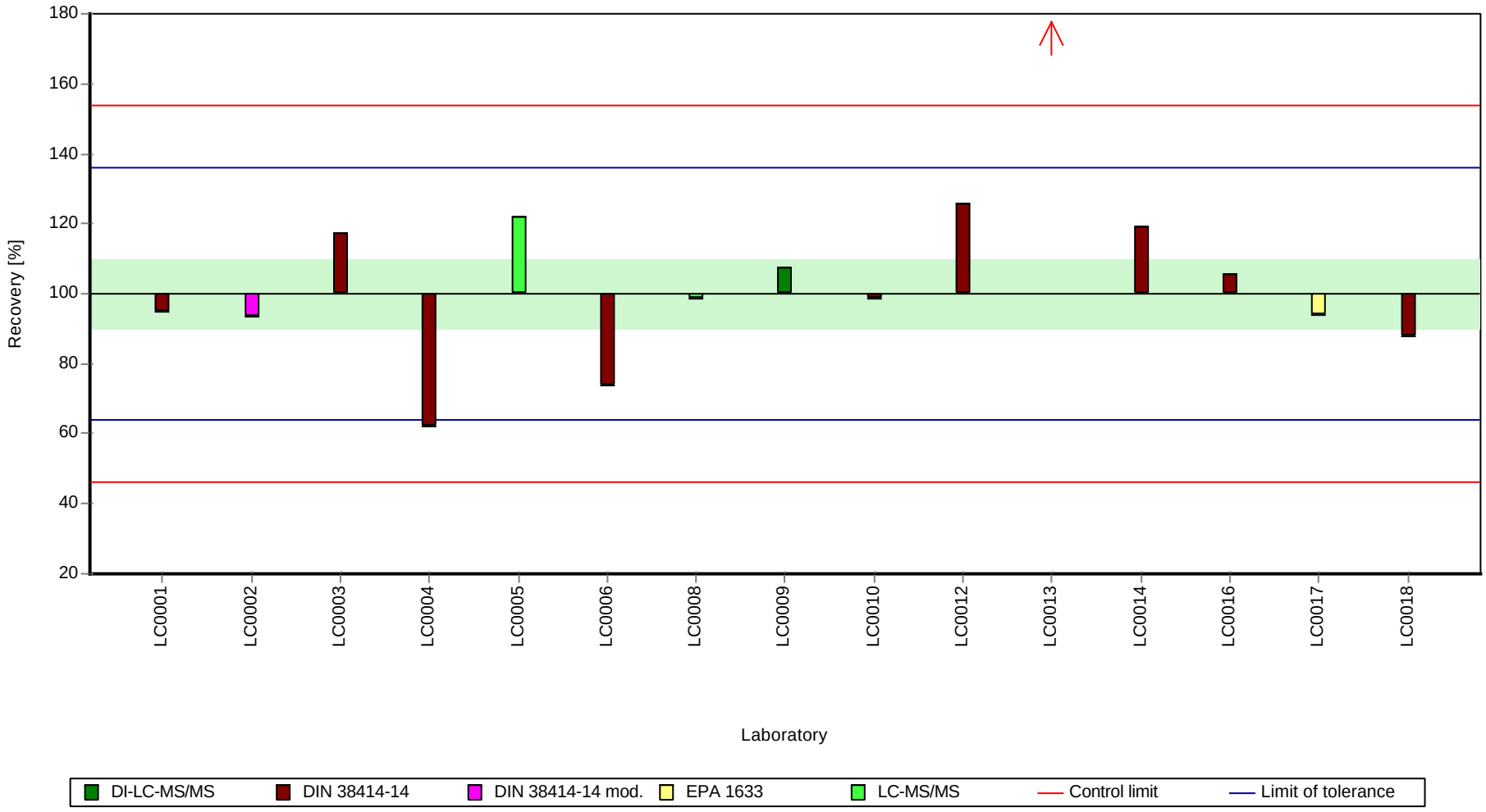
Results



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

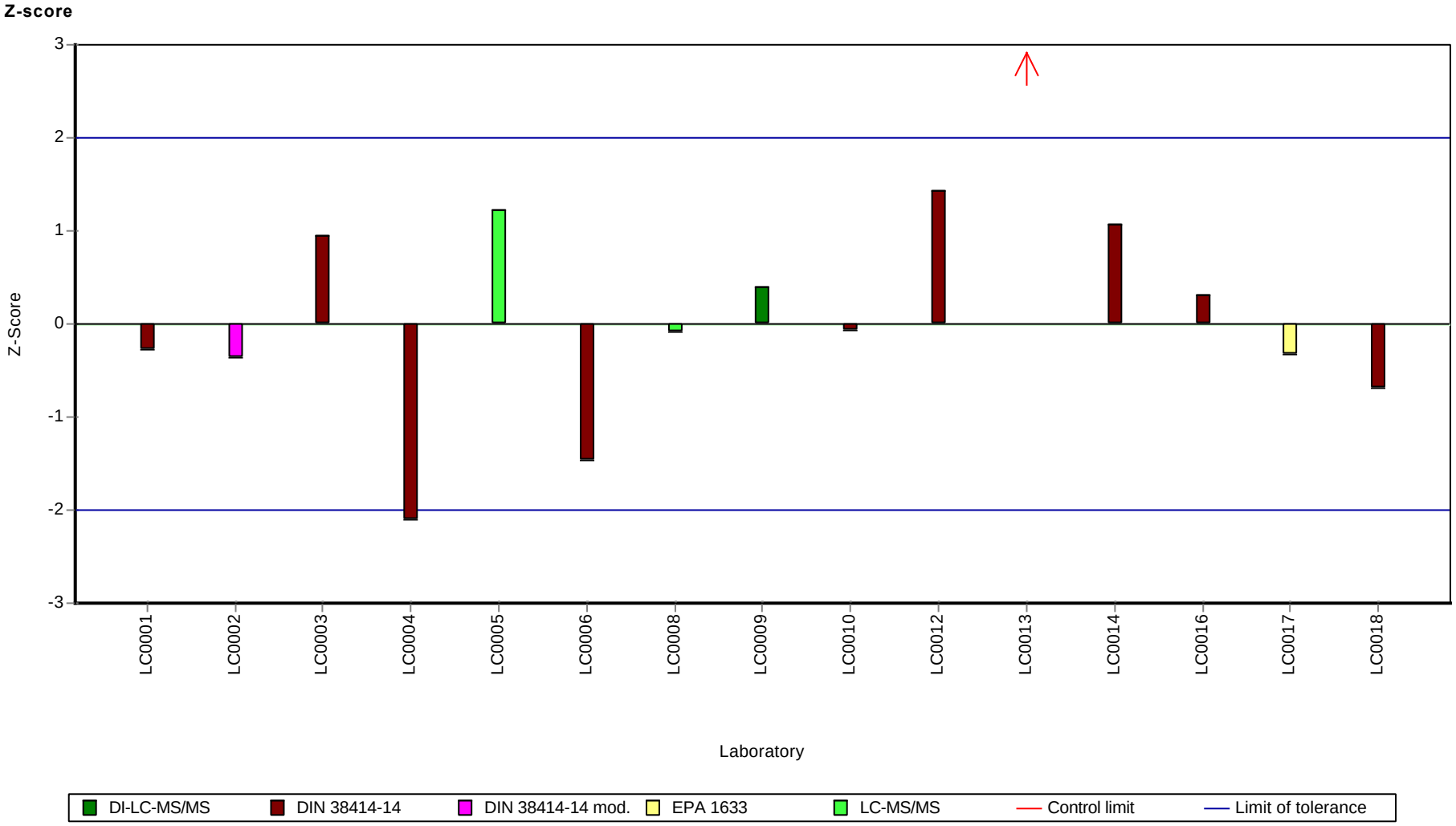
Sample: PFS01B, Parameter: Perfluorooctanoic acid (PFOA) - PF8C

Recovery rate



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Perfluorooctanoic acid (PFOA) - PF8C



Parameter oriented report

PFS01 A

Perfluorononanoic acid (PFNA) - PF9C

Unit	µg/kg dm
Assigned value ± U (k=2)	0.159 ± 0.0302
Criterion	0.0542 (34 %)
Minimum - Maximum	0.0994 - 0.273
Control test value ± U (k=2)	0.158 ± 0.0316

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	0.146	0.026	91.6	-0.25	
LC0002	0.111	0.15	69.6	-0.89	
LC0003	0.116	0.035	72.8	-0.8	
LC0004	0.106	0.05	66.5	-0.99	
LC0005	0.197	0.059	124	0.69	
LC0006	< 0.27 (LOQ)	-	-	-	
LC0007	-	-	-	-	
LC0008	0.139	0.014	87.2	-0.38	
LC0009	0.139	0.05	87.2	-0.38	
LC0010	< 0.1 (LOQ)	-	-	-	
LC0011	0.144	0.07	90.3	-0.28	
LC0012	0.25	0.1	157	1.67	
LC0013	0.273	0.1	171	2.1	
LC0014	0.161	0.04	101	0.03	
LC0015	< 5 (LOQ)	-	-	-	
LC0016	< 0.1 (LOQ)	-	-	-	
LC0017	0.191	0.007	120	0.58	
LC0018	0.0994	0.0348	62.4	-1.11	

Characteristics of parameter

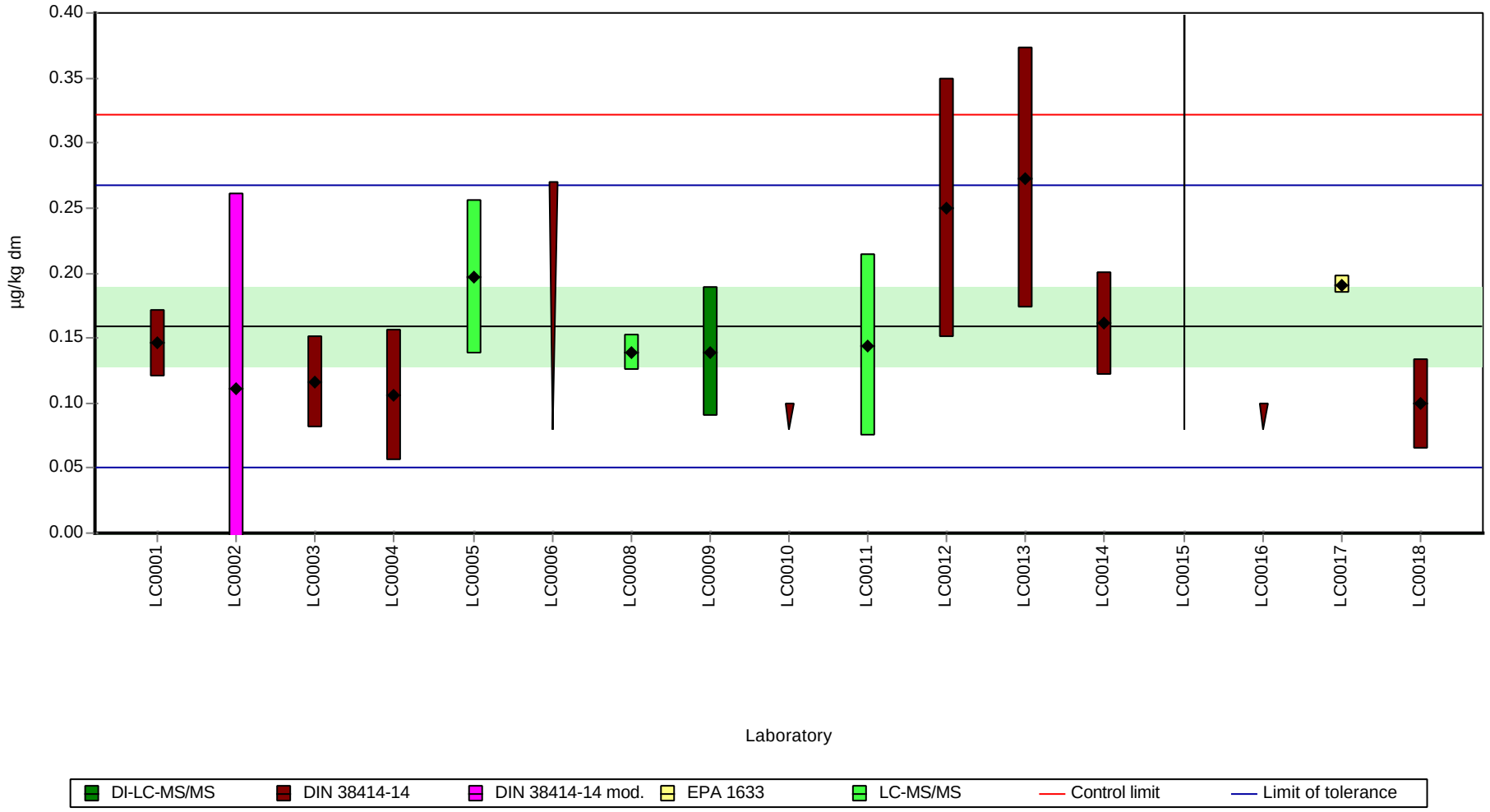
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	0.159 ± 0.0452	0.159 ± 0.0452	µg/kg dm
Minimum	0.0994	0.0994	µg/kg dm
Maximum	0.273	0.273	µg/kg dm
Standard deviation	0.0544	0.0544	µg/kg dm
rel. standard deviation	34.1	34.1	%
n	13	13	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: Perfluorononanoic acid (PFNA) - PF9C

Graphical presentation of results

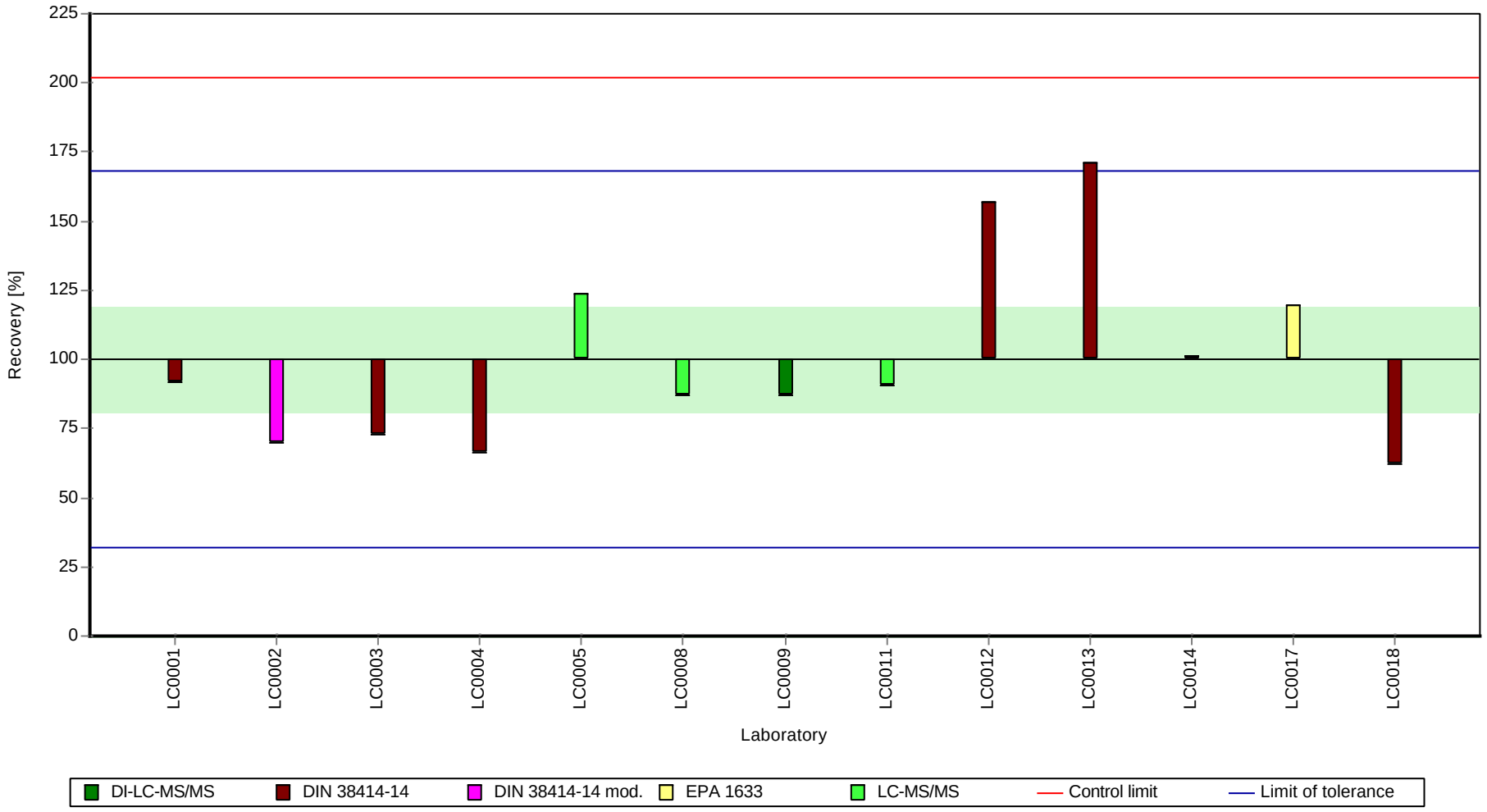
Results



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

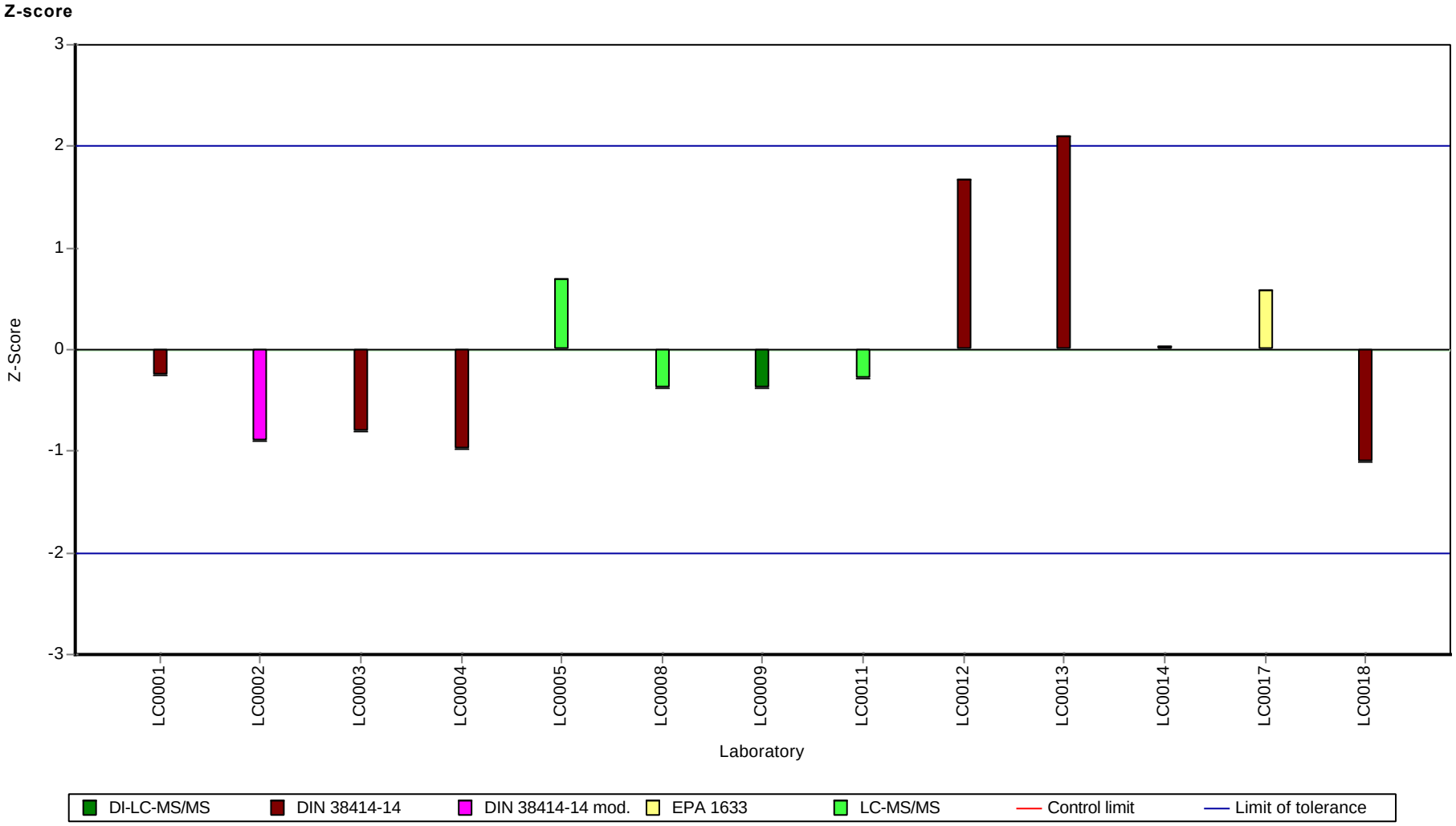
Sample: PFS01A, Parameter: Perfluorononanoic acid (PFNA) - PF9C

Recovery rate



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: Perfluorononanoic acid (PFNA) - PF9C



Parameter oriented report

PFS01 B

Perfluorononanoic acid (PFNA) - PF9C

Unit	µg/kg dm
Assigned value ± U (k=2)	0.212 ± 0.0469
Criterion	0.0849 (40 %)
Minimum - Maximum	0.105 - 0.418
Control test value ± U (k=2)	0.216 ± 0.0431

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	0.176	0.032	83	-0.43	
LC0002	0.162	0.15	76.4	-0.59	
LC0003	0.264	0.038	124	0.61	
LC0004	0.123	0.037	58	-1.05	
LC0005	0.25	0.075	118	0.45	
LC0006	< 0.27 (LOQ)	-	-	-	
LC0007	-	-	-	-	
LC0008	0.195	0.019	91.9	-0.2	
LC0009	0.222	0.08	105	0.12	
LC0010	0.114	0.034	53.7	-1.16	
LC0011	-	-	-	-	
LC0012	0.29	0.12	137	0.92	
LC0013	0.418	0.1	197	2.43	
LC0014	0.219	0.09	103	0.08	
LC0015	< 5 (LOQ)	-	-	-	
LC0016	0.105	0.017	49.5	-1.26	
LC0017	0.22	0.01	104	0.09	
LC0018	0.549	0.275	259	3.97	H

Characteristics of parameter

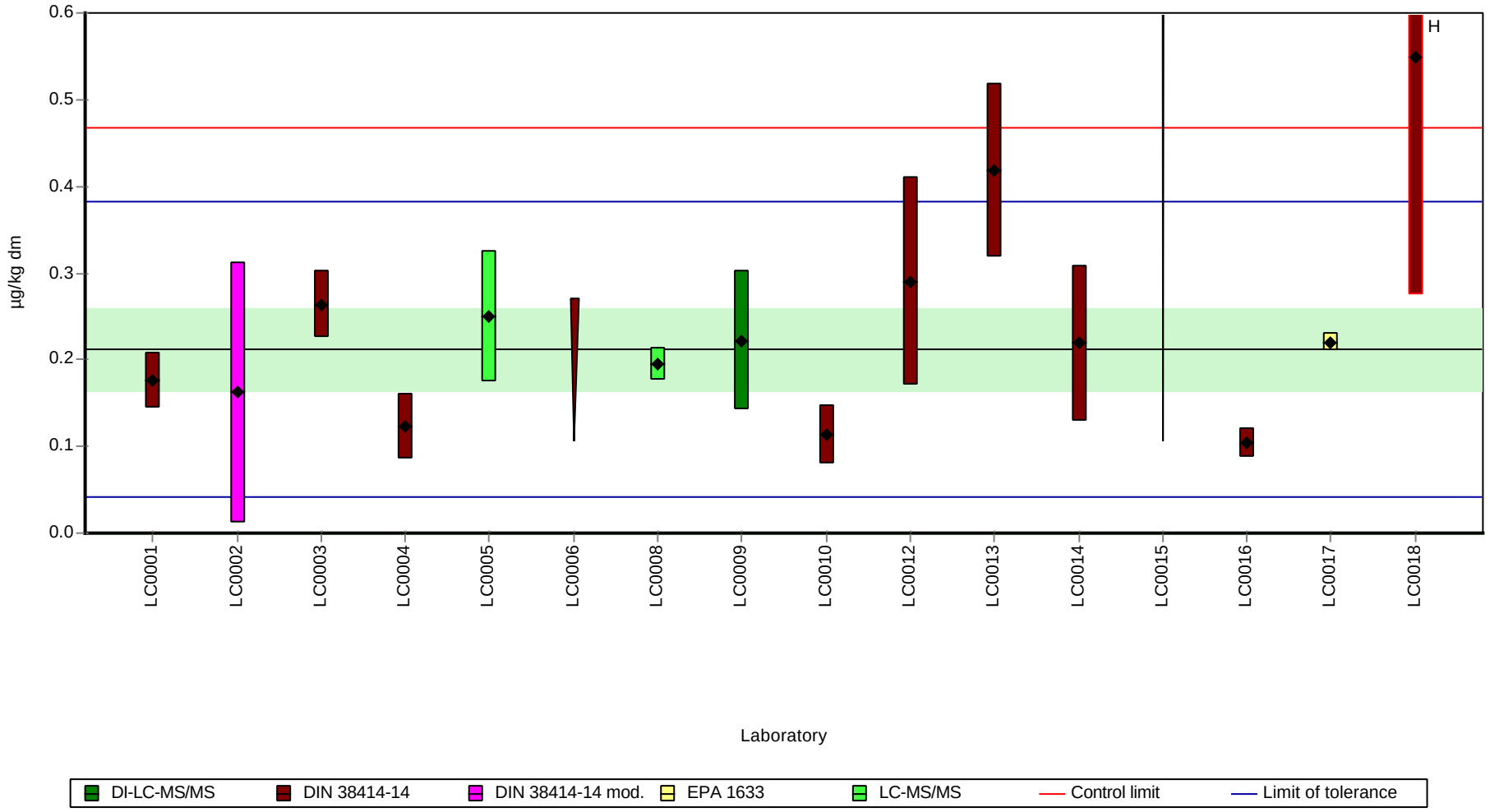
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	0.236 ± 0.0973	0.212 ± 0.0704	µg/kg dm
Minimum	0.105	0.105	µg/kg dm
Maximum	0.549	0.418	µg/kg dm
Standard deviation	0.121	0.0846	µg/kg dm
rel. standard deviation	51.4	39.9	%
n	14	13	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Perfluorononanoic acid (PFNA) - PF9C

Graphical presentation of results

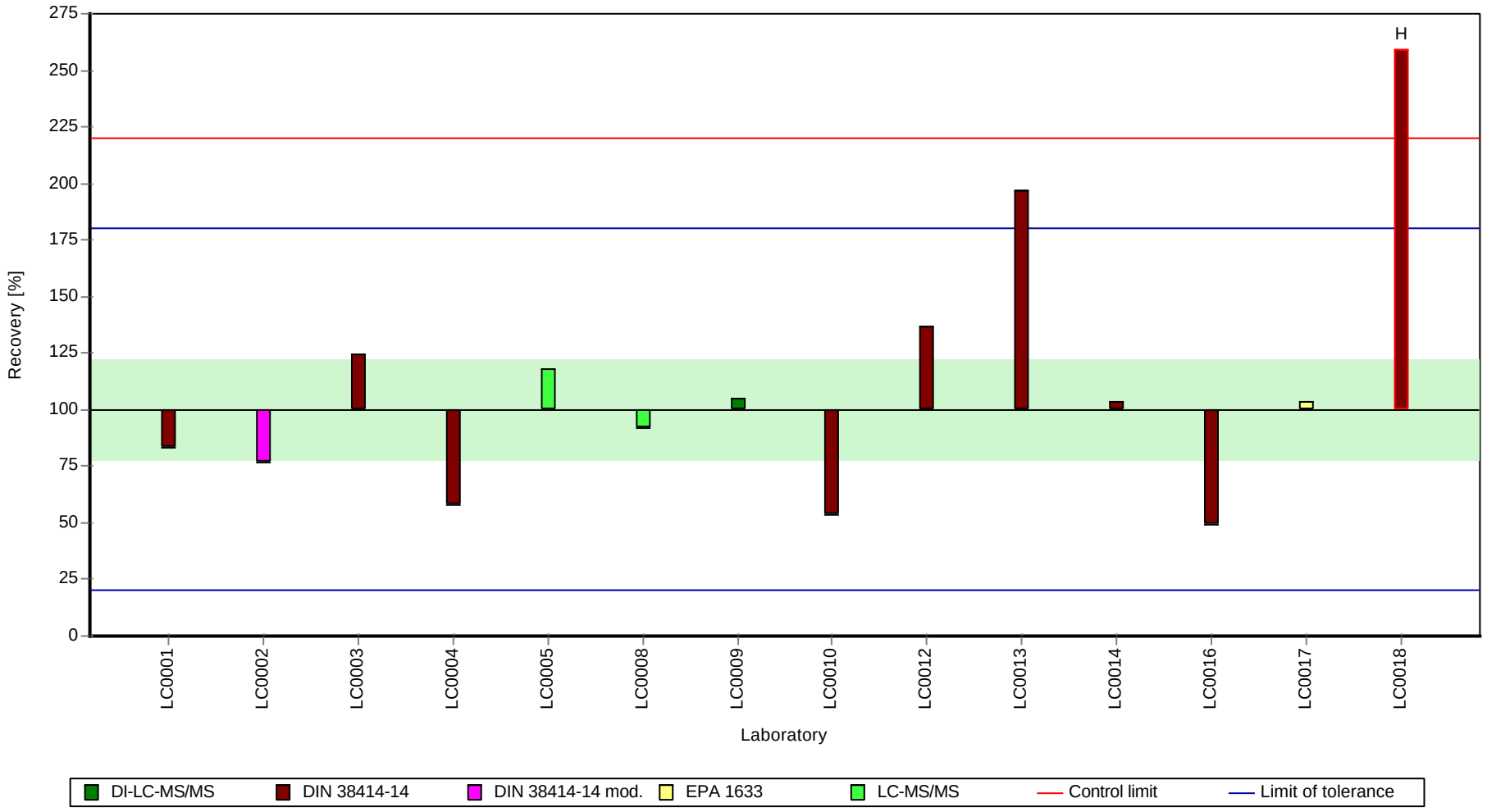
Results



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

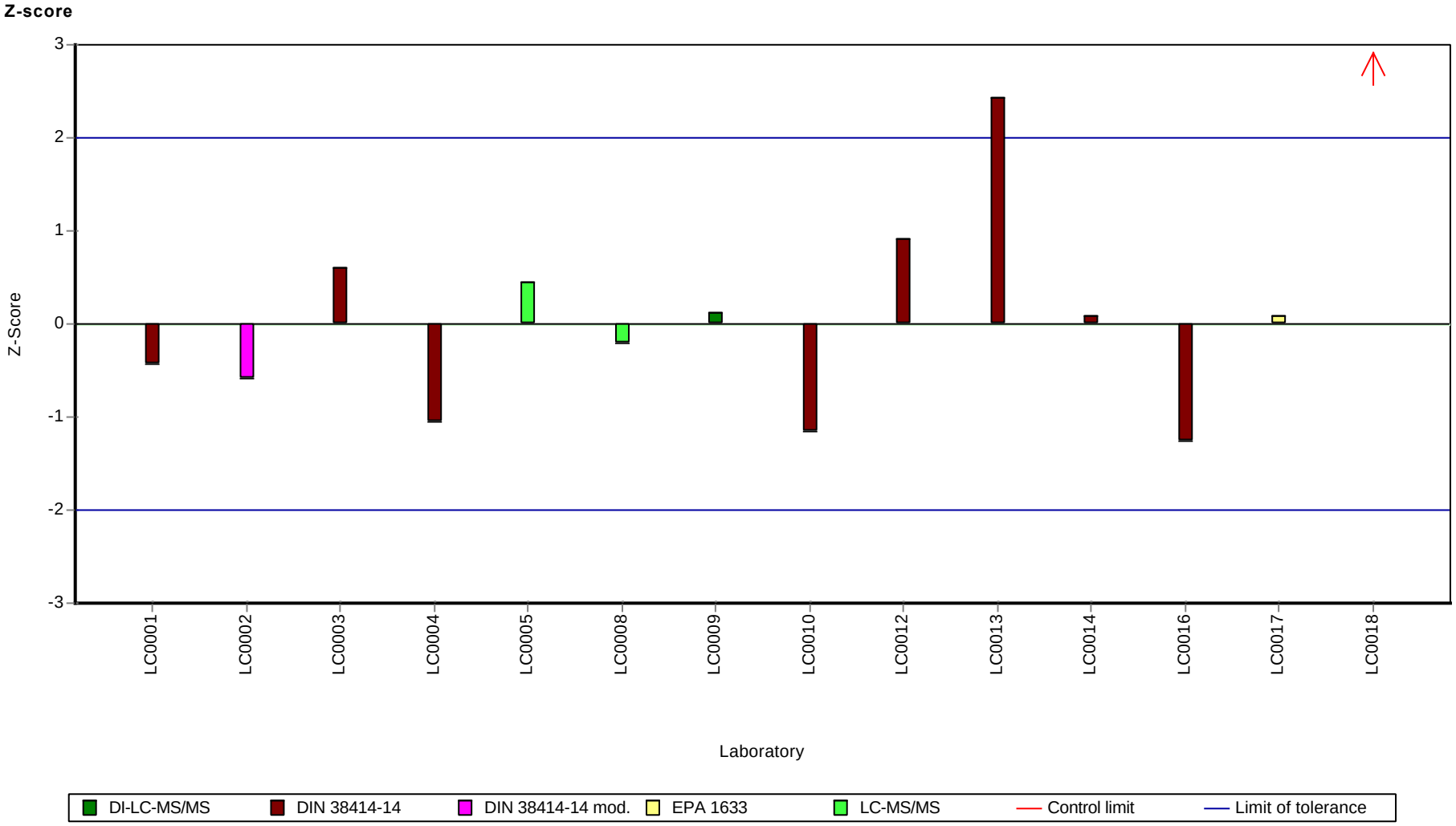
Sample: PFS01B, Parameter: Perfluorononanoic acid (PFNA) - PF9C

Recovery rate



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Perfluorononanoic acid (PFNA) - PF9C



Parameter oriented report

PFS01 A

Perfluorodecanoic acid (PFDA) - PF10C

Unit	µg/kg dm
Assigned value ± U (k=2)	0.355 ± 0.041
Criterion	0.0781 (22 %)
Minimum - Maximum	0.224 - 0.49
Control test value ± U (k=2)	0.339 ± 0.0849

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	0.376	0.068	106	0.27	
LC0002	0.329	0.5	92.7	-0.33	
LC0003	0.371	0.024	104	0.2	
LC0004	0.311	0.093	87.6	-0.56	
LC0005	0.49	0.15	138	1.73	
LC0006	0.812	0.09	229	5.85	H
LC0007	-	-	-	-	
LC0008	0.352	0.035	99.1	-0.04	
LC0009	0.308	0.111	86.7	-0.6	
LC0010	0.423	0.127	119	0.87	
LC0011	< 0.3 (LOQ)	-	-	-	
LC0012	0.49	0.2	138	1.73	
LC0013	0.295	0.11	83.1	-0.77	
LC0014	0.307	0.11	86.5	-0.62	
LC0015	< 5 (LOQ)	-	-	-	
LC0016	0.29	0.047	81.7	-0.83	
LC0017	0.405	0.022	114	0.64	
LC0018	0.2238	0.0671	63	-1.68	

Characteristics of parameter

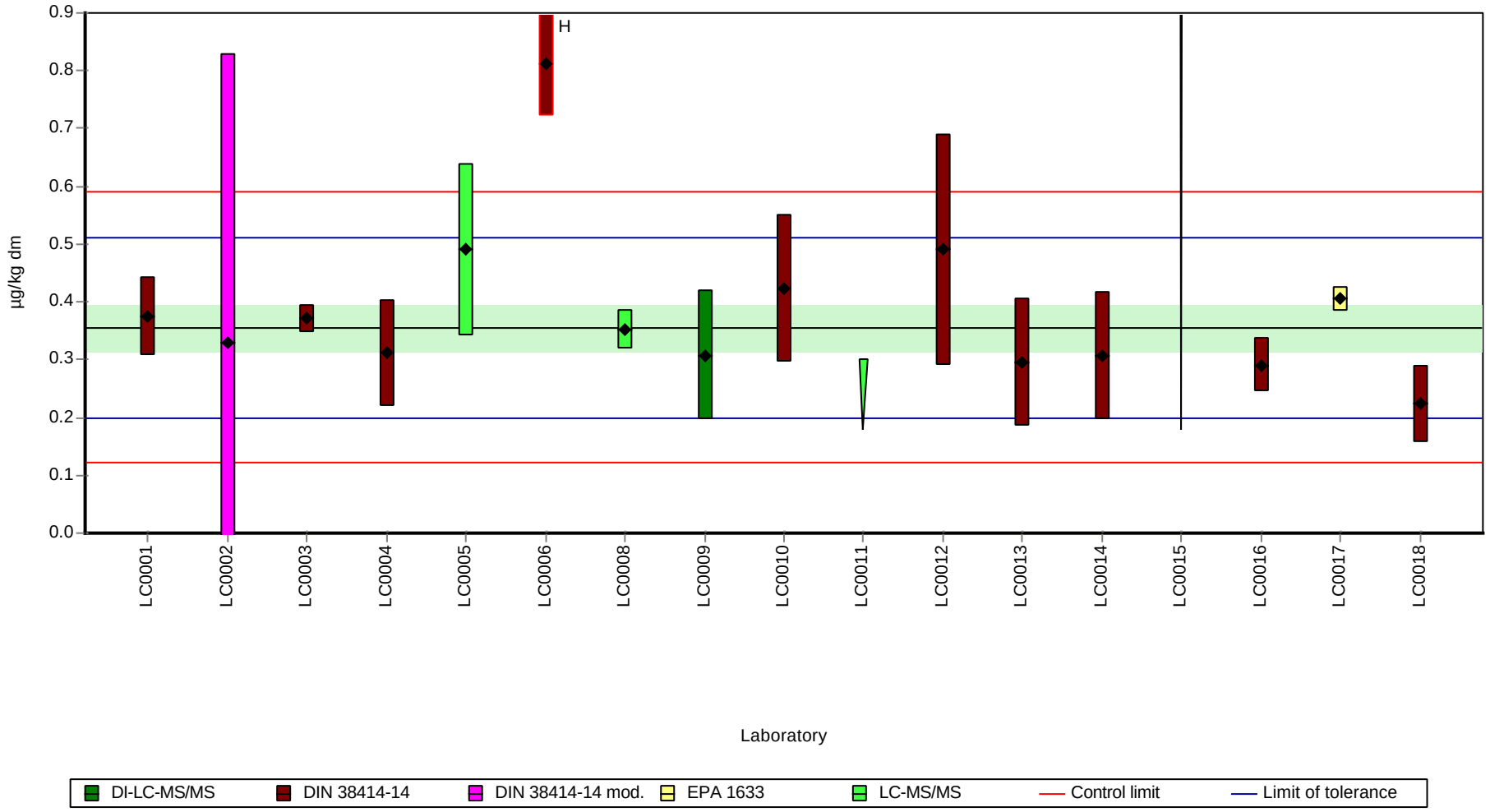
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	0.386 ± 0.108	0.355 ± 0.0615	µg/kg dm
Minimum	0.224	0.224	µg/kg dm
Maximum	0.812	0.49	µg/kg dm
Standard deviation	0.139	0.0767	µg/kg dm
rel. standard deviation	36.1	21.6	%
n	15	14	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: Perfluorodecanoic acid (PFDA) - PF10C

Graphical presentation of results

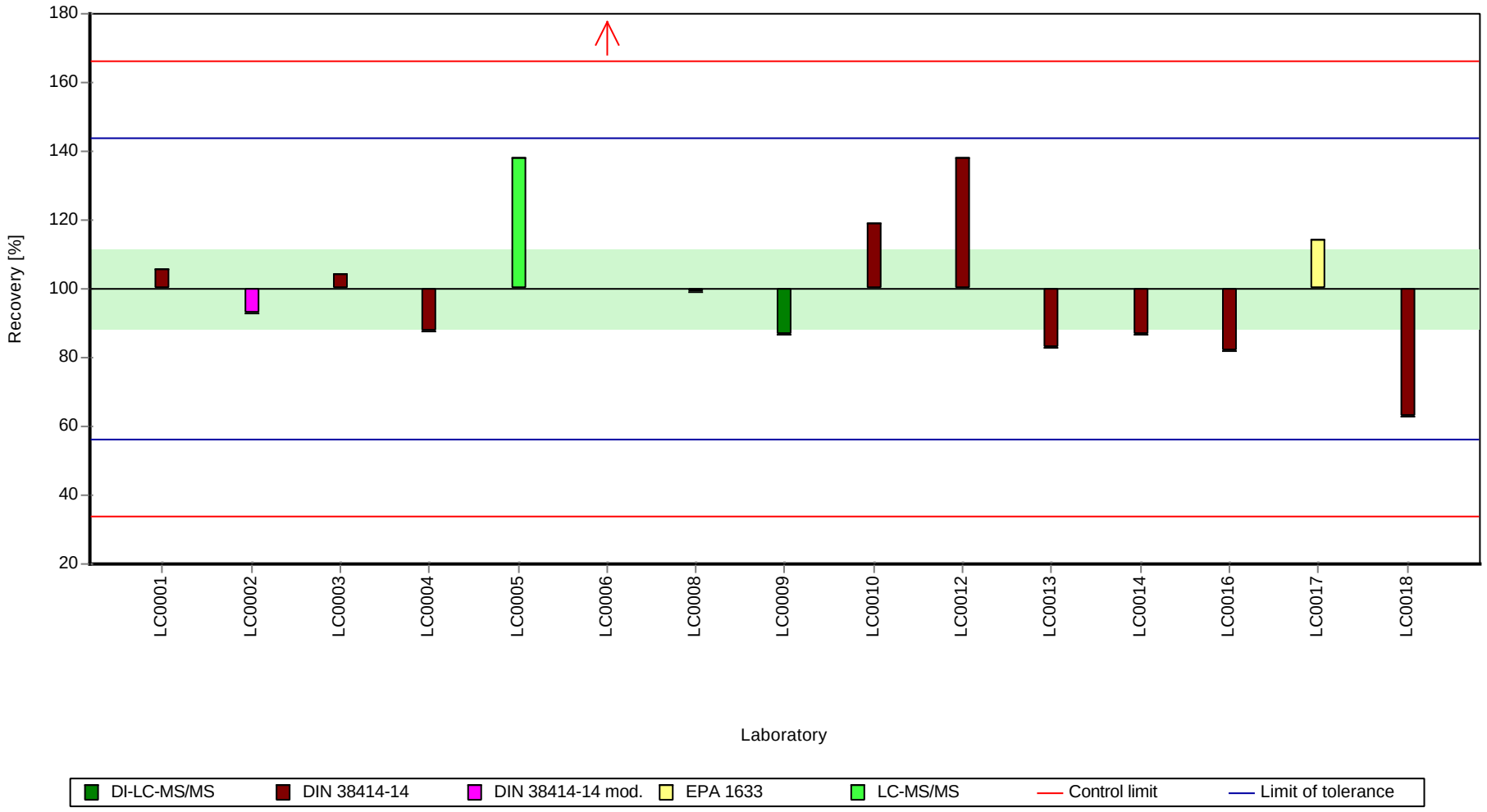
Results



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

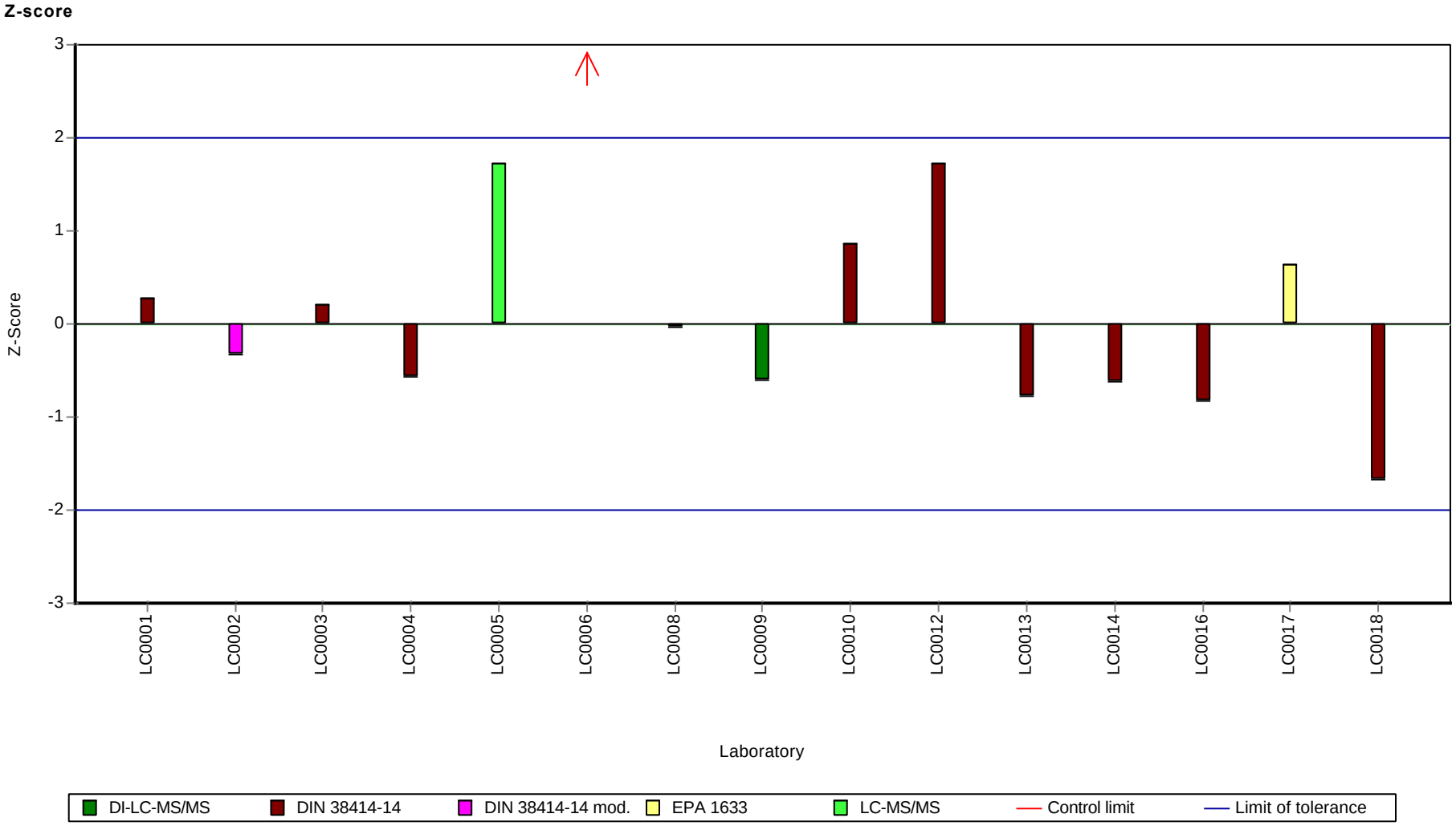
Sample: PFS01A, Parameter: Perfluorodecanoic acid (PFDA) - PF10C

Recovery rate



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: Perfluorodecanoic acid (PFDA) - PF10C



Parameter oriented report

PFS01 B

Perfluorodecanoic acid (PFDA) - PF10C

Unit	µg/kg dm
Assigned value ± U (k=2)	0.605 ± 0.069
Criterion	0.127 (21 %)
Minimum - Maximum	0.34 - 0.799
Control test value ± U (k=2)	0.579 ± 0.145

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	0.689	0.124	114	0.66	
LC0002	0.657	0.5	109	0.41	
LC0003	0.743	0.113	123	1.08	
LC0004	0.495	0.149	81.8	-0.87	
LC0005	0.799	0.24	132	1.53	
LC0006	5.34	0.59	882	37.26	H
LC0007	-	-	-	-	
LC0008	0.616	0.062	102	0.09	
LC0009	0.66	0.238	109	0.43	
LC0010	0.656	0.197	108	0.4	
LC0011	-	-	-	-	
LC0012	0.63	0.25	104	0.2	
LC0013	0.545	0.12	90.1	-0.47	
LC0014	0.388	0.13	64.1	-1.71	
LC0015	< 5 (LOQ)	-	-	-	
LC0016	0.34	0.055	56.2	-2.09	
LC0017	0.697	0.022	115	0.72	
LC0018	0.5569	0.279	92	-0.38	

Characteristics of parameter

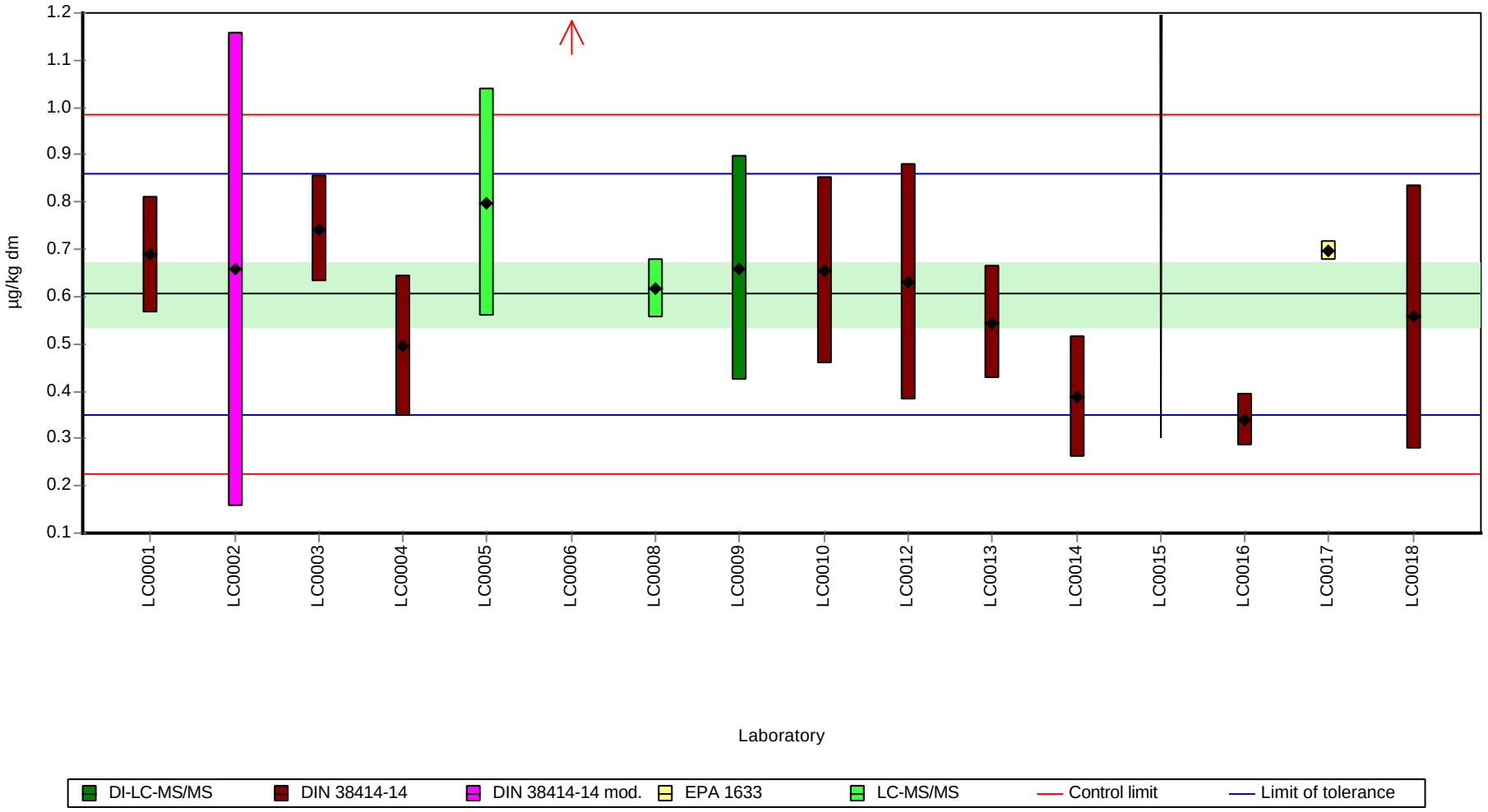
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	0.921 ± 0.952	0.605 ± 0.103	µg/kg dm
Minimum	0.34	0.34	µg/kg dm
Maximum	5.34	0.799	µg/kg dm
Standard deviation	1.23	0.129	µg/kg dm
rel. standard deviation	133	21.3	%
n	15	14	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Perfluorodecanoic acid (PFDA) - PF10C

Graphical presentation of results

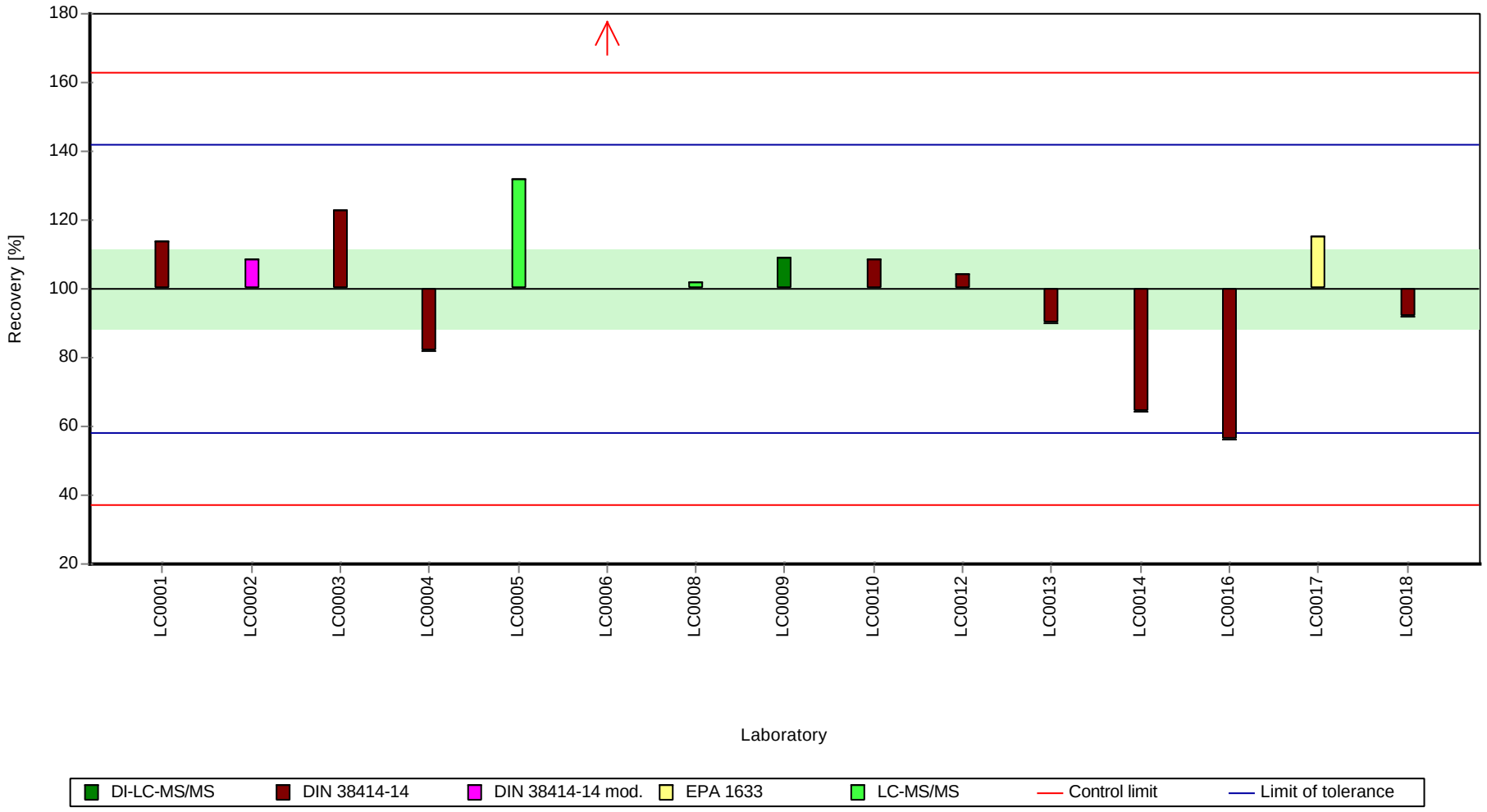
Results



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

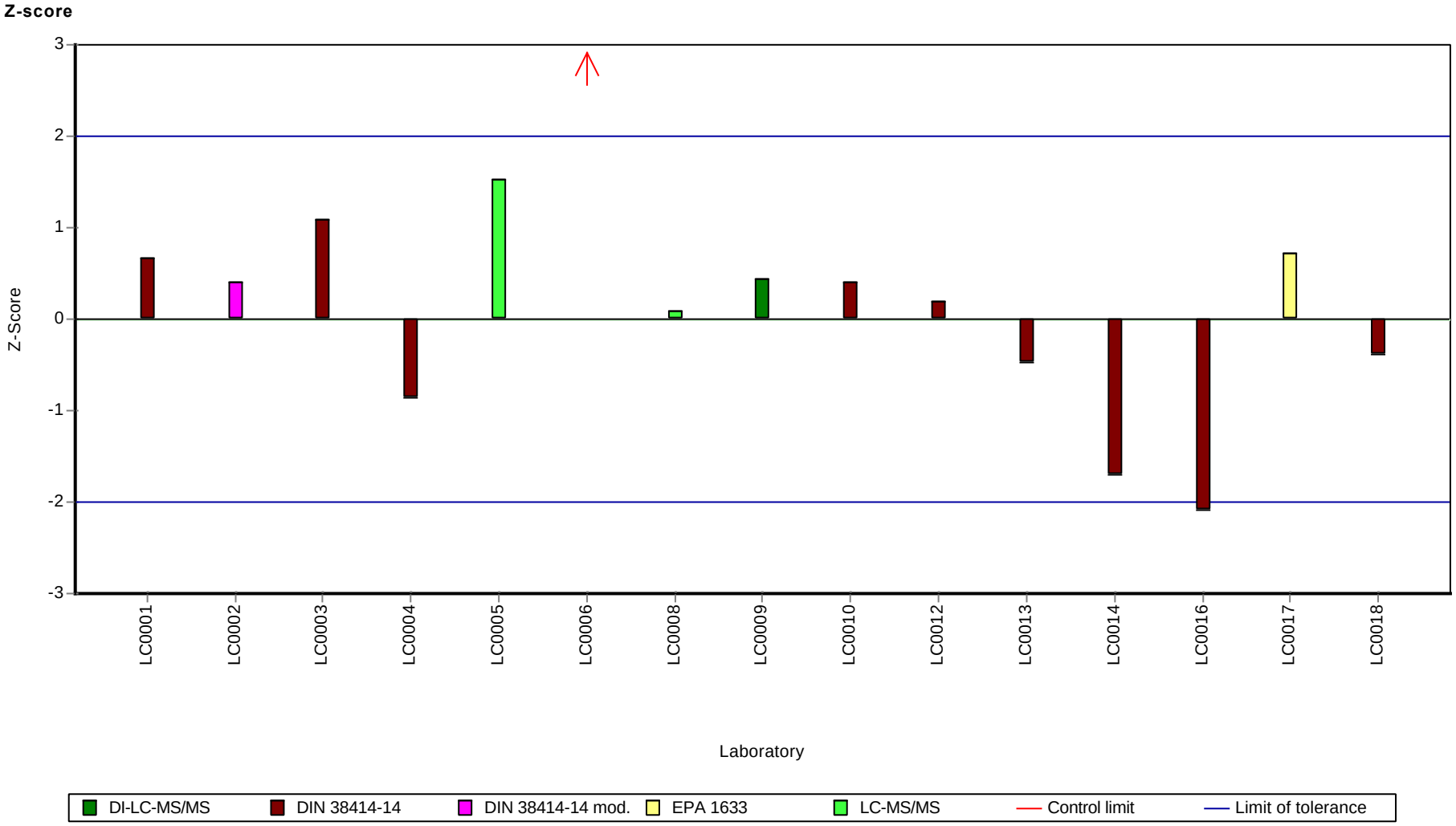
Sample: PFS01B, Parameter: Perfluorodecanoic acid (PFDA) - PF10C

Recovery rate



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Perfluorodecanoic acid (PFDA) - PF10C



Parameter oriented report

PFS01 A

Perfluoroundecanoic acid (PFUnDA) - PF11C

Unit	µg/kg dm
Assigned value ± U (k=2)	0.152 ± 0.0235
Criterion	0.038 (25 %)
Minimum - Maximum	0.0855 - 0.219
Control test value ± U (k=2)	0.124 ± 0.0494

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	0.135	0.024	88.7	-0.45	
LC0002	0.138	0.5	90.7	-0.37	
LC0003	< 0.1 (LOQ)	-	-	-	
LC0004	< 0.1 (LOQ)	-	-	-	
LC0005	0.173	0.052	114	0.55	
LC0006	-	-	-	-	
LC0007	-	-	-	-	
LC0008	0.138	0.014	90.7	-0.37	
LC0009	0.135	0.049	88.7	-0.45	
LC0010	< 0.1 (LOQ)	-	-	-	
LC0011	< 0.3 (LOQ)	-	-	-	
LC0012	0.15	0.06	98.6	-0.06	
LC0013	0.198	0.08	130	1.21	
LC0014	0.219	0.07	144	1.76	
LC0015	< 5 (LOQ)	-	-	-	
LC0016	0.15	0.023	98.6	-0.06	
LC0017	0.319	0.015	210	4.39	H
LC0018	0.0855	0.0257	56.2	-1.75	

Characteristics of parameter

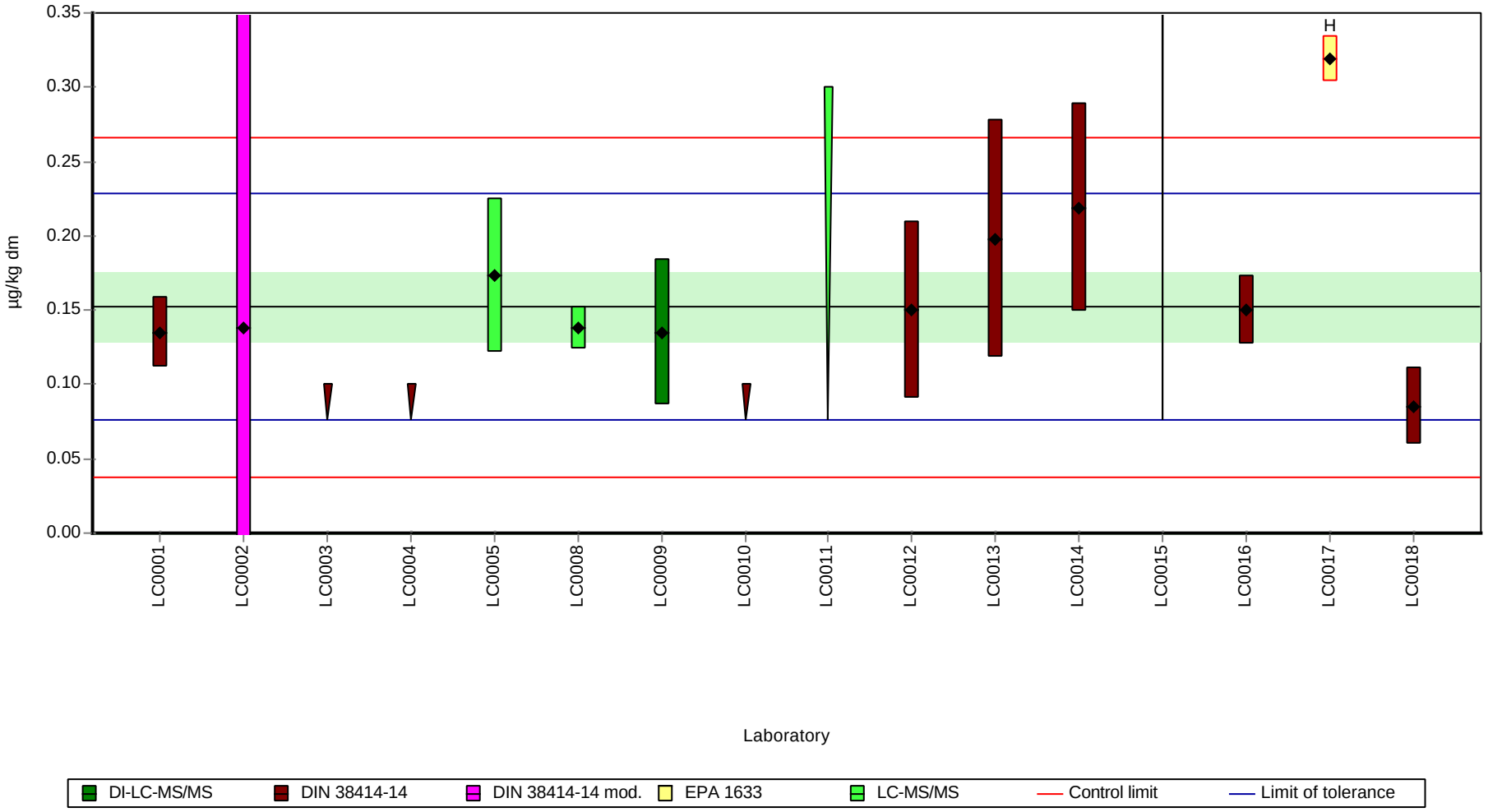
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	0.167 ± 0.0556	0.152 ± 0.0353	µg/kg dm
Minimum	0.0855	0.0855	µg/kg dm
Maximum	0.319	0.219	µg/kg dm
Standard deviation	0.0614	0.0372	µg/kg dm
rel. standard deviation	36.7	24.4	%
n	11	10	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: Perfluoroundecanoic acid (PFUnDA) - PF11C

Graphical presentation of results

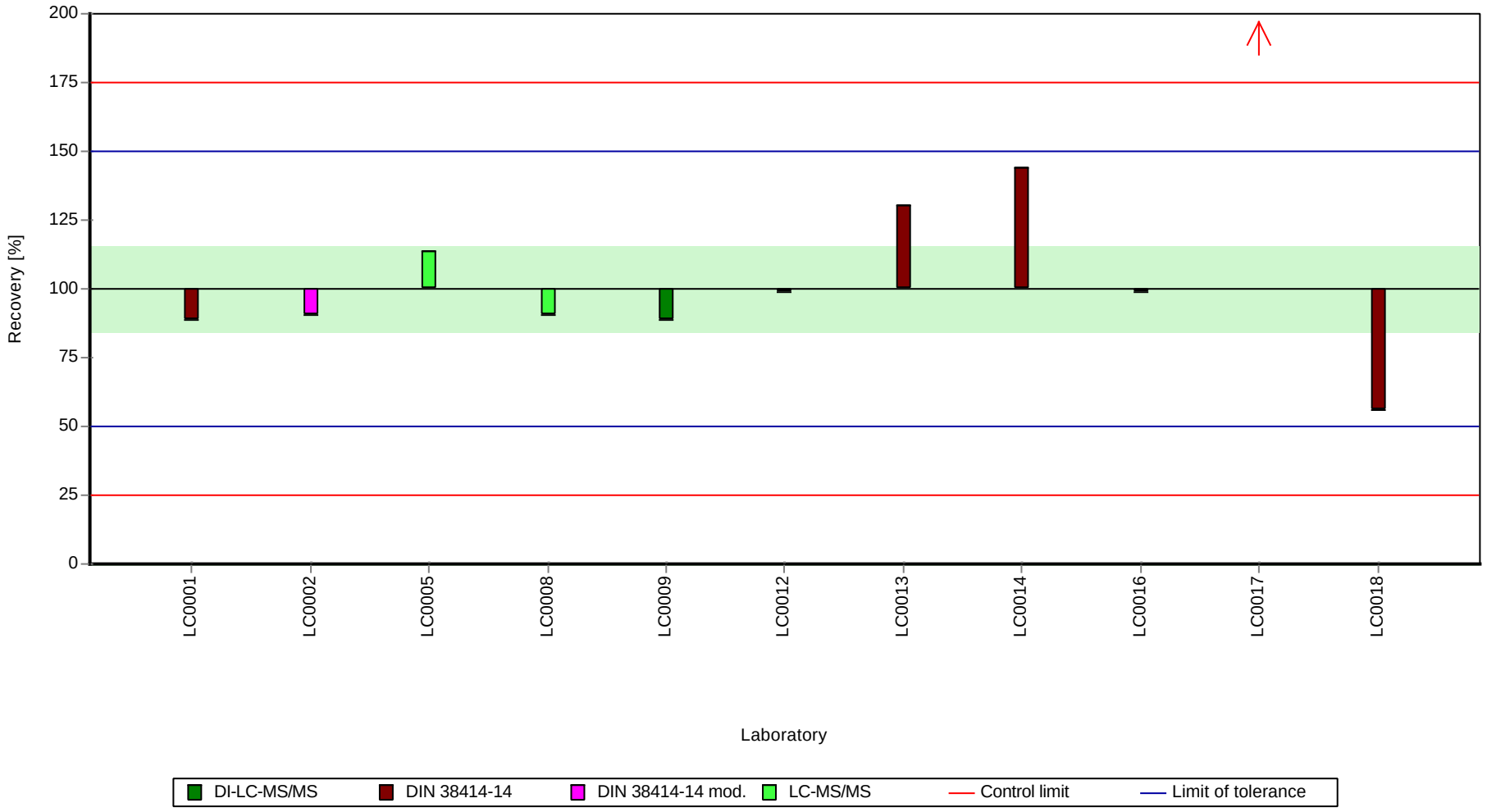
Results



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

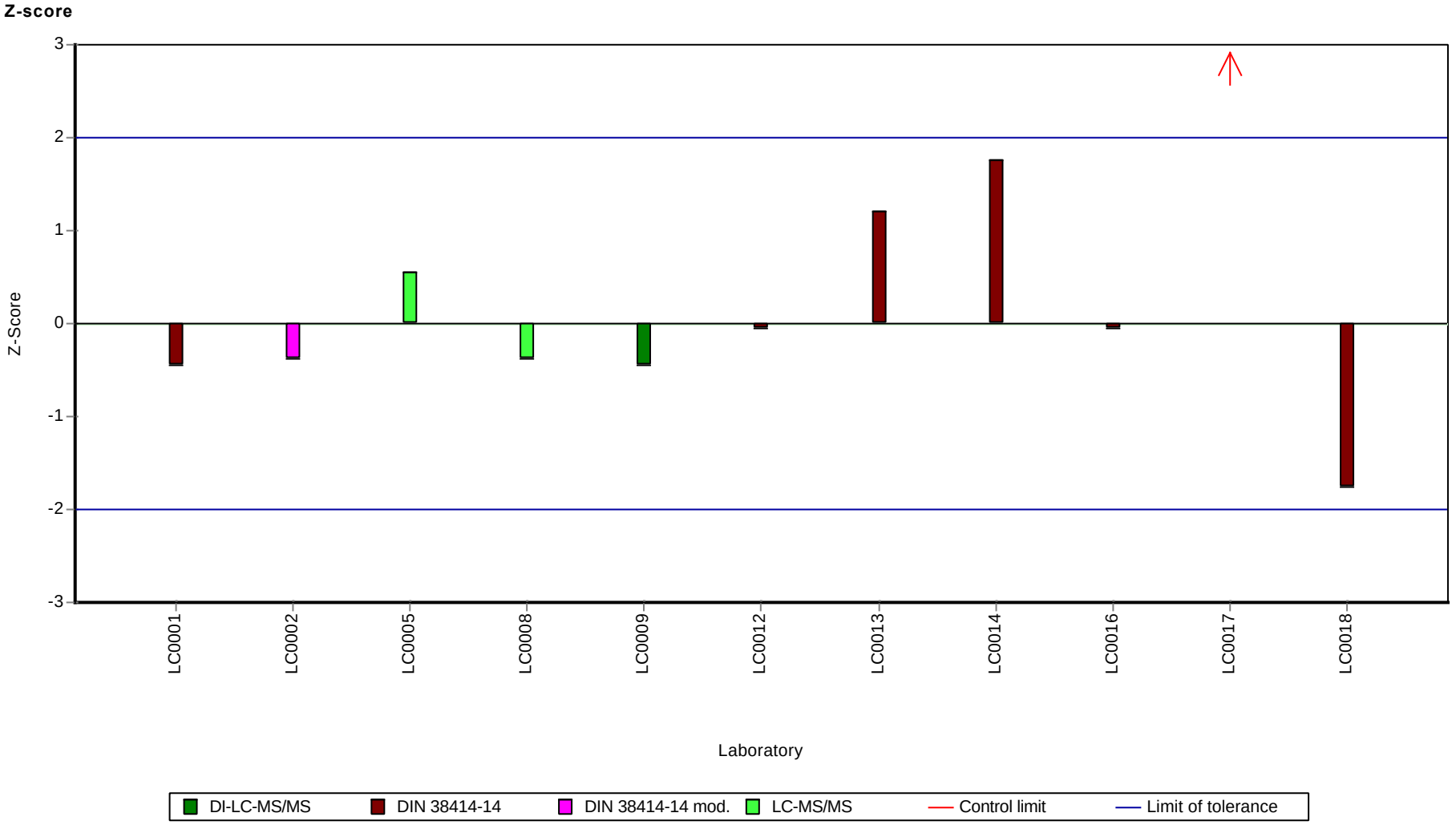
Sample: PFS01A, Parameter: Perfluoroundecanoic acid (PFUnDA) - PF11C

Recovery rate



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: Perfluoroundecanoic acid (PFUnDA) - PF11C



Parameter oriented report

PFS01 B

Perfluoroundecanoic acid (PFUnDA) - PF11C

Unit	µg/kg dm
Assigned value ± U (k=2)	0.35 ± 0.0519
Criterion	0.0944 (27 %)
Minimum - Maximum	0.187 - 0.54
Control test value ± U (k=2)	0.249 ± 0.0997

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	0.368	0.066	105	0.19	
LC0002	0.345	0.5	98.6	-0.05	
LC0003	0.509	0.075	146	1.69	
LC0004	0.187	0.056	53.5	-1.72	
LC0005	0.275	0.082	78.6	-0.79	
LC0006	-	-	-	-	
LC0007	-	-	-	-	
LC0008	0.293	0.029	83.8	-0.6	
LC0009	0.296	0.107	84.6	-0.57	
LC0010	< 0.1 (LOQ)	-	-	-	FN
LC0011	-	-	-	-	
LC0012	0.32	0.13	91.5	-0.31	
LC0013	0.54	0.12	154	2.02	
LC0014	0.36	0.09	103	0.11	
LC0015	< 5 (LOQ)	-	-	-	
LC0016	0.31	0.047	88.6	-0.42	
LC0017	0.346	0.024	98.9	-0.04	
LC0018	0.3974	0.199	114	0.5	

Characteristics of parameter

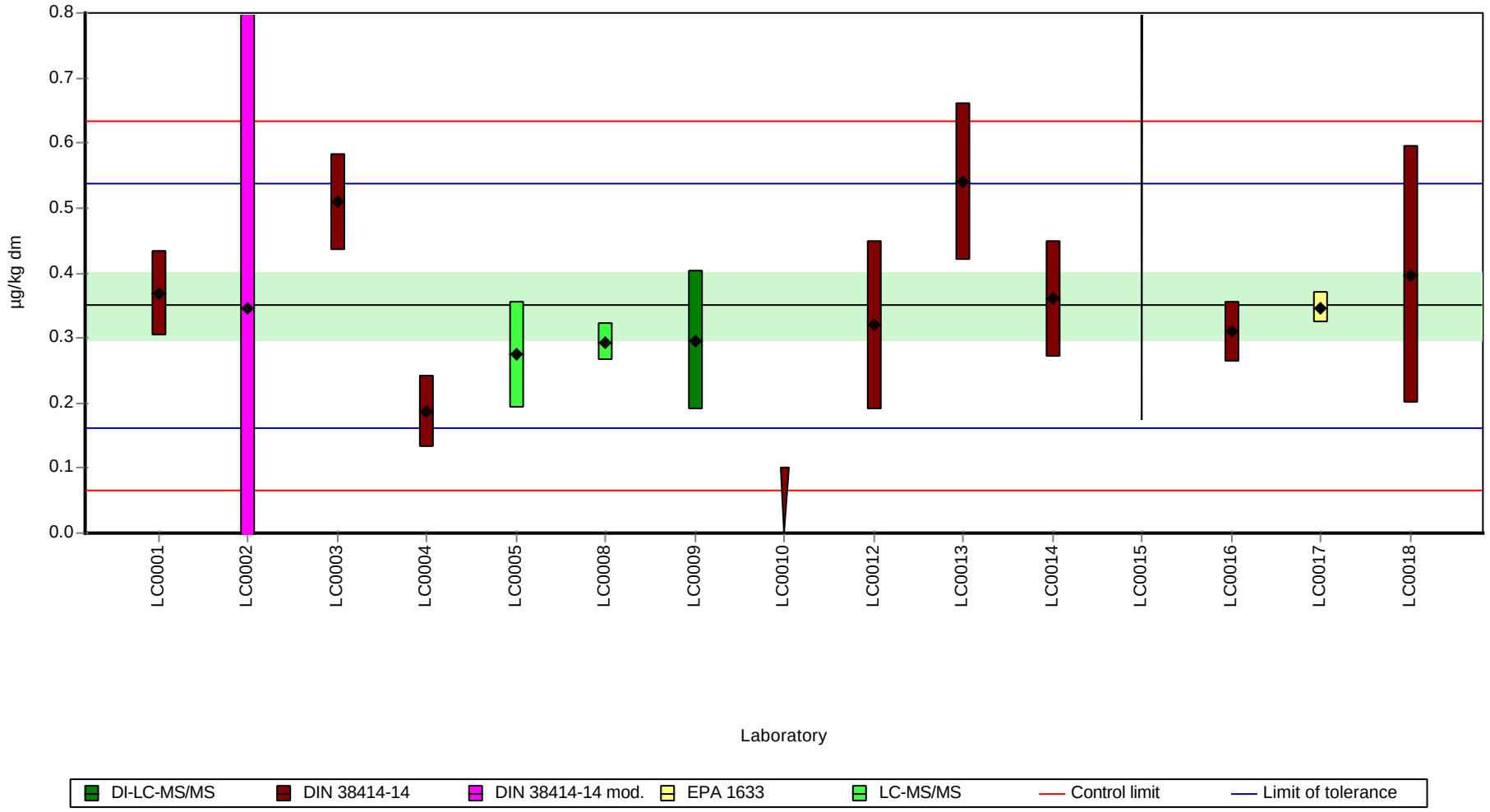
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	0.35 ± 0.0778	0.35 ± 0.0778	µg/kg dm
Minimum	0.187	0.187	µg/kg dm
Maximum	0.54	0.54	µg/kg dm
Standard deviation	0.0935	0.0935	µg/kg dm
rel. standard deviation	26.7	26.7	%
n	13	13	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Perfluoroundecanoic acid (PFUnDA) - PF11C

Graphical presentation of results

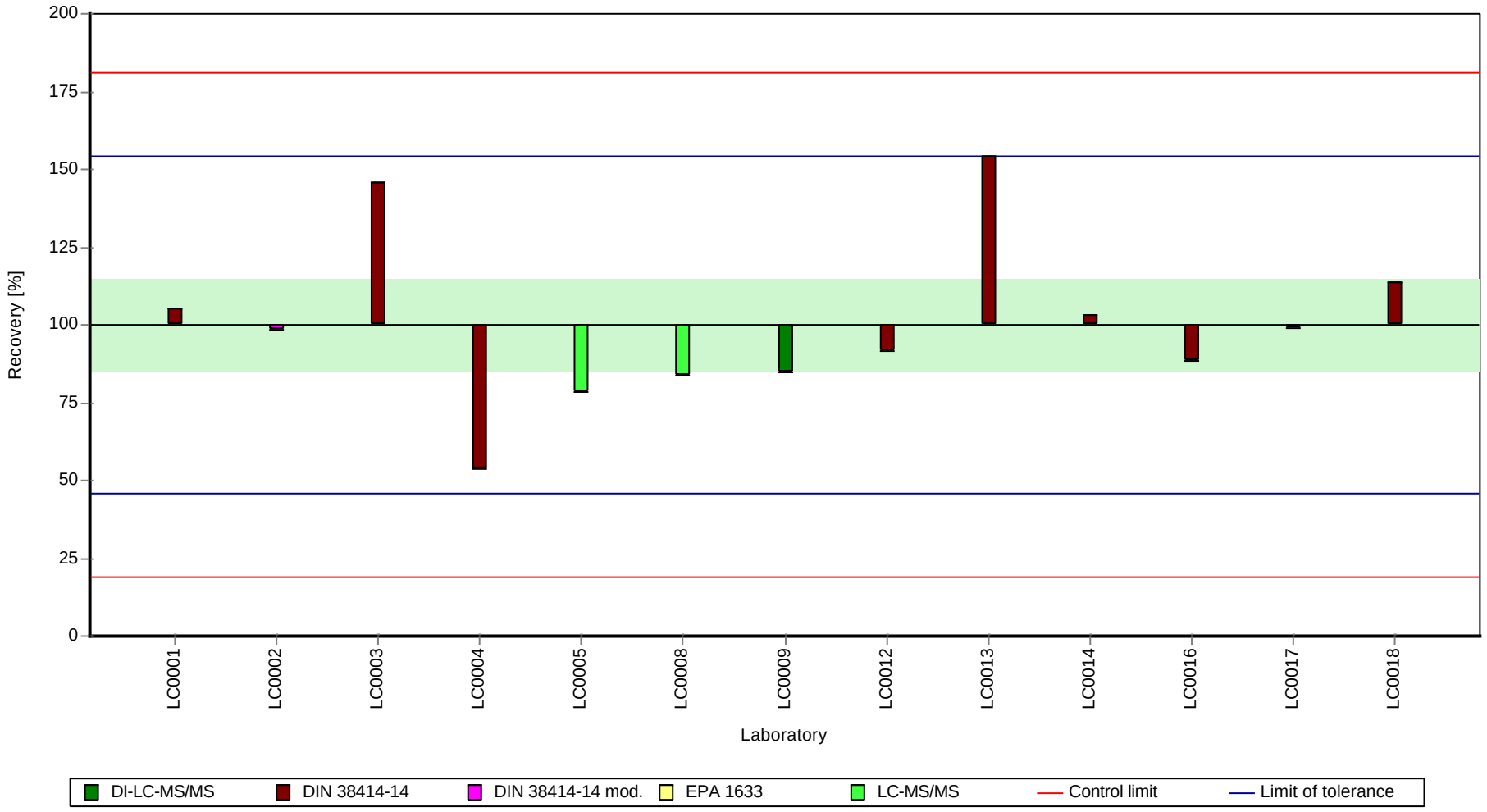
Results



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Perfluoroundecanoic acid (PFUnDA) - PF11C

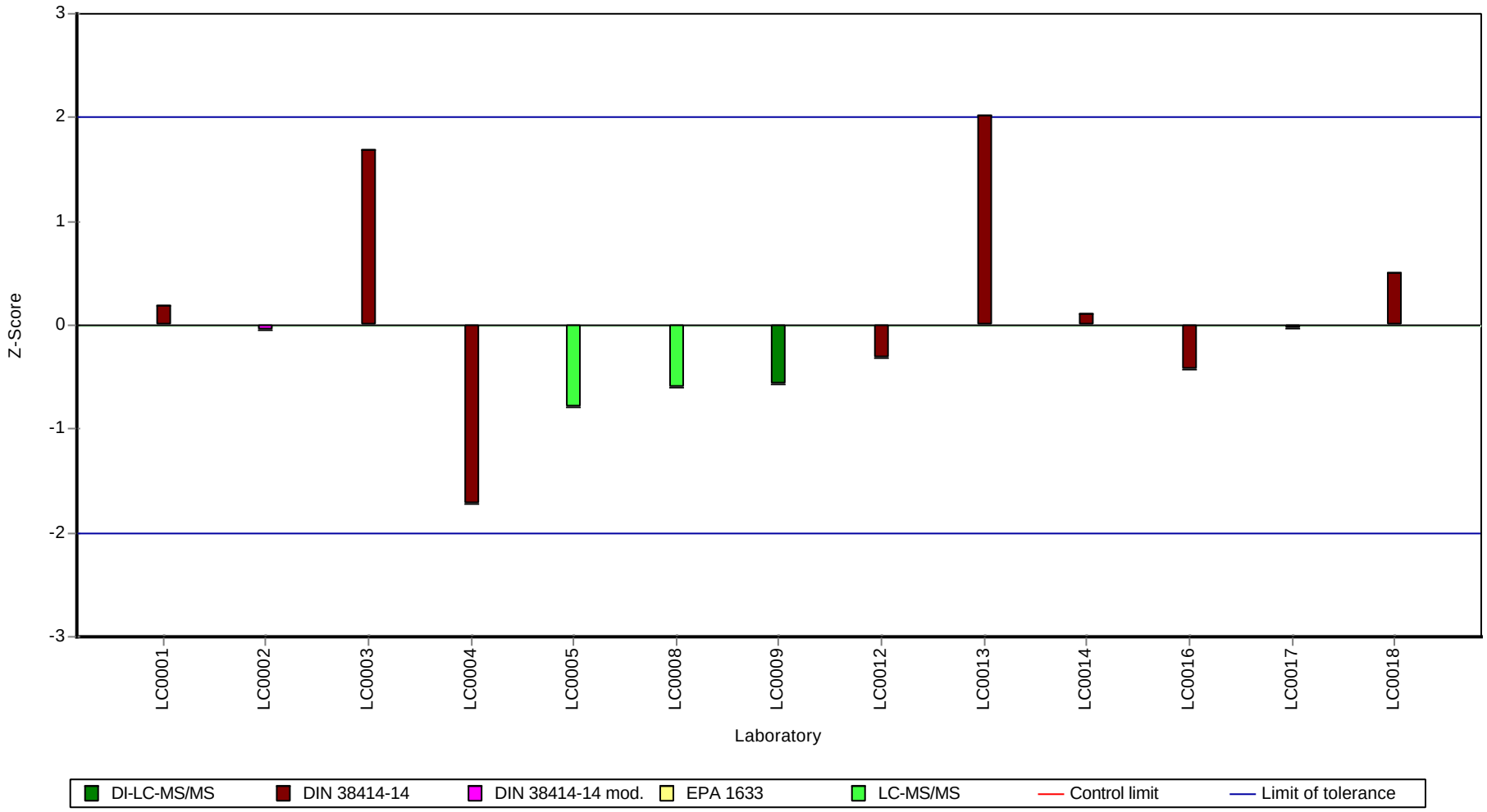
Recovery rate



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Perfluoroundecanoic acid (PFUnDA) - PF11C

Z-score



Parameter oriented report

PFS01 A

Perfluorododecanoic acid (PFDoDA) - PF12C

Unit	µg/kg dm
Assigned value ± U (k=2)	0.2 ± 0.0229
Criterion	0.0401 (20 %)
Minimum - Maximum	0.13 - 0.249
Control test value ± U (k=2)	0.159 ± 0.0638

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	0.206	0.037	103	0.14	
LC0002	0.225	0.5	112	0.61	
LC0003	0.249	0.095	124	1.21	
LC0004	0.205	0.062	102	0.12	
LC0005	0.231	0.069	115	0.76	
LC0006	-	-	-	-	
LC0007	-	-	-	-	
LC0008	0.224	0.034	112	0.59	
LC0009	0.197	0.071	98.3	-0.08	
LC0010	< 0.1 (LOQ)	-	-	-	
LC0011	< 0.3 (LOQ)	-	-	-	
LC0012	0.13	0.05	64.9	-1.76	
LC0013	< 0.1 (LOQ)	-	-	-	
LC0014	< 0.1 (LOQ)	-	-	-	
LC0015	< 5 (LOQ)	-	-	-	
LC0016	0.18	0.027	89.8	-0.51	
LC0017	0.377	0.021	188	4.41	H
LC0018	0.1567	0.047	78.2	-1.09	

Characteristics of parameter

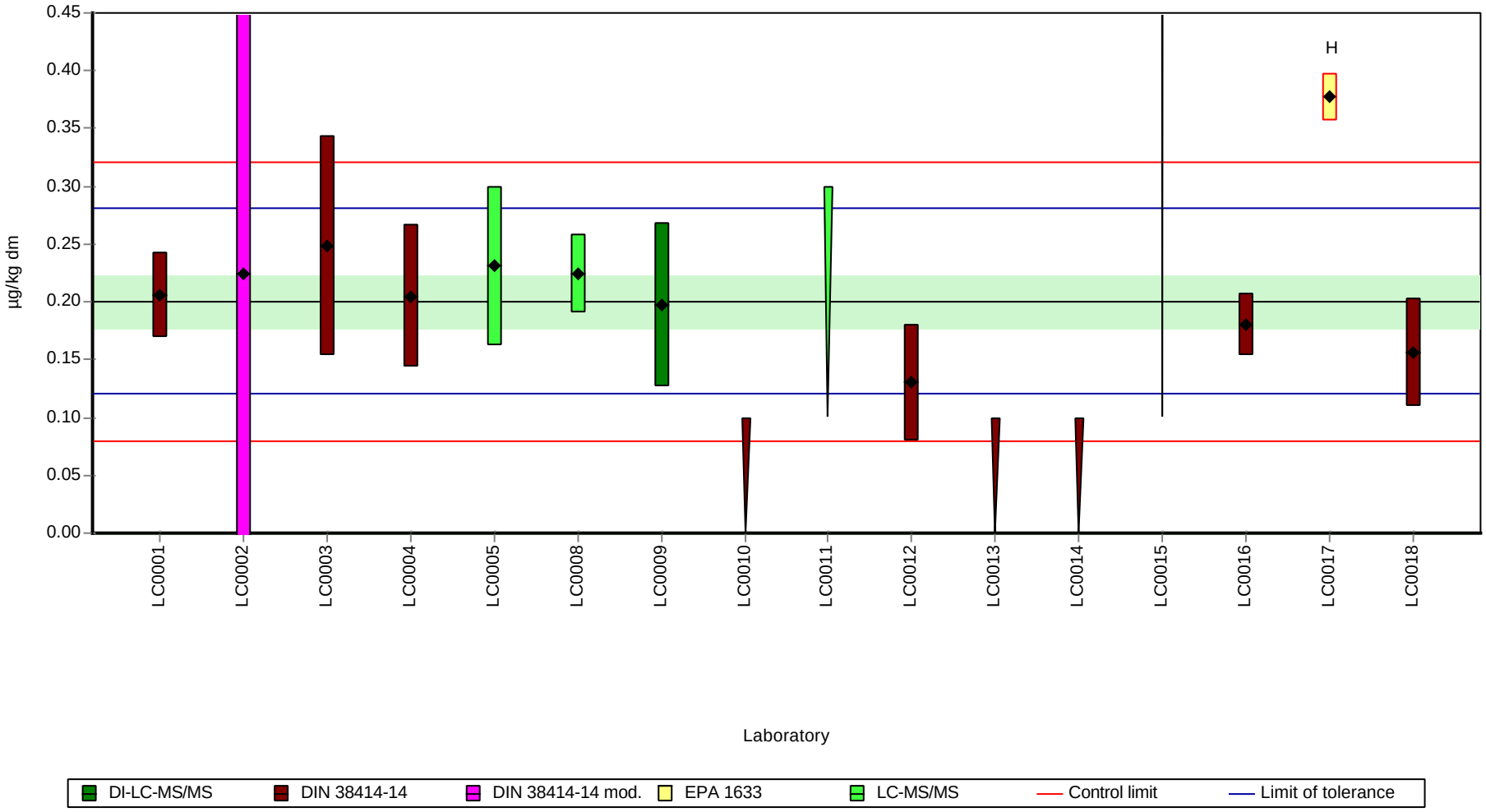
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	0.216 ± 0.0573	0.2 ± 0.0344	µg/kg dm
Minimum	0.13	0.13	µg/kg dm
Maximum	0.377	0.249	µg/kg dm
Standard deviation	0.0634	0.0362	µg/kg dm
rel. standard deviation	29.3	18.1	%
n	11	10	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: Perfluorododecanoic acid (PFDoDA) - PF12C

Graphical presentation of results

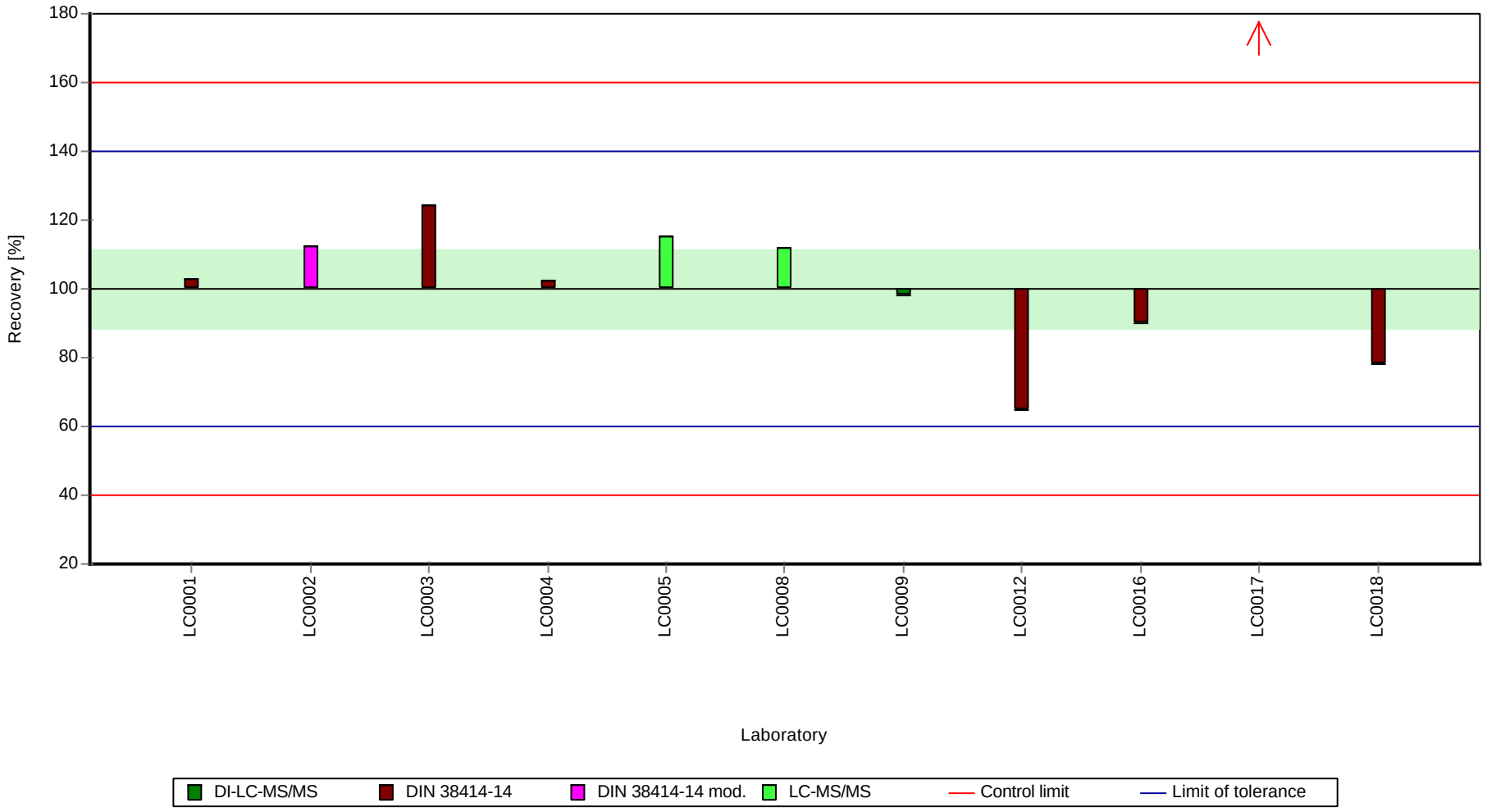
Results



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

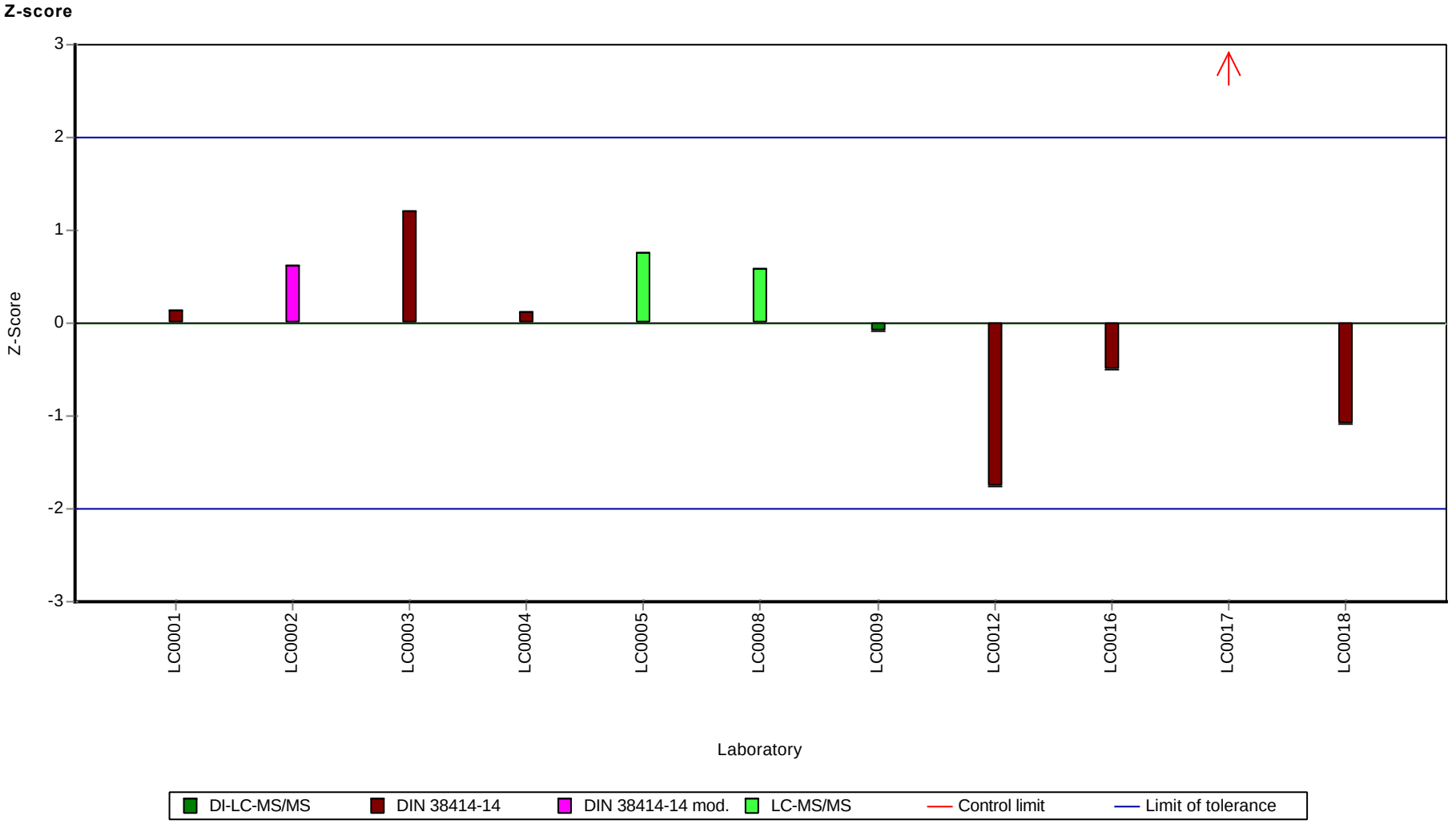
Sample: PFS01A, Parameter: Perfluorododecanoic acid (PFDoDA) - PF12C

Recovery rate



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: Perfluorododecanoic acid (PFDoDA) - PF12C



Parameter oriented report

PFS01 B

Perfluorododecanoic acid (PFDoDA) - PF12C

Unit	µg/kg dm
Assigned value ± U (k=2)	0.406 ± 0.097
Criterion	0.162 (40 %)
Minimum - Maximum	0.156 - 0.714
Control test value ± U (k=2)	0.274 ± 0.109

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	0.402	0.072	99.1	-0.02	
LC0002	0.449	0.5	111	0.27	
LC0003	0.859	0.196	212	2.79	H
LC0004	0.269	0.081	66.3	-0.84	
LC0005	0.315	0.095	77.6	-0.56	
LC0006	-	-	-	-	
LC0007	-	-	-	-	
LC0008	0.427	0.064	105	0.13	
LC0009	0.344	0.124	84.8	-0.38	
LC0010	< 0.1 (LOQ)	-	-	-	
LC0011	-	-	-	-	
LC0012	0.34	0.14	83.8	-0.41	
LC0013	0.156	0.06	38.4	-1.54	
LC0014	< 0.1 (LOQ)	-	-	-	
LC0015	< 5 (LOQ)	-	-	-	
LC0016	0.39	0.058	96.1	-0.1	
LC0017	0.714	0.037	176	1.9	
LC0018	0.658	0.329	162	1.55	

Characteristics of parameter

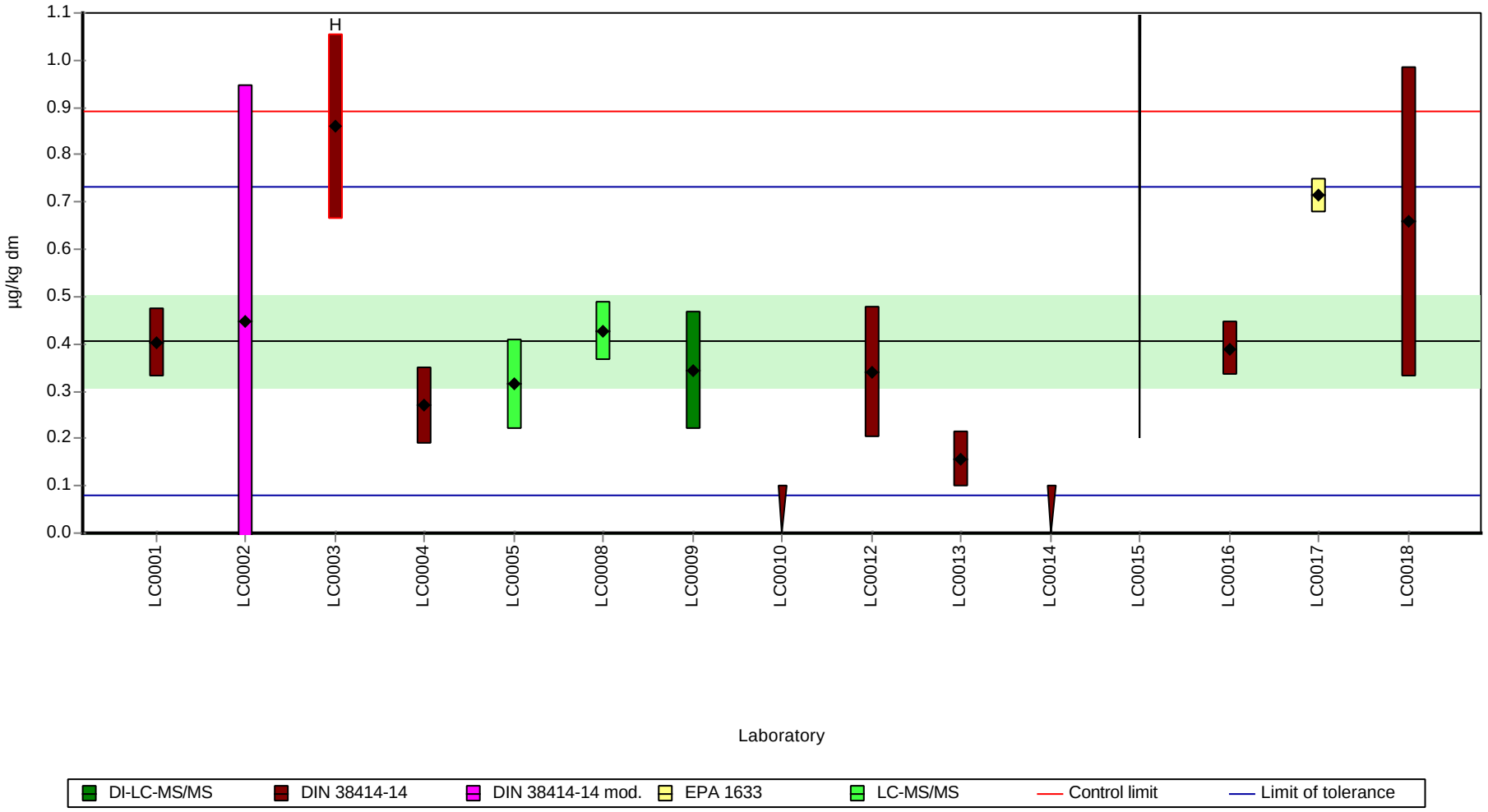
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	0.444 ± 0.175	0.406 ± 0.145	µg/kg dm
Minimum	0.156	0.156	µg/kg dm
Maximum	0.859	0.714	µg/kg dm
Standard deviation	0.202	0.161	µg/kg dm
rel. standard deviation	45.4	39.6	%
n	12	11	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Perfluorododecanoic acid (PFDoDA) - PF12C

Graphical presentation of results

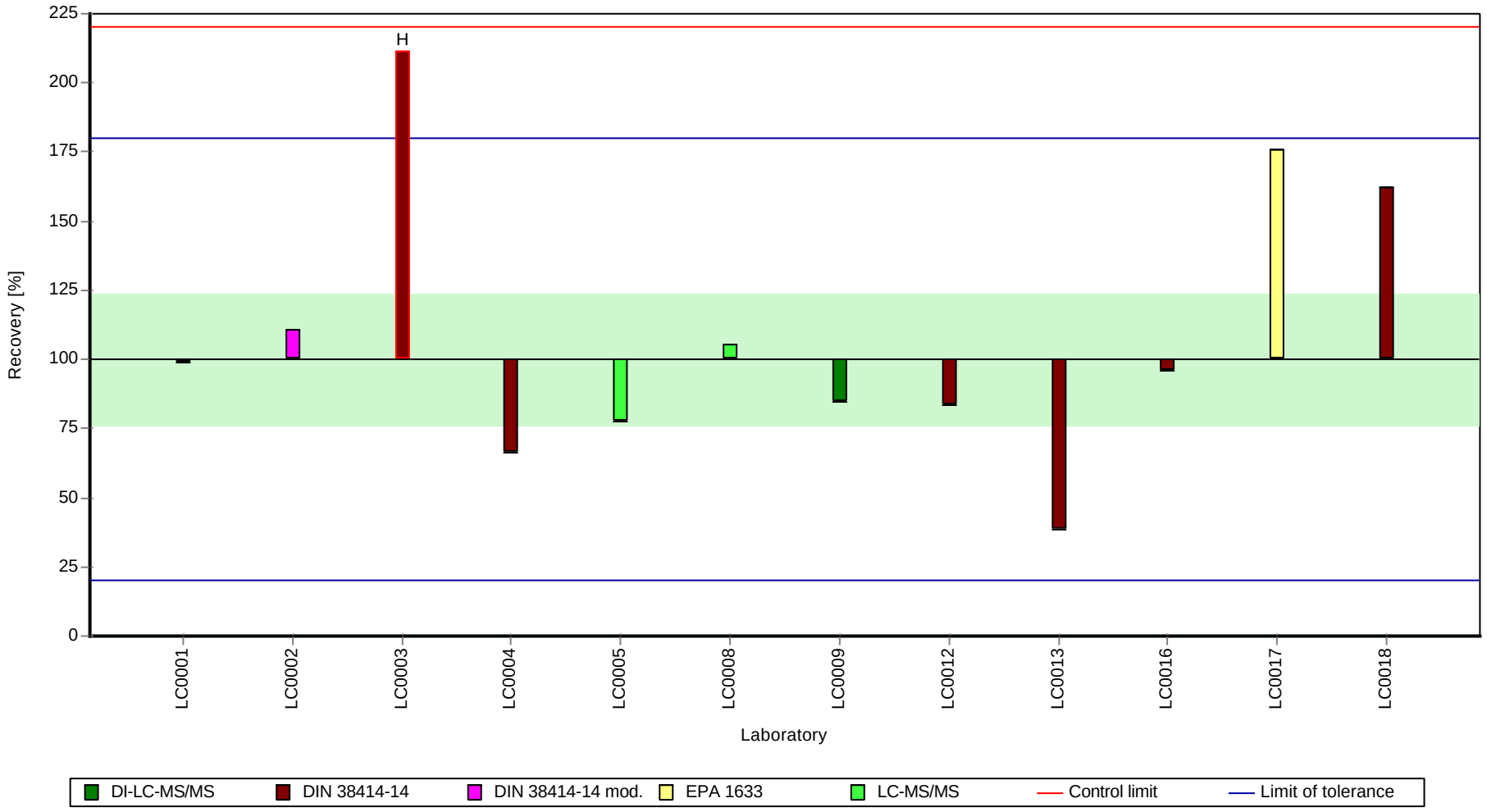
Results



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

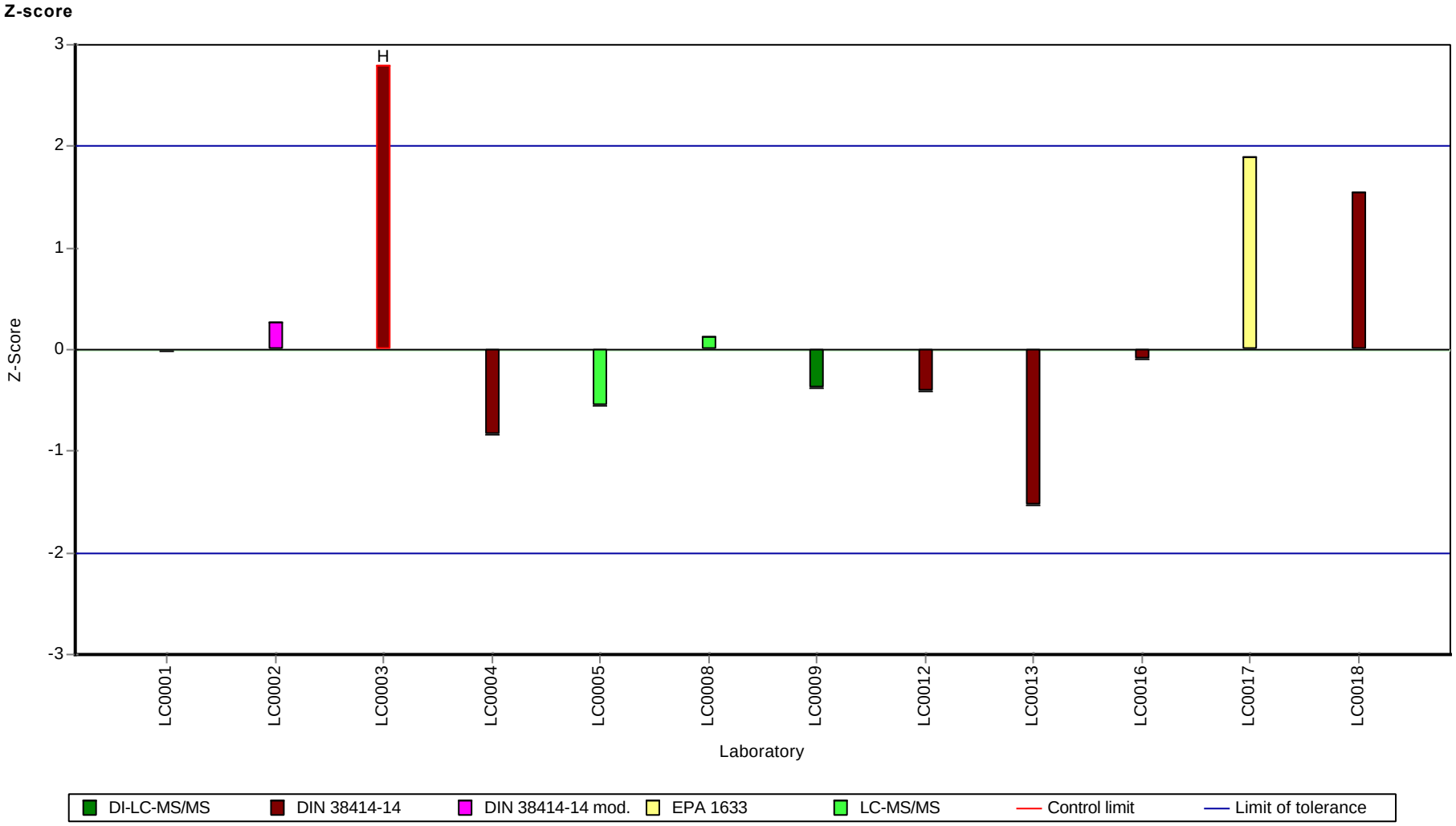
Sample: PFS01B, Parameter: Perfluorododecanoic acid (PFDoDA) - PF12C

Recovery rate



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Perfluorododecanoic acid (PFDoDA) - PF12C



Parameter oriented report

PFS01 A

Perfluorotridecanoic acid (PFTrDA) - PF13C**

Unit	µg/kg dm
Assigned value ± U (k=2)	-
Criterion	-
Minimum - Maximum	0.0483 - 0.22
Control test value ± U (k=2)	<0.1 (LOQ)

**The information value derived on the basis of the participants' results is listed for information.

MV (n=9; accr.): < 0,10 µg/kg dm

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	< 0.1 (LOQ)	-	-	-	
LC0002	< 0.1 (LOQ)	-	-	-	
LC0003	< 0.1 (LOQ)	-	-	-	
LC0004	< 0.1 (LOQ)	-	-	-	
LC0005	0.0483	0.015	-	-	
LC0006	-	-	-	-	
LC0007	-	-	-	-	
LC0008	0.061	0.009	-	-	
LC0009	< 0.1 (LOQ)	-	-	-	
LC0010	< 0.1 (LOQ)	-	-	-	
LC0011	< 0.3 (LOQ)	-	-	-	
LC0012	0.082	0.03	-	-	
LC0013	0.22	0.08	-	-	
LC0014	0.202	0.06	-	-	
LC0015	< 5 (LOQ)	-	-	-	
LC0016	< 0.1 (LOQ)	-	-	-	
LC0017	0.213	0.011	-	-	
LC0018	0.0658	0.023	-	-	

Characteristics of parameter

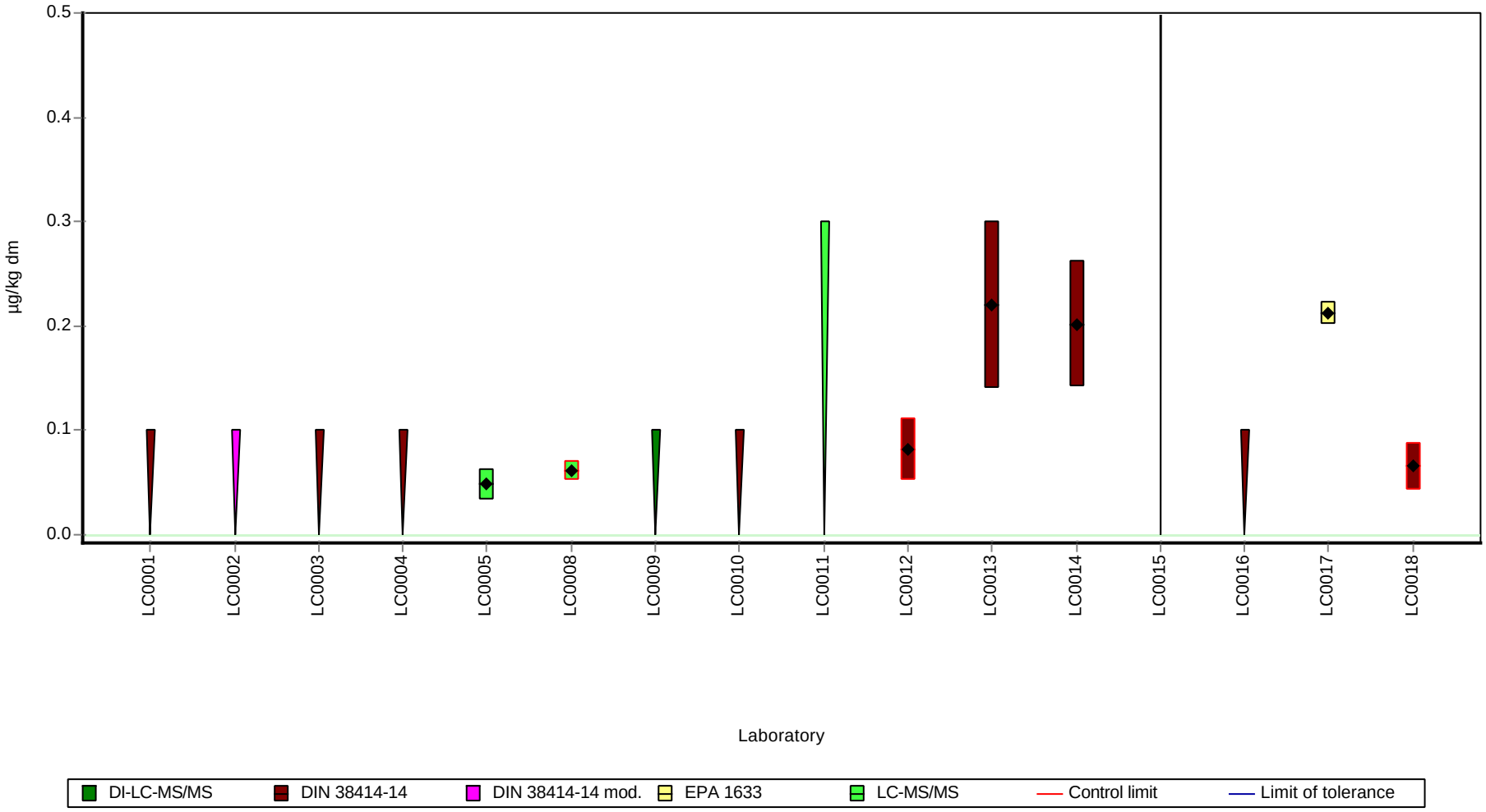
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	0.127 ± 0.0902	-	µg/kg dm
Minimum	0.0483	0.0483	µg/kg dm
Maximum	0.22	0.22	µg/kg dm
Standard deviation	0.0796	-	µg/kg dm
rel. standard deviation	62.4	-	%
n	7	7	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: Perfluorotridecanoic acid (PFTrDA) - PF13C

Graphical presentation of results

Results



Parameter oriented report

PFS01 B

Perfluorotridecanoic acid (PFTrDA) - PF13C**

Unit	µg/kg dm
Assigned value ± U (k=2)	-
Criterion	-
Minimum - Maximum	0.0661 - 0.39
Control test value ± U (k=2)	<0.2 (LOQ)

**The information value derived on the basis of the participants' results is listed for information.

MV (n=10; accr.): 0.175+/-0.12 µg/kg dm

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	< 0.1 (LOQ)	-	-	-	
LC0002	< 0.1 (LOQ)	-	-	-	
LC0003	< 0.1 (LOQ)	-	-	-	
LC0004	0.115	0.05	-	-	
LC0005	0.0661	0.02	-	-	
LC0006	-	-	-	-	
LC0007	-	-	-	-	
LC0008	0.106	0.016	-	-	
LC0009	< 0.1 (LOQ)	-	-	-	
LC0010	< 0.1 (LOQ)	-	-	-	
LC0011	-	-	-	-	
LC0012	0.12	0.05	-	-	
LC0013	0.22	0.08	-	-	
LC0014	0.293	0.11	-	-	
LC0015	< 5 (LOQ)	-	-	-	
LC0016	0.39	0.059	-	-	
LC0017	0.232	0.013	-	-	
LC0018	0.369	0.221	-	-	

Characteristics of parameter

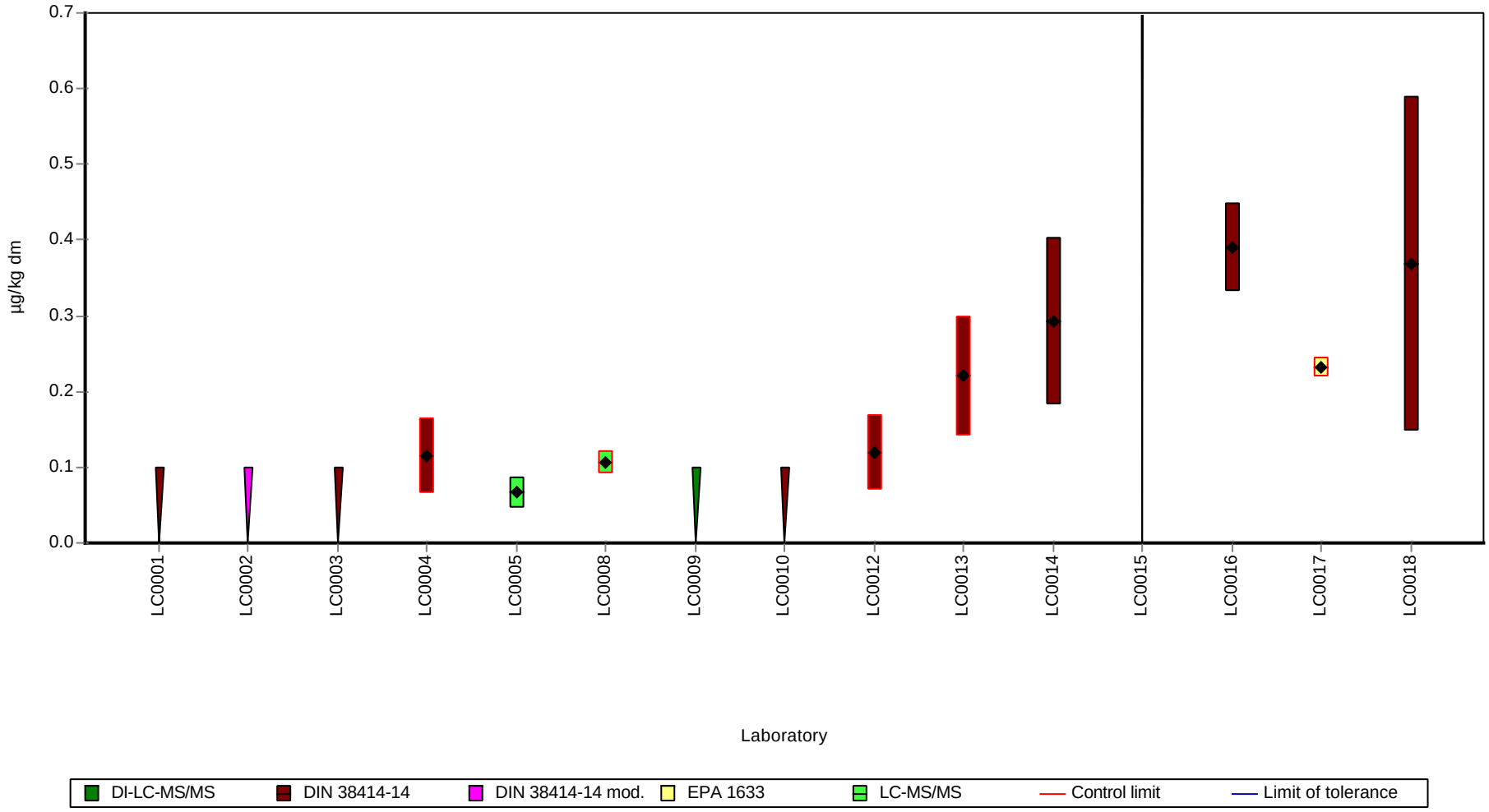
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	0.212 ± 0.119	-	µg/kg dm
Minimum	0.0661	0.0661	µg/kg dm
Maximum	0.39	0.39	µg/kg dm
Standard deviation	0.119	-	µg/kg dm
rel. standard deviation	56.2	-	%
n	9	9	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Perfluorotridecanoic acid (PFTrDA) - PF13C

Graphical presentation of results

Results



Parameter oriented report

PFS01 A

Perfluorobutane sulfonic acid (PFBS) - PF4S

Unit	µg/kg dm
Assigned value ± U (k=2)	2.52 ± 0.326
Criterion	0.656 (26 %)
Minimum - Maximum	1.69 - 4.29
Control test value ± U (k=2)	3.07 ± 1.07

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	2.07	0.373	82	-0.69	
LC0002	2.48	0.5	98.3	-0.07	
LC0003	2.61	0.249	103	0.13	
LC0004	1.78	0.54	70.5	-1.13	
LC0005	3.19	0.96	126	1.02	
LC0006	2.39	0.33	94.7	-0.2	
LC0007	-	-	-	-	
LC0008	2.197	0.22	87.1	-0.5	
LC0009	1.882	0.677	74.6	-0.98	
LC0010	2.45	0.73	97.1	-0.11	
LC0011	1.94	0.9	76.9	-0.89	
LC0012	2.72	1.1	108	0.3	
LC0013	11.84	4.5	469	14.2	H
LC0014	1.69	0.21	67	-1.27	
LC0015	2.86	0.715	113	0.51	
LC0016	2.86	0.57	113	0.51	
LC0017	4.285	0.159	170	2.68	
LC0018	2.9717	1.04	118	0.68	

Characteristics of parameter

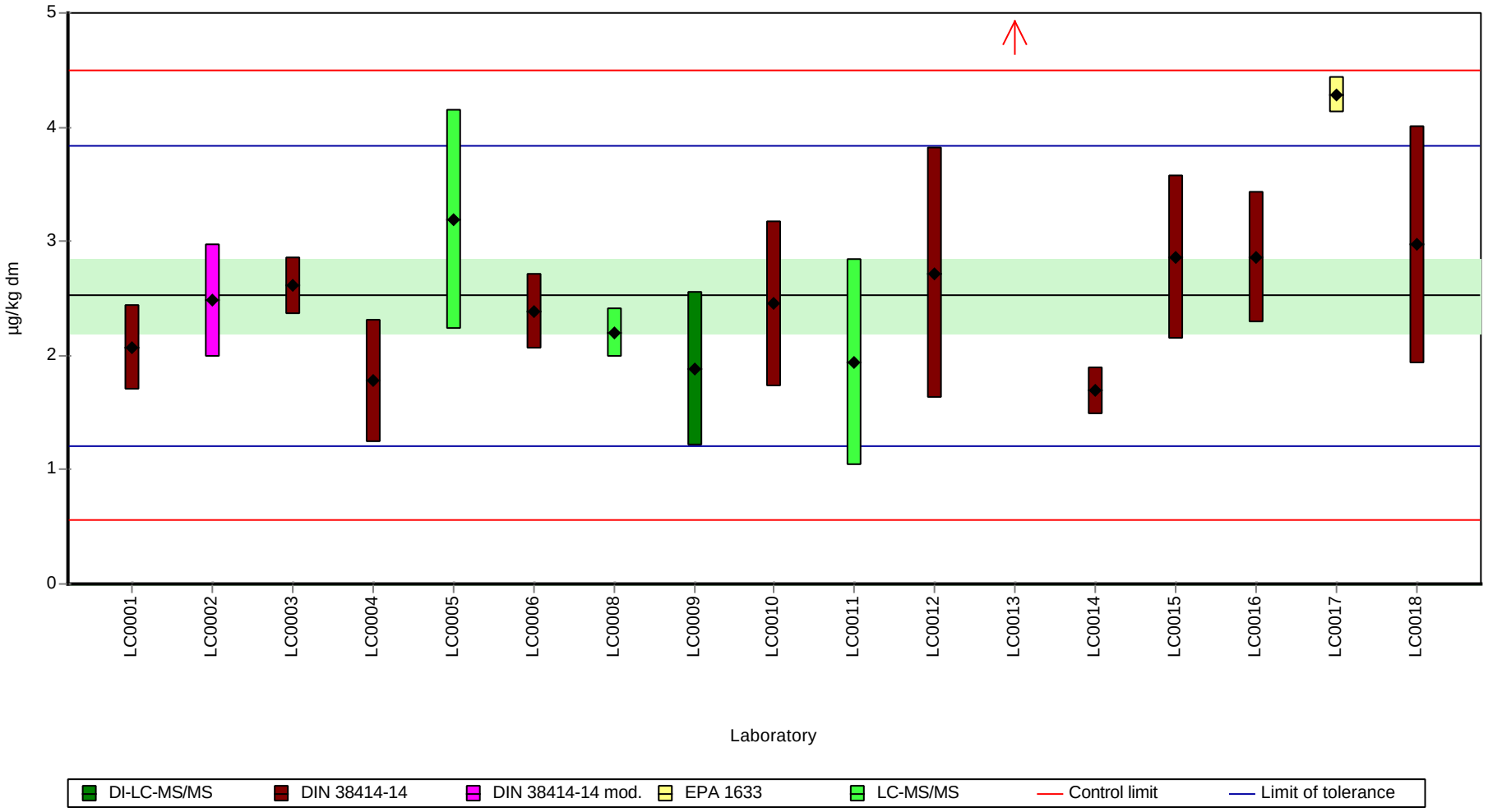
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	3.07 ± 1.71	2.52 ± 0.488	µg/kg dm
Minimum	1.69	1.69	µg/kg dm
Maximum	11.8	4.29	µg/kg dm
Standard deviation	2.35	0.651	µg/kg dm
rel. standard deviation	76.4	25.8	%
n	17	16	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: Perfluorobutane sulfonic acid (PFBS) - PF4S

Graphical presentation of results

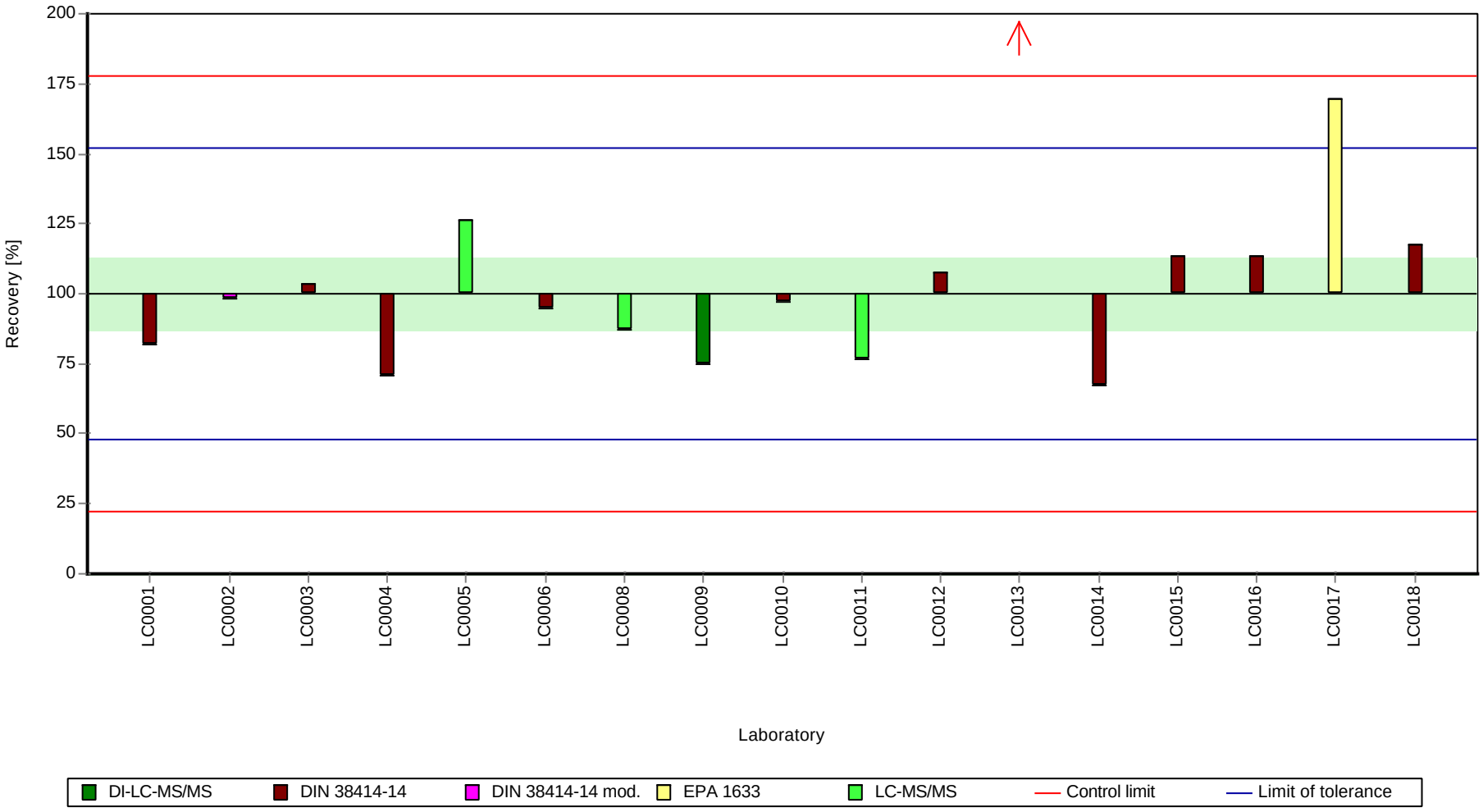
Results



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

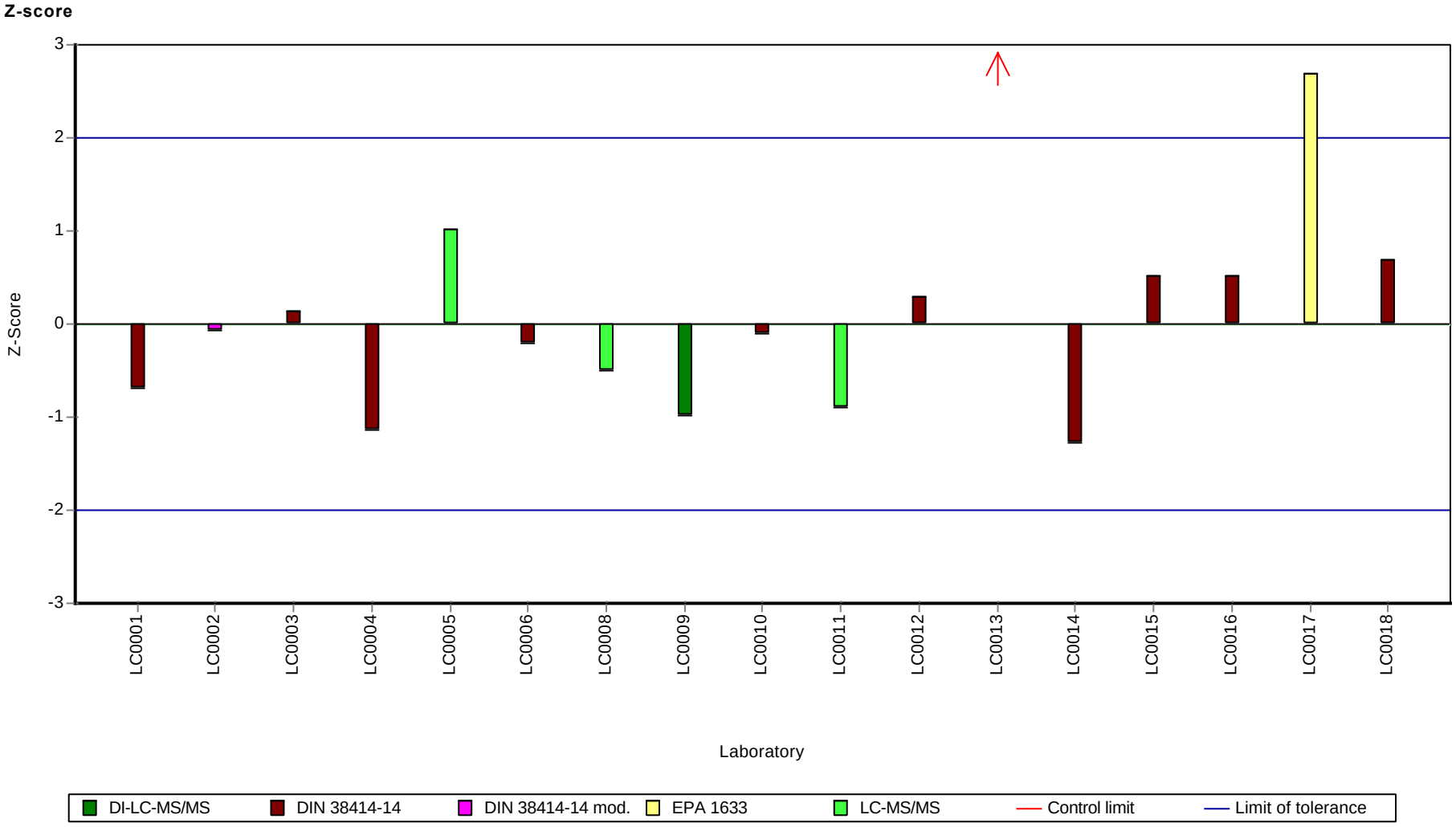
Sample: PFS01A, Parameter: Perfluorobutane sulfonic acid (PFBS) - PF4S

Recovery rate



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: Perfluorobutane sulfonic acid (PFBS) - PF4S



Parameter oriented report

PFS01 B

Perfluorobutane sulfonic acid (PFBS) - PF4S

Unit	µg/kg dm
Assigned value ± U (k=2)	3.31 ± 0.465
Criterion	0.895 (27 %)
Minimum - Maximum	2.13 - 5.29
Control test value ± U (k=2)	3.83 ± 1.34

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	2.5	0.45	75.4	-0.91	
LC0002	3.24	0.5	97.8	-0.08	
LC0003	4.07	0.171	123	0.84	
LC0004	2.22	0.67	67	-1.22	
LC0005	3.96	1.19	119	0.72	
LC0006	2.84	0.39	85.7	-0.53	
LC0007	-	-	-	-	
LC0008	2.8	0.28	84.5	-0.57	
LC0009	3.052	1.099	92.1	-0.29	
LC0010	3.61	1.08	109	0.33	
LC0011	-	-	-	-	
LC0012	3.3	1.3	99.6	-0.02	
LC0013	11.7	4	353	9.37	H
LC0014	2.566	0.38	77.4	-0.84	
LC0015	3.41	0.852	103	0.11	
LC0016	5.29	1.1	160	2.21	
LC0017	4.726	0.126	143	1.58	
LC0018	2.13	1.065	64.3	-1.32	

Characteristics of parameter

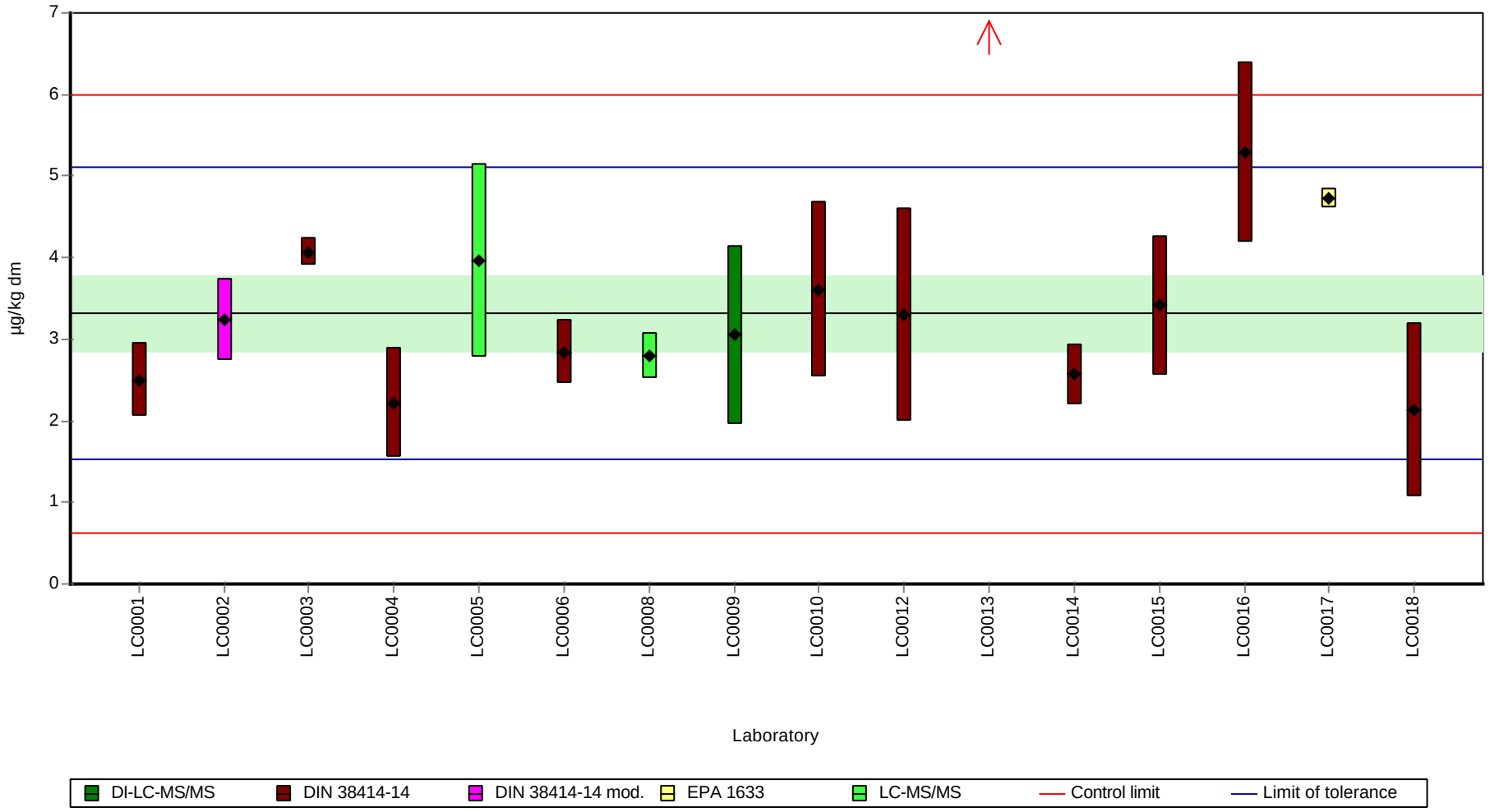
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	3.84 ± 1.7	3.31 ± 0.698	µg/kg dm
Minimum	2.13	2.13	µg/kg dm
Maximum	11.7	5.29	µg/kg dm
Standard deviation	2.27	0.901	µg/kg dm
rel. standard deviation	59.1	27.2	%
n	16	15	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Perfluorobutane sulfonic acid (PFBS) - PF4S

Graphical presentation of results

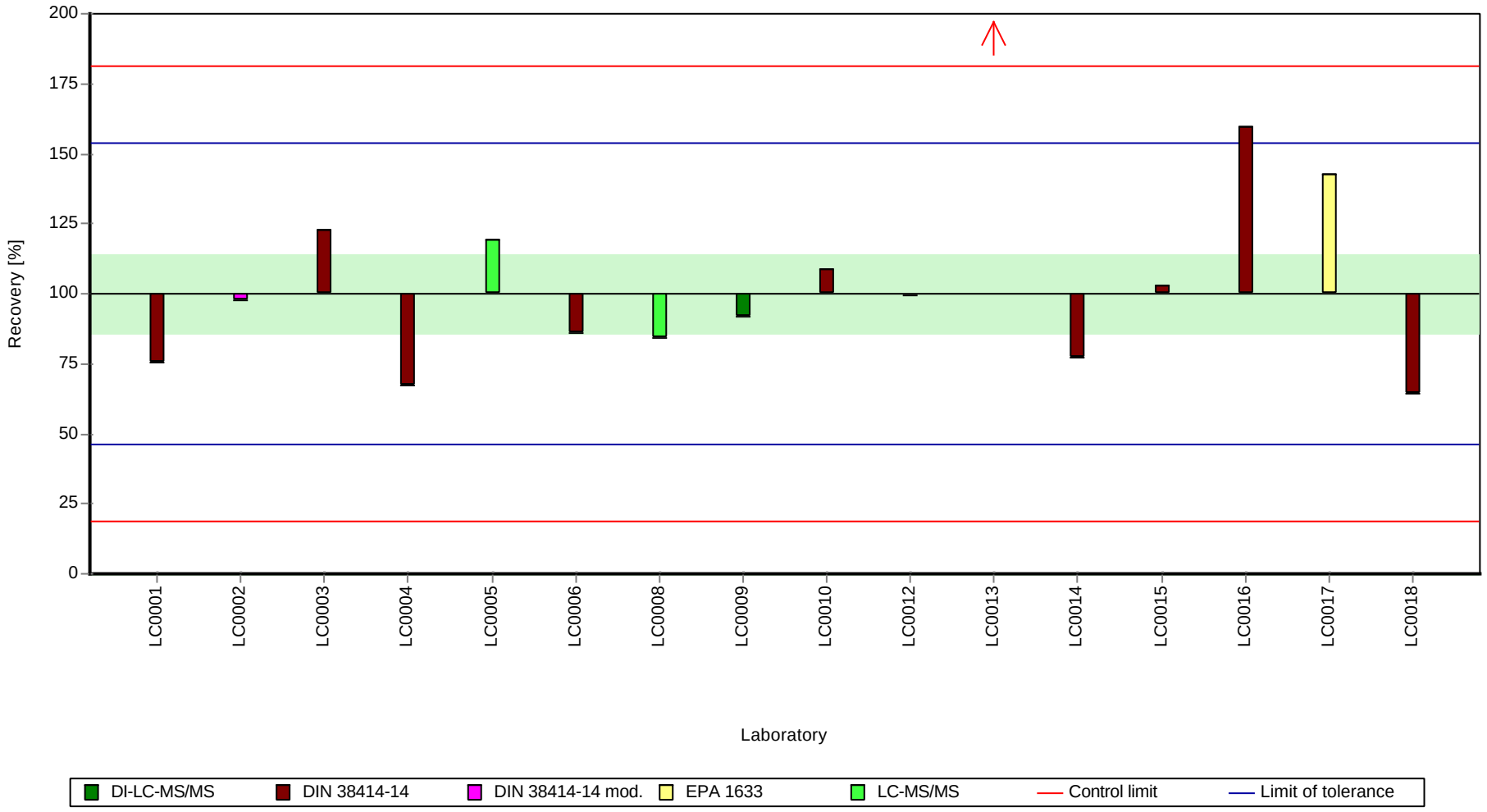
Results



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

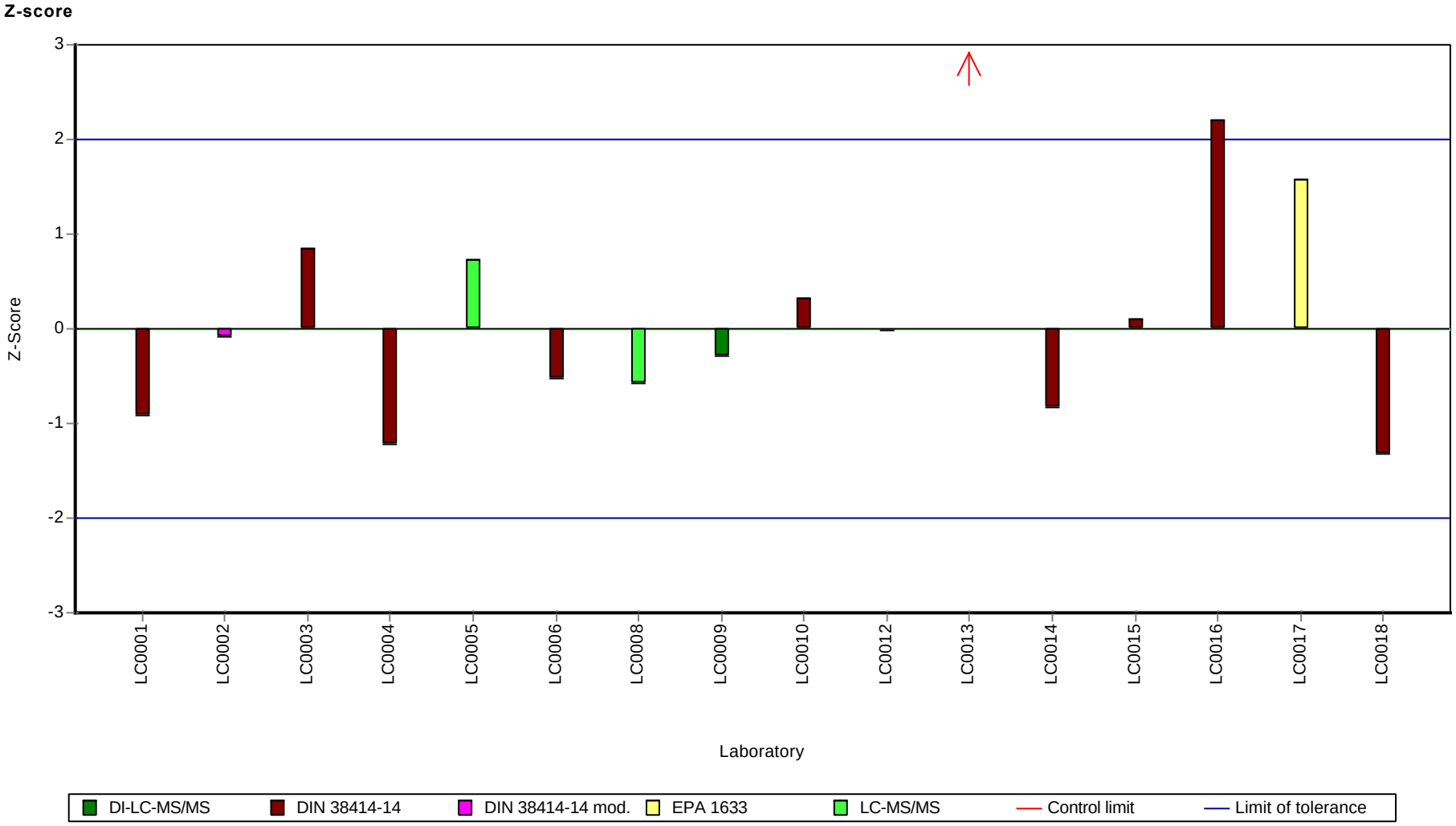
Sample: PFS01B, Parameter: Perfluorobutane sulfonic acid (PFBS) - PF4S

Recovery rate



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Perfluorobutane sulfonic acid (PFBS) - PF4S



Parameter oriented report

PFS01 A

Perfluoropentane sulfonic acid (PFPeS) - PF5S*

Unit	µg/kg dm
Assigned value ± U (k=2)	-
Criterion	-
Minimum - Maximum	0.099 - 0.15
Control test value ± U (k=2)	<0.05 (LOD)

* The value is listed for information and can be used for comparison as part of your internal QA measures:

< 0,10 µg/kg dm

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	-	-	-	-	
LC0002	< 0.1 (LOQ)	-	-	-	
LC0003	< 0.1 (LOQ)	-	-	-	
LC0004	< 0.1 (LOQ)	-	-	-	
LC0005	< 0.0475 (LOQ)	-	-	-	
LC0006	-	-	-	-	
LC0007	-	-	-	-	
LC0008	< 0.03 (LOQ)	-	-	-	
LC0009	< 0.1 (LOQ)	-	-	-	
LC0010	< 0.1 (LOQ)	-	-	-	
LC0011	< 0.3 (LOQ)	-	-	-	
LC0012	0.099	0.04	-	-	
LC0013	0.15	0.06	-	-	
LC0014	< 0.1 (LOQ)	-	-	-	
LC0015	< 5 (LOQ)	-	-	-	
LC0016	< 0.1 (LOQ)	-	-	-	
LC0017	0.145	0.006	-	-	
LC0018	-	-	-	-	

Characteristics of parameter

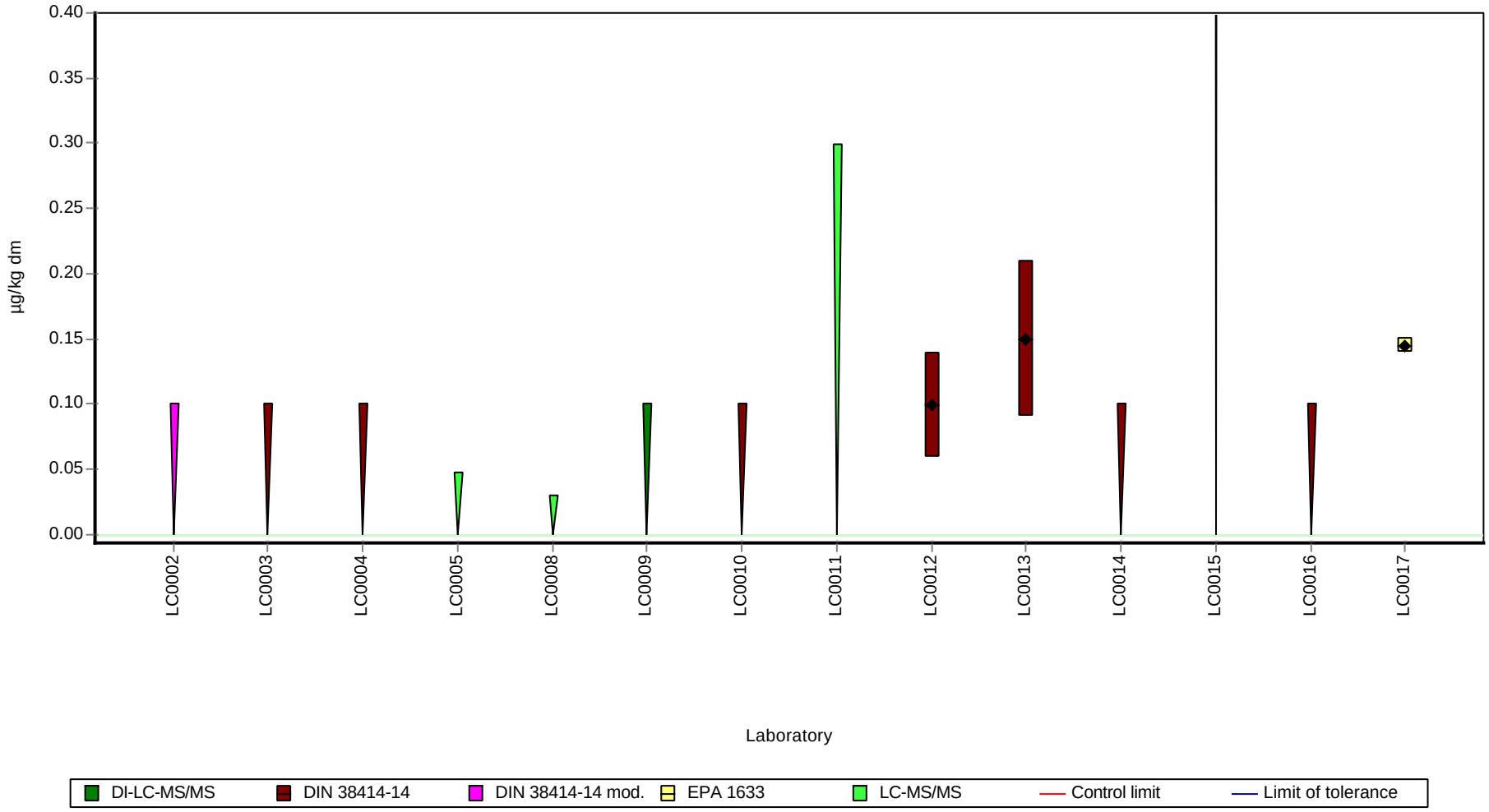
	all results	without outliers	Unit
Mean ± Cl (99%)	0.131 ± 0.0487	-	µg/kg dm
Minimum	0.099	0.099	µg/kg dm
Maximum	0.15	0.15	µg/kg dm
Standard deviation	0.0281	-	µg/kg dm
rel. standard deviation	21.4	-	%
n	3	3	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: Perfluoropentane sulfonic acid (PFPeS) - PF5S

Graphical presentation of results

Results



Parameter oriented report

PFS01 B

Perfluoropentane sulfonic acid (PFPeS) - PF5S*

Unit	µg/kg dm
Assigned value ± U (k=2)	-
Criterion	-
Minimum - Maximum	0.01 - 0.102
Control test value ± U (k=2)	<0.05 (LOD)

* The value is listed for information and can be used for comparison as part of your internal QA measures:

< 0,10 µg/kg dm

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	-	-	-	-	
LC0002	< 0.1 (LOQ)	-	-	-	
LC0003	< 0.1 (LOQ)	-	-	-	
LC0004	< 0.1 (LOQ)	-	-	-	
LC0005	< 0.0444 (LOQ)	-	-	-	
LC0006	-	-	-	-	
LC0007	-	-	-	-	
LC0008	< 0.1 (LOQ)	-	-	-	
LC0009	< 0.1 (LOQ)	-	-	-	
LC0010	< 0.1 (LOQ)	-	-	-	
LC0011	-	-	-	-	
LC0012	0.01	0.01	-	-	
LC0013	< 0.1 (LOQ)	-	-	-	
LC0014	< 0.1 (LOQ)	-	-	-	
LC0015	< 5 (LOQ)	-	-	-	
LC0016	< 0.1 (LOQ)	-	-	-	
LC0017	0.098	0.0058	-	-	
LC0018	0.1019	0.0509	-	-	

Characteristics of parameter

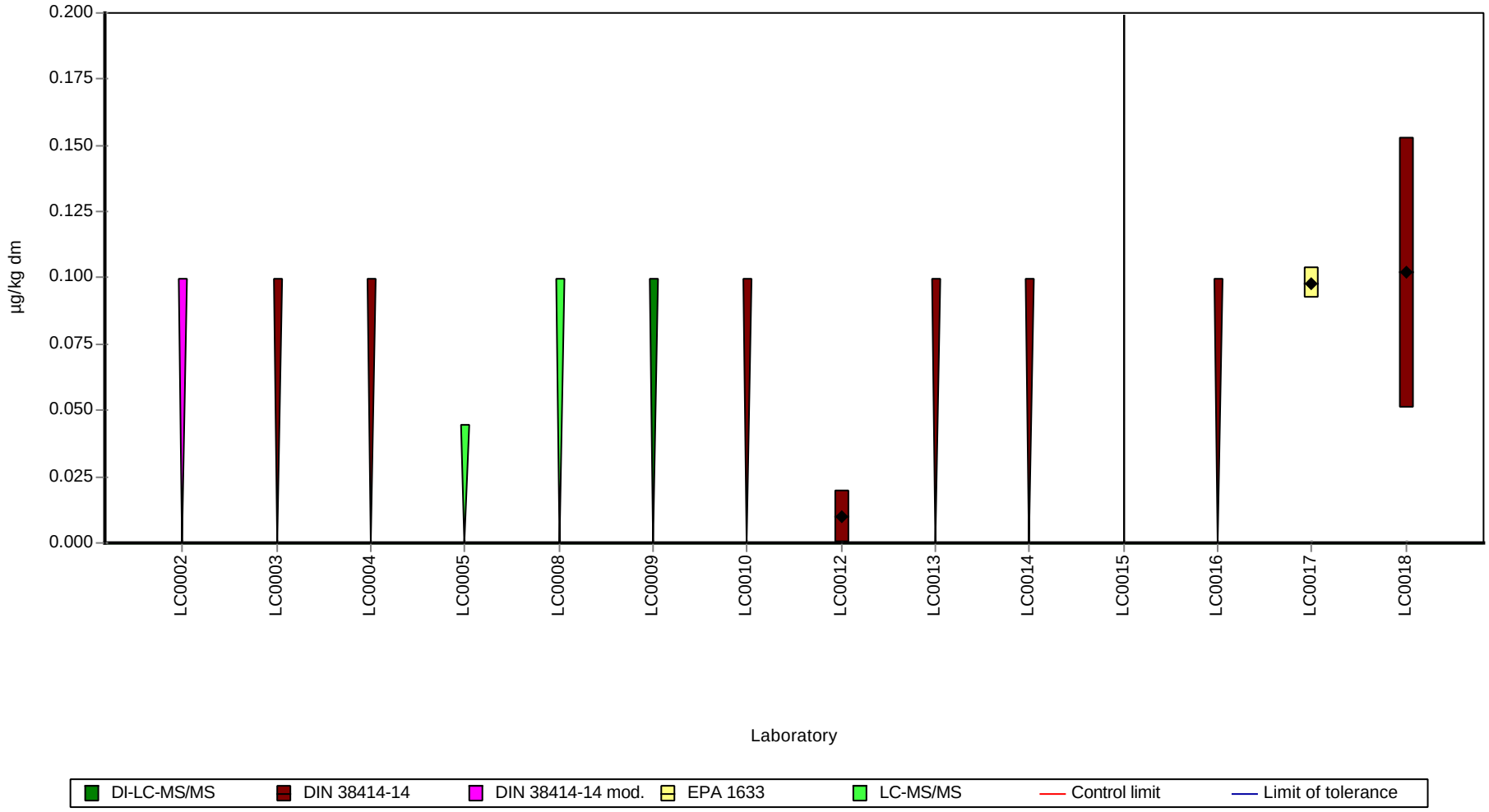
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	0.07 ± 0.09	-	µg/kg dm
Minimum	0.01	0.01	µg/kg dm
Maximum	0.102	0.102	µg/kg dm
Standard deviation	0.052	-	µg/kg dm
rel. standard deviation	74.3	-	%
n	3	3	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Perfluoropentane sulfonic acid (PFPeS) - PF5S

Graphical presentation of results

Results



Parameter oriented report

PFS01 A

Perfluoroheptane sulfonic acid (PFHpS) - PF7S*

Unit	µg/kg dm
Assigned value ± U (k=2)	-
Criterion	-
Minimum - Maximum	0.017 - 1.76
Control test value ± U (k=2)	<0.05 (LOD)

* The value is listed for information and can be used for comparison as part of your internal QA measures:

< 0,10 µg/kg dm

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	< 0.1 (LOQ)	-	-	-	
LC0002	< 0.1 (LOQ)	-	-	-	
LC0003	< 0.1 (LOQ)	-	-	-	
LC0004	< 0.1 (LOQ)	-	-	-	
LC0005	< 0.0475 (LOQ)	-	-	-	
LC0006	-	-	-	-	
LC0007	-	-	-	-	
LC0008	< 0.03 (LOQ)	-	-	-	
LC0009	< 0.1 (LOQ)	-	-	-	
LC0010	< 0.1 (LOQ)	-	-	-	
LC0011	< 0.1 (LOQ)	-	-	-	
LC0012	0.017	0.01	-	-	
LC0013	1.76	0.06	-	-	FP
LC0014	< 0.1 (LOQ)	-	-	-	
LC0015	< 5 (LOQ)	-	-	-	
LC0016	< 0.1 (LOQ)	-	-	-	
LC0017	< 0.5 (LOQ)	-	-	-	
LC0018	0.0767	0.0268	-	-	

Characteristics of parameter

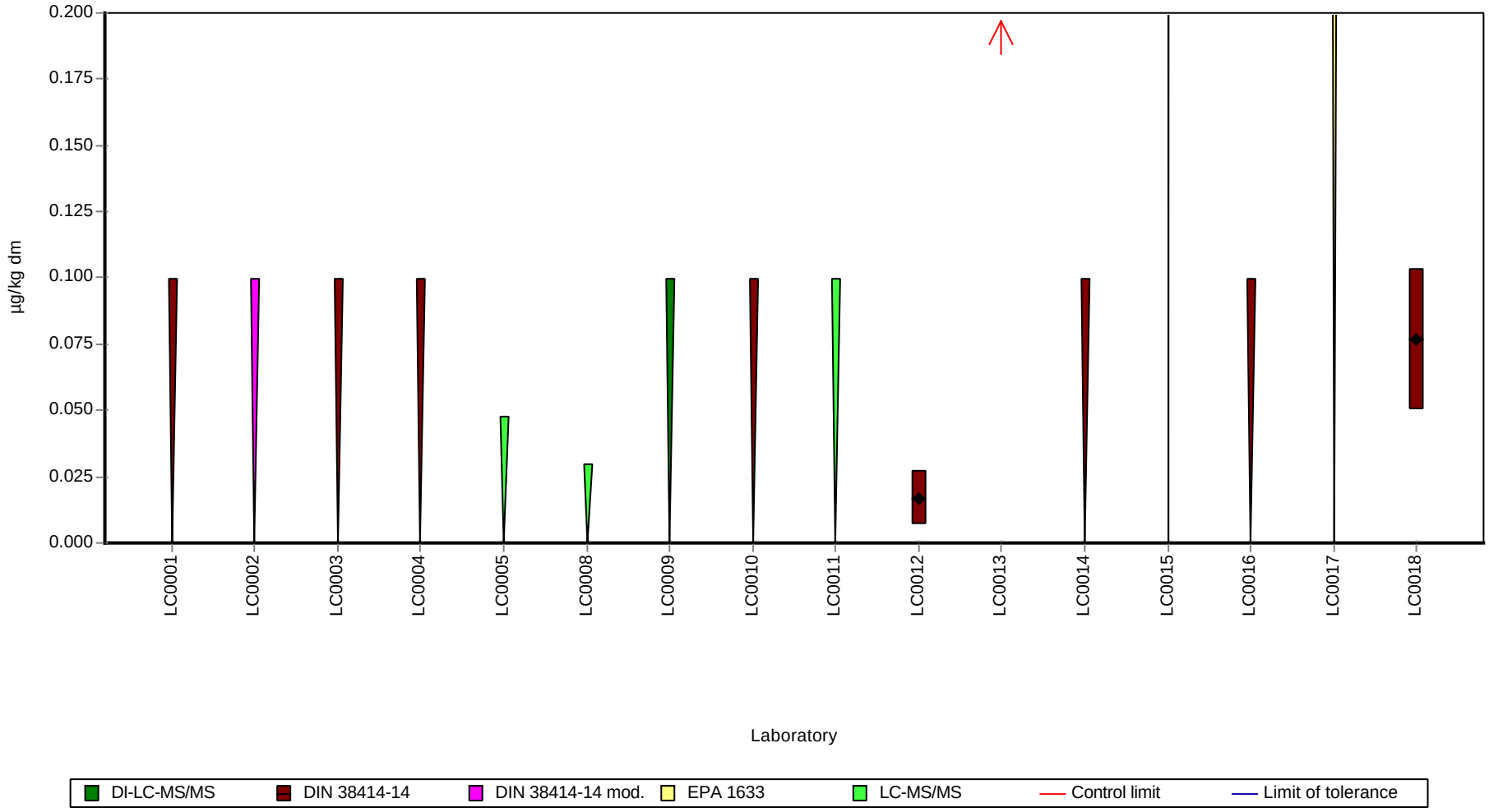
	all results	without outliers	Unit
Mean ± Cl (99%)	0.618 ± 1.71	-	µg/kg dm
Minimum	0.017	0.017	µg/kg dm
Maximum	1.76	1.76	µg/kg dm
Standard deviation	0.99	-	µg/kg dm
rel. standard deviation	160	-	%
n	3	3	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: Perfluoroheptane sulfonic acid (PFHpS) - PF7S

Graphical presentation of results

Results



Parameter oriented report

PFS01 B

Perfluoroheptane sulfonic acid (PFHpS) - PF7S*

Unit	µg/kg dm
Assigned value ± U (k=2)	-
Criterion	-
Minimum - Maximum	0.025 - 0.318
Control test value ± U (k=2)	<0.05 (LOD)

* The value is listed for information and can be used for comparison as part of your internal QA measures:

< 0,10 µg/kg dm

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	< 0.1 (LOQ)	-	-	-	
LC0002	< 0.1 (LOQ)	-	-	-	
LC0003	< 0.1 (LOQ)	-	-	-	
LC0004	< 0.1 (LOQ)	-	-	-	
LC0005	0.046	0.014	-	-	
LC0006	-	-	-	-	
LC0007	-	-	-	-	
LC0008	< 0.1 (LOQ)	-	-	-	
LC0009	< 0.1 (LOQ)	-	-	-	
LC0010	0.191	0.057	-	-	
LC0011	-	-	-	-	
LC0012	0.025	0.01	-	-	
LC0013	4.53	1	-	-	HFP
LC0014	< 0.1 (LOQ)	-	-	-	
LC0015	< 5 (LOQ)	-	-	-	
LC0016	< 0.1 (LOQ)	-	-	-	
LC0017	0.096	0.0022	-	-	
LC0018	0.3177	0.159	-	-	FP

Characteristics of parameter

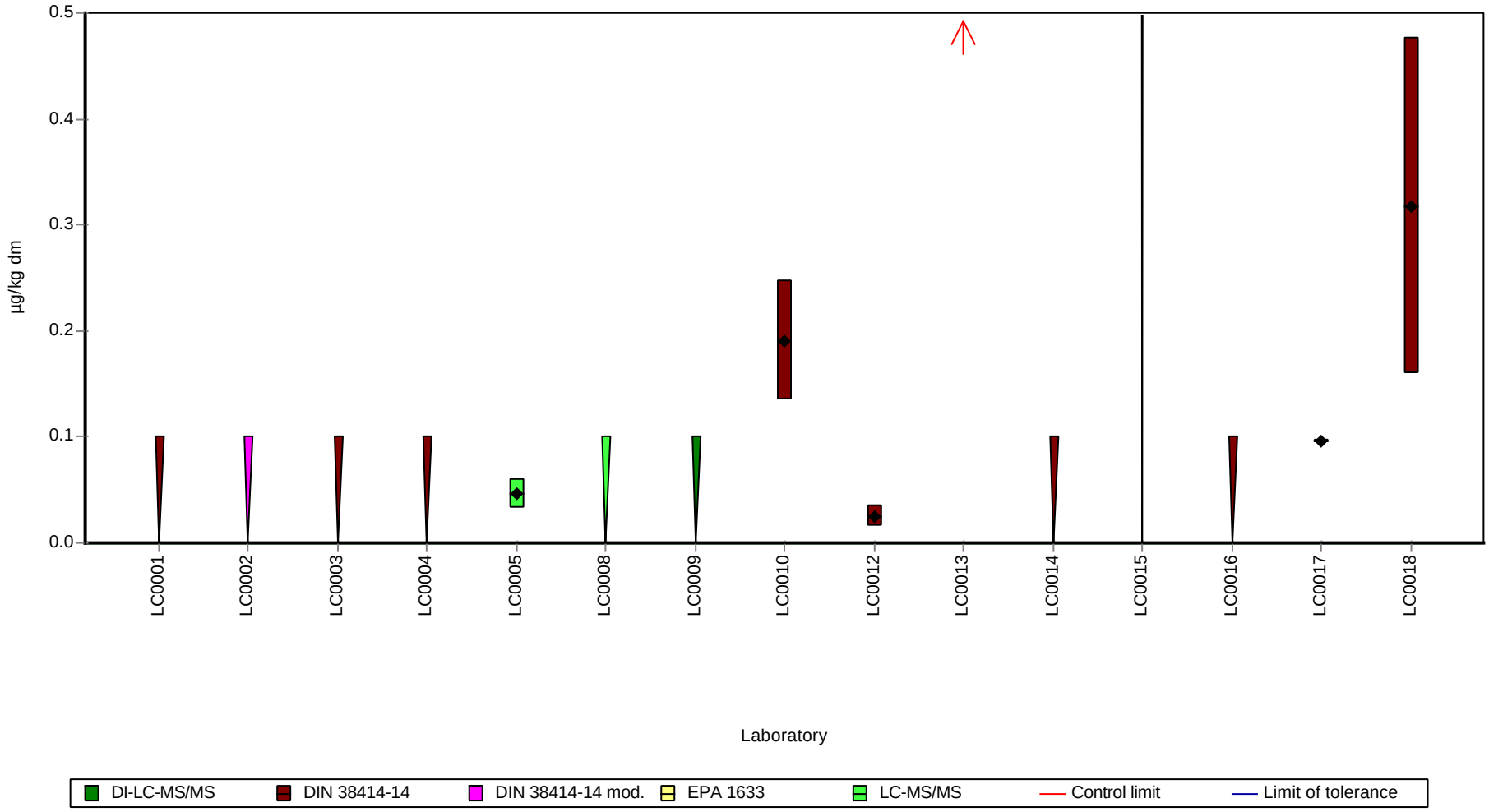
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	0.868 ± 2.2	-	µg/kg dm
Minimum	0.025	0.025	µg/kg dm
Maximum	4.53	0.318	µg/kg dm
Standard deviation	1.8	-	µg/kg dm
rel. standard deviation	207	-	%
n	6	5	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Perfluoroheptane sulfonic acid (PFHpS) - PF7S

Graphical presentation of results

Results



Parameter oriented report

PFS01 A

Perfluorononane sulfonic acid (PFNS) - PF9S*

Unit	µg/kg dm
Assigned value ± U (k=2)	-
Criterion	-
Minimum - Maximum	0.013 - 0.12
Control test value ± U (k=2)	<0.05 (LOD)

* The value is listed for information and can be used for comparison as part of your internal QA measures:

< 0,10 µg/kg dm

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	-	-	-	-	
LC0002	< 0.1 (LOQ)	-	-	-	
LC0003	< 0.1 (LOQ)	-	-	-	
LC0004	< 0.1 (LOQ)	-	-	-	
LC0005	< 0.095 (LOQ)	-	-	-	
LC0006	-	-	-	-	
LC0007	-	-	-	-	
LC0008	< 0.03 (LOQ)	-	-	-	
LC0009	< 0.1 (LOQ)	-	-	-	
LC0010	< 0.1 (LOQ)	-	-	-	
LC0011	< 0.7 (LOQ)	-	-	-	
LC0012	0.013	0.01	-	-	
LC0013	0.12	0.05	-	-	
LC0014	< 0.1 (LOQ)	-	-	-	
LC0015	< 5 (LOQ)	-	-	-	
LC0016	< 0.1 (LOQ)	-	-	-	
LC0017	< 0.5 (LOQ)	-	-	-	
LC0018	0.0307	0.0107	-	-	

Characteristics of parameter

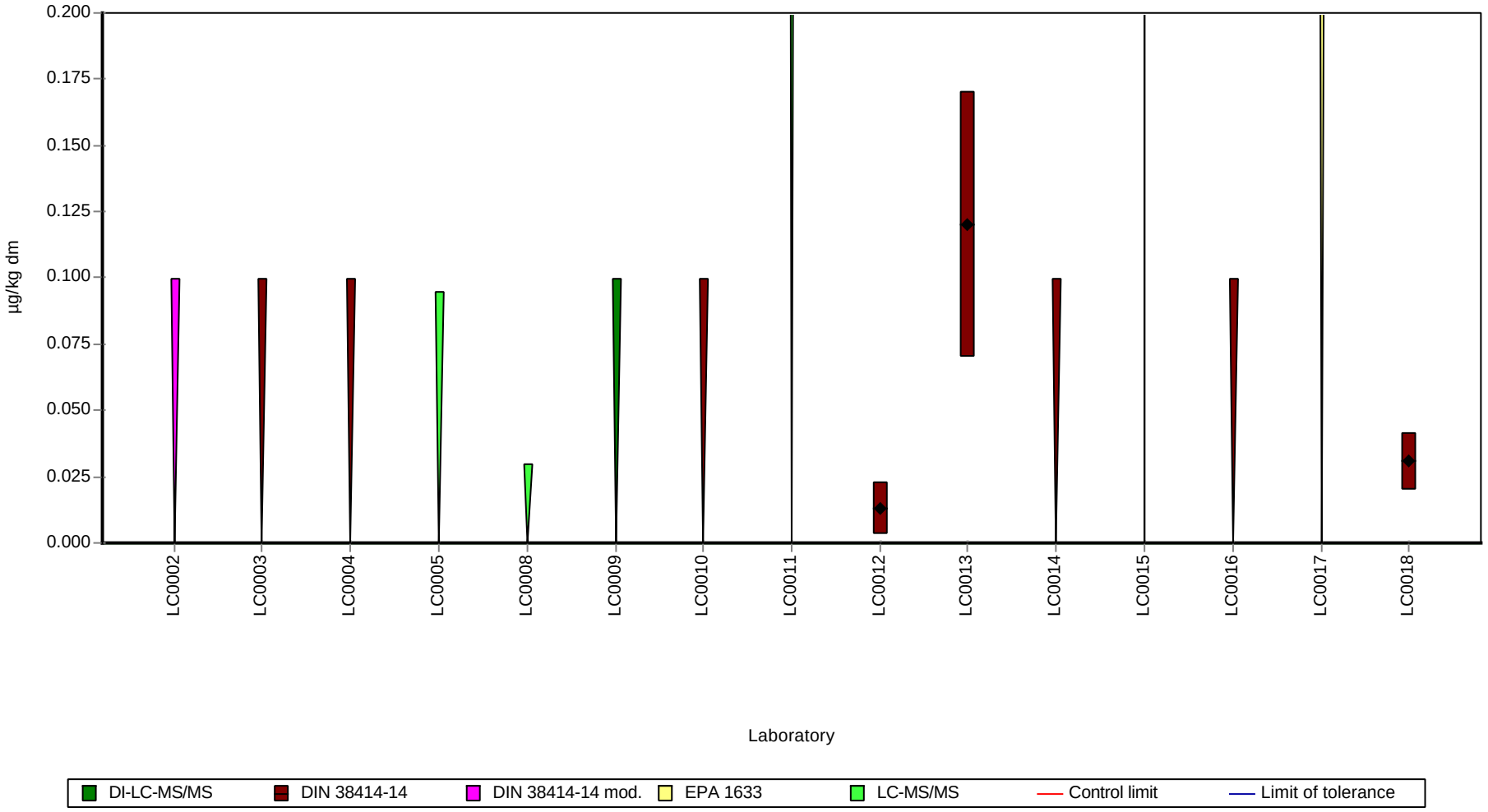
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	0.0546 ± 0.0993	-	µg/kg dm
Minimum	0.013	0.013	µg/kg dm
Maximum	0.12	0.12	µg/kg dm
Standard deviation	0.0574	-	µg/kg dm
rel. standard deviation	105	-	%
n	3	3	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: Perfluorononane sulfonic acid (PFNS) - PF9S

Graphical presentation of results

Results



Parameter oriented report

PFS01 B

Perfluorononane sulfonic acid (PFNS) - PF9S*

Unit	µg/kg dm
Assigned value ± U (k=2)	-
Criterion	-
Minimum - Maximum	0.017 - 0.143
Control test value ± U (k=2)	<0.05 (LOD)

* The value is listed for information and can be used for comparison as part of your internal QA measures:

< 0,10 µg/kg dm

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	-	-	-	-	
LC0002	< 0.1 (LOQ)	-	-	-	
LC0003	< 0.1 (LOQ)	-	-	-	
LC0004	< 0.1 (LOQ)	-	-	-	
LC0005	< 0.0887 (LOQ)	-	-	-	
LC0006	-	-	-	-	
LC0007	-	-	-	-	
LC0008	< 0.1 (LOQ)	-	-	-	
LC0009	< 0.1 (LOQ)	-	-	-	
LC0010	< 0.1 (LOQ)	-	-	-	
LC0011	-	-	-	-	
LC0012	0.017	0.01	-	-	
LC0013	< 0.1 (LOQ)	-	-	-	
LC0014	< 0.1 (LOQ)	-	-	-	
LC0015	< 5 (LOQ)	-	-	-	
LC0016	< 0.1 (LOQ)	-	-	-	
LC0017	0.082	0.003	-	-	
LC0018	0.1434	0.0717	-	-	

Characteristics of parameter

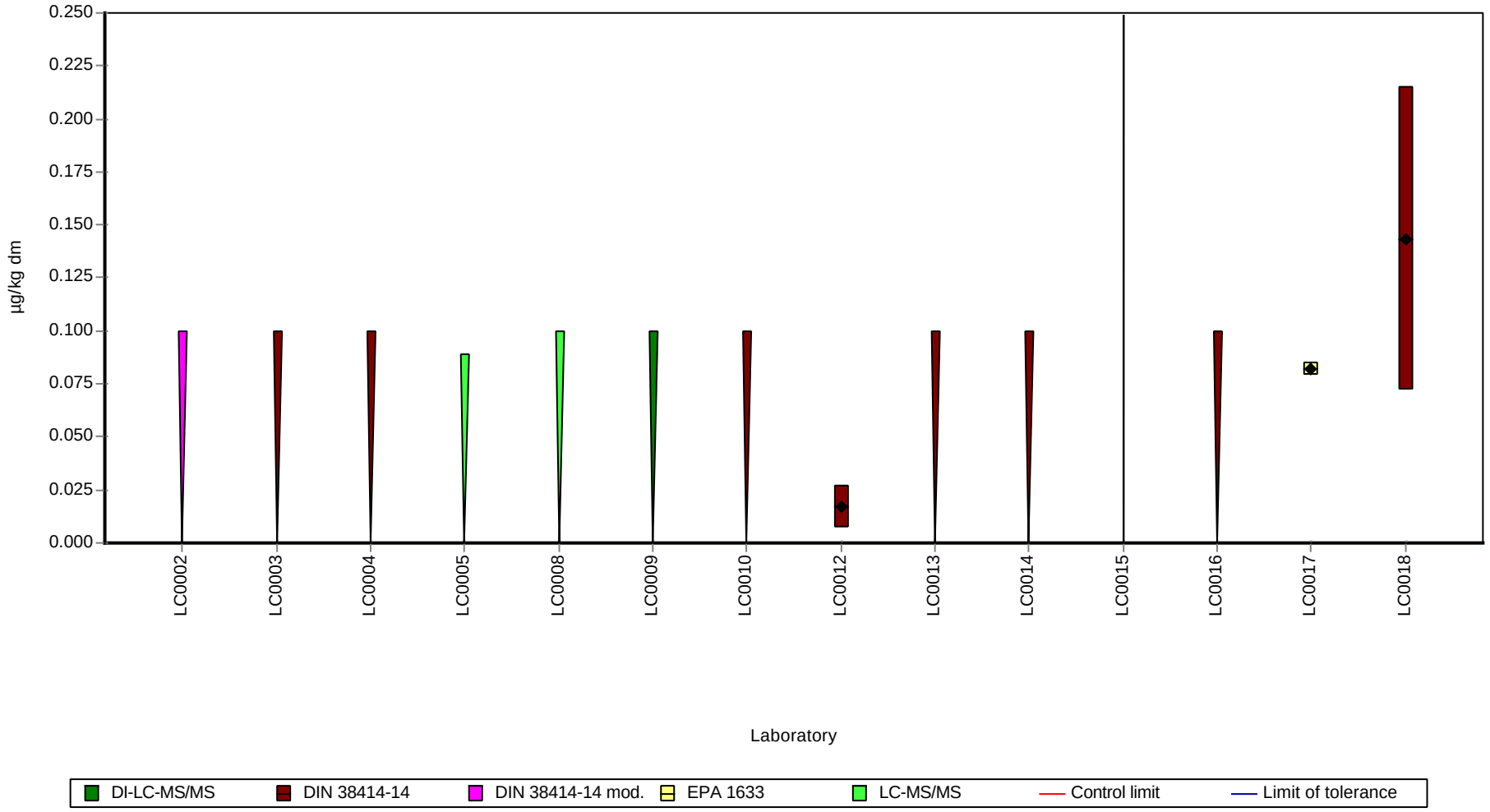
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	0.0808 ± 0.109	-	µg/kg dm
Minimum	0.017	0.017	µg/kg dm
Maximum	0.143	0.143	µg/kg dm
Standard deviation	0.0632	-	µg/kg dm
rel. standard deviation	78.2	-	%
n	3	3	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Perfluorononane sulfonic acid (PFNS) - PF9S

Graphical presentation of results

Results



Parameter oriented report

PFS01 A

Perfluorodecane sulfonic acid (PFDS) - PF10S*

Unit	µg/kg dm
Assigned value ± U (k=2)	-
Criterion	-
Minimum - Maximum	0.014 - 0.198
Control test value ± U (k=2)	<0.05 (LOD)

* The value is listed for information and can be used for comparison as part of your internal QA measures:

< 0,10 µg/kg dm

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	< 0.1 (LOQ)	-	-	-	
LC0002	< 0.1 (LOQ)	-	-	-	
LC0003	< 0.1 (LOQ)	-	-	-	
LC0004	< 0.1 (LOQ)	-	-	-	
LC0005	< 0.0475 (LOQ)	-	-	-	
LC0006	-	-	-	-	
LC0007	-	-	-	-	
LC0008	< 0.03 (LOQ)	-	-	-	
LC0009	< 0.1 (LOQ)	-	-	-	
LC0010	< 0.2 (LOQ)	-	-	-	
LC0011	< 0.1 (LOQ)	-	-	-	
LC0012	0.014	0.01	-	-	
LC0013	0.198	0.08	-	-	
LC0014	0.06	0.02	-	-	
LC0015	< 5 (LOQ)	-	-	-	
LC0016	< 0.1 (LOQ)	-	-	-	
LC0017	< 0.52 (LOQ)	-	-	-	
LC0018	0.0485	0.0243	-	-	

Characteristics of parameter

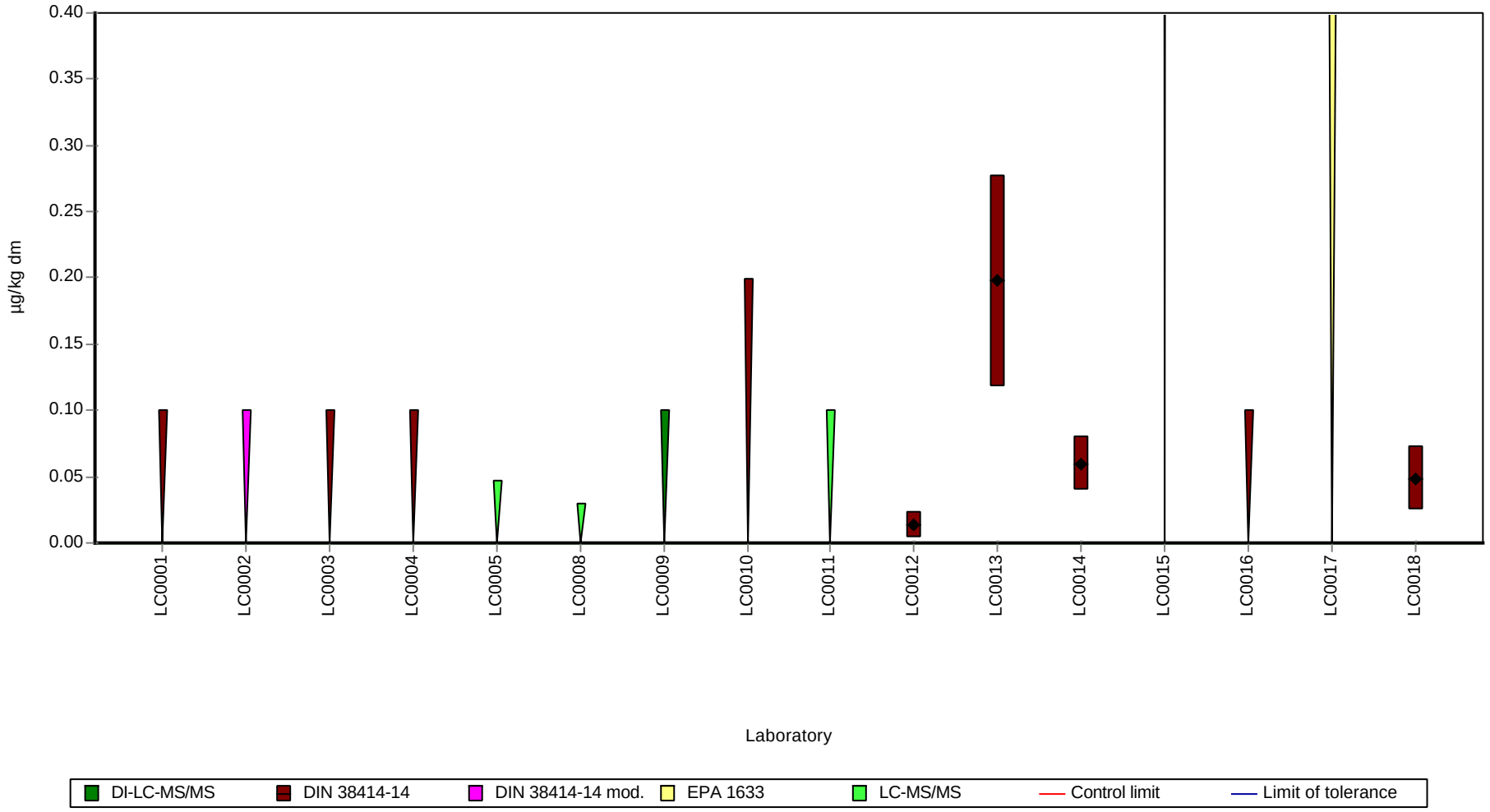
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	0.0801 ± 0.121	-	µg/kg dm
Minimum	0.014	0.014	µg/kg dm
Maximum	0.198	0.198	µg/kg dm
Standard deviation	0.081	-	µg/kg dm
rel. standard deviation	101	-	%
n	4	4	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: Perfluorodecane sulfonic acid (PFDS) - PF10S

Graphical presentation of results

Results



Parameter oriented report

PFS01 B

Perfluorodecane sulfonic acid (PFDS) - PF10S*

Unit	µg/kg dm
Assigned value ± U (k=2)	-
Criterion	-
Minimum - Maximum	0.041 - 0.509
Control test value ± U (k=2)	<0.05 (LOD)

* The value is listed for information and can be used for comparison as part of your internal QA measures:

< 0,10 µg/kg dm

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	< 0.1 (LOQ)	-	-	-	
LC0002	< 0.1 (LOQ)	-	-	-	
LC0003	< 0.1 (LOQ)	-	-	-	
LC0004	< 0.1 (LOQ)	-	-	-	
LC0005	< 0.0444 (LOQ)	-	-	-	
LC0006	-	-	-	-	
LC0007	-	-	-	-	
LC0008	< 0.1 (LOQ)	-	-	-	
LC0009	< 0.1 (LOQ)	-	-	-	
LC0010	< 0.2 (LOQ)	-	-	-	
LC0011	-	-	-	-	
LC0012	0.041	0.01	-	-	
LC0013	< 0.1 (LOQ)	-	-	-	
LC0014	< 0.1 (LOQ)	-	-	-	
LC0015	< 5 (LOQ)	-	-	-	
LC0016	< 0.1 (LOQ)	-	-	-	
LC0017	< 0.52 (LOQ)	-	-	-	
LC0018	0.5092	0.255	-	-	FP

Characteristics of parameter

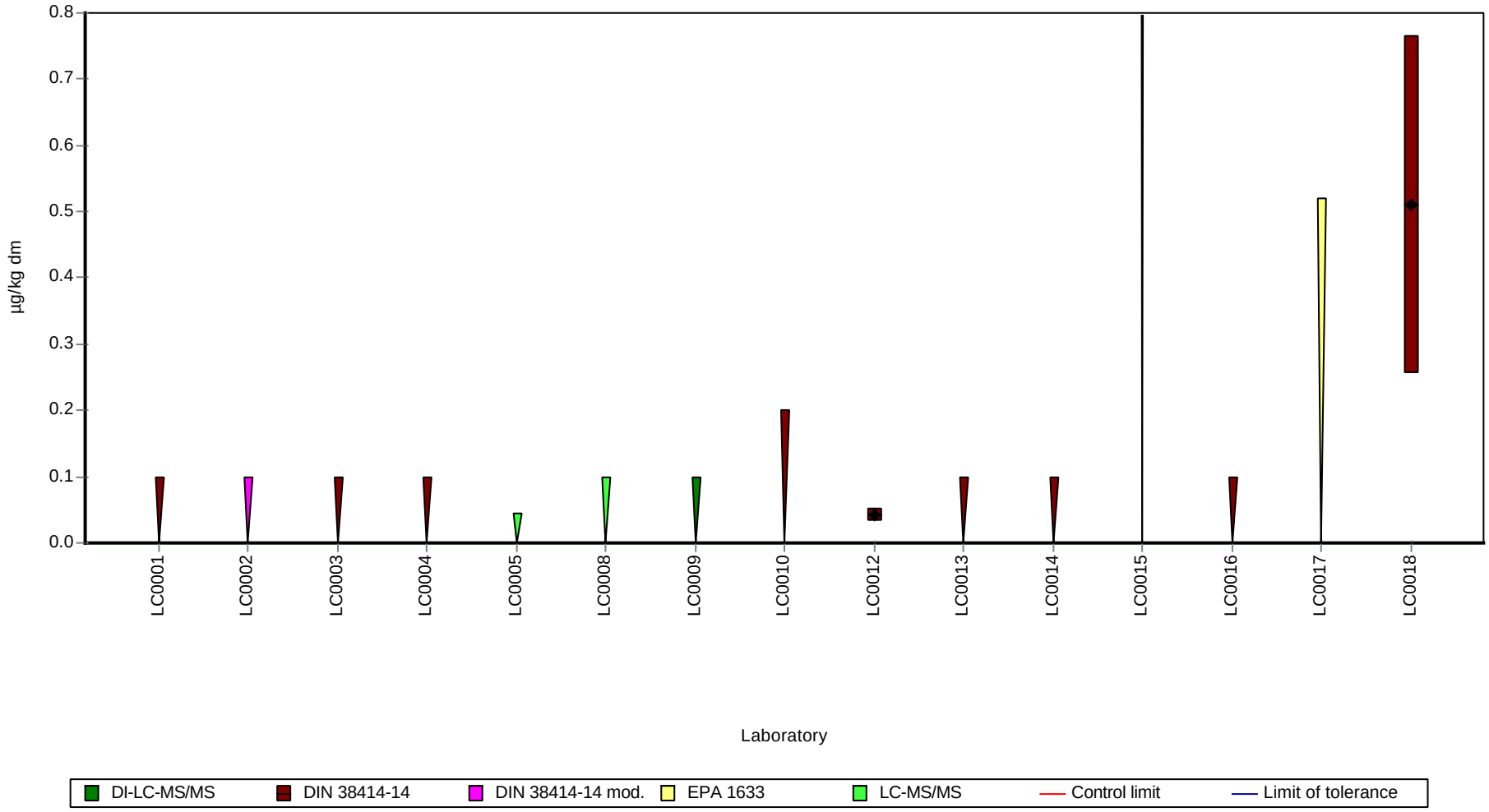
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	0.275 ± 0.702	-	µg/kg dm
Minimum	0.041	0.041	µg/kg dm
Maximum	0.509	0.509	µg/kg dm
Standard deviation	0.331	-	µg/kg dm
rel. standard deviation	120	-	%
n	2	2	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Perfluorodecane sulfonic acid (PFDS) - PF10S

Graphical presentation of results

Results



Parameter oriented report

PFS01 A

Perfluoroundecane sulfonic acid (PFUnDS) - PF11S*

Unit	µg/kg dm
Assigned value ± U (k=2)	-
Criterion	-
Minimum - Maximum	0.014 - 0.32
Control test value ± U (k=2)	<0.05 (LOD)

* The value is listed for information and can be used for comparison as part of your internal QA measures:

< 0,10 µg/kg dm

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	-	-	-	-	
LC0002	< 0.1 (LOQ)	-	-	-	
LC0003	< 0.1 (LOQ)	-	-	-	
LC0004	< 0.1 (LOQ)	-	-	-	
LC0005	< 0.095 (LOQ)	-	-	-	
LC0006	-	-	-	-	
LC0007	-	-	-	-	
LC0008	< 0.03 (LOQ)	-	-	-	
LC0009	< 0.1 (LOQ)	-	-	-	
LC0010	< 0.2 (LOQ)	-	-	-	
LC0011	< 3 (LOQ)	-	-	-	
LC0012	0.014	0.01	-	-	
LC0013	0.32	0.12	-	-	FP
LC0014	< 0.1 (LOQ)	-	-	-	
LC0015	< 5 (LOQ)	-	-	-	
LC0016	< 0.1 (LOQ)	-	-	-	
LC0017	0.159	0.007	-	-	
LC0018	0.0393	0.0138	-	-	

Characteristics of parameter

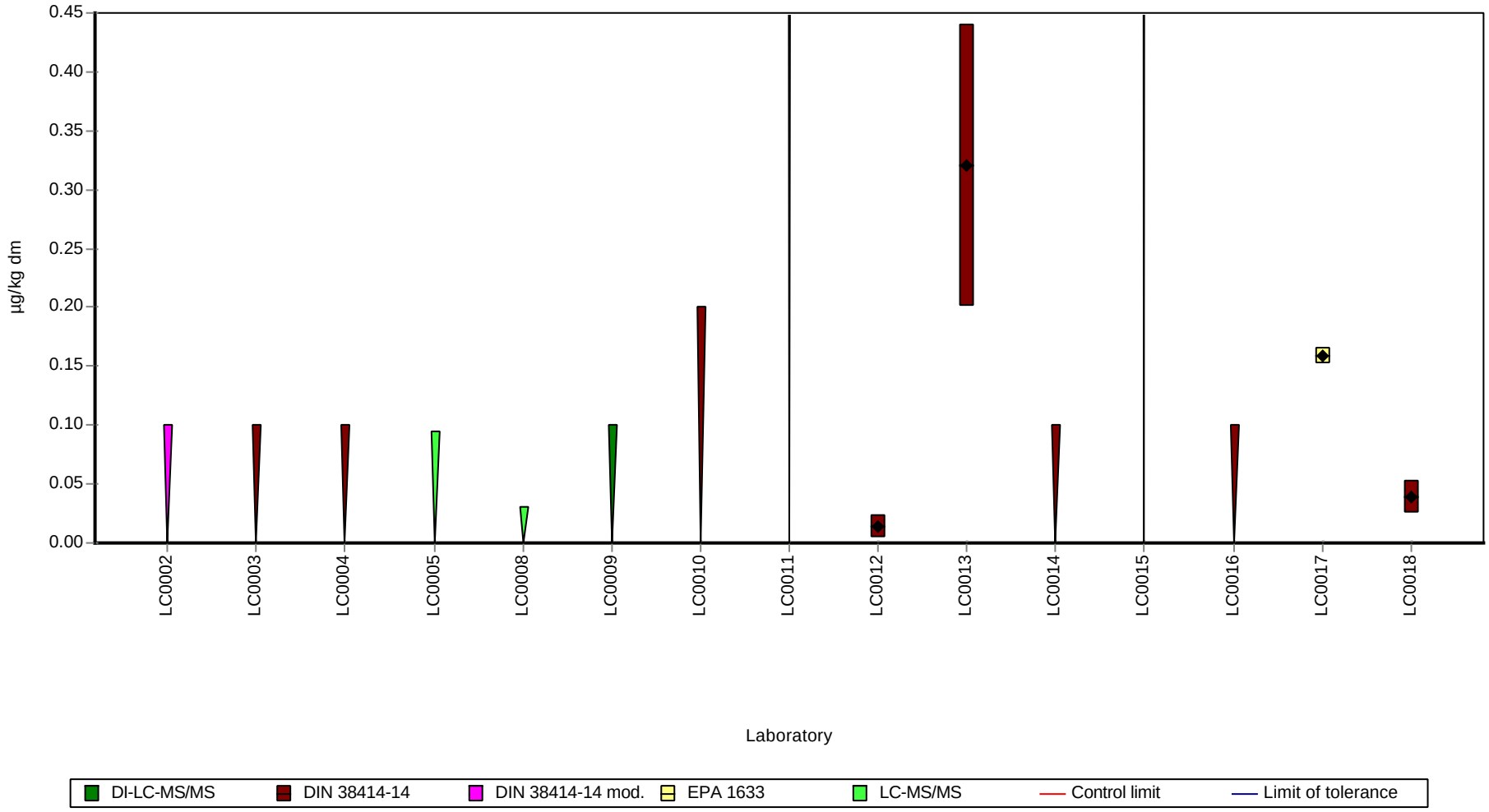
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	0.133 ± 0.21	-	µg/kg dm
Minimum	0.014	0.014	µg/kg dm
Maximum	0.32	0.32	µg/kg dm
Standard deviation	0.14	-	µg/kg dm
rel. standard deviation	105	-	%
n	4	4	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: Perfluoroundecane sulfonic acid (PFUnDS) - PF11S

Graphical presentation of results

Results



Parameter oriented report

PFS01 B

Perfluoroundecane sulfonic acid (PFUnDS) - PF11S*

Unit	µg/kg dm
Assigned value ± U (k=2)	-
Criterion	-
Minimum - Maximum	0.011 - 0.426
Control test value ± U (k=2)	<0.05 (LOD)

* The value is listed for information and can be used for comparison as part of your internal QA measures:

< 0,10 µg/kg dm

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	-	-	-	-	
LC0002	< 0.1 (LOQ)	-	-	-	
LC0003	< 0.1 (LOQ)	-	-	-	
LC0004	< 0.1 (LOQ)	-	-	-	
LC0005	< 0.0887 (LOQ)	-	-	-	
LC0006	-	-	-	-	
LC0007	-	-	-	-	
LC0008	< 0.1 (LOQ)	-	-	-	
LC0009	< 0.1 (LOQ)	-	-	-	
LC0010	< 0.2 (LOQ)	-	-	-	
LC0011	-	-	-	-	
LC0012	0.011	0.01	-	-	
LC0013	< 0.1 (LOQ)	-	-	-	
LC0014	< 0.1 (LOQ)	-	-	-	
LC0015	< 5 (LOQ)	-	-	-	
LC0016	< 0.1 (LOQ)	-	-	-	
LC0017	0.266	0.015	-	-	FP
LC0018	0.4263	0.213	-	-	FP

Characteristics of parameter

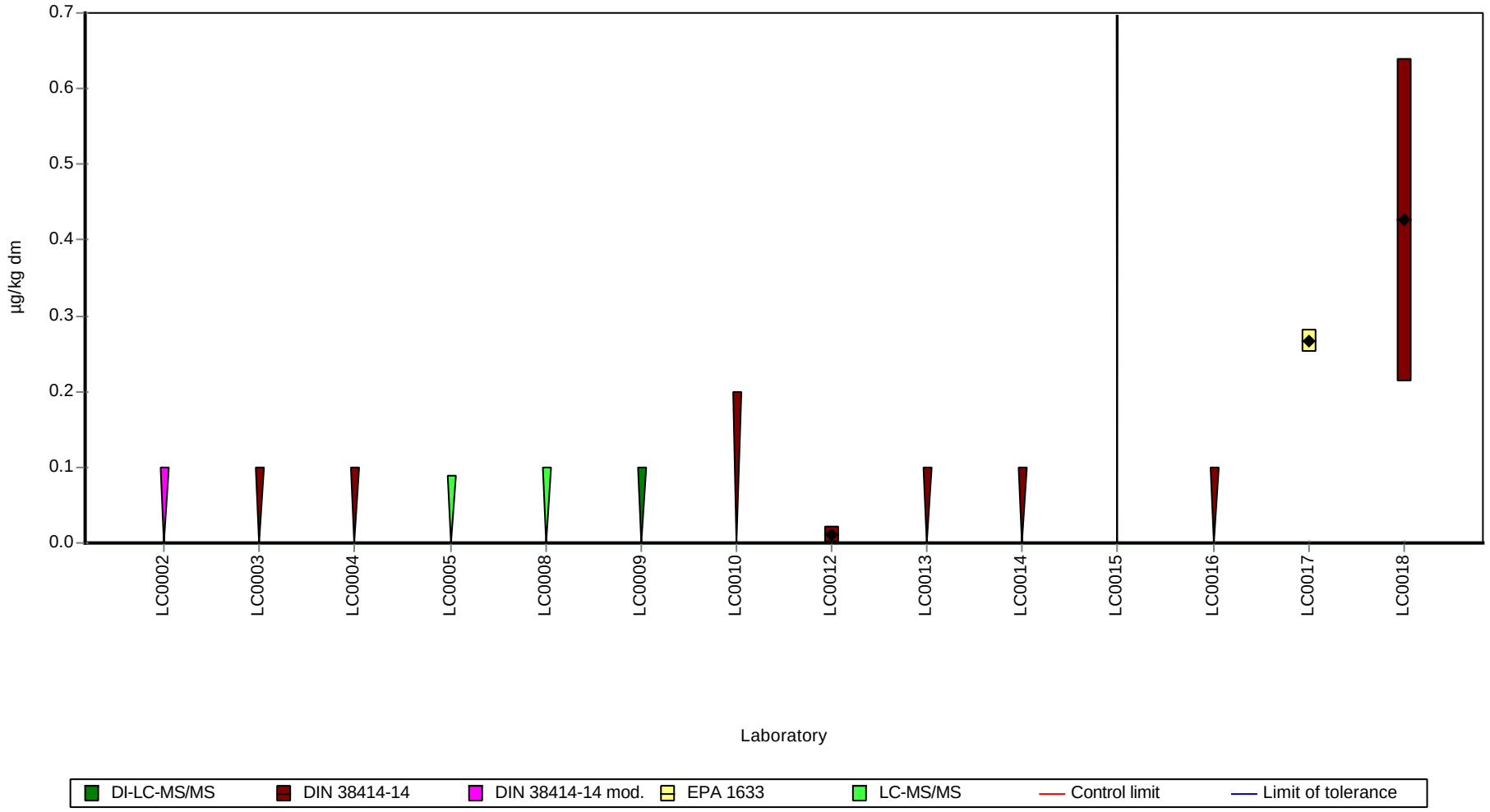
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	0.234 ± 0.363	-	µg/kg dm
Minimum	0.011	0.011	µg/kg dm
Maximum	0.426	0.426	µg/kg dm
Standard deviation	0.209	-	µg/kg dm
rel. standard deviation	89.3	-	%
n	3	3	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Perfluoroundecane sulfonic acid (PFUnDS) - PF11S

Graphical presentation of results

Results



Parameter oriented report

PFS01 A

Perfluorododecane sulfonic acid (PFDoS) - PF12S*

Unit	µg/kg dm
Assigned value ± U (k=2)	-
Criterion	-
Minimum - Maximum	0.014 - 4.12
Control test value ± U (k=2)	<0.05 (LOD)

* The value is listed for information and can be used for comparison as part of your internal QA measures:

< 0,10 µg/kg dm

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	-	-	-	-	
LC0002	< 0.1 (LOQ)	-	-	-	
LC0003	< 0.1 (LOQ)	-	-	-	
LC0004	< 0.1 (LOQ)	-	-	-	
LC0005	< 0.095 (LOQ)	-	-	-	
LC0006	-	-	-	-	
LC0007	-	-	-	-	
LC0008	< 0.03 (LOQ)	-	-	-	
LC0009	< 0.1 (LOQ)	-	-	-	
LC0010	< 0.2 (LOQ)	-	-	-	
LC0011	< 3 (LOQ)	-	-	-	
LC0012	0.014	0.01	-	-	
LC0013	4.12	1	-	-	FP
LC0014	< 0.1 (LOQ)	-	-	-	
LC0015	< 5 (LOQ)	-	-	-	
LC0016	< 0.1 (LOQ)	-	-	-	
LC0017	< 0.52 (LOQ)	-	-	-	
LC0018	0.037	0.0129	-	-	

Characteristics of parameter

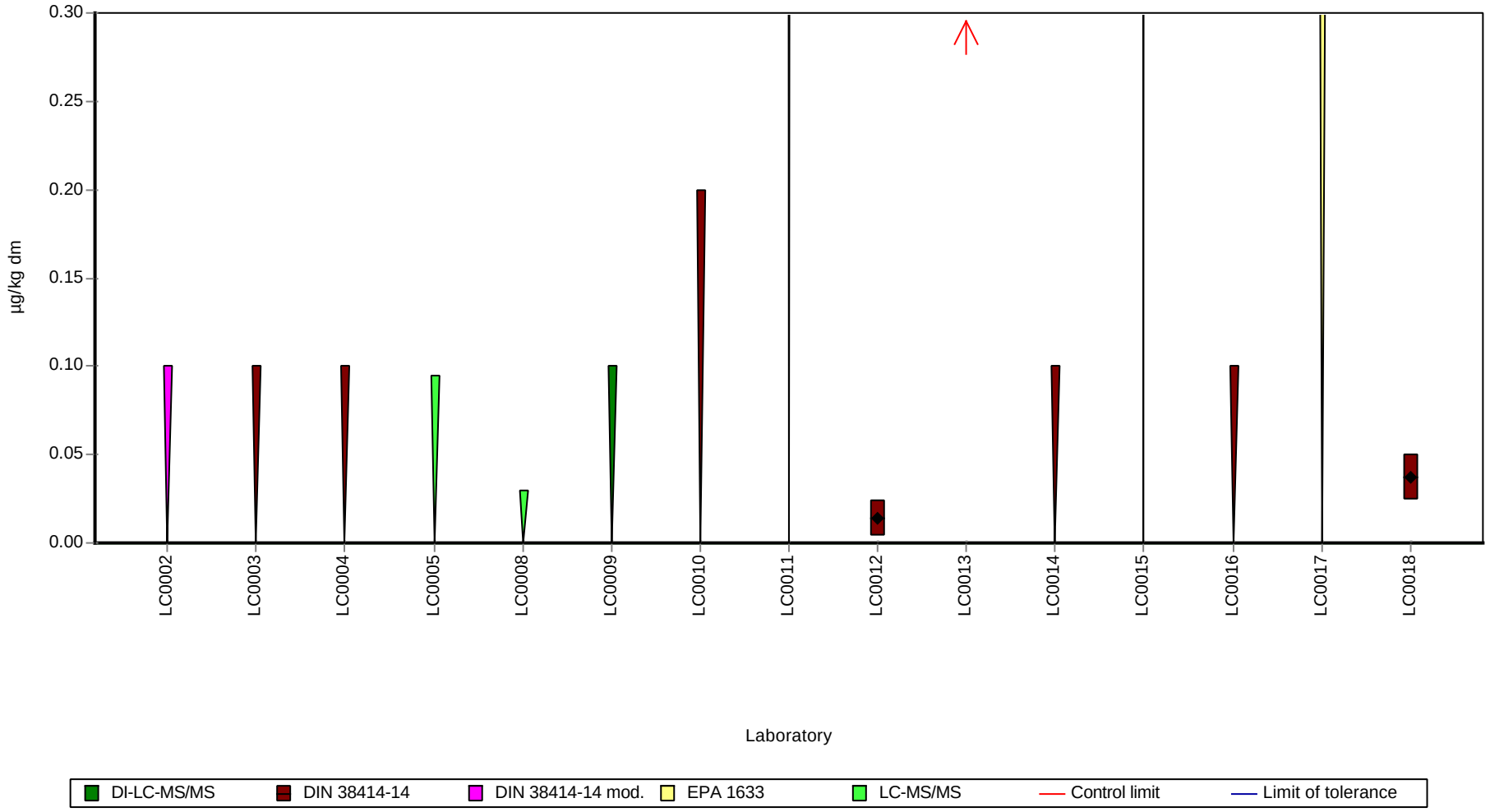
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	1.39 ± 4.09	-	µg/kg dm
Minimum	0.014	0.014	µg/kg dm
Maximum	4.12	4.12	µg/kg dm
Standard deviation	2.36	-	µg/kg dm
rel. standard deviation	170	-	%
n	3	3	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: Perfluorododecane sulfonic acid (PFDoS) - PF12S

Graphical presentation of results

Results



Parameter oriented report

PFS01 B

Perfluorododecane sulfonic acid (PFDoS) - PF12S*

Unit	µg/kg dm
Assigned value ± U (k=2)	-
Criterion	-
Minimum - Maximum	0.022 - 0.24
Control test value ± U (k=2)	<0.05 (LOD)

* The value is listed for information and can be used for comparison as part of your internal QA measures:

< 0,10 µg/kg dm

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	-	-	-	-	
LC0002	< 0.1 (LOQ)	-	-	-	
LC0003	< 0.1 (LOQ)	-	-	-	
LC0004	< 0.1 (LOQ)	-	-	-	
LC0005	< 0.0887 (LOQ)	-	-	-	
LC0006	-	-	-	-	
LC0007	-	-	-	-	
LC0008	< 0.1 (LOQ)	-	-	-	
LC0009	< 0.1 (LOQ)	-	-	-	
LC0010	< 0.2 (LOQ)	-	-	-	
LC0011	-	-	-	-	
LC0012	0.022	0.01	-	-	
LC0013	< 0.1 (LOQ)	-	-	-	
LC0014	< 0.1 (LOQ)	-	-	-	
LC0015	< 5 (LOQ)	-	-	-	
LC0016	< 0.1 (LOQ)	-	-	-	
LC0017	< 0.52 (LOQ)	-	-	-	
LC0018	0.2402	0.12	-	-	FP

Characteristics of parameter

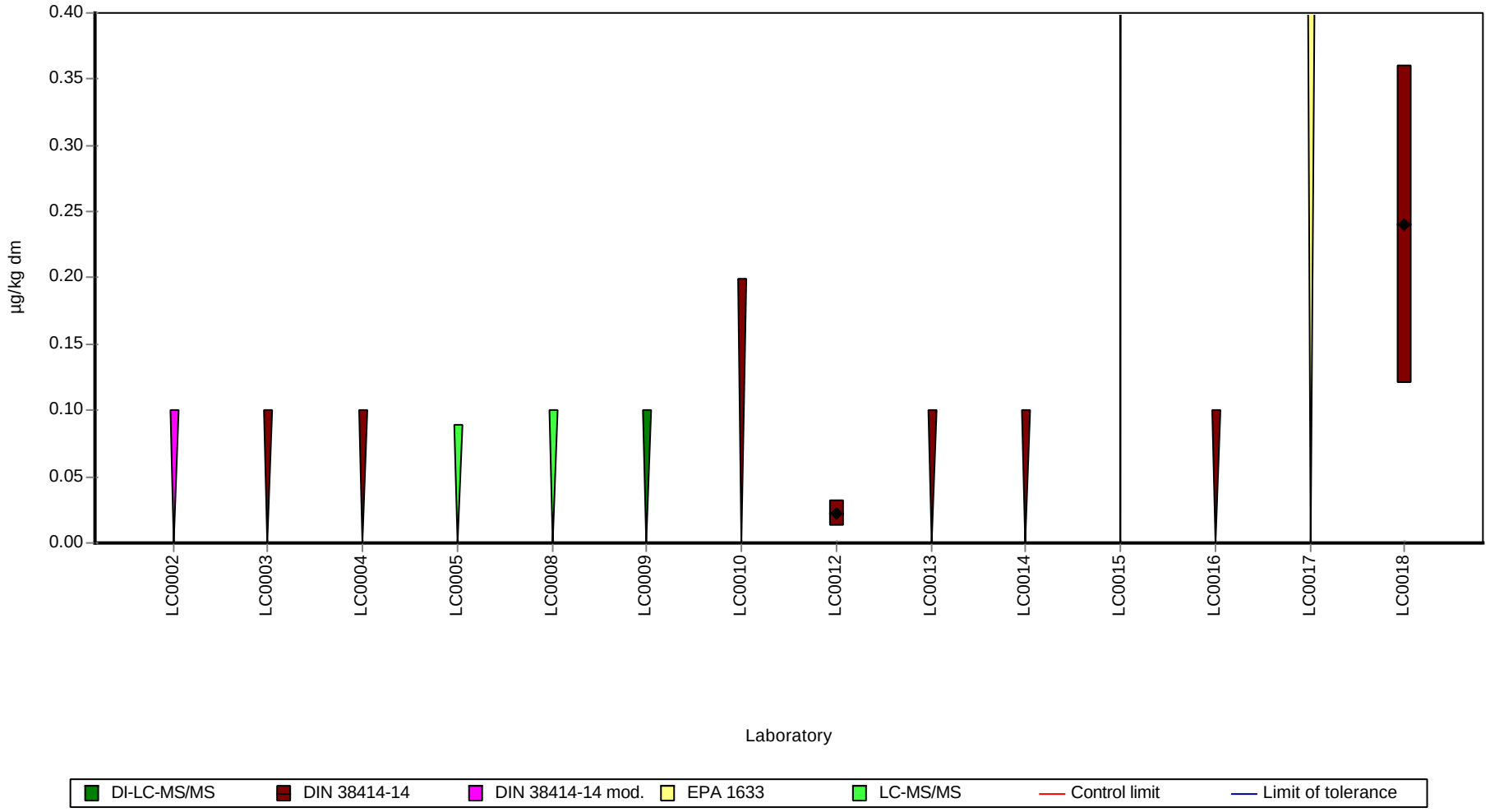
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	0.131 ± 0.327	-	µg/kg dm
Minimum	0.022	0.022	µg/kg dm
Maximum	0.24	0.24	µg/kg dm
Standard deviation	0.154	-	µg/kg dm
rel. standard deviation	118	-	%
n	2	2	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Perfluorododecane sulfonic acid (PFDoS) - PF12S

Graphical presentation of results

Results



Parameter oriented report

PFS01 A

Perfluorotridecane sulfonic acid (PFTrDS) - PF13S*

Unit	µg/kg dm
Assigned value ± U (k=2)	-
Criterion	-
Minimum - Maximum	0.023 - 0.369
Control test value ± U (k=2)	<0.05 (LOD)

* The value is listed for information and can be used for comparison as part of your internal QA measures:

< 0,10 µg/kg dm

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	-	-	-	-	
LC0002	< 0.1 (LOQ)	-	-	-	
LC0003	< 0.1 (LOQ)	-	-	-	
LC0004	< 0.1 (LOQ)	-	-	-	
LC0005	< 0.095 (LOQ)	-	-	-	
LC0006	-	-	-	-	
LC0007	-	-	-	-	
LC0008	< 0.03 (LOQ)	-	-	-	
LC0009	< 0.1 (LOQ)	-	-	-	
LC0010	< 0.2 (LOQ)	-	-	-	
LC0011	< 3 (LOQ)	-	-	-	
LC0012	0.023	0.01	-	-	
LC0013	0.369	0.14	-	-	FP
LC0014	< 0.1 (LOQ)	-	-	-	
LC0015	< 5 (LOQ)	-	-	-	
LC0016	< 0.1 (LOQ)	-	-	-	
LC0017	0.176	0.004	-	-	
LC0018	0.0558	0.0195	-	-	

Characteristics of parameter

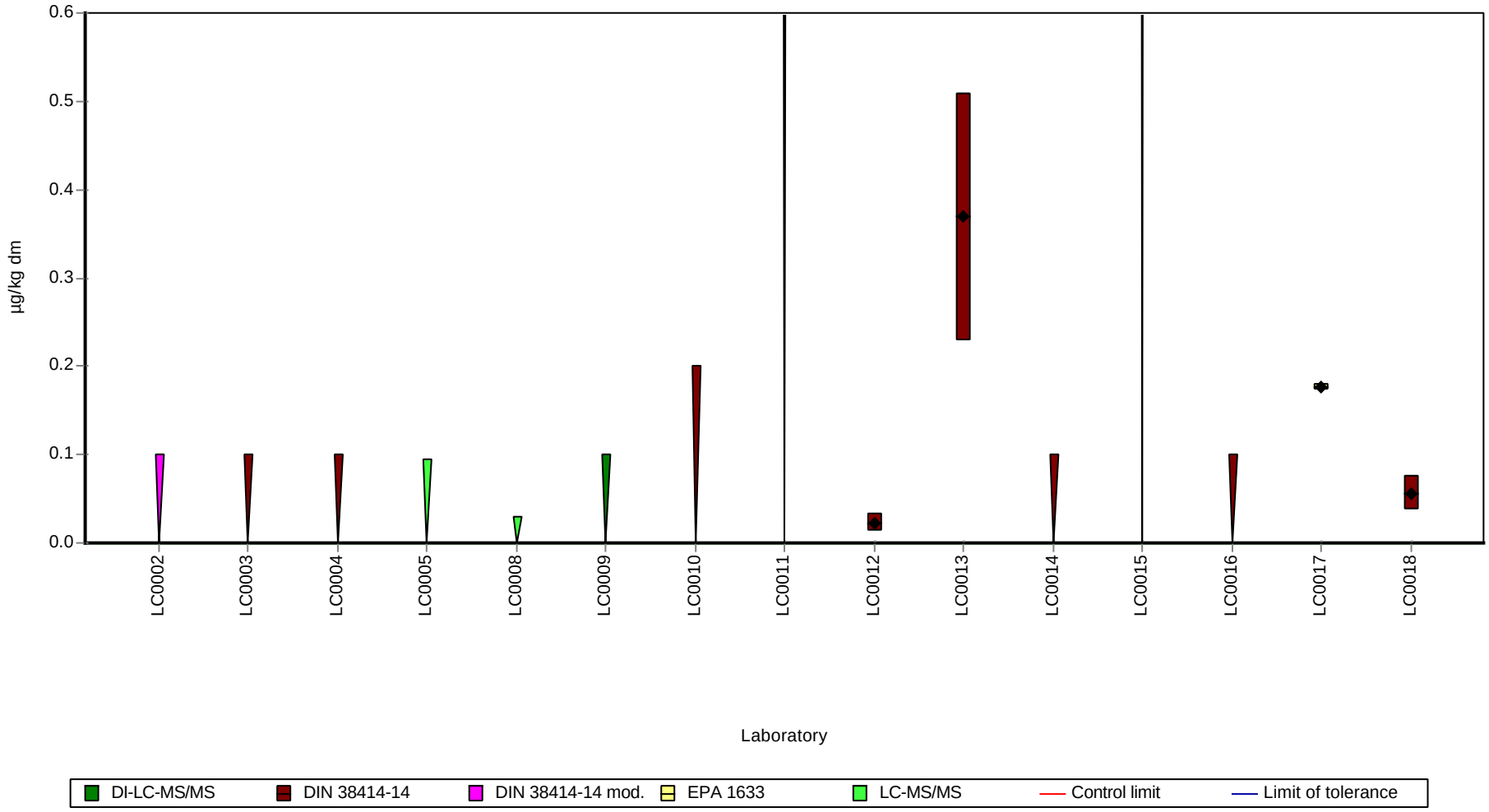
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	0.156 ± 0.235	-	µg/kg dm
Minimum	0.023	0.023	µg/kg dm
Maximum	0.369	0.369	µg/kg dm
Standard deviation	0.157	-	µg/kg dm
rel. standard deviation	100	-	%
n	4	4	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: Perfluorotridecane sulfonic acid (PFTrDS) - PF13S

Graphical presentation of results

Results



Parameter oriented report

PFS01 B

Perfluorotridecane sulfonic acid (PFTrDS) - PF13S*

Unit	µg/kg dm
Assigned value ± U (k=2)	-
Criterion	-
Minimum - Maximum	0.02 - 0.915
Control test value ± U (k=2)	<0.05 (LOD)

* The value is listed for information and can be used for comparison as part of your internal QA measures:

< 0,10 µg/kg dm

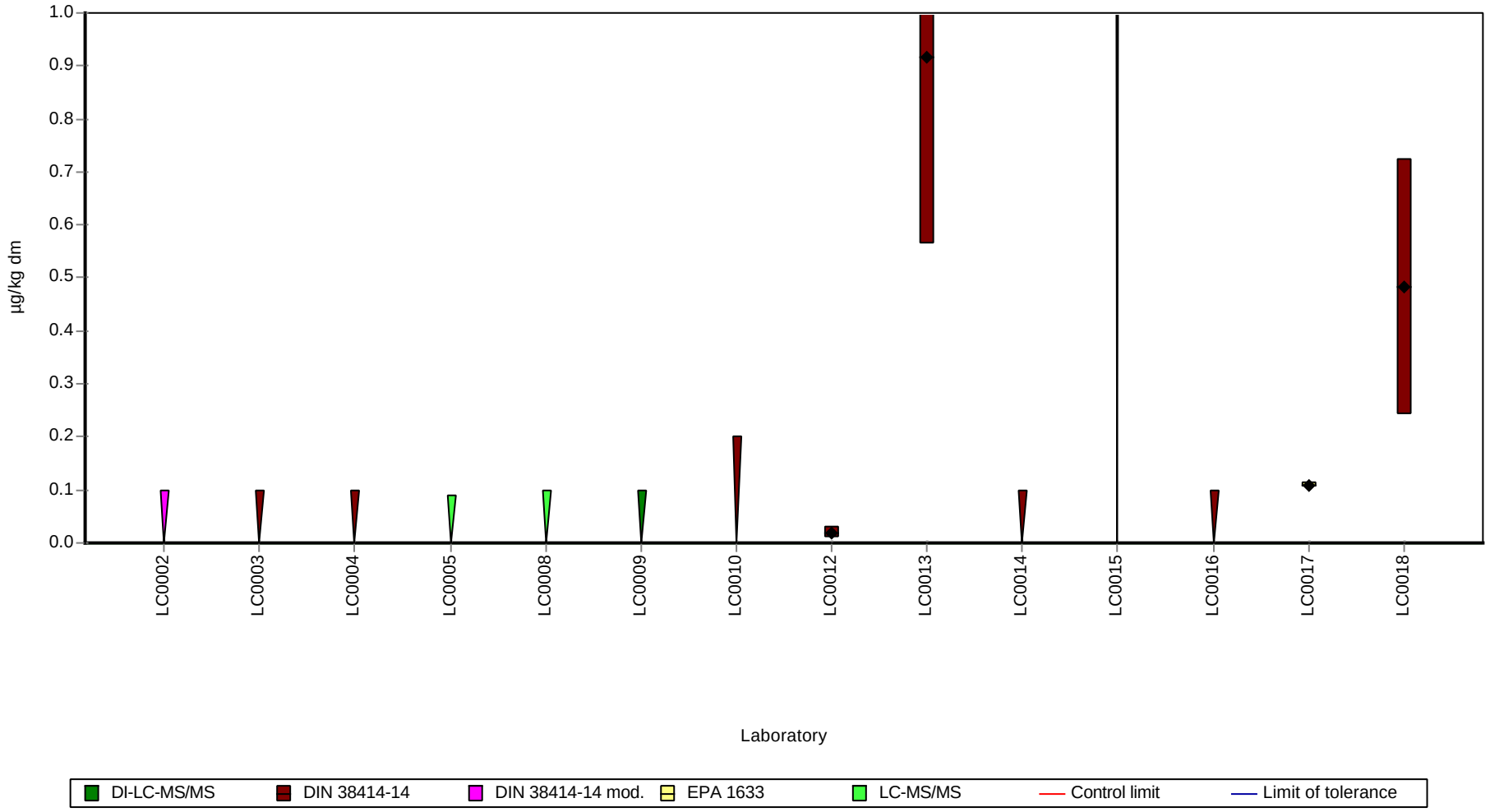
Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	-	-	-	-	
LC0002	< 0.1 (LOQ)	-	-	-	
LC0003	< 0.1 (LOQ)	-	-	-	
LC0004	< 0.1 (LOQ)	-	-	-	
LC0005	< 0.0887 (LOQ)	-	-	-	
LC0006	-	-	-	-	
LC0007	-	-	-	-	
LC0008	< 0.1 (LOQ)	-	-	-	
LC0009	< 0.1 (LOQ)	-	-	-	
LC0010	< 0.2 (LOQ)	-	-	-	
LC0011	-	-	-	-	
LC0012	0.02	0.01	-	-	
LC0013	0.915	0.35	-	-	FP
LC0014	< 0.1 (LOQ)	-	-	-	
LC0015	< 5 (LOQ)	-	-	-	
LC0016	< 0.1 (LOQ)	-	-	-	
LC0017	0.109	0.0041	-	-	
LC0018	0.4821	0.241	-	-	FP

Characteristics of parameter

	all results	w ithout outliers	Unit
Mean ± Cl (99%)	0.382 ± 0.612	-	µg/kg dm
Minimum	0.02	0.02	µg/kg dm
Maximum	0.915	0.915	µg/kg dm
Standard deviation	0.408	-	µg/kg dm
rel. standard deviation	107	-	%
n	4	4	-

Graphical presentation of results

Results



Parameter oriented report

PFS01 A

Total PFHxS*

Unit	µg/kg dm
Assigned value ± U (k=2)	-
Criterion	-
Minimum - Maximum	0.065 - 0.226
Control test value ± U (k=2)	<0.1 (LOQ)

* The value is listed for information and can be used for comparison as part of your internal QA measures:

< 0,15 µg/kg dm

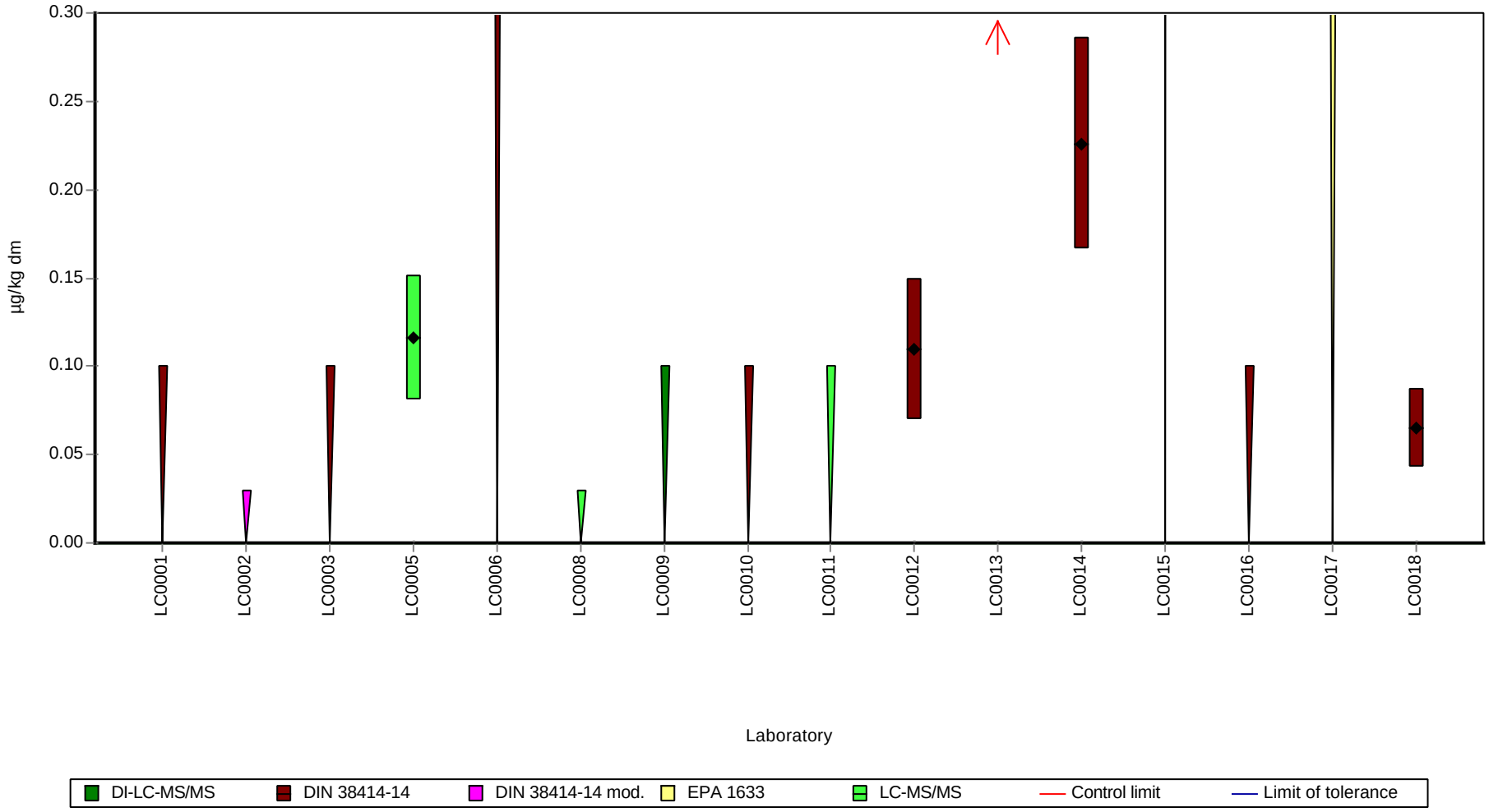
Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	< 0.1 (LOQ)	-	-	-	
LC0002	< 0.03 (LOQ)	-	-	-	
LC0003	< 0.1 (LOQ)	-	-	-	
LC0004	-	-	-	-	
LC0005	0.116	0.035	-	-	
LC0006	< 0.54 (LOQ)	-	-	-	
LC0007	-	-	-	-	
LC0008	< 0.03 (LOQ)	-	-	-	
LC0009	< 0.1 (LOQ)	-	-	-	
LC0010	< 0.1 (LOQ)	-	-	-	
LC0011	< 0.1 (LOQ)	-	-	-	
LC0012	0.11	0.04	-	-	
LC0013	1.66	0.6	-	-	HFP
LC0014	0.226	0.06	-	-	FP
LC0015	< 5 (LOQ)	-	-	-	
LC0016	< 0.1 (LOQ)	-	-	-	
LC0017	< 0.54 (LOQ)	-	-	-	
LC0018	0.065	0.0227	-	-	

Characteristics of parameter

	all results	w ithout outliers	Unit
Mean ± Cl (99%)	0.435 ± 0.922	-	µg/kg dm
Minimum	0.065	0.065	µg/kg dm
Maximum	1.66	0.226	µg/kg dm
Standard deviation	0.687	-	µg/kg dm
rel. standard deviation	158	-	%
n	5	4	-

Graphical presentation of results

Results



Parameter oriented report

PFS01 B

Total PFHxS*

Unit	µg/kg dm
Assigned value ± U (k=2)	-
Criterion	-
Minimum - Maximum	0.0618 - 0.364
Control test value ± U (k=2)	<0.1 (LOQ)

* The value is listed for information and can be used for comparison as part of your internal QA measures:

< 0,15 µg/kg dm

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	< 0.1 (LOQ)	-	-	-	
LC0002	0.0618	0.15	-	-	
LC0003	< 0.1 (LOQ)	-	-	-	
LC0004	-	-	-	-	
LC0005	0.0978	0.03	-	-	
LC0006	< 0.54 (LOQ)	-	-	-	
LC0007	-	-	-	-	
LC0008	< 0.1 (LOQ)	-	-	-	
LC0009	< 0.1 (LOQ)	-	-	-	
LC0010	< 0.1 (LOQ)	-	-	-	
LC0011	-	-	-	-	
LC0012	0.14	0.06	-	-	
LC0013	2.24	0.8	-	-	H
LC0014	0.364	0.09	-	-	
LC0015	< 5 (LOQ)	-	-	-	
LC0016	< 0.1 (LOQ)	-	-	-	
LC0017	0.104	0.0035	-	-	
LC0018	0.2262	0.113	-	-	

Characteristics of parameter

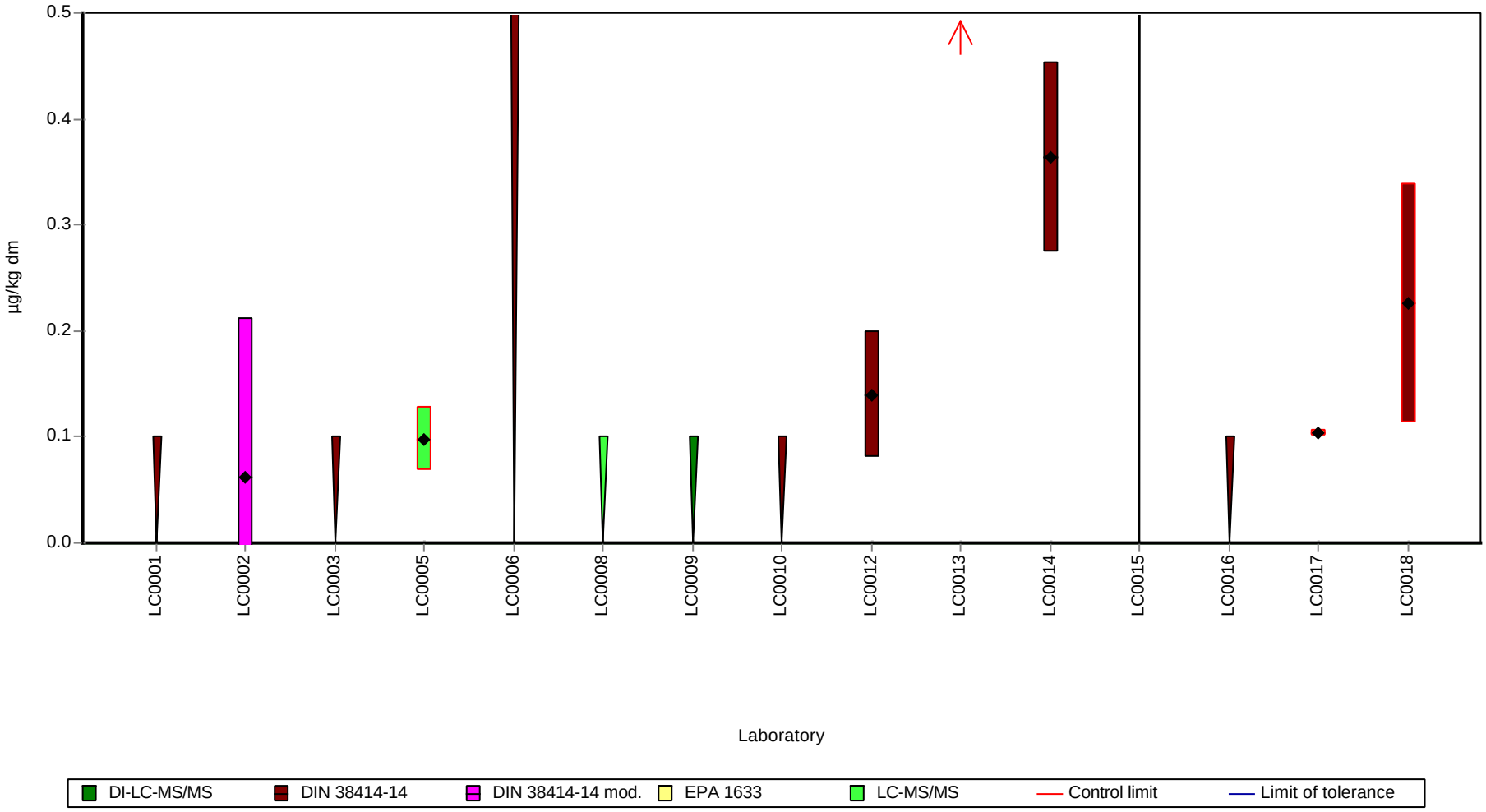
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	0.462 ± 0.897	-	µg/kg dm
Minimum	0.0618	0.0618	µg/kg dm
Maximum	2.24	0.364	µg/kg dm
Standard deviation	0.791	-	µg/kg dm
rel. standard deviation	171	-	%
n	7	6	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Total PFHxS

Graphical presentation of results

Results



Parameter oriented report

PFS01 A

Total PFOS

Unit	µg/kg dm
Assigned value ± U (k=2)	0.796 ± 0.0764
Criterion	0.159 (20 %)
Minimum - Maximum	0.631 - 1.12
Control test value ± U (k=2)	1.47 ± 0.81

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	0.764	0.138	95.9	-0.2	
LC0002	0.826	0.1	104	0.19	
LC0003	0.644	0.06	80.9	-0.96	
LC0004	-	-	-	-	
LC0005	2.62	0.79	329	11.45	H
LC0006	0.852	0.11	107	0.35	
LC0007	-	-	-	-	
LC0008	0.725	0.073	91.1	-0.45	
LC0009	0.727	0.262	91.3	-0.43	
LC0010	0.845	0.254	106	0.31	
LC0011	0.795	0.4	99.8	-0.01	
LC0012	0.96	0.38	121	1.03	
LC0013	1.88	0.7	236	6.81	H
LC0014	1.124	0.37	141	2.06	
LC0015	< 5 (LOQ)	-	-	-	
LC0016	0.82	0.12	103	0.15	
LC0017	0.631	0.018	79.2	-1.04	
LC0018	0.6383	0.223	80.2	-0.99	

Characteristics of parameter

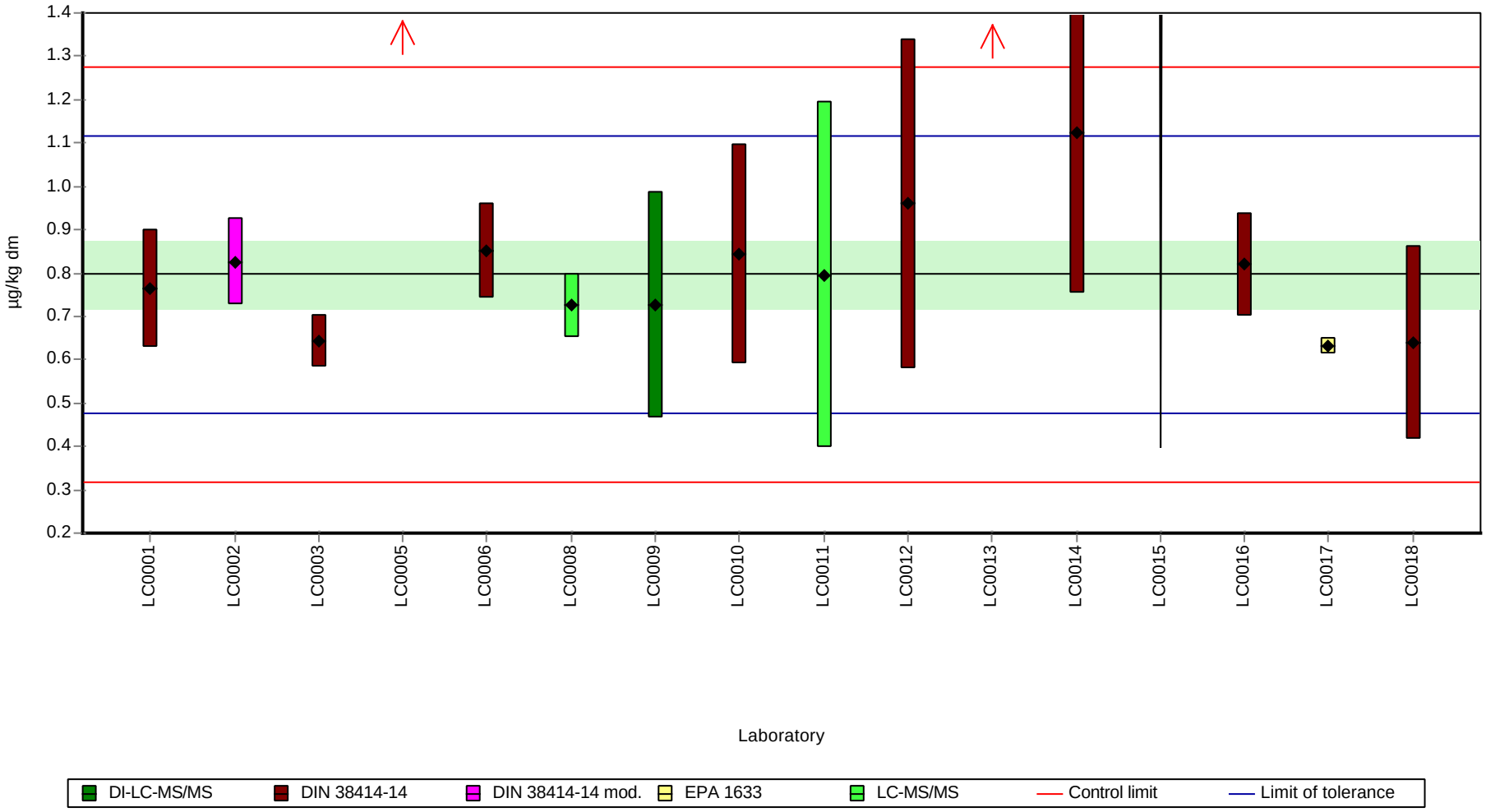
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	0.99 ± 0.422	0.796 ± 0.115	µg/kg dm
Minimum	0.631	0.631	µg/kg dm
Maximum	2.62	1.12	µg/kg dm
Standard deviation	0.545	0.138	µg/kg dm
rel. standard deviation	55.1	17.3	%
n	15	13	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: Total PFOS

Graphical presentation of results

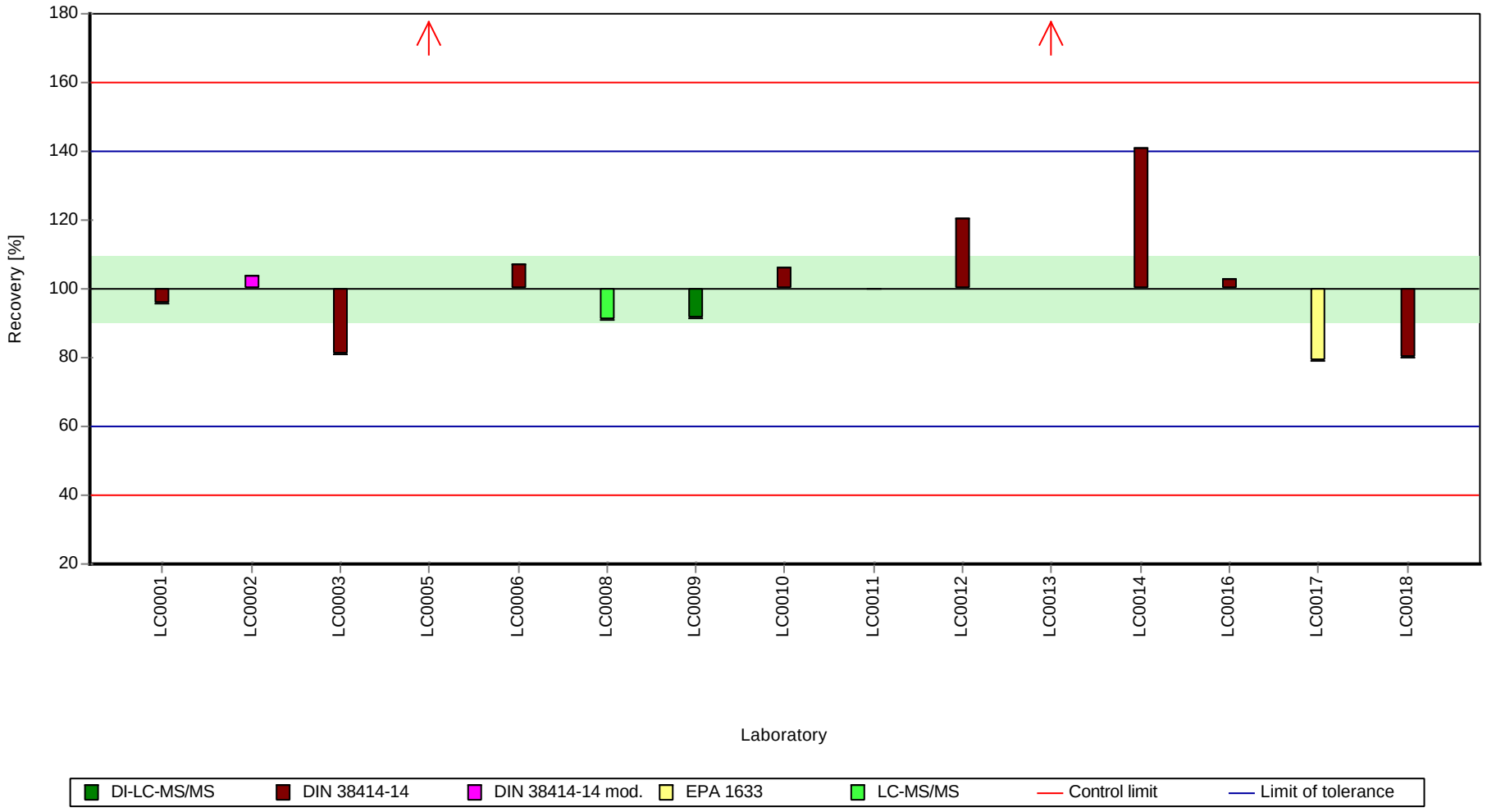
Results



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

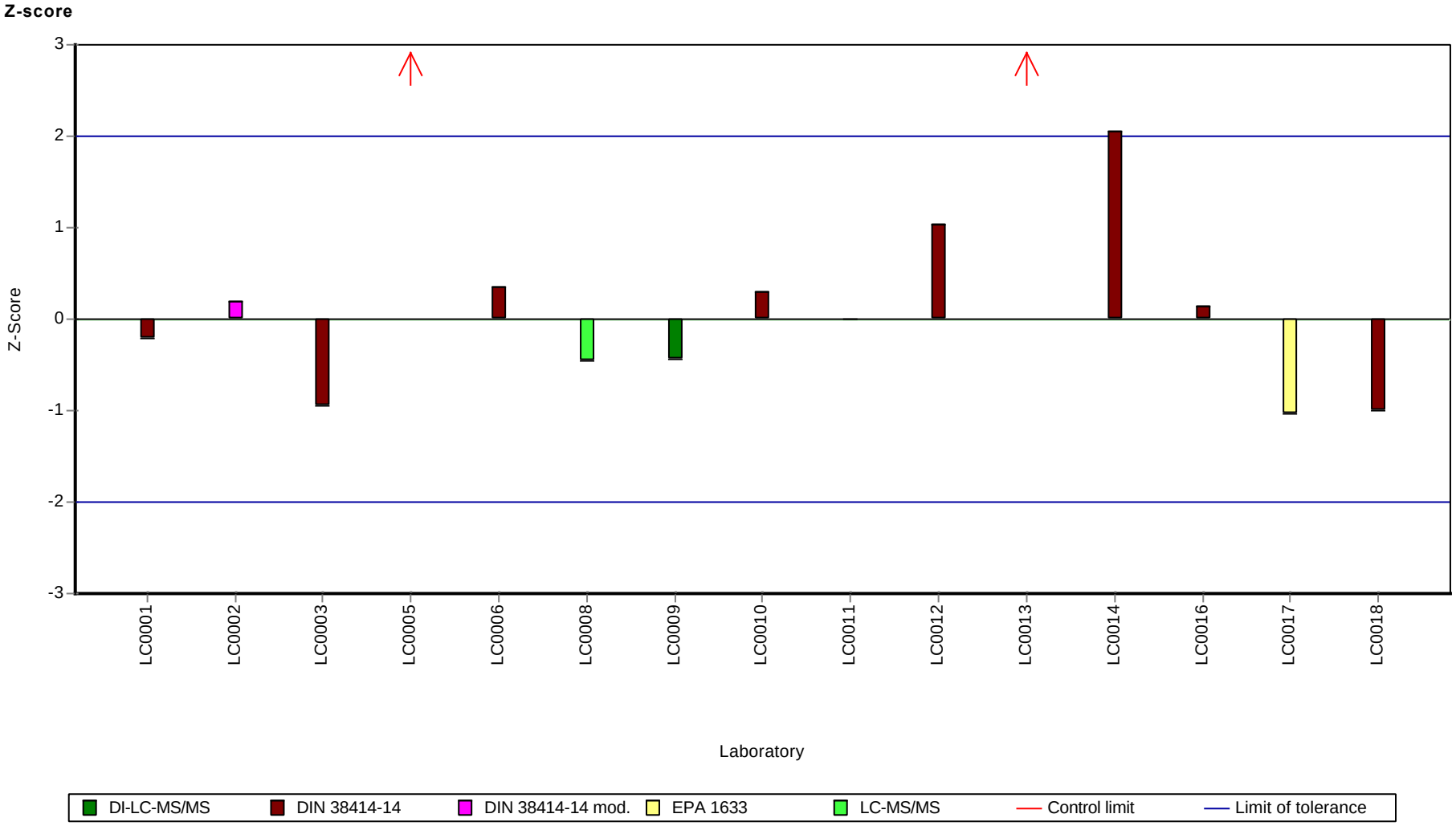
Sample: PFS01A, Parameter: Total PFOS

Recovery rate



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: Total PFOS



Parameter oriented report

PFS01 B

Total PFOS

Unit	µg/kg dm
Assigned value ± U (k=2)	1.96 ± 0.192
Criterion	0.393 (20 %)
Minimum - Maximum	1.31 - 2.48
Control test value ± U (k=2)	3.35 ± 1.64

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	1.84	0.332	93.7	-0.31	
LC0002	2.11	0.1	107	0.37	
LC0003	2.11	0.125	107	0.37	
LC0004	-	-	-	-	
LC0005	4.27	1.28	218	5.88	H
LC0006	1.67	0.22	85.1	-0.75	
LC0007	-	-	-	-	
LC0008	1.837	0.184	93.6	-0.32	
LC0009	1.824	0.657	92.9	-0.35	
LC0010	1.9	0.57	96.8	-0.16	
LC0011	-	-	-	-	
LC0012	2.48	0.99	126	1.32	
LC0013	3.88	1	198	4.88	H
LC0014	2.464	0.81	126	1.28	
LC0015	< 5 (LOQ)	-	-	-	
LC0016	2.21	0.33	113	0.63	
LC0017	1.8	0.065	91.7	-0.42	
LC0018	1.3111	0.656	66.8	-1.66	

Characteristics of parameter

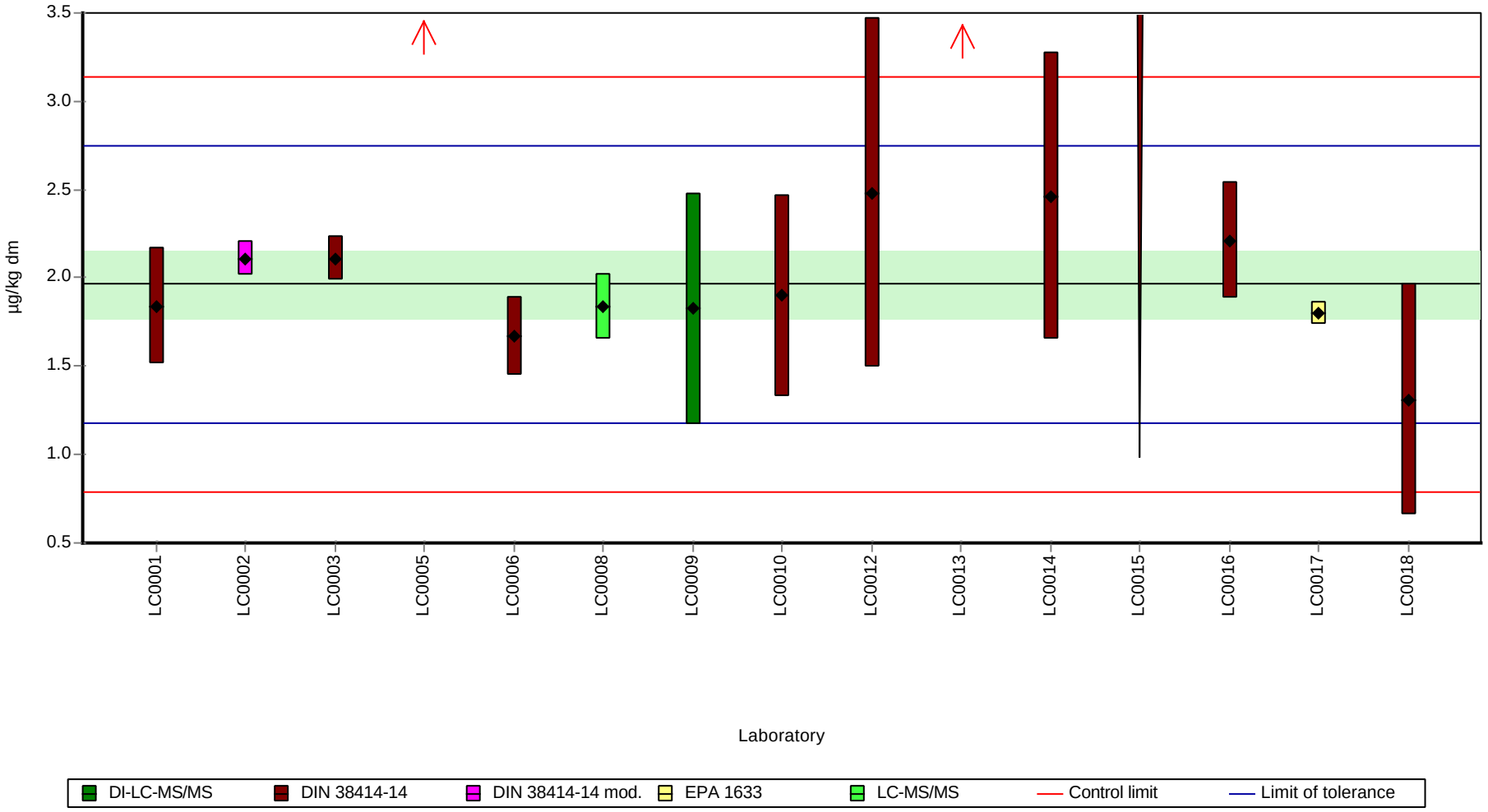
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	2.26 ± 0.665	1.96 ± 0.288	µg/kg dm
Minimum	1.31	1.31	µg/kg dm
Maximum	4.27	2.48	µg/kg dm
Standard deviation	0.829	0.332	µg/kg dm
rel. standard deviation	36.6	16.9	%
n	14	12	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Total PFOS

Graphical presentation of results

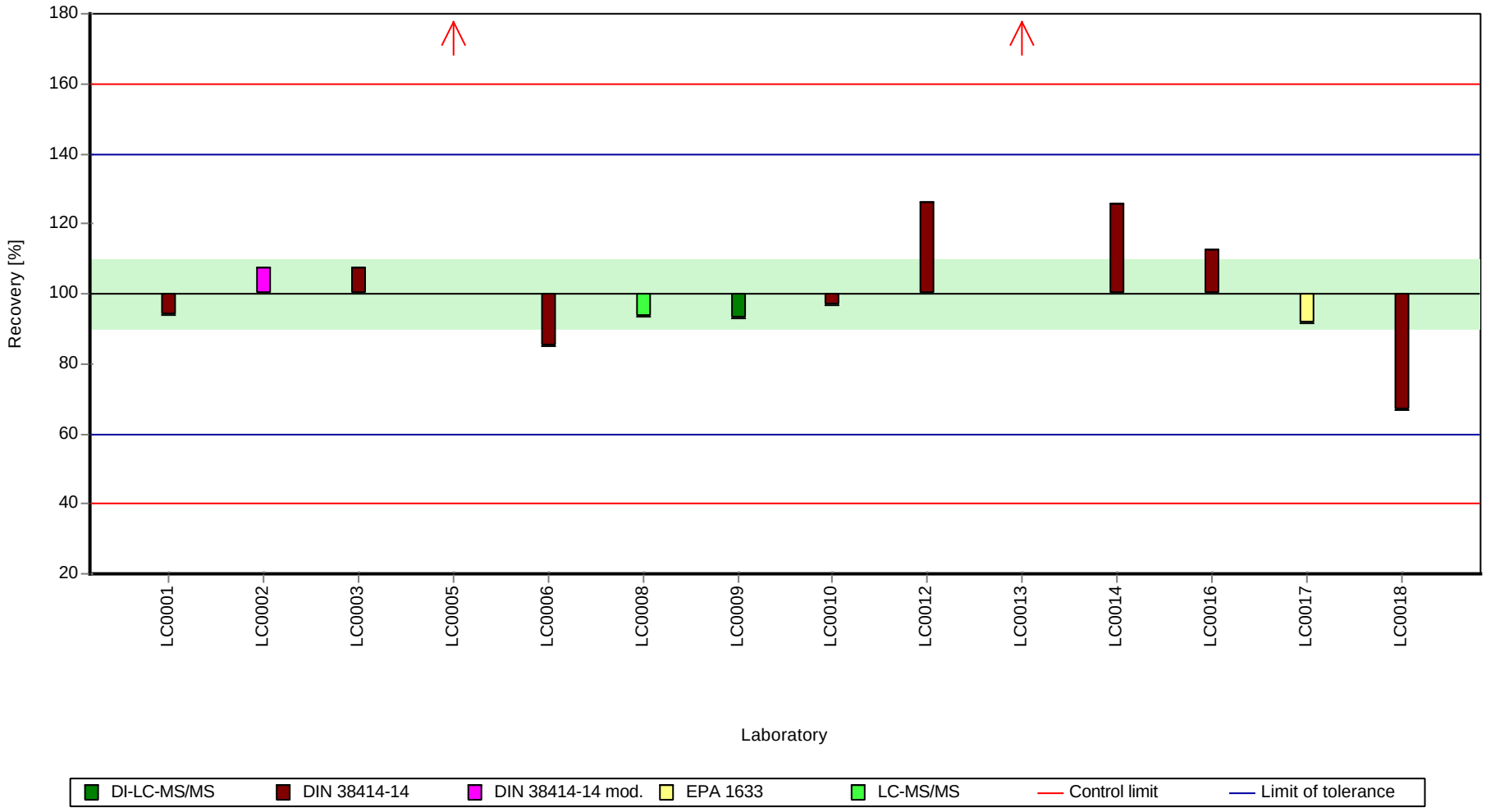
Results



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

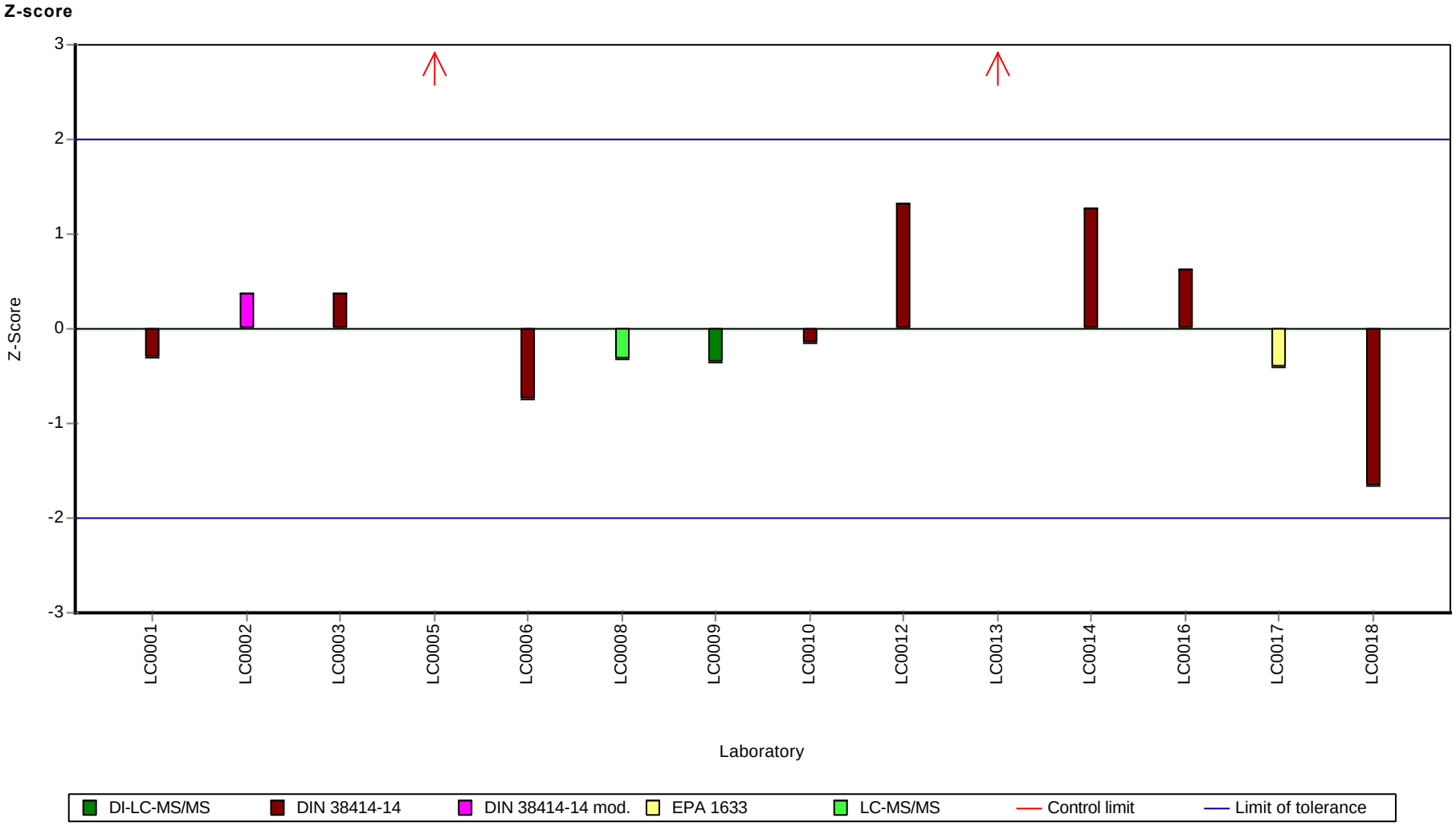
Sample: PFS01B, Parameter: Total PFOS

Recovery rate



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Total PFOS



Parameter oriented report

PFS01 A

linear Perfluorooctane sulfonic acid (n-PFOS)***

Unit	µg/kg dm
Assigned value ± U (k=2)	-
Criterion	-
Minimum - Maximum	0.313 - 0.63
Control test value ± U (k=2)	1.11 ± 0.442

***The calculated mean value MV +/- U(k=2) based on the data of the accredited laboratories (n) after outlier removal is listed for information.

This can be used for comparison as part of your internal QA measures:

MV (n=4; accr.) +/- U(k=2): 0.432+/-0.138 µg/kg dm

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	0.444	0.08	-	-	
LC0002	0.469	0.1	-	-	
LC0003	-	-	-	-	
LC0004	0.313	0.094	-	-	
LC0005	-	-	-	-	
LC0006	-	-	-	-	
LC0007	-	-	-	-	
LC0008	0.449	0.045	-	-	
LC0009	0.383	0.138	-	-	
LC0010	-	-	-	-	
LC0011	0.4	0.2	-	-	
LC0012	-	-	-	-	
LC0013	1.88	0.7	-	-	H
LC0014	0.63	0.21	-	-	
LC0015	-	-	-	-	
LC0016	-	-	-	-	
LC0017	-	-	-	-	
LC0018	-	-	-	-	

Characteristics of parameter

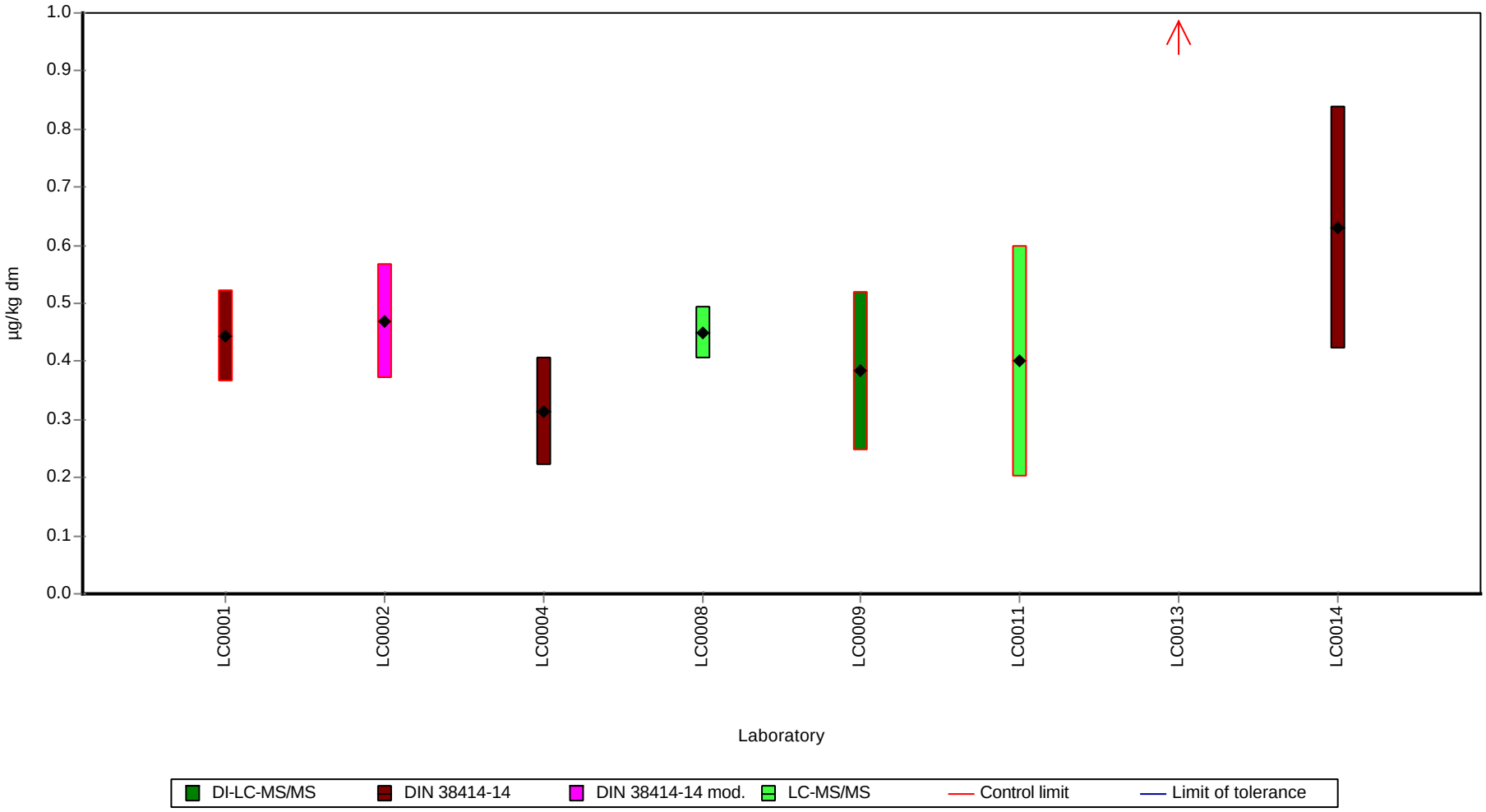
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	0.621 ± 0.548	-	µg/kg dm
Minimum	0.313	0.313	µg/kg dm
Maximum	1.88	0.63	µg/kg dm
Standard deviation	0.517	-	µg/kg dm
rel. standard deviation	83.2	-	%
n	8	7	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: linear Perfluorooctane sulfonic acid (n-PFOS)

Graphical presentation of results

Results



Parameter oriented report

PFS01 B

linear Perfluorooctane sulfonic acid (n-PFOS)***

Unit	µg/kg dm
Assigned value ± U (k=2)	-
Criterion	-
Minimum - Maximum	0.913 - 1.88
Control test value ± U (k=2)	2.83 ± 1.13

***The calculated mean value MV +/- U(k=2) based on the data of the accredited laboratories (n) is listed for information.

This can be used for comparison as part of your internal QA measures:

MV (n=3; accr.) +/- U(k=2): 1.353+/-0.526 µg/kg dm

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	1.37	0.247	-	-	
LC0002	1.58	0.1	-	-	
LC0003	-	-	-	-	
LC0004	0.913	0.274	-	-	
LC0005	-	-	-	-	
LC0006	-	-	-	-	
LC0007	-	-	-	-	
LC0008	1.371	0.137	-	-	
LC0009	1.322	0.476	-	-	
LC0010	-	-	-	-	
LC0011	-	-	-	-	
LC0012	-	-	-	-	
LC0013	1.88	0.6	-	-	
LC0014	1.823	0.55	-	-	
LC0015	-	-	-	-	
LC0016	-	-	-	-	
LC0017	-	-	-	-	
LC0018	-	-	-	-	

Characteristics of parameter

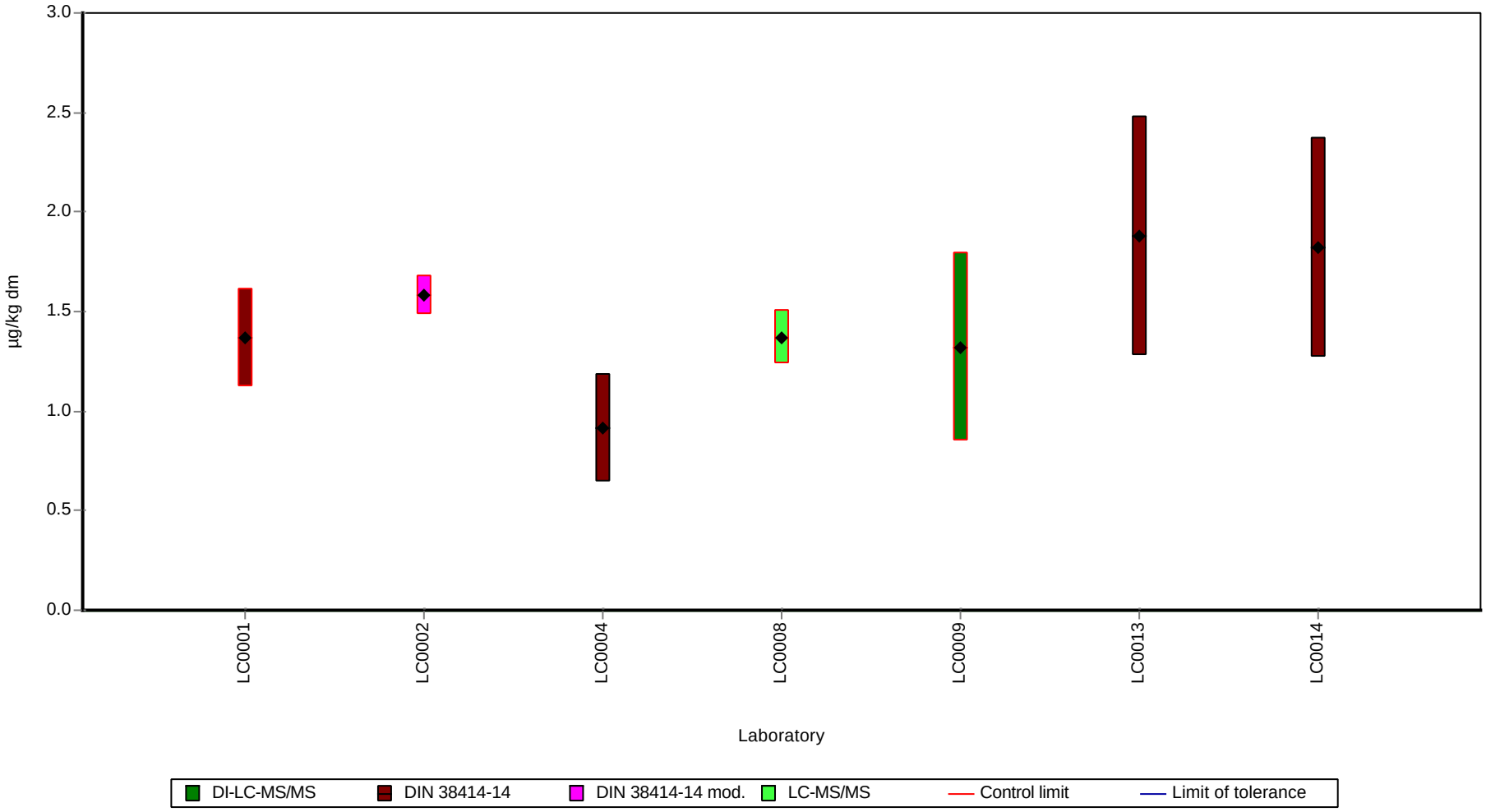
	all results	without outliers	Unit
Mean ± Cl (99%)	1.47 ± 0.375	-	µg/kg dm
Minimum	0.913	0.913	µg/kg dm
Maximum	1.88	1.88	µg/kg dm
Standard deviation	0.331	-	µg/kg dm
rel. standard deviation	22.6	-	%
n	7	7	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: linear Perfluorooctane sulfonic acid (n-PFOS)

Graphical presentation of results

Results



Parameter oriented report

PFS01 A

linear Perfluorohexane sulfonic acid (n-PFHxS)*

Unit	µg/kg dm
Assigned value ± U (k=2)	-
Criterion	-
Minimum - Maximum	0.161 - 0.292
Control test value ± U (k=2)	<0.1 (LOQ)

* The value is listed for information and can be used for comparison as part of your internal QA measures:

< 0,15 µg/kg dm

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	-	-	-	-	
LC0002	< 0.03 (LOQ)	-	-	-	
LC0003	-	-	-	-	
LC0004	< 0.1 (LOQ)	-	-	-	
LC0005	-	-	-	-	
LC0006	-	-	-	-	
LC0007	-	-	-	-	
LC0008	< 0.03 (LOQ)	-	-	-	
LC0009	< 0.1 (LOQ)	-	-	-	
LC0010	-	-	-	-	
LC0011	< 0.1 (LOQ)	-	-	-	
LC0012	-	-	-	-	
LC0013	0.292	1.2	-	-	FP
LC0014	0.161	0.04	-	-	
LC0015	-	-	-	-	
LC0016	-	-	-	-	
LC0017	-	-	-	-	
LC0018	-	-	-	-	

Characteristics of parameter

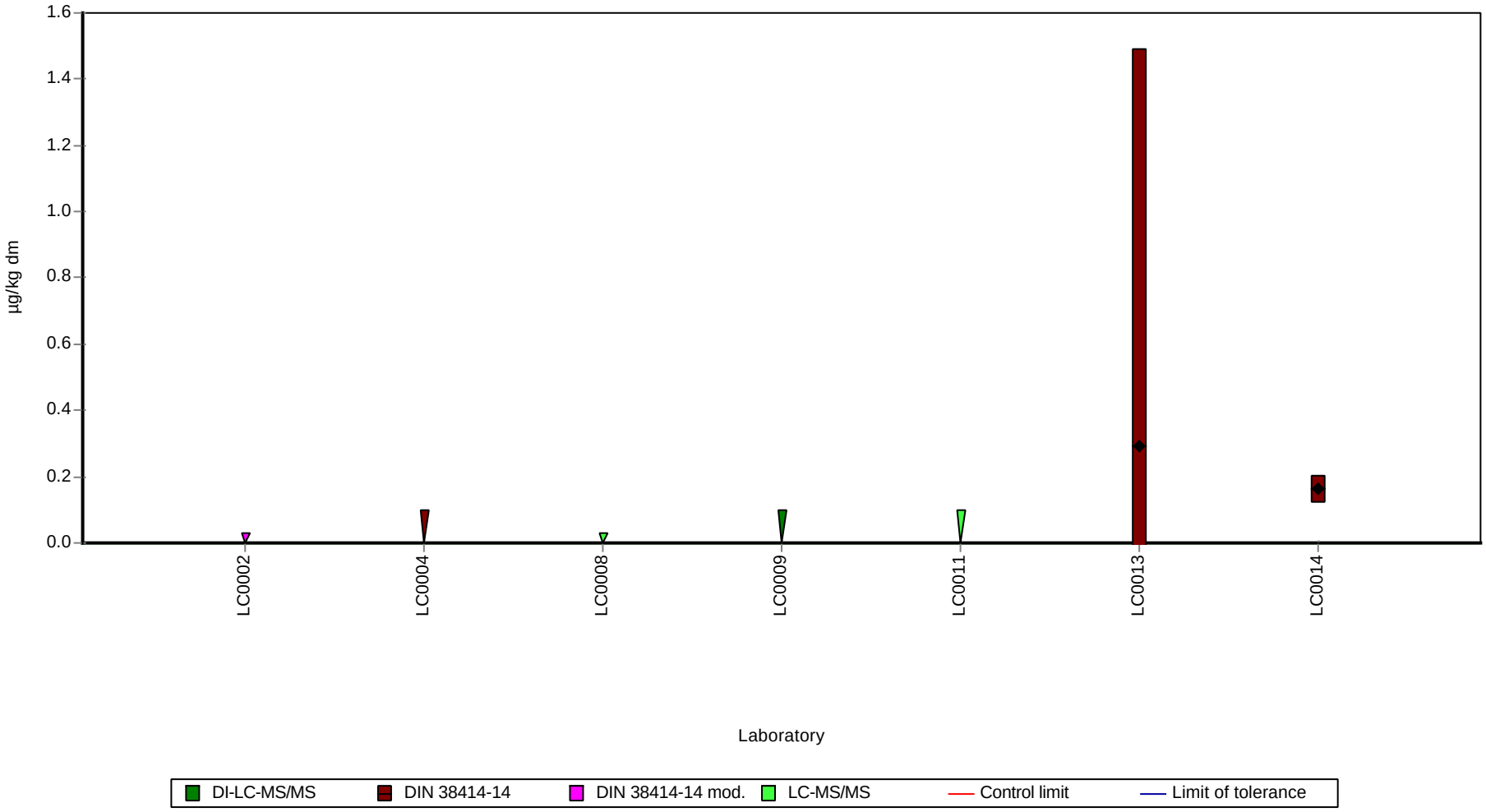
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	0.227 ± 0.197	-	µg/kg dm
Minimum	0.161	0.161	µg/kg dm
Maximum	0.292	0.292	µg/kg dm
Standard deviation	0.0926	-	µg/kg dm
rel. standard deviation	40.9	-	%
n	2	2	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: linear Perfluorohexane sulfonic acid (n-PFHxS)

Graphical presentation of results

Results



Parameter oriented report

PFS01 B

linear Perfluorohexane sulfonic acid (n-PFHxS)*

Unit	µg/kg dm
Assigned value ± U (k=2)	-
Criterion	-
Minimum - Maximum	0.0618 - 2.24
Control test value ± U (k=2)	<0.1 (LOQ)

* The value is listed for information and can be used for comparison as part of your internal QA measures:

< 0,15 µg/kg dm

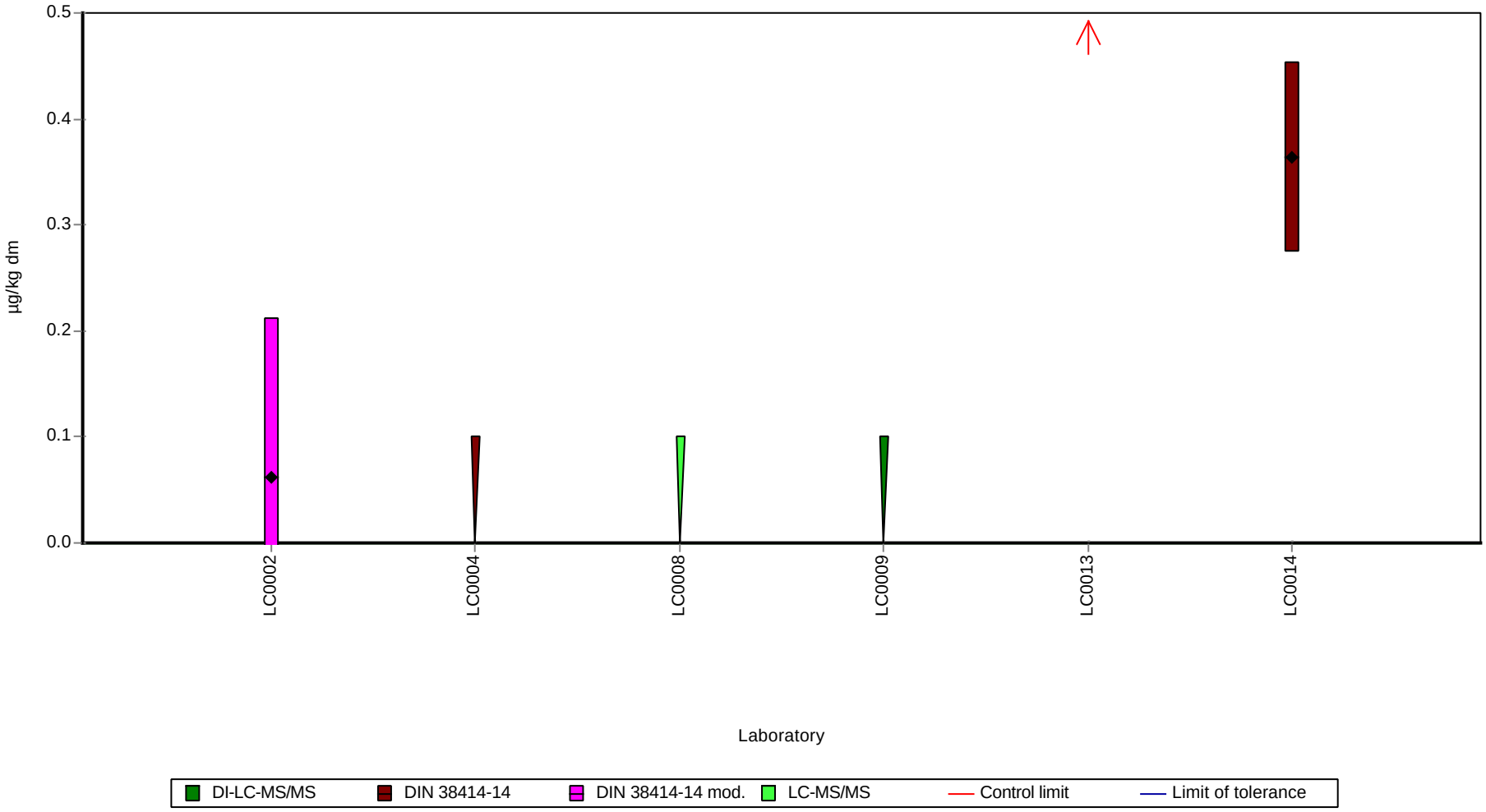
Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	-	-	-	-	
LC0002	0.0618	0.15	-	-	
LC0003	-	-	-	-	
LC0004	< 0.1 (LOQ)	-	-	-	
LC0005	-	-	-	-	
LC0006	-	-	-	-	
LC0007	-	-	-	-	
LC0008	< 0.1 (LOQ)	-	-	-	
LC0009	< 0.1 (LOQ)	-	-	-	
LC0010	-	-	-	-	
LC0011	-	-	-	-	
LC0012	-	-	-	-	
LC0013	2.24	0.8	-	-	FP
LC0014	0.364	0.09	-	-	FP
LC0015	-	-	-	-	
LC0016	-	-	-	-	
LC0017	-	-	-	-	
LC0018	-	-	-	-	

Characteristics of parameter

	all results	w ithout outliers	Unit
Mean ± Cl (99%)	0.889 ± 2.04	-	µg/kg dm
Minimum	0.0618	0.0618	µg/kg dm
Maximum	2.24	2.24	µg/kg dm
Standard deviation	1.18	-	µg/kg dm
rel. standard deviation	133	-	%
n	3	3	-

Graphical presentation of results

Results



Parameter oriented report

PFS01 A

Sum PFAS

Unit	µg/kg dm
Assigned value ± U (k=2)	13.5 ± 2.06
Criterion	3.77 (28 %)
Minimum - Maximum	7.02 - 19.2
Control test value ± U (k=2)	12.6 ± 5.03

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	14.3	2.58	106	0.22	
LC0002	12.5	0.5	92.9	-0.25	
LC0003	-	-	-	-	
LC0004	7.02	2.11	52.2	-1.71	
LC0005	17.7	5.32	132	1.13	
LC0006	-	-	-	-	
LC0007	-	-	-	-	
LC0008	12.034	2.407	89.4	-0.38	
LC0009	14.641	5.271	109	0.31	
LC0010	18.6	5.6	138	1.36	
LC0011	-	-	-	-	
LC0012	12	4.8	89.2	-0.39	
LC0013	55.3	38	411	11.1	H
LC0014	15.259	5	113	0.48	
LC0015	8.028	2	59.7	-1.44	
LC0016	12.9	2.58	95.9	-0.15	
LC0017	19.155	0.647	142	1.51	
LC0018	10.8101	5.405	80.3	-0.7	

Characteristics of parameter

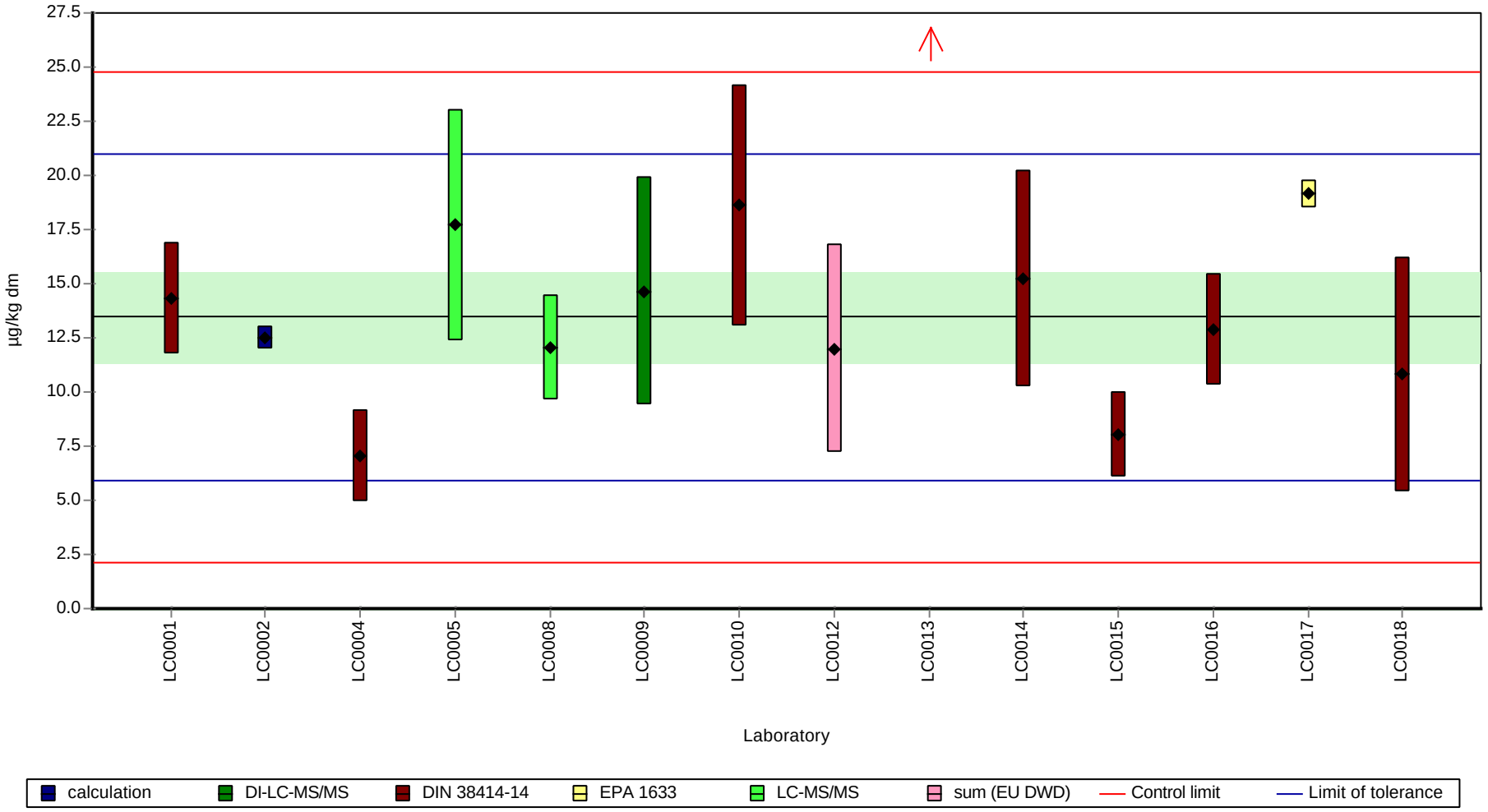
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	16.4 ± 9.41	13.5 ± 3.09	µg/kg dm
Minimum	7.02	7.02	µg/kg dm
Maximum	55.3	19.2	µg/kg dm
Standard deviation	11.7	3.71	µg/kg dm
rel. standard deviation	71.4	27.6	%
n	14	13	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: Sum PFAS

Graphical presentation of results

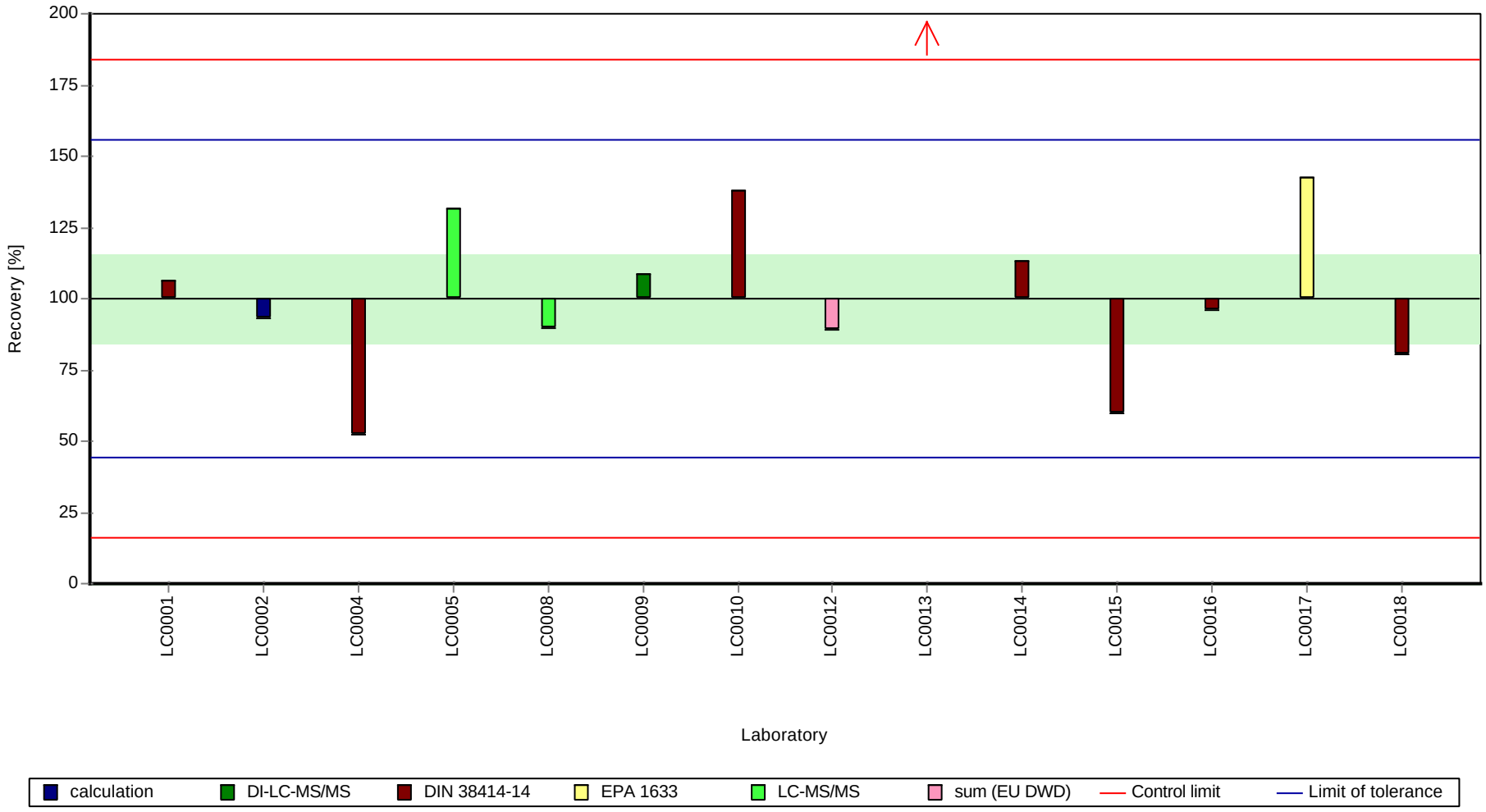
Results



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

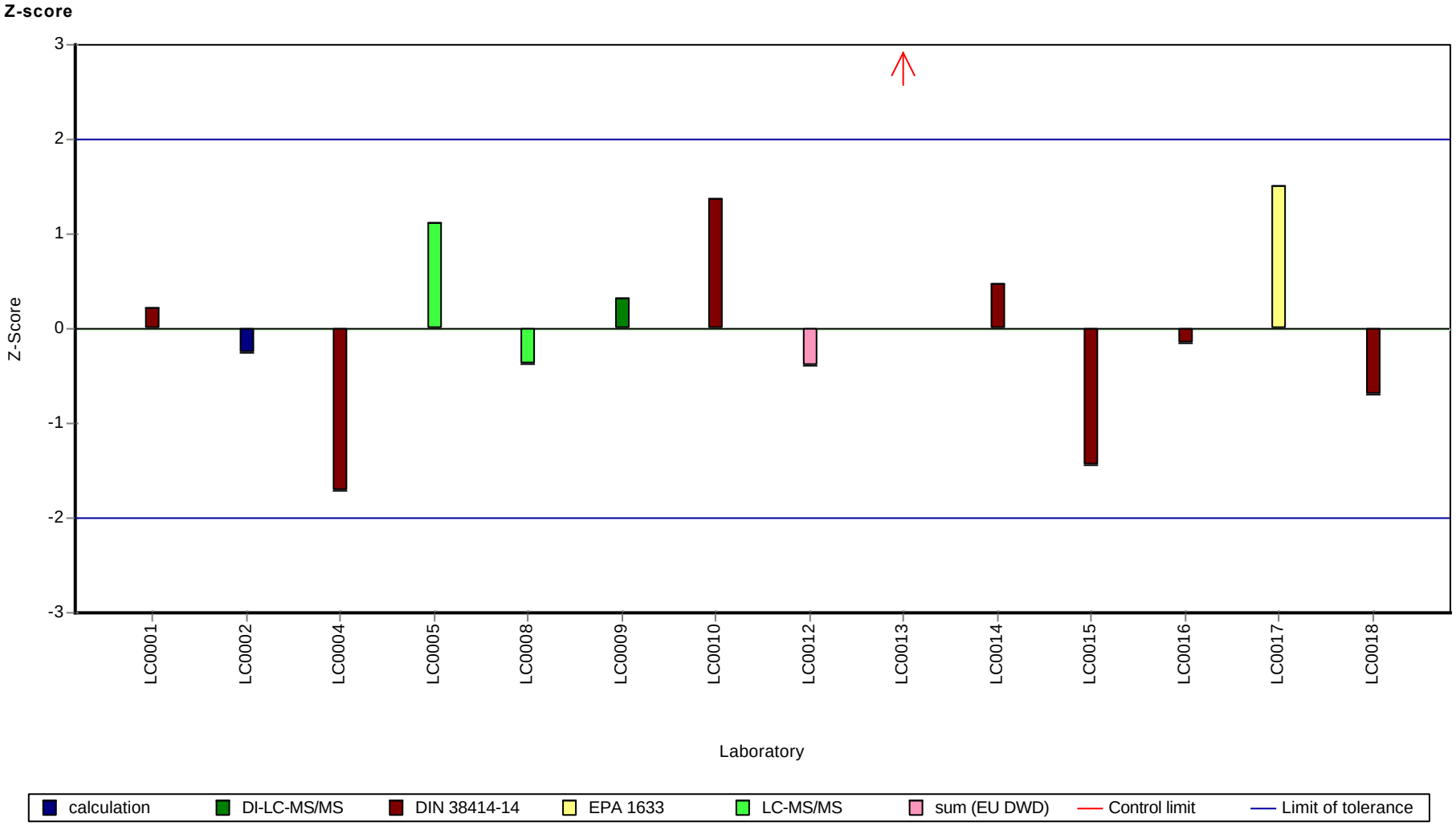
Sample: PFS01A, Parameter: Sum PFAS

Recovery rate



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01A, Parameter: Sum PFAS



Parameter oriented report

PFS01 B

Sum PFAS

Unit	µg/kg dm
Assigned value ± U (k=2)	23 ± 2.86
Criterion	5.07 (22 %)
Minimum - Maximum	13.7 - 31
Control test value ± U (k=2)	22.1 ± 8.82

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	22.5	4.04	97.7	-0.11	
LC0002	27	0.5	117	0.78	
LC0003	-	-	-	-	
LC0004	13.7	4.1	59.5	-1.84	
LC0005	27.9	8.38	121	0.96	
LC0006	-	-	-	-	
LC0007	-	-	-	-	
LC0008	21.689	4.338	94.1	-0.27	
LC0009	24.935	8.977	108	0.37	
LC0010	26.9	8.1	117	0.76	
LC0011	-	-	-	-	
LC0012	20.2	8.1	87.7	-0.56	
LC0013	69.9	15	303	9.24	H
LC0014	22.16	7.31	96.2	-0.17	
LC0015	14.8	3.7	64.2	-1.63	
LC0016	27.3	5.46	118	0.84	
LC0017	30.997	0.922	135	1.57	
LC0018	19.4505	11.67	84.4	-0.71	

Characteristics of parameter

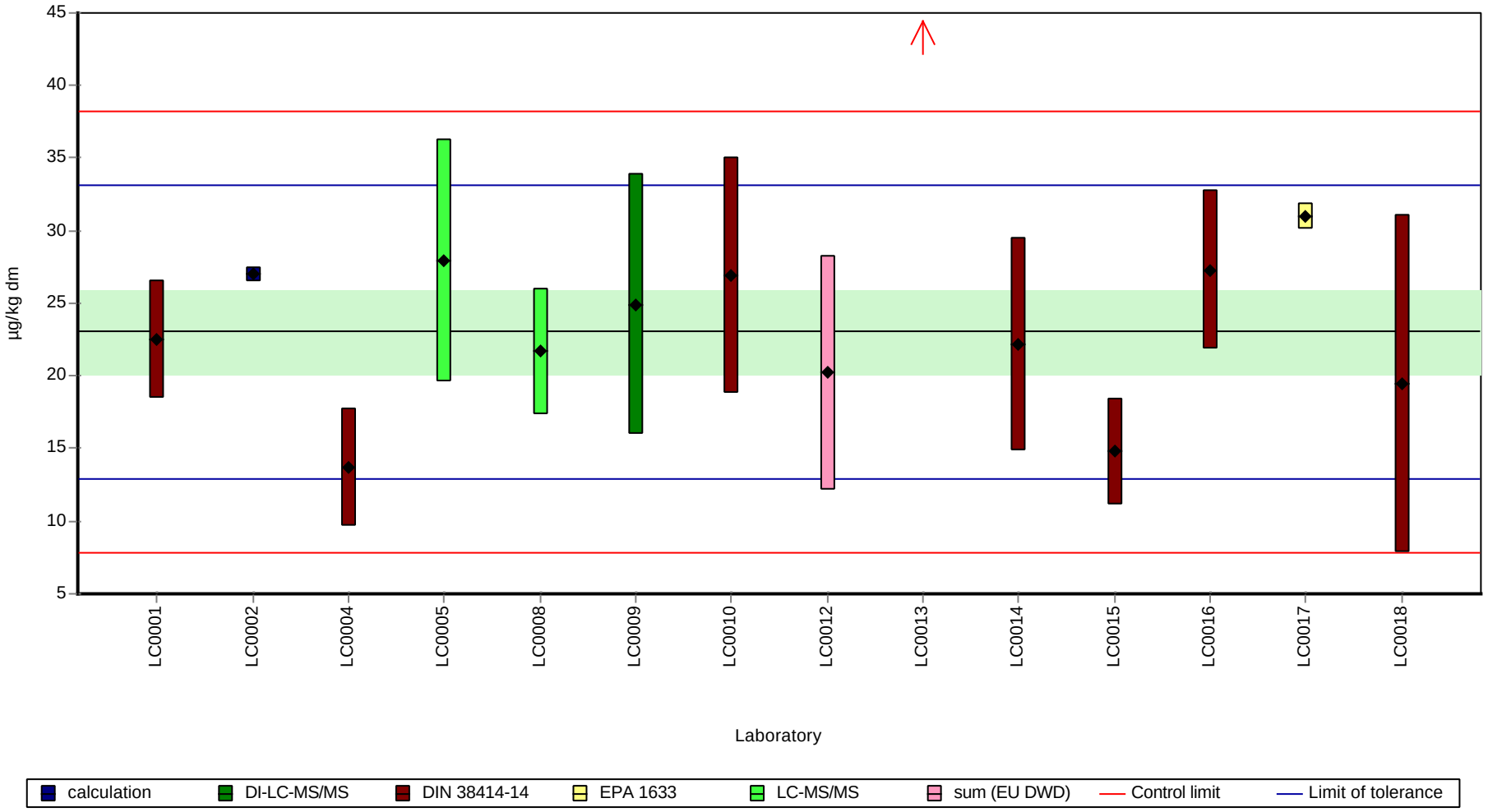
	all results	w ithout outliers	Unit
Mean ± Cl (99%)	26.4 ± 10.8	23 ± 4.28	µg/kg dm
Minimum	13.7	13.7	µg/kg dm
Maximum	69.9	31	µg/kg dm
Standard deviation	13.5	5.15	µg/kg dm
rel. standard deviation	51	22.4	%
n	14	13	-

Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Sum PFAS

Graphical presentation of results

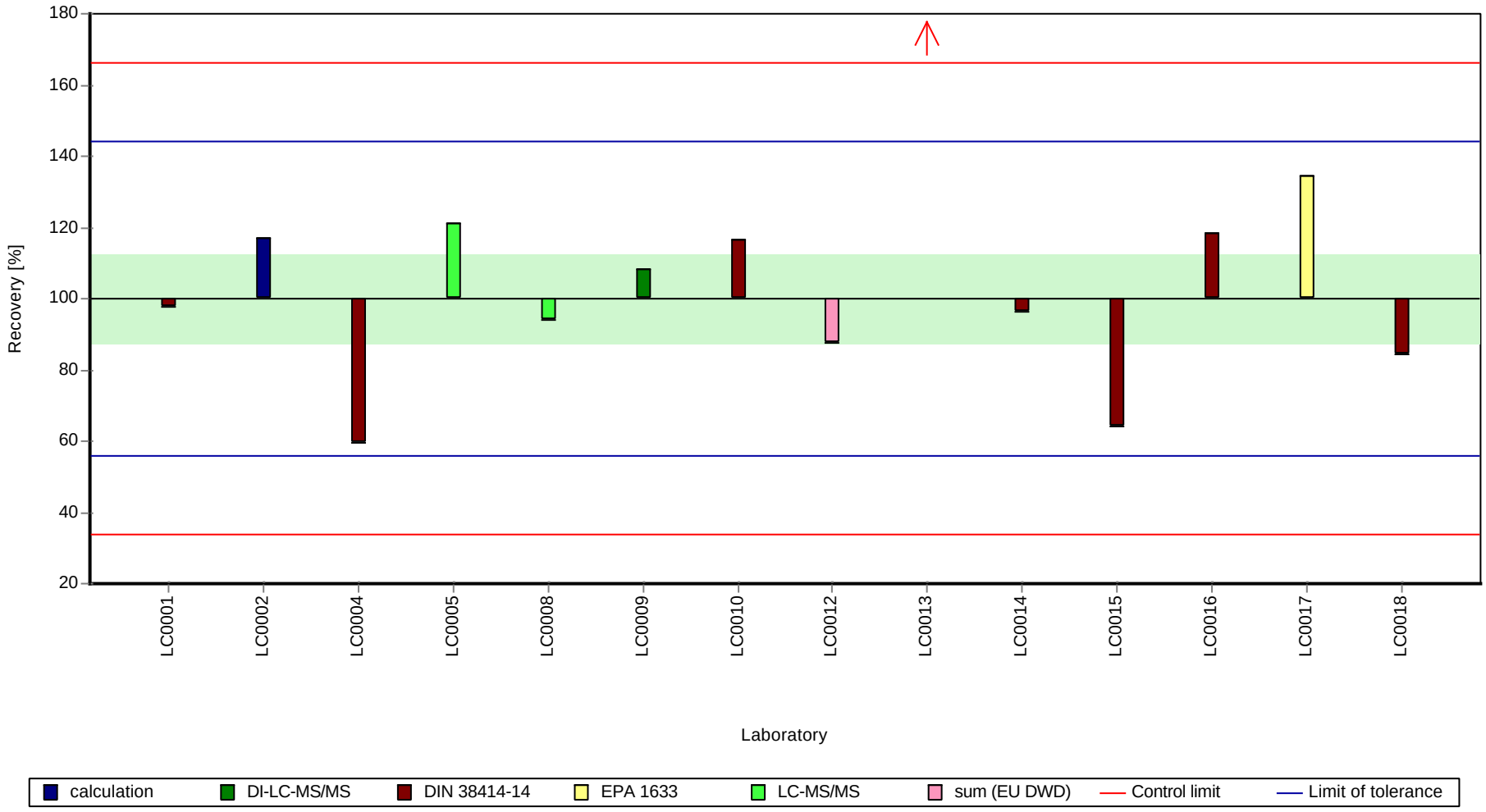
Results



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

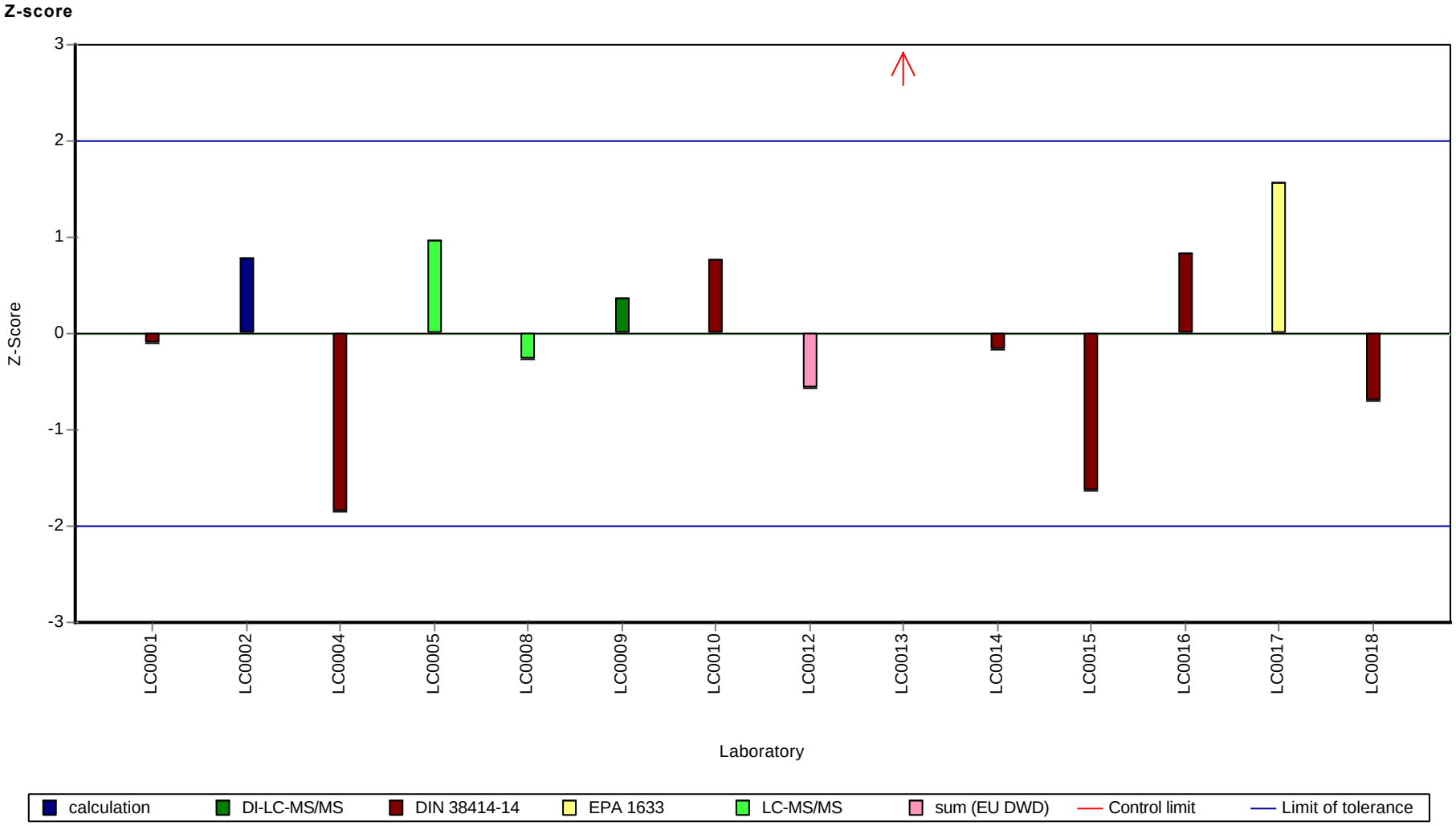
Sample: PFS01B, Parameter: Sum PFAS

Recovery rate



Parameter oriented report Per- and polyfluoroalkyl substances in solid samples - PFS01

Sample: PFS01B, Parameter: Sum PFAS



E8. Laborientierte Auswertung / Laboratory oriented report

Die Laborientierte Auswertung ist nach dem Laborcode sortiert.

The laboratory oriented report is sorted by laboratory code.

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0001

Sample: PFS01A

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	94.8 ± 0.775	94.5 ± 1.89	1.9	99.7	-0.17
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09 ± 0.281	0.998 ± 0.18	0.445	92	-0.20
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3 ± 0.359	3.54 ± 0.637	0.597	273	3.76
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98 ± 0.355	4.65 ± 0.838	0.746	93.5	-0.44
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274 ± 0.0361	0.313 ± 0.056	0.0548	114	0.72
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724 ± 0.105	0.695 ± 0.125	0.203	96	-0.14
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159 ± 0.0302	0.146 ± 0.026	0.0542	91.6	-0.25
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355 ± 0.041	0.376 ± 0.068	0.0781	106	0.27
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152 ± 0.0235	0.135 ± 0.024	0.038	88.7	-0.45
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2 ± 0.0229	0.206 ± 0.037	0.0401	103	0.14
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52 ± 0.326	2.07 ± 0.373	0.656	82	-0.69
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	- ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFOS	µg/kg dm	0.796 ± 0.0764	0.764 ± 0.138	0.159	95.9	-0.20
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	0.444 ± 0.08	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0001

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	13.5 ± 2.06	14.3 ± 2.58	3.77	106	0.22

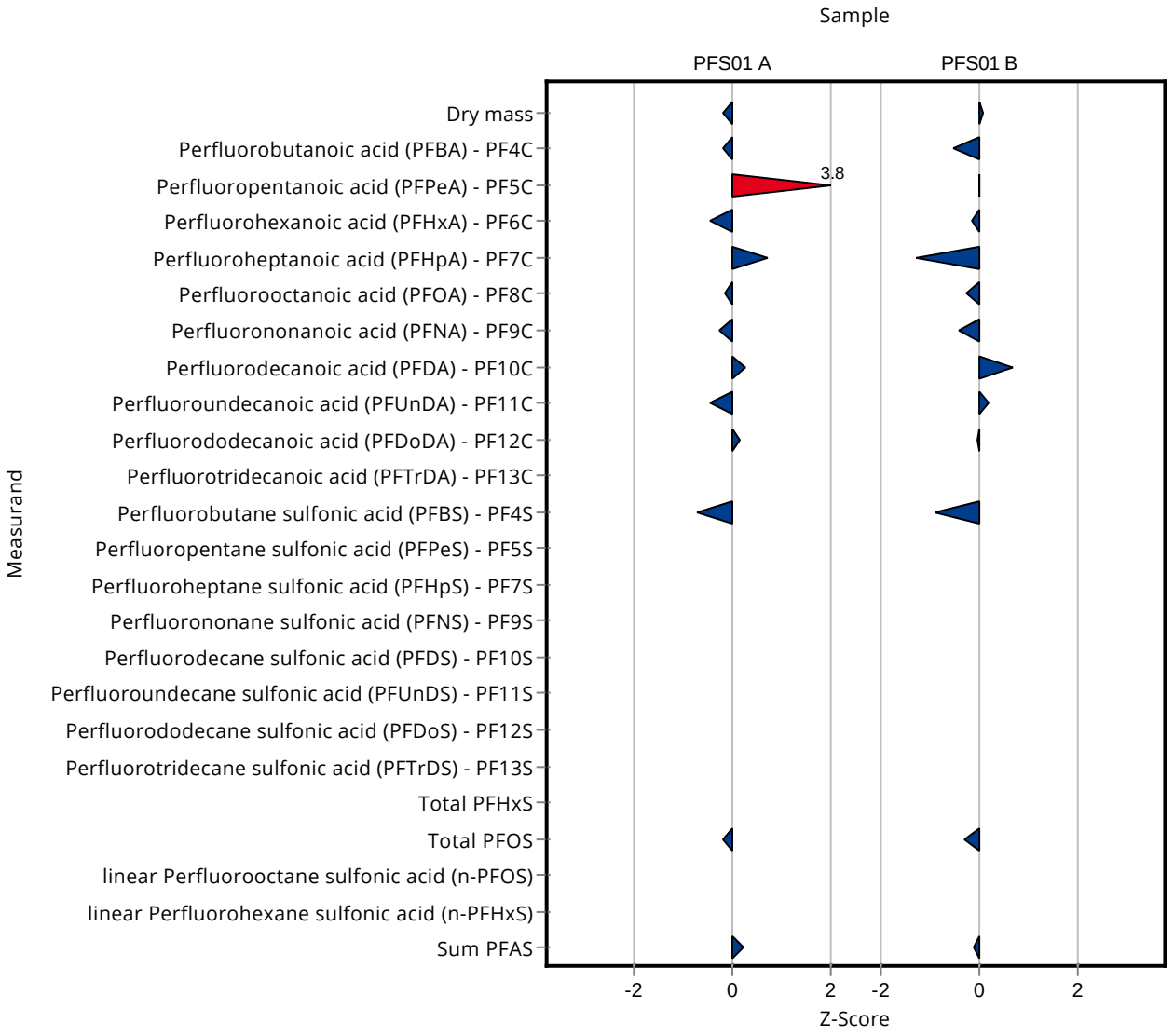
Sample: PFS01B

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	93.9 ± 0.941	94 ± 1.87	1.88	100	0.08
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28 ± 0.213	1.07 ± 0.192	0.384	83.6	-0.55
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35 ± 0.338	1.35 ± 0.243	0.592	100	0.01
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12 ± 1.49	11.5 ± 2.07	2.88	96	-0.17
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368 ± 0.0704	0.223 ± 0.04	0.114	60.7	-1.27
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	0.98 ± 0.176	0.186	94.9	-0.28
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	0.176 ± 0.032	0.0849	83	-0.43
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	0.689 ± 0.124	0.127	114	0.66
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	0.368 ± 0.066	0.0944	105	0.19
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	0.402 ± 0.072	0.162	99.1	-0.02
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	2.5 ± 0.45	0.895	75.4	-0.91
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	- ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0001

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	- ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFOS	µg/kg dm	1.96 ± 0.192	1.84 ± 0.332	0.393	93.7	-0.31
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	1.37 ± 0.247	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	22.5 ± 4.04	5.07	97.7	-0.11



Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0001

Sample: PFS01A

Parameter	Unit	Assigned value	± U (k=2)	Result	± U	Criterion	Recovery [%]	En-Score
Dry mass	%	94.8	± 0.775	94.5	± 1.89	1.9	99.7	-0.08
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09	± 0.281	0.998	± 0.18	0.445	92	-0.19
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3	± 0.359	3.54	± 0.637	0.597	273	1.69
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98	± 0.355	4.65	± 0.838	0.746	93.5	-0.19
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274	± 0.0361	0.313	± 0.056	0.0548	114	0.33
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724	± 0.105	0.695	± 0.125	0.203	96	-0.11
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159	± 0.0302	0.146	± 0.026	0.0542	91.6	-0.22
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355	± 0.041	0.376	± 0.068	0.0781	106	0.15
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152	± 0.0235	0.135	± 0.024	0.038	88.7	-0.32
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2	± 0.0229	0.206	± 0.037	0.0401	103	0.07
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	-	± -	<0.1 (LOQ)	± -	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52	± 0.326	2.07	± 0.373	0.656	82	-0.56
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	-	± -	-	± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	-	± -	<0.1 (LOQ)	± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	-	± -	-	± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0001

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	- ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFOS	µg/kg dm	0.796 ± 0.0764	0.764 ± 0.138	0.159	95.9	-0.11
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	0.444 ± 0.08	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	13.5 ± 2.06	14.3 ± 2.58	3.77	106	0.15

Sample: PFS01B

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Dry mass	%	93.9 ± 0.941	94 ± 1.87	1.88	100	0.04
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28 ± 0.213	1.07 ± 0.192	0.384	83.6	-0.48
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35 ± 0.338	1.35 ± 0.243	0.592	100	0.01
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12 ± 1.49	11.5 ± 2.07	2.88	96	-0.11
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368 ± 0.0704	0.223 ± 0.04	0.114	60.7	-1.36

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

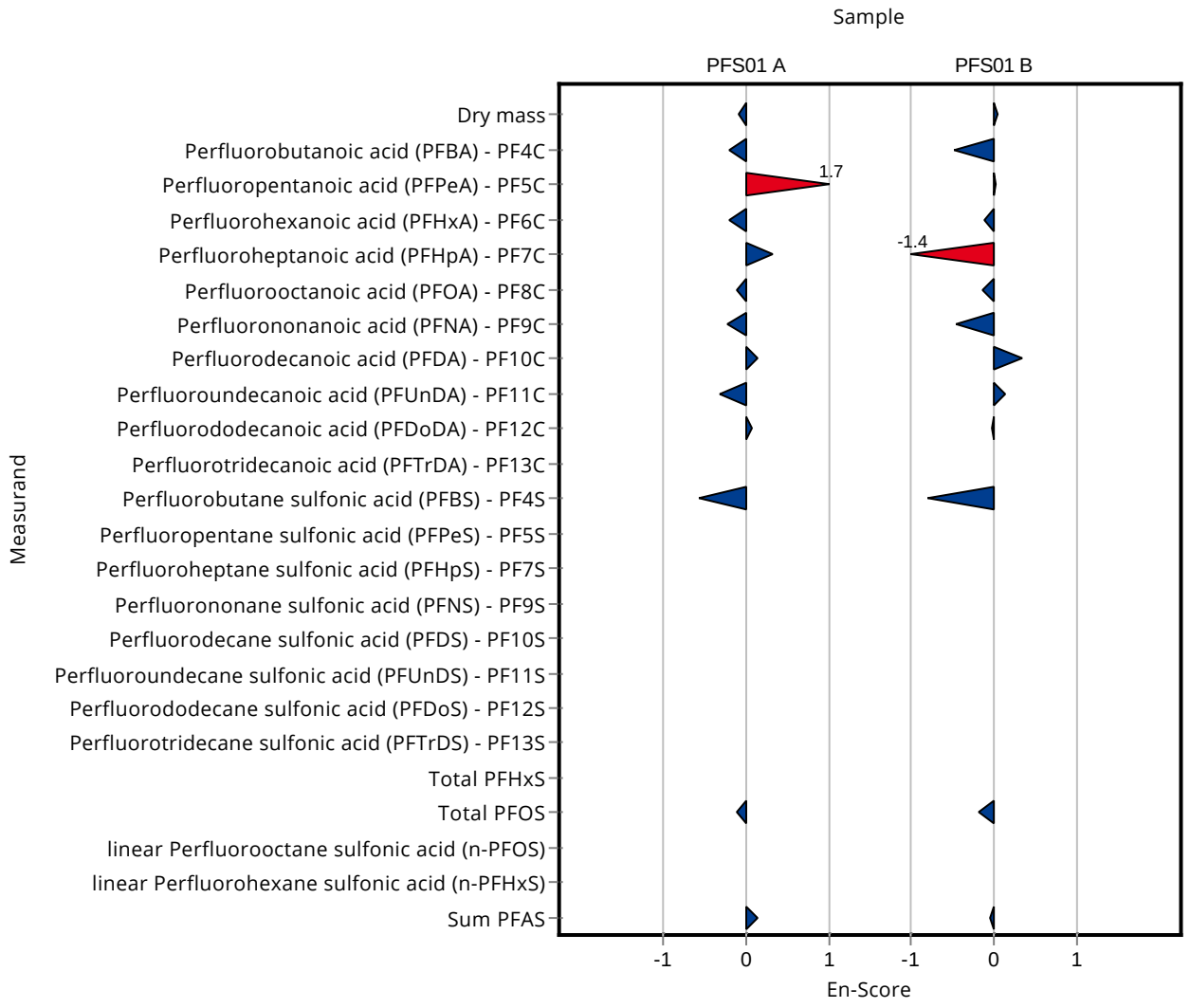
Labcode: LC0001

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	0.98 ± 0.176	0.186	94.9	-0.14
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	0.176 ± 0.032	0.0849	83	-0.46
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	0.689 ± 0.124	0.127	114	0.33
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	0.368 ± 0.066	0.0944	105	0.13
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	0.402 ± 0.072	0.162	99.1	-0.02
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	2.5 ± 0.45	0.895	75.4	-0.80
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	- ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0001

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Total PFOS	µg/kg dm	1.96 ± 0.192	1.84 ± 0.332	0.393	93.7	-0.18
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	1.37 ± 0.247	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	22.5 ± 4.04	5.07	97.7	-0.06



Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0002

Sample: PFS01A

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	94.8 ± 0.775	93.5 ± 10	1.9	98.6	-0.70
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09 ± 0.281	0.87 ± 0.5	0.445	80.2	-0.48
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3 ± 0.359	1.122 ± 0.5	0.597	86.4	-0.29
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98 ± 0.355	5.41 ± 0.5	0.746	109	0.58
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274 ± 0.0361	0.258 ± 0.5	0.0548	94.2	-0.29
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724 ± 0.105	0.676 ± 0.15	0.203	93.4	-0.24
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159 ± 0.0302	0.111 ± 0.15	0.0542	69.6	-0.89
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355 ± 0.041	0.329 ± 0.5	0.0781	92.7	-0.33
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152 ± 0.0235	0.138 ± 0.5	0.038	90.7	-0.37
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2 ± 0.0229	0.225 ± 0.5	0.0401	112	0.61
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52 ± 0.326	2.48 ± 0.5	0.656	98.3	-0.07
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	<0.03 (LOQ) ± -	-	-	-
Total PFOS	µg/kg dm	0.796 ± 0.0764	0.826 ± 0.1	0.159	104	0.19
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	0.469 ± 0.1	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0002

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	<0.03 (LOQ) ± -	-	-	-
Sum PFAS	µg/kg dm	13.5 ± 2.06	12.5 ± 0.5	3.77	92.9	-0.25

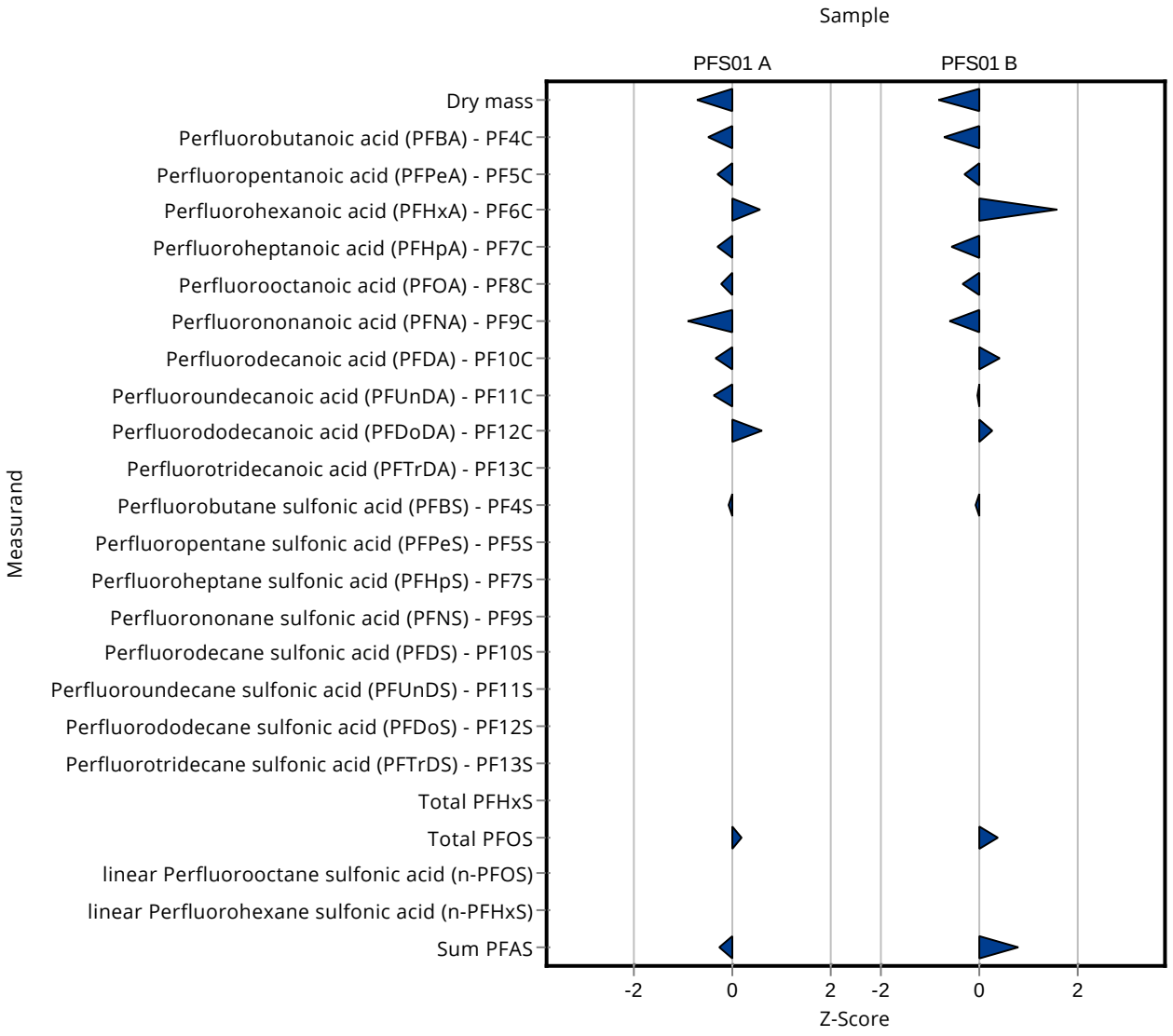
Sample: PFS01B

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	93.9 ± 0.941	92.3 ± 10	1.88	98.3	-0.83
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28 ± 0.213	1 ± 0.5	0.384	78.1	-0.73
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35 ± 0.338	1.17 ± 0.5	0.592	86.9	-0.30
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12 ± 1.49	16.5 ± 0.5	2.88	138	1.57
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368 ± 0.0704	0.303 ± 0.5	0.114	82.4	-0.57
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	0.966 ± 0.15	0.186	93.5	-0.36
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	0.162 ± 0.15	0.0849	76.4	-0.59
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	0.657 ± 0.5	0.127	109	0.41
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	0.345 ± 0.5	0.0944	98.6	-0.05
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	0.449 ± 0.5	0.162	111	0.27
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	3.24 ± 0.5	0.895	97.8	-0.08
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0002

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	0.0618 ± 0.15	-	-	-
Total PFOS	µg/kg dm	1.96 ± 0.192	2.11 ± 0.1	0.393	107	0.37
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	1.58 ± 0.1	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	0.0618 ± 0.15	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	27 ± 0.5	5.07	117	0.78



Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0002

Sample: PFS01A

Parameter	Unit	Assigned value	±	U (k=2)	Result	±	U	Criterion	Recovery [%]	En-Score
Dry mass	%	94.8	±	0.775	93.5	±	10	1.9	98.6	-0.07
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09	±	0.281	0.87	±	0.5	0.445	80.2	-0.21
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3	±	0.359	1.122	±	0.5	0.597	86.4	-0.17
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98	±	0.355	5.41	±	0.5	0.746	109	0.41
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274	±	0.0361	0.258	±	0.5	0.0548	94.2	-0.02
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724	±	0.105	0.676	±	0.15	0.203	93.4	-0.15
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159	±	0.0302	0.111	±	0.15	0.0542	69.6	-0.16
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355	±	0.041	0.329	±	0.5	0.0781	92.7	-0.03
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152	±	0.0235	0.138	±	0.5	0.038	90.7	-0.01
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2	±	0.0229	0.225	±	0.5	0.0401	112	0.02
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	-	±	-	<0.1 (LOQ)	±	-	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52	±	0.326	2.48	±	0.5	0.656	98.3	-0.04
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	-	±	-	<0.1 (LOQ)	±	-	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	-	±	-	<0.1 (LOQ)	±	-	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	-	±	-	<0.1 (LOQ)	±	-	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0002

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	<0.03 (LOQ) ± -	-	-	-
Total PFOS	µg/kg dm	0.796 ± 0.0764	0.826 ± 0.1	0.159	104	0.14
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	0.469 ± 0.1	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	<0.03 (LOQ) ± -	-	-	-
Sum PFAS	µg/kg dm	13.5 ± 2.06	12.5 ± 0.5	3.77	92.9	-0.42

Sample: PFS01B

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Dry mass	%	93.9 ± 0.941	92.3 ± 10	1.88	98.3	-0.08
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28 ± 0.213	1 ± 0.5	0.384	78.1	-0.27
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35 ± 0.338	1.17 ± 0.5	0.592	86.9	-0.17
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12 ± 1.49	16.5 ± 0.5	2.88	138	2.52
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368 ± 0.0704	0.303 ± 0.5	0.114	82.4	-0.06

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

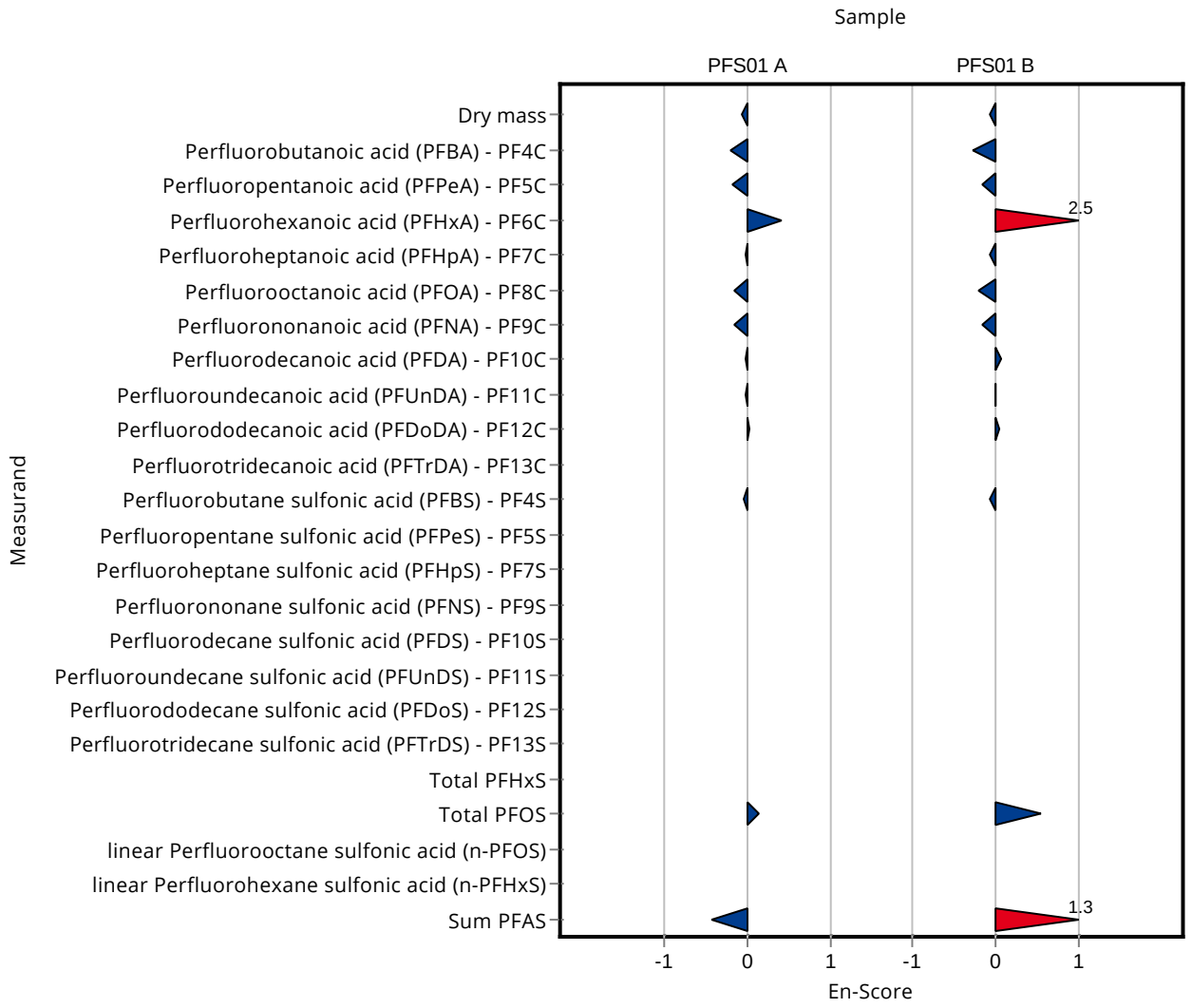
Labcode: LC0002

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	0.966 ± 0.15	0.186	93.5	-0.21
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	0.162 ± 0.15	0.0849	76.4	-0.17
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	0.657 ± 0.5	0.127	109	0.05
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	0.345 ± 0.5	0.0944	98.6	0.00
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	0.449 ± 0.5	0.162	111	0.04
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	3.24 ± 0.5	0.895	97.8	-0.07
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	0.0618 ± 0.15	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0002

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Total PFOS	µg/kg dm	1.96 ± 0.192	2.11 ± 0.1	0.393	107	0.53
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	1.58 ± 0.1	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	0.0618 ± 0.15	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	27 ± 0.5	5.07	117	1.31



Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0003

Sample: PFS01A

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	94.8 ± 0.775	93.97 ± 0.153	1.9	99.1	-0.45
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09 ± 0.281	- ± -	0.445	-	-
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3 ± 0.359	0.904 ± 0.046	0.597	69.6	-0.66
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98 ± 0.355	5.42 ± 0.277	0.746	109	0.60
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274 ± 0.0361	0.287 ± 0.069	0.0548	105	0.24
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724 ± 0.105	0.724 ± 0.015	0.203	100	0.00
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159 ± 0.0302	0.116 ± 0.035	0.0542	72.8	-0.80
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355 ± 0.041	0.371 ± 0.024	0.0781	104	0.20
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152 ± 0.0235	<0.1 (LOQ) ± -	0.038	-	-
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2 ± 0.0229	0.249 ± 0.095	0.0401	124	1.21
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52 ± 0.326	2.61 ± 0.249	0.656	103	0.13
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFOS	µg/kg dm	0.796 ± 0.0764	0.644 ± 0.06	0.159	80.9	-0.96
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0003

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	13.5 ± 2.06	- ± -	3.77	-	-

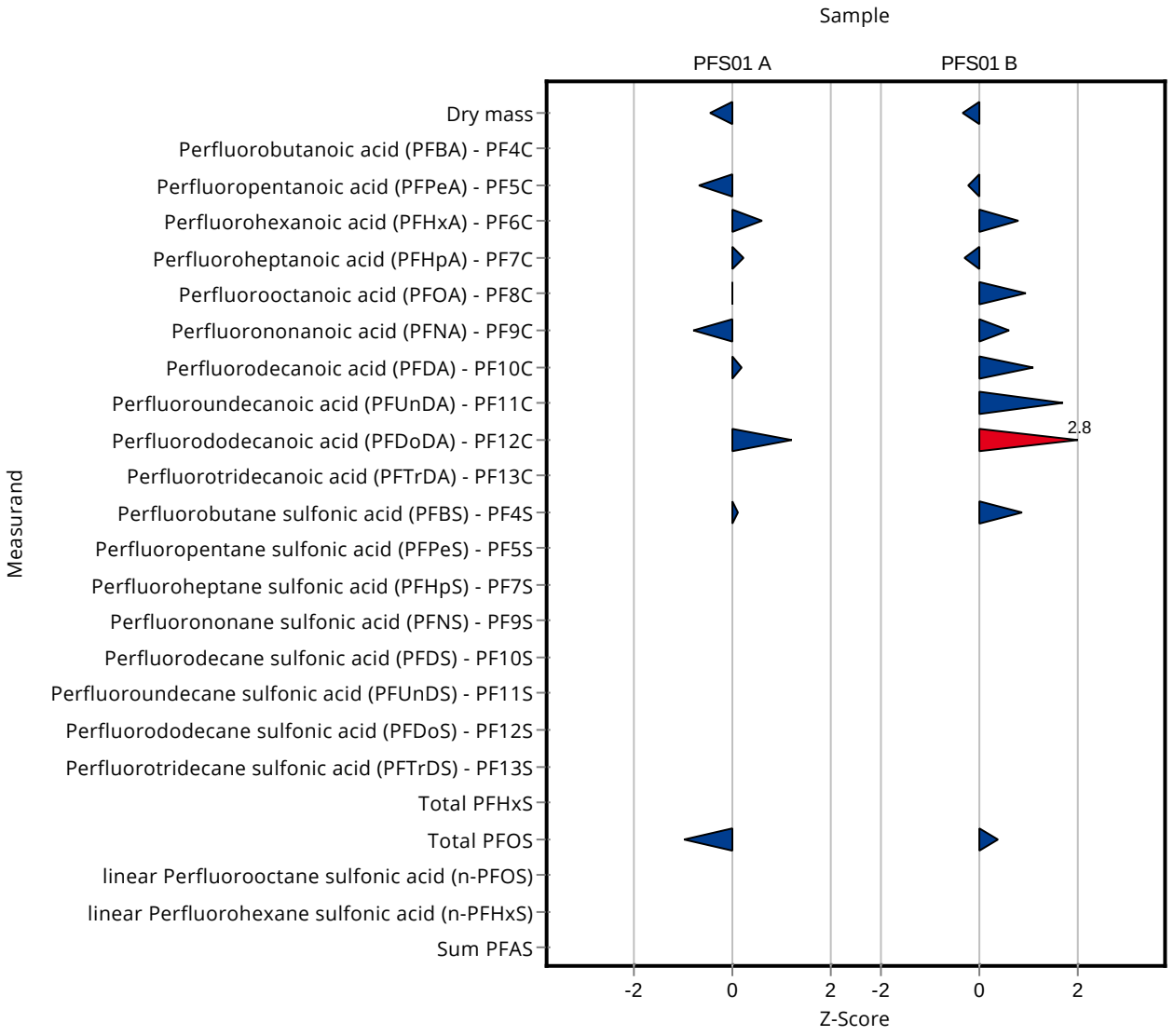
Sample: PFS01B

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	93.9 ± 0.941	93.25 ± 0.392	1.88	99.4	-0.32
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28 ± 0.213	- ± -	0.384	-	-
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35 ± 0.338	1.2 ± 0.068	0.592	89.2	-0.25
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12 ± 1.49	14.2 ± 0.551	2.88	118	0.77
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368 ± 0.0704	0.331 ± 0.029	0.114	90	-0.32
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	1.21 ± 0.069	0.186	117	0.95
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	0.264 ± 0.038	0.0849	124	0.61
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	0.743 ± 0.113	0.127	123	1.08
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	0.509 ± 0.075	0.0944	146	1.69
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	0.859 ± 0.196	0.162	212	2.79
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	4.07 ± 0.171	0.895	123	0.84
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0003

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFOS	µg/kg dm	1.96 ± 0.192	2.11 ± 0.125	0.393	107	0.37
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	- ± -	5.07	-	-



Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0003

Sample: PFS01A

Parameter	Unit	Assigned value	±	U (k=2)	Result	±	U	Criterion	Recovery [%]	En-Score
Dry mass	%	94.8	±	0.775	93.97	±	0.153	1.9	99.1	-1.02
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09	±	0.281	-	±	-	0.445	-	-
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3	±	0.359	0.904	±	0.046	0.597	69.6	-1.06
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98	±	0.355	5.42	±	0.277	0.746	109	0.68
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274	±	0.0361	0.287	±	0.069	0.0548	105	0.09
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724	±	0.105	0.724	±	0.015	0.203	100	0.00
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159	±	0.0302	0.116	±	0.035	0.0542	72.8	-0.57
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355	±	0.041	0.371	±	0.024	0.0781	104	0.25
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152	±	0.0235	<0.1 (LOQ)	±	-	0.038	-	-
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2	±	0.0229	0.249	±	0.095	0.0401	124	0.25
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	-	±	-	<0.1 (LOQ)	±	-	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52	±	0.326	2.61	±	0.249	0.656	103	0.15
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	-	±	-	<0.1 (LOQ)	±	-	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	-	±	-	<0.1 (LOQ)	±	-	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	-	±	-	<0.1 (LOQ)	±	-	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0003

Parameter	Unit	Assigned value	±	U (k=2)	Result	±	U	Criterion	Recovery [%]	En-Score
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	-	±	-	<0.1 (LOQ)	±	-	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	-	±	-	<0.1 (LOQ)	±	-	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	-	±	-	<0.1 (LOQ)	±	-	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	-	±	-	<0.1 (LOQ)	±	-	-	-	-
Total PFHxS	µg/kg dm	-	±	-	<0.1 (LOQ)	±	-	-	-	-
Total PFOS	µg/kg dm	0.796	±	0.0764	0.644	±	0.06	0.159	80.9	-1.07
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	-	±	-	-	±	-	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	-	±	-	-	±	-	-	-	-
Sum PFAS	µg/kg dm	13.5	±	2.06	-	±	-	3.77	-	-

Sample: PFS01B

Parameter	Unit	Assigned value	±	U (k=2)	Result	±	U	Criterion	Recovery [%]	En-Score
Dry mass	%	93.9	±	0.941	93.25	±	0.392	1.88	99.4	-0.50
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28	±	0.213	-	±	-	0.384	-	-
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35	±	0.338	1.2	±	0.068	0.592	89.2	-0.40
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12	±	1.49	14.2	±	0.551	2.88	118	1.20
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368	±	0.0704	0.331	±	0.029	0.114	90	-0.40

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

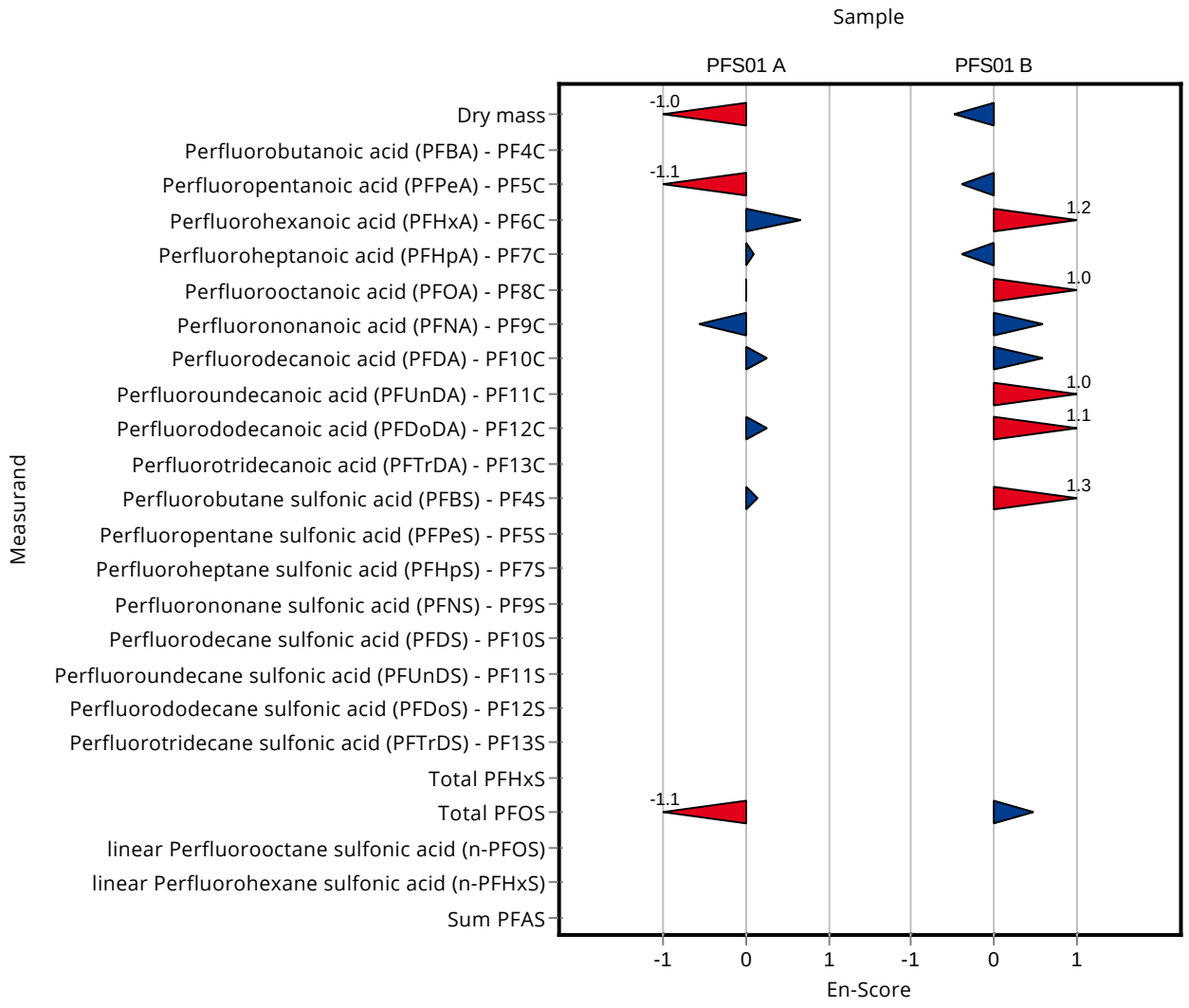
Labcode: LC0003

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	1.21 ± 0.069	0.186	117	1.04
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	0.264 ± 0.038	0.0849	124	0.58
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	0.743 ± 0.113	0.127	123	0.58
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	0.509 ± 0.075	0.0944	146	1.00
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	0.859 ± 0.196	0.162	212	1.12
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	4.07 ± 0.171	0.895	123	1.31
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0003

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Total PFOS	µg/kg dm	1.96 ± 0.192	2.11 ± 0.125	0.393	107	0.47
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	- ± -	5.07	-	-



Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0004

Sample: PFS01A

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	94.8 ± 0.775	97.6 ± 0.5	1.9	103	1.46
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09 ± 0.281	<0.1 (LOQ) ± -	0.445	-	-
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3 ± 0.359	0.451 ± 0.135	0.597	34.7	-1.42
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98 ± 0.355	3.09 ± 0.93	0.746	62.1	-2.53
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274 ± 0.0361	0.233 ± 0.07	0.0548	85.1	-0.75
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724 ± 0.105	0.521 ± 0.156	0.203	72	-1.00
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159 ± 0.0302	0.106 ± 0.05	0.0542	66.5	-0.99
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355 ± 0.041	0.311 ± 0.093	0.0781	87.6	-0.56
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152 ± 0.0235	<0.1 (LOQ) ± -	0.038	-	-
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2 ± 0.0229	0.205 ± 0.062	0.0401	102	0.12
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52 ± 0.326	1.78 ± 0.54	0.656	70.5	-1.13
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	- ± -	-	-	-
Total PFOS	µg/kg dm	0.796 ± 0.0764	- ± -	0.159	-	-
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	0.313 ± 0.094	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0004

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Sum PFAS	µg/kg dm	13.5 ± 2.06	7.02 ± 2.11	3.77	52.2	-1.71

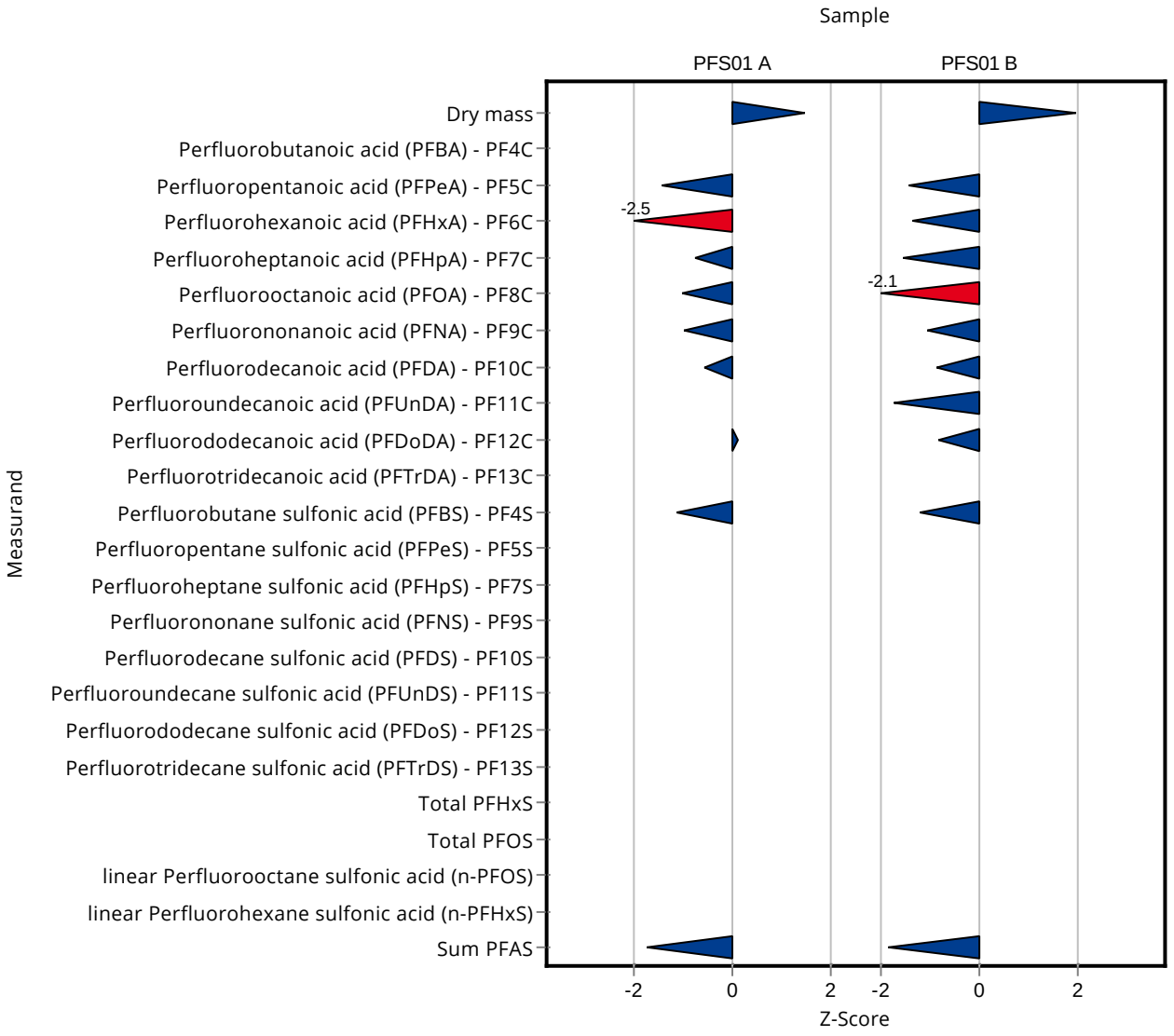
Sample: PFS01B

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	93.9 ± 0.941	97.5 ± 0.5	1.88	104	1.94
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28 ± 0.213	<0.1 (LOQ) ± -	0.384	-	-
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35 ± 0.338	0.5 ± 0.15	0.592	37.1	-1.43
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12 ± 1.49	8.08 ± 2.42	2.88	67.4	-1.36
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368 ± 0.0704	0.192 ± 0.058	0.114	52.2	-1.54
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	0.641 ± 0.192	0.186	62.1	-2.11
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	0.123 ± 0.037	0.0849	58	-1.05
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	0.495 ± 0.149	0.127	81.8	-0.87
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	0.187 ± 0.056	0.0944	53.5	-1.72
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	0.269 ± 0.081	0.162	66.3	-0.84
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	0.115 ± 0.05	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	2.22 ± 0.67	0.895	67	-1.22
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0004

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	- ± -	-	-	-
Total PFOS	µg/kg dm	1.96 ± 0.192	- ± -	0.393	-	-
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	0.913 ± 0.274	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	13.7 ± 4.1	5.07	59.5	-1.84



Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0004

Sample: PFS01A

Parameter	Unit	Assigned value	±	U (k=2)	Result	±	U	Criterion	Recovery [%]	En-Score
Dry mass	%	94.8	±	0.775	97.6	±	0.5	1.9	103	2.20
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09	±	0.281	<0.1 (LOQ)	±	-	0.445	-	-
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3	±	0.359	0.451	±	0.135	0.597	34.7	-1.89
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98	±	0.355	3.09	±	0.93	0.746	62.1	-1.00
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274	±	0.0361	0.233	±	0.07	0.0548	85.1	-0.28
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724	±	0.105	0.521	±	0.156	0.203	72	-0.62
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159	±	0.0302	0.106	±	0.05	0.0542	66.5	-0.51
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355	±	0.041	0.311	±	0.093	0.0781	87.6	-0.23
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152	±	0.0235	<0.1 (LOQ)	±	-	0.038	-	-
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2	±	0.0229	0.205	±	0.062	0.0401	102	0.04
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	-	±	-	<0.1 (LOQ)	±	-	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52	±	0.326	1.78	±	0.54	0.656	70.5	-0.66
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	-	±	-	<0.1 (LOQ)	±	-	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	-	±	-	<0.1 (LOQ)	±	-	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	-	±	-	<0.1 (LOQ)	±	-	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0004

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	- ± -	-	-	-
Total PFOS	µg/kg dm	0.796 ± 0.0764	- ± -	0.159	-	-
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	0.313 ± 0.094	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Sum PFAS	µg/kg dm	13.5 ± 2.06	7.02 ± 2.11	3.77	52.2	-1.37

Sample: PFS01B

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Dry mass	%	93.9 ± 0.941	97.5 ± 0.5	1.88	104	2.65
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28 ± 0.213	<0.1 (LOQ) ± -	0.384	-	-
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35 ± 0.338	0.5 ± 0.15	0.592	37.1	-1.87
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12 ± 1.49	8.08 ± 2.42	2.88	67.4	-0.77
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368 ± 0.0704	0.192 ± 0.058	0.114	52.2	-1.29

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

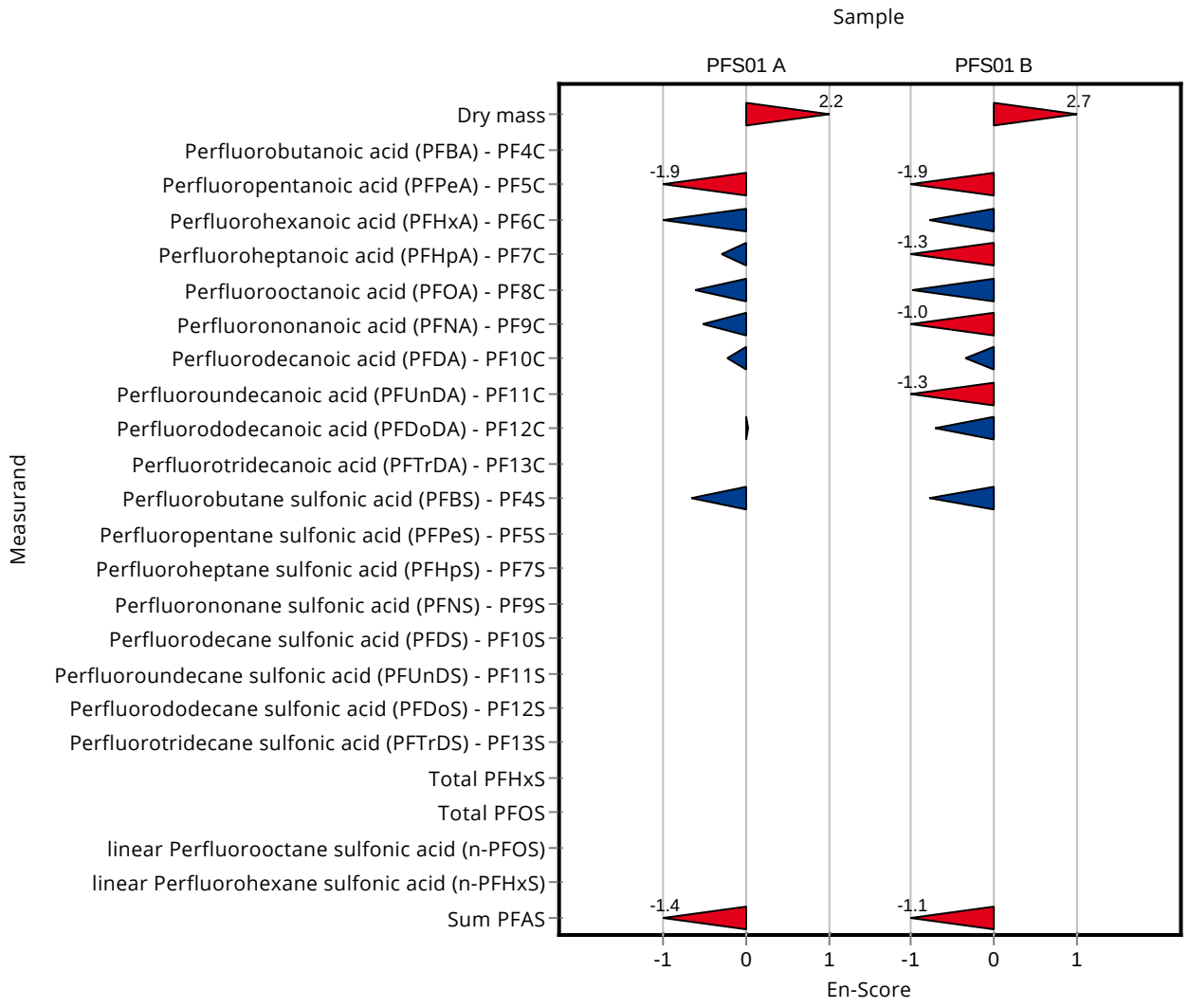
Labcode: LC0004

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	0.641 ± 0.192	0.186	62.1	-0.99
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	0.123 ± 0.037	0.0849	58	-1.02
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	0.495 ± 0.149	0.127	81.8	-0.36
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	0.187 ± 0.056	0.0944	53.5	-1.32
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	0.269 ± 0.081	0.162	66.3	-0.72
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	0.115 ± 0.05	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	2.22 ± 0.67	0.895	67	-0.77
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	- ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0004

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Total PFOS	µg/kg dm	1.96 ± 0.192	- ± -	0.393	-	-
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	0.913 ± 0.274	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	13.7 ± 4.1	5.07	59.5	-1.08



Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0005

Sample: PFS01A

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	94.8 ± 0.775	93.6 ± 4.68	1.9	98.7	-0.64
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09 ± 0.281	1.97 ± 0.59	0.445	182	1.99
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3 ± 0.359	1.47 ± 0.44	0.597	113	0.29
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98 ± 0.355	5.85 ± 1.75	0.746	118	1.17
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274 ± 0.0361	0.258 ± 0.077	0.0548	94.2	-0.29
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724 ± 0.105	1.11 ± 0.33	0.203	153	1.90
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159 ± 0.0302	0.197 ± 0.059	0.0542	124	0.69
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355 ± 0.041	0.49 ± 0.15	0.0781	138	1.73
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152 ± 0.0235	0.173 ± 0.052	0.038	114	0.55
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2 ± 0.0229	0.231 ± 0.069	0.0401	115	0.76
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	0.0483 ± 0.015	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52 ± 0.326	3.19 ± 0.96	0.656	126	1.02
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	<0.0475 ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	<0.0475 ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	<0.095 (LOQ) ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.0475 ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.095 (LOQ) ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.095 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<0.095 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	0.116 ± 0.035	-	-	-
Total PFOS	µg/kg dm	0.796 ± 0.0764	2.62 ± 0.79	0.159	329	11.45
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0005

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	13.5 ± 2.06	17.7 ± 5.32	3.77	132	1.13

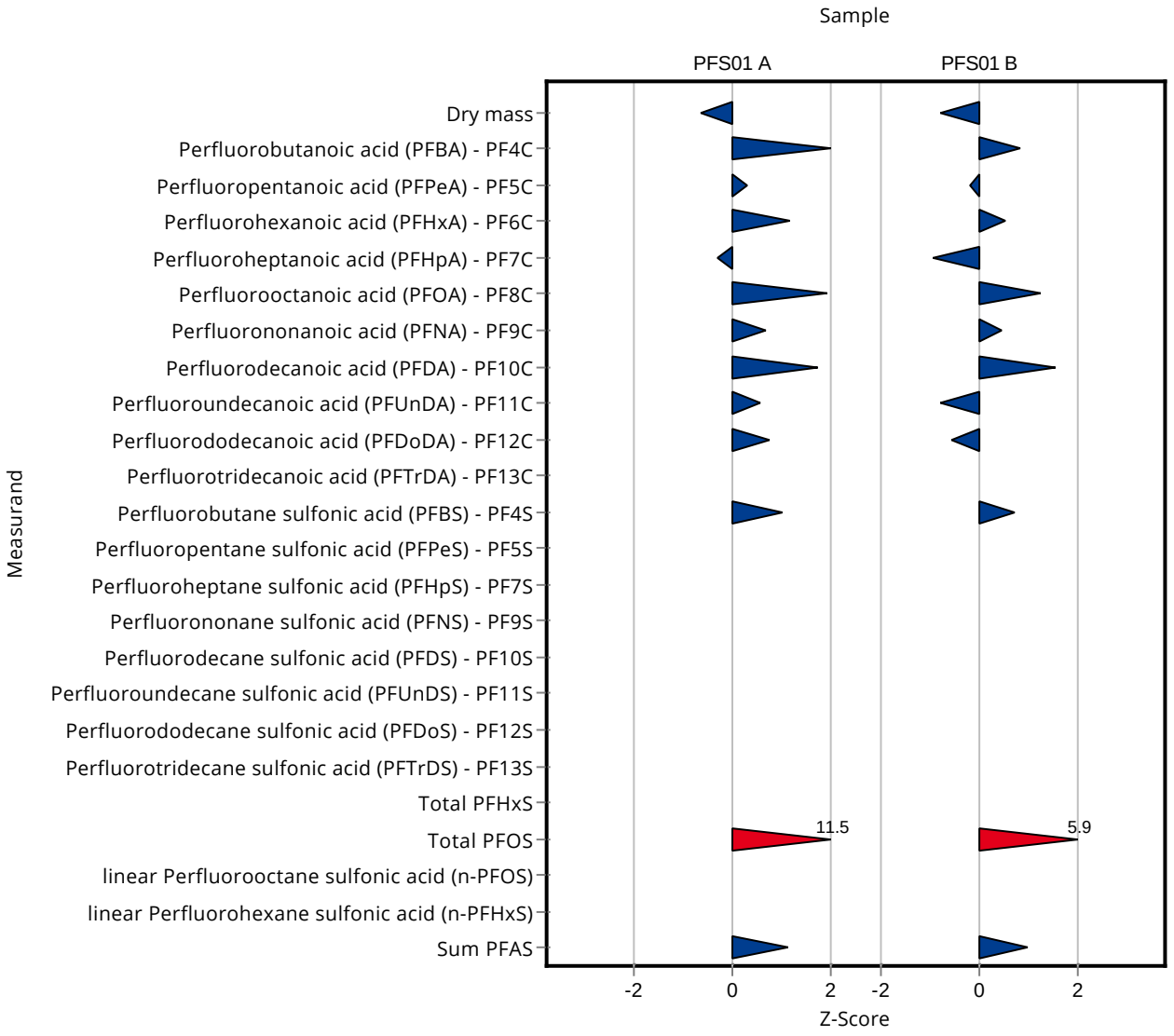
Sample: PFS01B

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	93.9 ± 0.941	92.4 ± 4.62	1.88	98.4	-0.78
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28 ± 0.213	1.6 ± 0.45	0.384	125	0.83
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35 ± 0.338	1.23 ± 0.37	0.592	91.4	-0.20
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12 ± 1.49	13.5 ± 4.06	2.88	113	0.53
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368 ± 0.0704	0.26 ± 0.078	0.114	70.7	-0.94
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	1.26 ± 0.38	0.186	122	1.22
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	0.25 ± 0.075	0.0849	118	0.45
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	0.799 ± 0.24	0.127	132	1.53
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	0.275 ± 0.082	0.0944	78.6	-0.79
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	0.315 ± 0.095	0.162	77.6	-0.56
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	0.0661 ± 0.02	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	3.96 ± 1.19	0.895	119	0.72
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	<0.0444 ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	0.046 ± 0.014	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	<0.0887 ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.0444 ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.0887 ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0005

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.0887 ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<0.0887 ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	0.0978 ± 0.03	-	-	-
Total PFOS	µg/kg dm	1.96 ± 0.192	4.27 ± 1.28	0.393	218	5.88
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	27.9 ± 8.38	5.07	121	0.96



Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0005

Sample: PFS01A

Parameter	Unit	Assigned value	± U (k=2)	Result	± U	Criterion	Recovery [%]	En-Score
Dry mass	%	94.8	± 0.775	93.6	± 4.68	1.9	98.7	-0.13
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09	± 0.281	1.97	± 0.59	0.445	182	0.73
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3	± 0.359	1.47	± 0.44	0.597	113	0.18
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98	± 0.355	5.85	± 1.75	0.746	118	0.25
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274	± 0.0361	0.258	± 0.077	0.0548	94.2	-0.10
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724	± 0.105	1.11	± 0.33	0.203	153	0.58
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159	± 0.0302	0.197	± 0.059	0.0542	124	0.31
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355	± 0.041	0.49	± 0.15	0.0781	138	0.45
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152	± 0.0235	0.173	± 0.052	0.038	114	0.20
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2	± 0.0229	0.231	± 0.069	0.0401	115	0.22
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	-	± -	0.0483	± 0.015	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52	± 0.326	3.19	± 0.96	0.656	126	0.34
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	-	± -	<0.0475	± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	-	± -	<0.0475	± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	-	± -	<0.095 (LOQ)	± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0005

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.0475 ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.095 (LOQ) ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.095 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<0.095 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	0.116 ± 0.035	-	-	-
Total PFOS	µg/kg dm	0.796 ± 0.0764	2.62 ± 0.79	0.159	329	1.15
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	13.5 ± 2.06	17.7 ± 5.32	3.77	132	0.39

Sample: PFS01B

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Dry mass	%	93.9 ± 0.941	92.4 ± 4.62	1.88	98.4	-0.16
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28 ± 0.213	1.6 ± 0.45	0.384	125	0.35
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35 ± 0.338	1.23 ± 0.37	0.592	91.4	-0.14
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12 ± 1.49	13.5 ± 4.06	2.88	113	0.18
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368 ± 0.0704	0.26 ± 0.078	0.114	70.7	-0.63

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

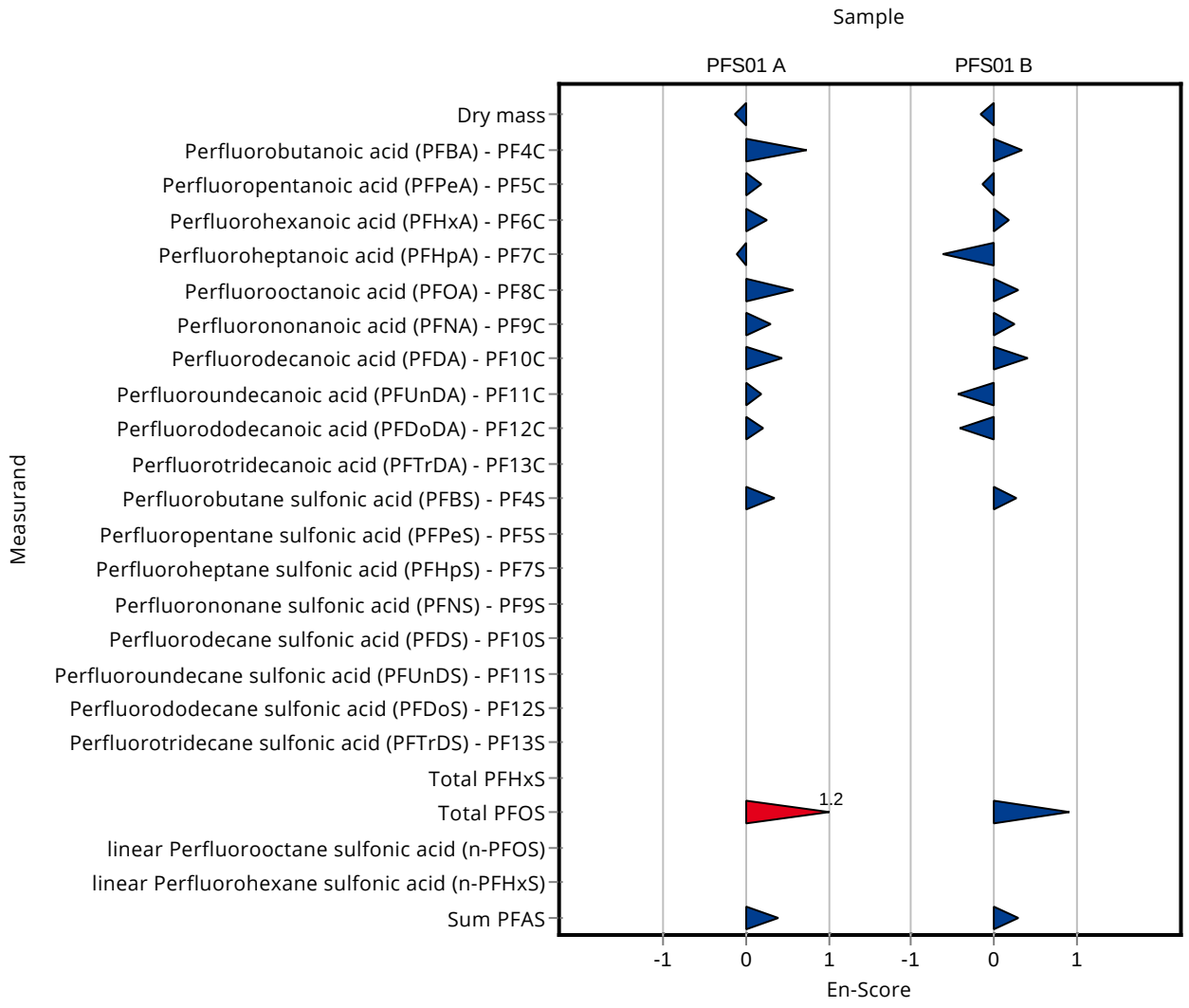
Labcode: LC0005

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	1.26 ± 0.38	0.186	122	0.30
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	0.25 ± 0.075	0.0849	118	0.24
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	0.799 ± 0.24	0.127	132	0.40
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	0.275 ± 0.082	0.0944	78.6	-0.43
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	0.315 ± 0.095	0.162	77.6	-0.43
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	0.0661 ± 0.02	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	3.96 ± 1.19	0.895	119	0.27
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	<0.0444 ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	0.046 ± 0.014	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	<0.0887 ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.0444 ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.0887 ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.0887 ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<0.0887 ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	0.0978 ± 0.03	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0005

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Total PFOS	µg/kg dm	1.96 ± 0.192	4.27 ± 1.28	0.393	218	0.90
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	27.9 ± 8.38	5.07	121	0.29



Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0006

Sample: PFS01A

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	94.8 ± 0.775	93.67 ± 0.024	1.9	98.8	-0.61
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09 ± 0.281	1.64 ± 0.21	0.445	151	1.25
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3 ± 0.359	1.02 ± 0.15	0.597	78.6	-0.47
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98 ± 0.355	3.61 ± 0.54	0.746	72.6	-1.83
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274 ± 0.0361	<0.27 (LOQ) ± -	0.0548	-	-
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724 ± 0.105	0.389 ± 0.05	0.203	53.7	-1.65
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159 ± 0.0302	<0.27 (LOQ) ± -	0.0542	-	-
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355 ± 0.041	0.812 ± 0.09	0.0781	229	5.85
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152 ± 0.0235	- ± -	0.038	-	-
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2 ± 0.0229	- ± -	0.0401	-	-
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52 ± 0.326	2.39 ± 0.33	0.656	94.7	-0.20
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	- ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	<0.54 (LOQ) ± -	-	-	-
Total PFOS	µg/kg dm	0.796 ± 0.0764	0.852 ± 0.11	0.159	107	0.35
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0006

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	13.5 ± 2.06	- ± -	3.77	-	-

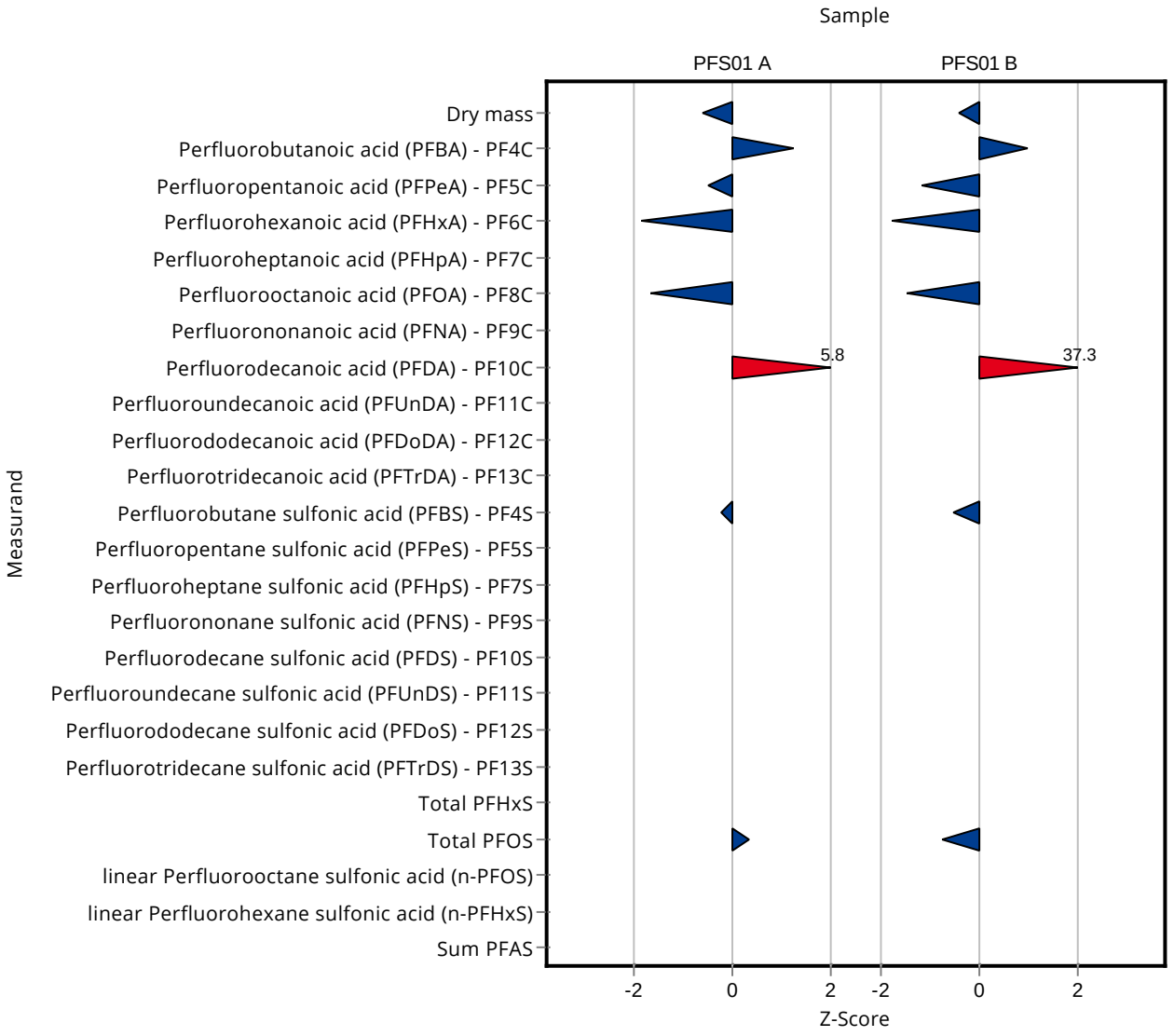
Sample: PFS01B

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	93.9 ± 0.941	93.1 ± 0.024	1.88	99.2	-0.40
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28 ± 0.213	1.65 ± 0.21	0.384	129	0.96
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35 ± 0.338	0.664 ± 0.1	0.592	49.3	-1.15
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12 ± 1.49	6.9 ± 1.03	2.88	57.6	-1.77
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368 ± 0.0704	<0.27 (LOQ) ± -	0.114	-	-
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	0.76 ± 0.11	0.186	73.6	-1.47
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	<0.27 (LOQ) ± -	0.0849	-	-
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	5.34 ± 0.59	0.127	882	37.26
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	- ± -	0.0944	-	-
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	- ± -	0.162	-	-
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	2.84 ± 0.39	0.895	85.7	-0.53
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	- ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0006

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	- ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	<0.54 (LOQ) ± -	-	-	-
Total PFOS	µg/kg dm	1.96 ± 0.192	1.67 ± 0.22	0.393	85.1	-0.75
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	- ± -	5.07	-	-



Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0006

Sample: PFS01A

Parameter	Unit	Assigned value	±	U (k=2)	Result	±	U	Criterion	Recovery [%]	En-Score
Dry mass	%	94.8	±	0.775	93.67	±	0.024	1.9	98.8	-1.48
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09	±	0.281	1.64	±	0.21	0.445	151	1.10
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3	±	0.359	1.02	±	0.15	0.597	78.6	-0.59
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98	±	0.355	3.61	±	0.54	0.746	72.6	-1.20
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274	±	0.0361	<0.27 (LOQ)	±	-	0.0548	-	-
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724	±	0.105	0.389	±	0.05	0.203	53.7	-2.31
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159	±	0.0302	<0.27 (LOQ)	±	-	0.0542	-	-
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355	±	0.041	0.812	±	0.09	0.0781	229	2.48
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152	±	0.0235	-	±	-	0.038	-	-
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2	±	0.0229	-	±	-	0.0401	-	-
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	-	±	-	-	±	-	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52	±	0.326	2.39	±	0.33	0.656	94.7	-0.18
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	-	±	-	-	±	-	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	-	±	-	-	±	-	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	-	±	-	-	±	-	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0006

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	- ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	<0.54 (LOQ) ± -	-	-	-
Total PFOS	µg/kg dm	0.796 ± 0.0764	0.852 ± 0.11	0.159	107	0.24
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	13.5 ± 2.06	- ± -	3.77	-	-

Sample: PFS01B

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Dry mass	%	93.9 ± 0.941	93.1 ± 0.024	1.88	99.2	-0.80
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28 ± 0.213	1.65 ± 0.21	0.384	129	0.79
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35 ± 0.338	0.664 ± 0.1	0.592	49.3	-1.74
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12 ± 1.49	6.9 ± 1.03	2.88	57.6	-2.00
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368 ± 0.0704	<0.27 (LOQ) ± -	0.114	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

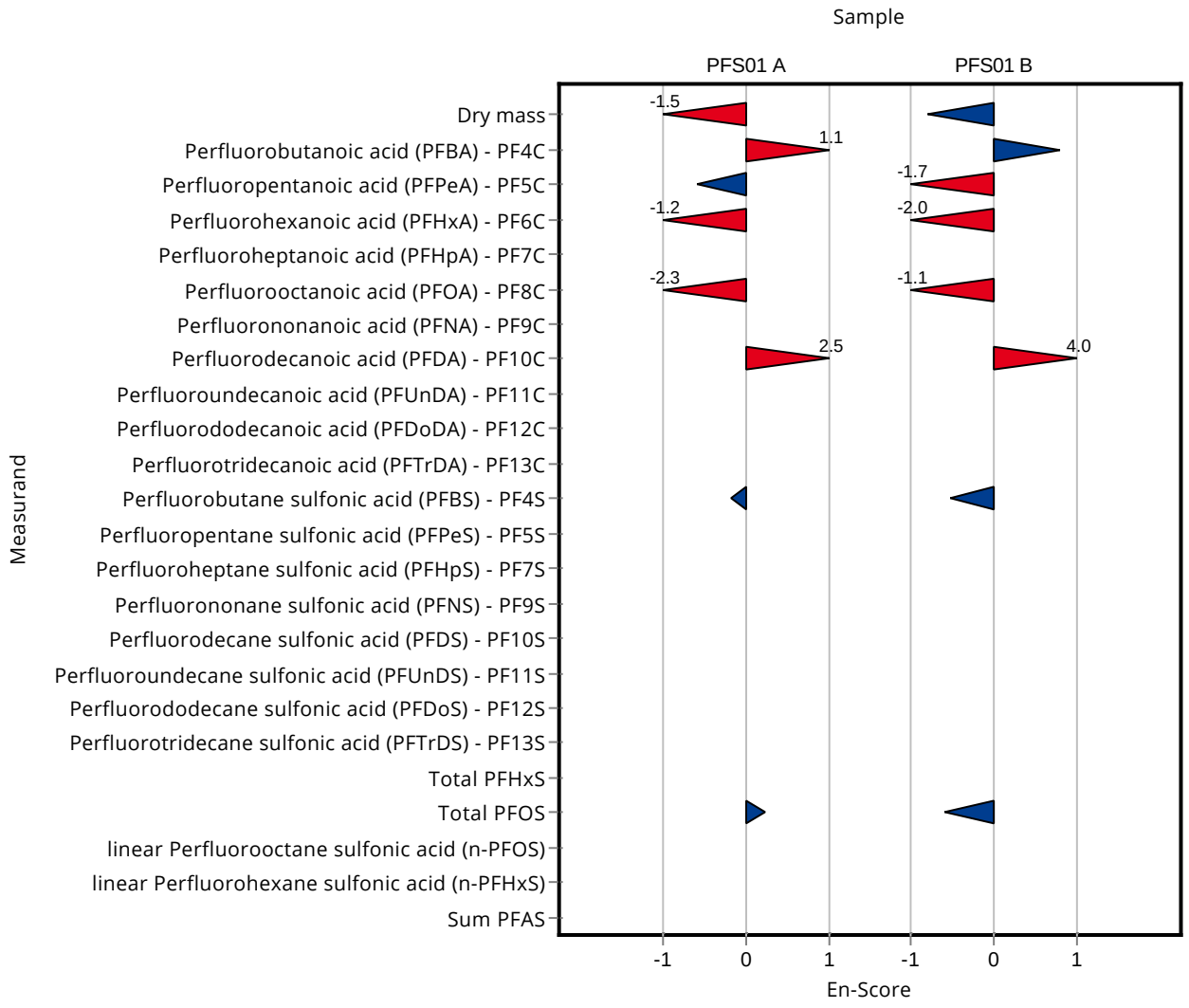
Labcode: LC0006

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	0.76 ± 0.11	0.186	73.6	-1.13
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	<0.27 (LOQ) ± -	0.0849	-	-
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	5.34 ± 0.59	0.127	882	4.01
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	- ± -	0.0944	-	-
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	- ± -	0.162	-	-
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	2.84 ± 0.39	0.895	85.7	-0.52
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	- ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	<0.54 (LOQ) ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0006

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Total PFOS	µg/kg dm	1.96 ± 0.192	1.67 ± 0.22	0.393	85.1	-0.61
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	- ± -	5.07	-	-



Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0007

Sample: PFS01A

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	94.8 ± 0.775	- ± -	1.9	-	-
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09 ± 0.281	- ± -	0.445	-	-
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3 ± 0.359	- ± -	0.597	-	-
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98 ± 0.355	- ± -	0.746	-	-
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274 ± 0.0361	- ± -	0.0548	-	-
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724 ± 0.105	- ± -	0.203	-	-
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159 ± 0.0302	- ± -	0.0542	-	-
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355 ± 0.041	- ± -	0.0781	-	-
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152 ± 0.0235	- ± -	0.038	-	-
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2 ± 0.0229	- ± -	0.0401	-	-
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52 ± 0.326	- ± -	0.656	-	-
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	- ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	- ± -	-	-	-
Total PFOS	µg/kg dm	0.796 ± 0.0764	- ± -	0.159	-	-
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0007

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	13.5 ± 2.06	- ± -	3.77	-	-

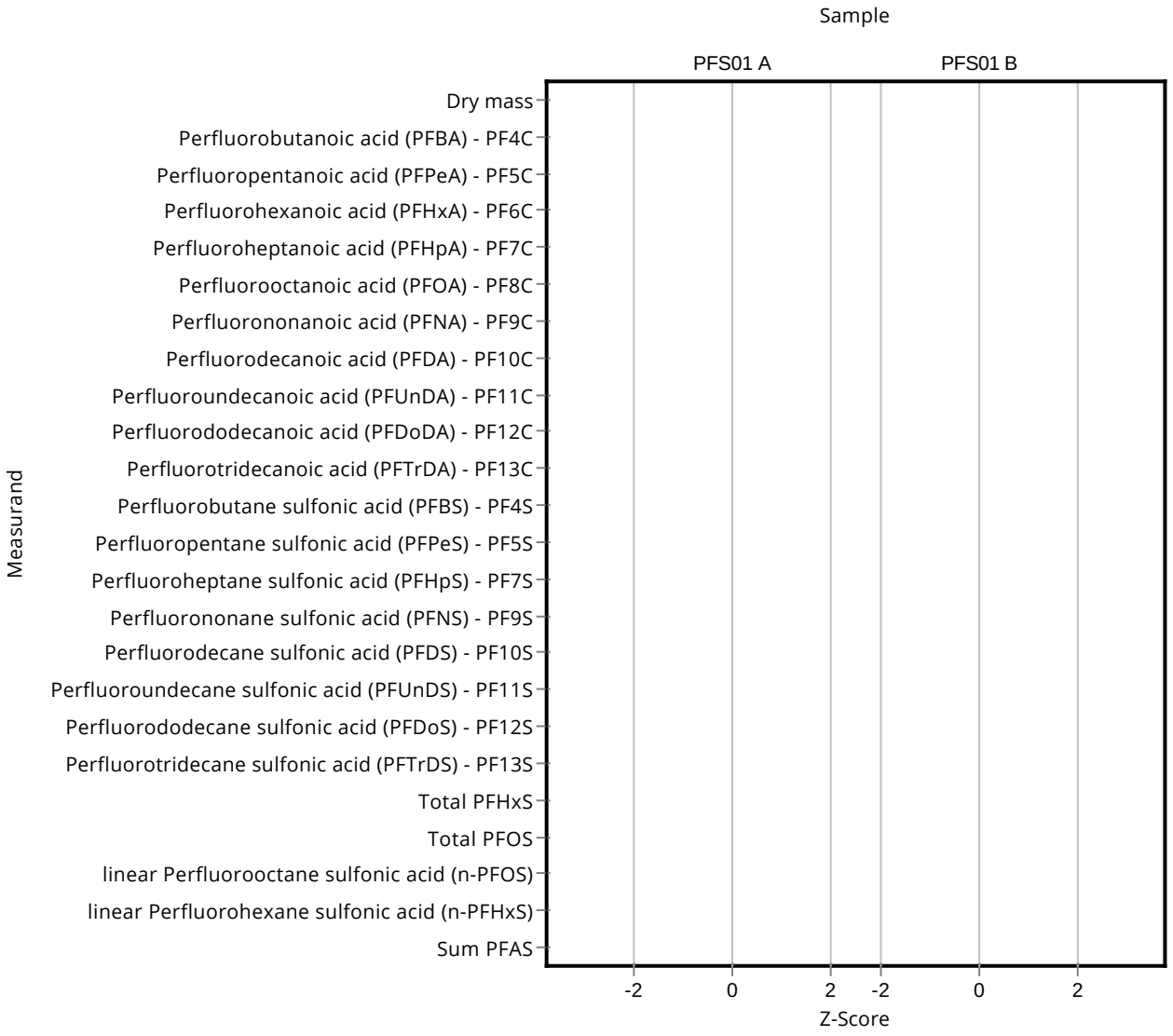
Sample: PFS01B

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	93.9 ± 0.941	- ± -	1.88	-	-
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28 ± 0.213	- ± -	0.384	-	-
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35 ± 0.338	- ± -	0.592	-	-
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12 ± 1.49	- ± -	2.88	-	-
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368 ± 0.0704	- ± -	0.114	-	-
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	- ± -	0.186	-	-
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	- ± -	0.0849	-	-
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	- ± -	0.127	-	-
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	- ± -	0.0944	-	-
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	- ± -	0.162	-	-
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	- ± -	0.895	-	-
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	- ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0007

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	- ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	- ± -	-	-	-
Total PFOS	µg/kg dm	1.96 ± 0.192	- ± -	0.393	-	-
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	- ± -	5.07	-	-



Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0007

Sample: PFS01A

Parameter	Unit	Assigned value	± U (k=2)	Result	± U	Criterion	Recovery [%]	En-Score
Dry mass	%	94.8	± 0.775	-	± -	1.9	-	-
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09	± 0.281	-	± -	0.445	-	-
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3	± 0.359	-	± -	0.597	-	-
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98	± 0.355	-	± -	0.746	-	-
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274	± 0.0361	-	± -	0.0548	-	-
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724	± 0.105	-	± -	0.203	-	-
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159	± 0.0302	-	± -	0.0542	-	-
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355	± 0.041	-	± -	0.0781	-	-
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152	± 0.0235	-	± -	0.038	-	-
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2	± 0.0229	-	± -	0.0401	-	-
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	-	± -	-	± -	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52	± 0.326	-	± -	0.656	-	-
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	-	± -	-	± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	-	± -	-	± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	-	± -	-	± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0007

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	- ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	- ± -	-	-	-
Total PFOS	µg/kg dm	0.796 ± 0.0764	- ± -	0.159	-	-
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	13.5 ± 2.06	- ± -	3.77	-	-

Sample: PFS01B

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Dry mass	%	93.9 ± 0.941	- ± -	1.88	-	-
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28 ± 0.213	- ± -	0.384	-	-
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35 ± 0.338	- ± -	0.592	-	-
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12 ± 1.49	- ± -	2.88	-	-
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368 ± 0.0704	- ± -	0.114	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

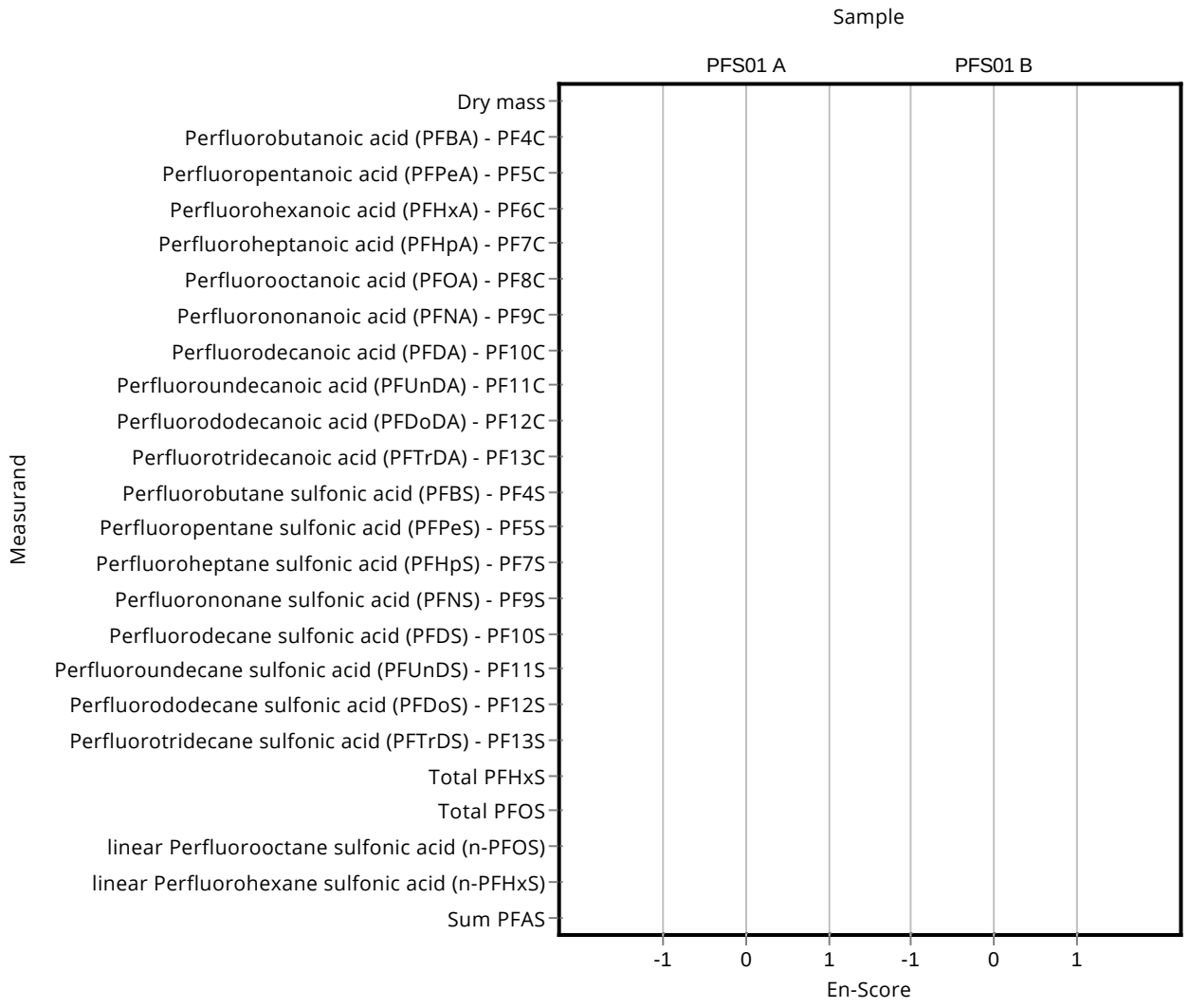
Labcode: LC0007

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	- ± -	0.186	-	-
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	- ± -	0.0849	-	-
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	- ± -	0.127	-	-
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	- ± -	0.0944	-	-
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	- ± -	0.162	-	-
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	- ± -	0.895	-	-
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	- ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	- ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0007

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Total PFOS	µg/kg dm	1.96 ± 0.192	- ± -	0.393	-	-
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	- ± -	5.07	-	-



Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0008

Sample: PFS01A

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	94.8 ± 0.775	95.6 ± 12	1.9	101	0.41
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09 ± 0.281	1.047 ± 0.105	0.445	96.5	-0.09
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3 ± 0.359	1.2 ± 0.12	0.597	92.5	-0.16
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98 ± 0.355	4.993 ± 0.499	0.746	100	0.02
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274 ± 0.0361	0.219 ± 0.022	0.0548	80	-1.00
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724 ± 0.105	0.74 ± 0.074	0.203	102	0.08
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159 ± 0.0302	0.139 ± 0.014	0.0542	87.2	-0.38
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355 ± 0.041	0.352 ± 0.035	0.0781	99.1	-0.04
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152 ± 0.0235	0.138 ± 0.014	0.038	90.7	-0.37
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2 ± 0.0229	0.224 ± 0.034	0.0401	112	0.59
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	0.061 ± 0.009	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52 ± 0.326	2.197 ± 0.22	0.656	87.1	-0.50
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	<0.03 (LOQ) ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	<0.03 (LOQ) ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	<0.03 (LOQ) ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.03 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.03 (LOQ) ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.03 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<0.03 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	<0.03 (LOQ) ± -	-	-	-
Total PFOS	µg/kg dm	0.796 ± 0.0764	0.725 ± 0.073	0.159	91.1	-0.45
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	0.449 ± 0.045	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0008

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	<0.03 (LOQ) ± -	-	-	-
Sum PFAS	µg/kg dm	13.5 ± 2.06	12.034 ± 2.407	3.77	89.4	-0.38

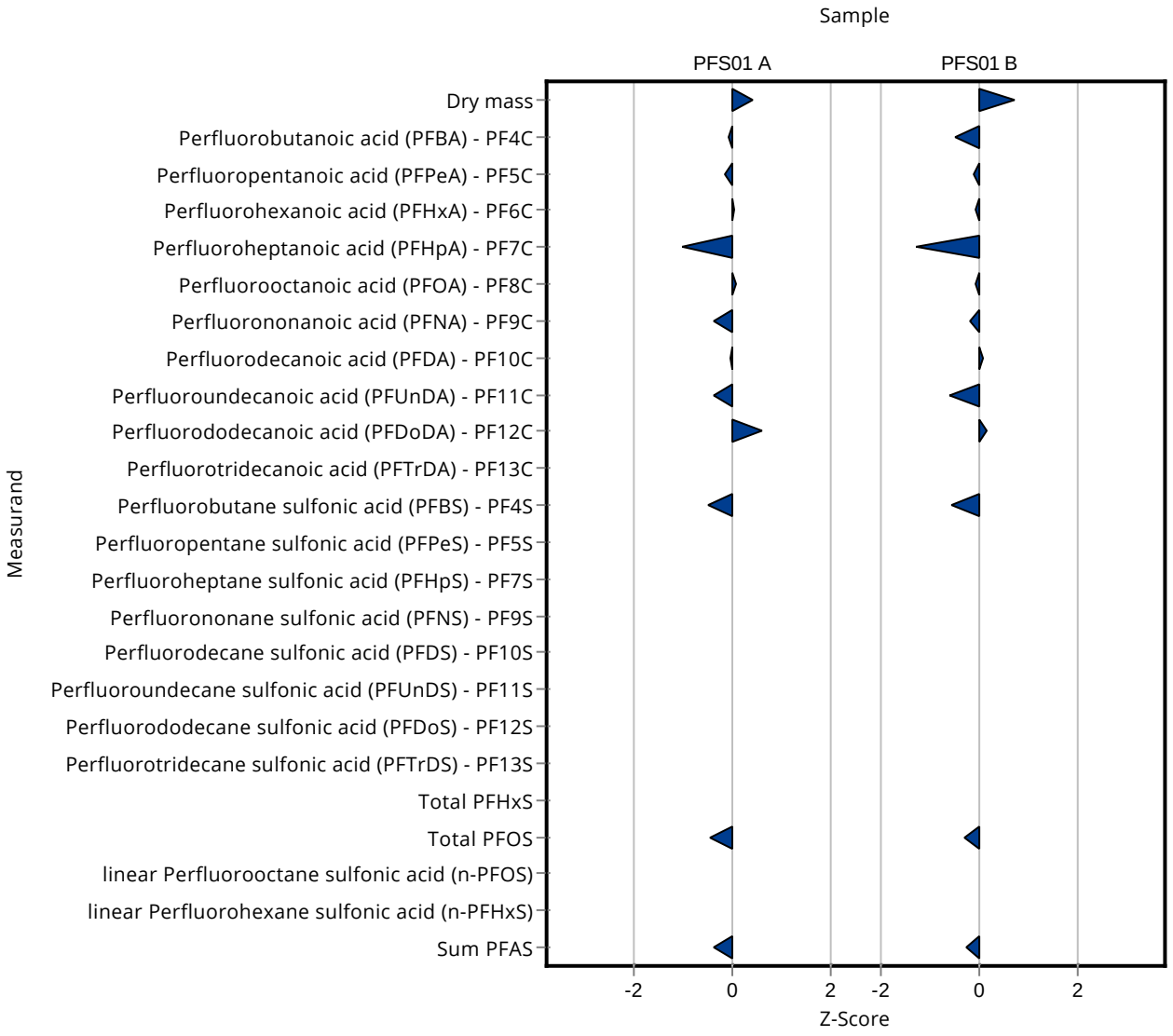
Sample: PFS01B

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	93.9 ± 0.941	95.2 ± 12	1.88	101	0.71
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28 ± 0.213	1.091 ± 0.109	0.384	85.2	-0.49
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35 ± 0.338	1.28 ± 0.128	0.592	95.1	-0.11
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12 ± 1.49	11.807 ± 1.181	2.88	98.5	-0.06
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368 ± 0.0704	0.223 ± 0.022	0.114	60.7	-1.27
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	1.016 ± 0.102	0.186	98.4	-0.09
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	0.195 ± 0.019	0.0849	91.9	-0.20
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	0.616 ± 0.062	0.127	102	0.09
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	0.293 ± 0.029	0.0944	83.8	-0.60
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	0.427 ± 0.064	0.162	105	0.13
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	0.106 ± 0.016	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	2.8 ± 0.28	0.895	84.5	-0.57
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0008

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFOS	µg/kg dm	1.96 ± 0.192	1.837 ± 0.184	0.393	93.6	-0.32
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	1.371 ± 0.137	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	21.689 ± 4.338	5.07	94.1	-0.27



Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0008

Sample: PFS01A

Parameter	Unit	Assigned value	±	U (k=2)	Result	±	U	Criterion	Recovery [%]	En-Score
Dry mass	%	94.8	±	0.775	95.6	±	12	1.9	101	0.03
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09	±	0.281	1.047	±	0.105	0.445	96.5	-0.11
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3	±	0.359	1.2	±	0.12	0.597	92.5	-0.23
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98	±	0.355	4.993	±	0.499	0.746	100	0.02
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274	±	0.0361	0.219	±	0.022	0.0548	80	-0.96
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724	±	0.105	0.74	±	0.074	0.203	102	0.09
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159	±	0.0302	0.139	±	0.014	0.0542	87.2	-0.50
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355	±	0.041	0.352	±	0.035	0.0781	99.1	-0.04
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152	±	0.0235	0.138	±	0.014	0.038	90.7	-0.39
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2	±	0.0229	0.224	±	0.034	0.0401	112	0.33
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	-	±	-	0.061	±	0.009	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52	±	0.326	2.197	±	0.22	0.656	87.1	-0.60
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	-	±	-	<0.03 (LOQ)	±	-	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	-	±	-	<0.03 (LOQ)	±	-	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	-	±	-	<0.03 (LOQ)	±	-	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0008

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.03 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.03 (LOQ) ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.03 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<0.03 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	<0.03 (LOQ) ± -	-	-	-
Total PFOS	µg/kg dm	0.796 ± 0.0764	0.725 ± 0.073	0.159	91.1	-0.43
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	0.449 ± 0.045	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	<0.03 (LOQ) ± -	-	-	-
Sum PFAS	µg/kg dm	13.5 ± 2.06	12.034 ± 2.407	3.77	89.4	-0.27

Sample: PFS01B

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Dry mass	%	93.9 ± 0.941	95.2 ± 12	1.88	101	0.06
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28 ± 0.213	1.091 ± 0.109	0.384	85.2	-0.62
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35 ± 0.338	1.28 ± 0.128	0.592	95.1	-0.16
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12 ± 1.49	11.807 ± 1.181	2.88	98.5	-0.06
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368 ± 0.0704	0.223 ± 0.022	0.114	60.7	-1.74

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

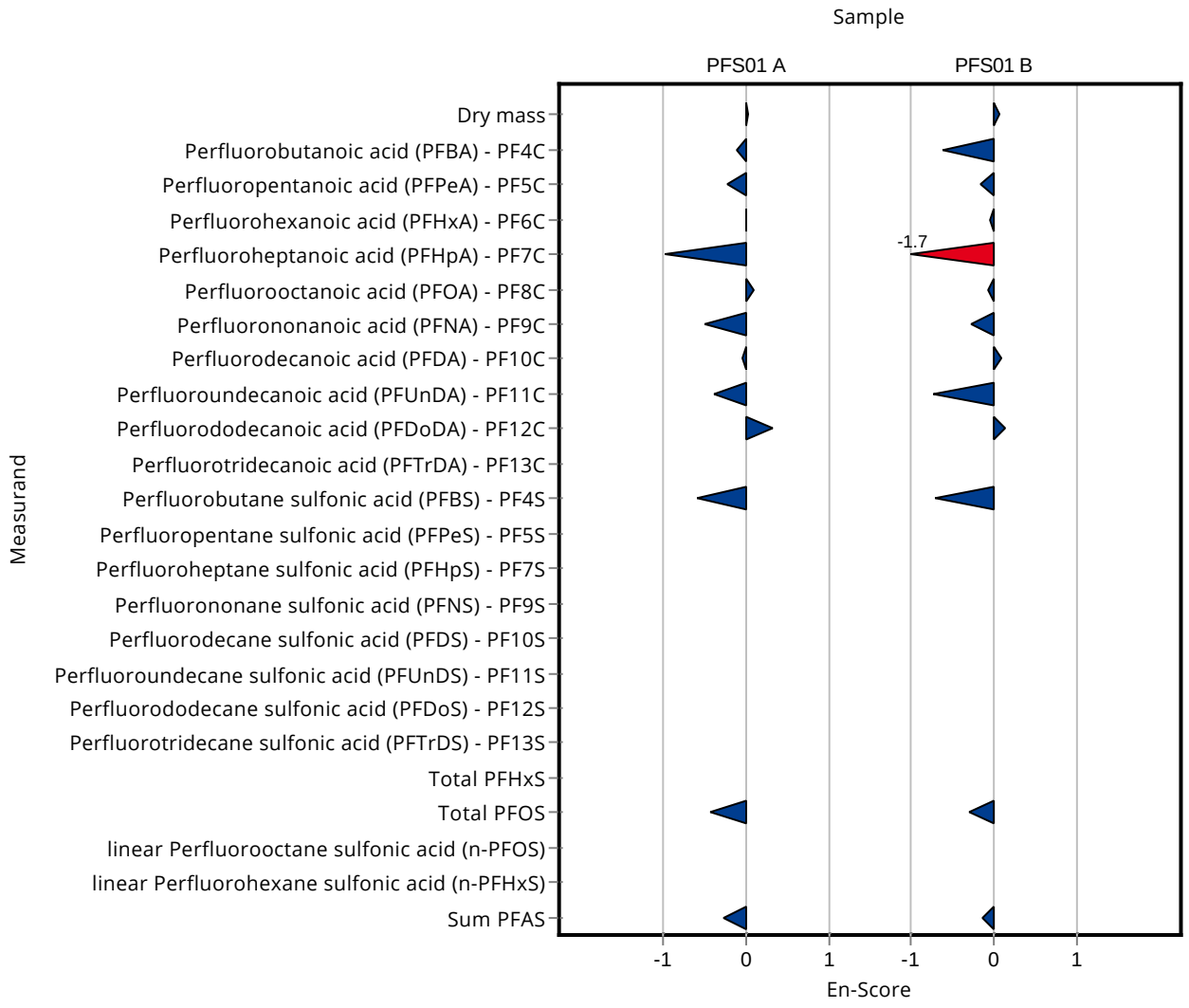
Labcode: LC0008

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	1.016 ± 0.102	0.186	98.4	-0.07
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	0.195 ± 0.019	0.0849	91.9	-0.28
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	0.616 ± 0.062	0.127	102	0.08
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	0.293 ± 0.029	0.0944	83.8	-0.73
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	0.427 ± 0.064	0.162	105	0.13
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	0.106 ± 0.016	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	2.8 ± 0.28	0.895	84.5	-0.71
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0008

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Total PFOS	µg/kg dm	1.96 ± 0.192	1.837 ± 0.184	0.393	93.6	-0.30
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	1.371 ± 0.137	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	21.689 ± 4.338	5.07	94.1	-0.15



Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0009

Sample: PFS01A

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	94.8 ± 0.775	94.65 ± 3.79	1.9	99.8	-0.09
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09 ± 0.281	1.279 ± 0.461	0.445	118	0.44
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3 ± 0.359	3.931 ± 1.415	0.597	303	4.41
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98 ± 0.355	5.025 ± 1.809	0.746	101	0.07
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274 ± 0.0361	0.302 ± 0.109	0.0548	110	0.51
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724 ± 0.105	0.717 ± 0.258	0.203	99	-0.03
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159 ± 0.0302	0.139 ± 0.05	0.0542	87.2	-0.38
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355 ± 0.041	0.308 ± 0.111	0.0781	86.7	-0.60
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152 ± 0.0235	0.135 ± 0.049	0.038	88.7	-0.45
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2 ± 0.0229	0.197 ± 0.071	0.0401	98.3	-0.08
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52 ± 0.326	1.882 ± 0.677	0.656	74.6	-0.98
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFOS	µg/kg dm	0.796 ± 0.0764	0.727 ± 0.262	0.159	91.3	-0.43
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	0.383 ± 0.138	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0009

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Sum PFAS	µg/kg dm	13.5 ± 2.06	14.641 ± 5.271	3.77	109	0.31

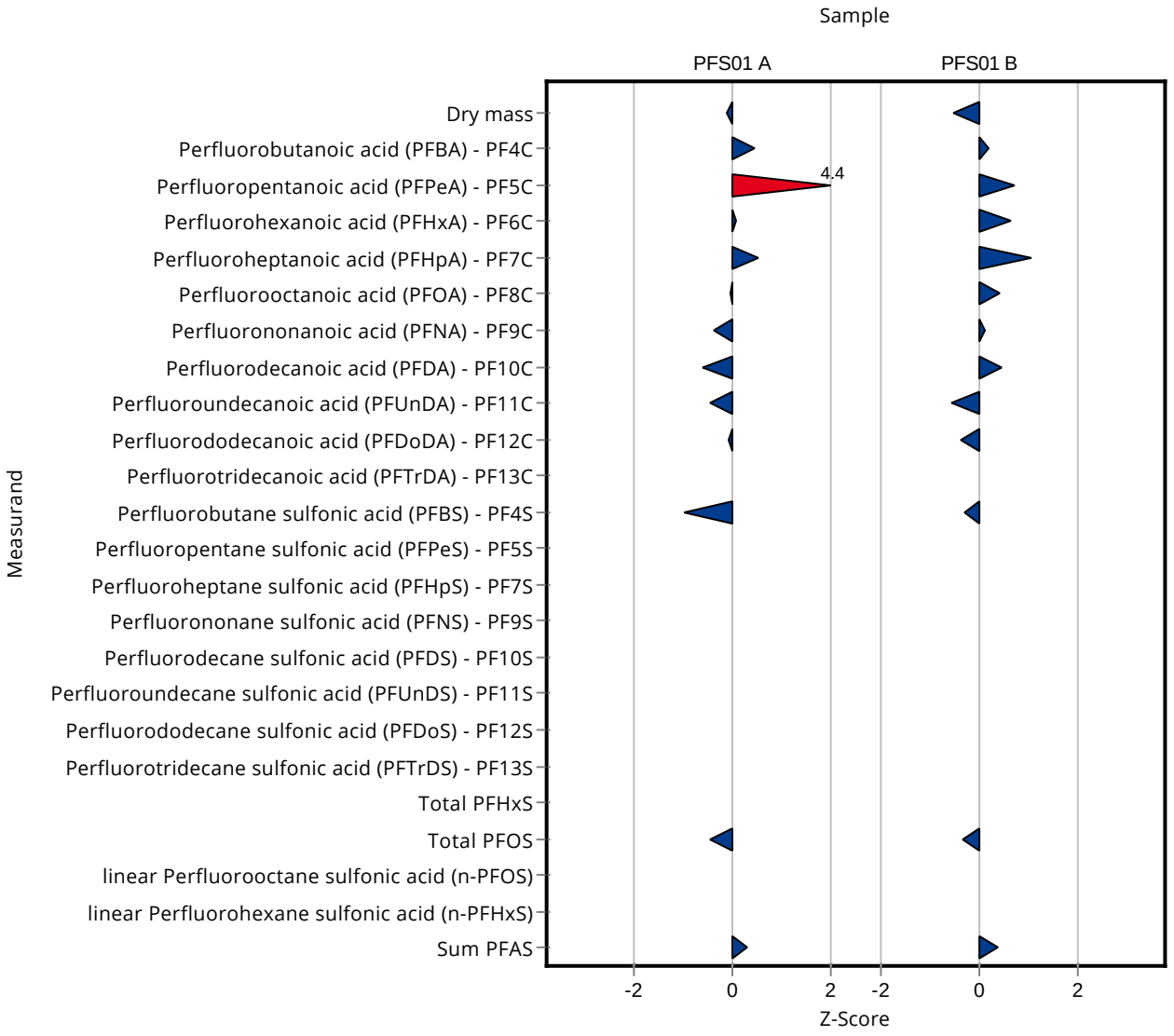
Sample: PFS01B

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	93.9 ± 0.941	92.86 ± 3.714	1.88	98.9	-0.53
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28 ± 0.213	1.356 ± 0.488	0.384	106	0.20
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35 ± 0.338	1.767 ± 0.636	0.592	131	0.71
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12 ± 1.49	13.819 ± 4.975	2.88	115	0.64
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368 ± 0.0704	0.485 ± 0.175	0.114	132	1.03
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	1.108 ± 0.399	0.186	107	0.40
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	0.222 ± 0.08	0.0849	105	0.12
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	0.66 ± 0.238	0.127	109	0.43
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	0.296 ± 0.107	0.0944	84.6	-0.57
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	0.344 ± 0.124	0.162	84.8	-0.38
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	3.052 ± 1.099	0.895	92.1	-0.29
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0009

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFOS	µg/kg dm	1.96 ± 0.192	1.824 ± 0.657	0.393	92.9	-0.35
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	1.322 ± 0.476	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	24.935 ± 8.977	5.07	108	0.37



Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0009

Sample: PFS01A

Parameter	Unit	Assigned value	±	U (k=2)	Result	±	U	Criterion	Recovery [%]	En-Score
Dry mass	%	94.8	±	0.775	94.65	±	3.79	1.9	99.8	-0.02
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09	±	0.281	1.279	±	0.461	0.445	118	0.20
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3	±	0.359	3.931	±	1.415	0.597	303	0.92
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98	±	0.355	5.025	±	1.809	0.746	101	0.01
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274	±	0.0361	0.302	±	0.109	0.0548	110	0.13
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724	±	0.105	0.717	±	0.258	0.203	99	-0.01
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159	±	0.0302	0.139	±	0.05	0.0542	87.2	-0.20
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355	±	0.041	0.308	±	0.111	0.0781	86.7	-0.21
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152	±	0.0235	0.135	±	0.049	0.038	88.7	-0.17
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2	±	0.0229	0.197	±	0.071	0.0401	98.3	-0.02
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	-	±	-	<0.1 (LOQ)	±	-	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52	±	0.326	1.882	±	0.677	0.656	74.6	-0.46
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	-	±	-	<0.1 (LOQ)	±	-	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	-	±	-	<0.1 (LOQ)	±	-	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	-	±	-	<0.1 (LOQ)	±	-	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0009

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFOS	µg/kg dm	0.796 ± 0.0764	0.727 ± 0.262	0.159	91.3	-0.13
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	0.383 ± 0.138	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Sum PFAS	µg/kg dm	13.5 ± 2.06	14.641 ± 5.271	3.77	109	0.11

Sample: PFS01B

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Dry mass	%	93.9 ± 0.941	92.86 ± 3.714	1.88	98.9	-0.13
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28 ± 0.213	1.356 ± 0.488	0.384	106	0.08
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35 ± 0.338	1.767 ± 0.636	0.592	131	0.32
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12 ± 1.49	13.819 ± 4.975	2.88	115	0.18
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368 ± 0.0704	0.485 ± 0.175	0.114	132	0.33

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

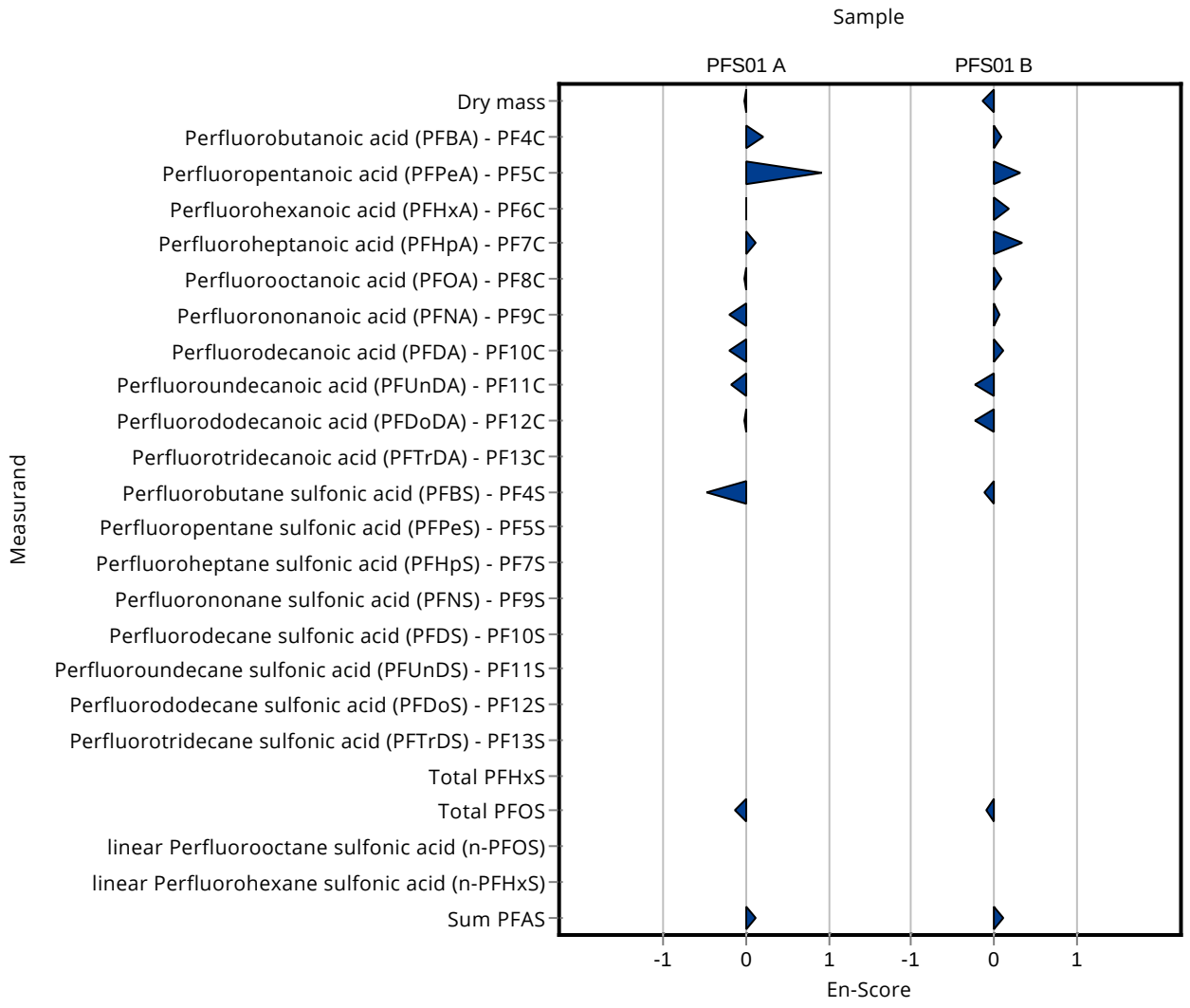
Labcode: LC0009

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	1.108 ± 0.399	0.186	107	0.09
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	0.222 ± 0.08	0.0849	105	0.06
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	0.66 ± 0.238	0.127	109	0.11
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	0.296 ± 0.107	0.0944	84.6	-0.24
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	0.344 ± 0.124	0.162	84.8	-0.23
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	3.052 ± 1.099	0.895	92.1	-0.12
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0009

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Total PFOS	µg/kg dm	1.96 ± 0.192	1.824 ± 0.657	0.393	92.9	-0.10
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	1.322 ± 0.476	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	24.935 ± 8.977	5.07	108	0.10



Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0010

Sample: PFS01A

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	94.8 ± 0.775	95.4 ± 0.5	1.9	101	0.30
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09 ± 0.281	5.49 ± 1.65	0.445	506	9.90
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3 ± 0.359	2.31 ± 0.69	0.597	178	1.69
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98 ± 0.355	6.06 ± 1.81	0.746	122	1.45
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274 ± 0.0361	0.345 ± 0.104	0.0548	126	1.30
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724 ± 0.105	0.658 ± 0.197	0.203	90.9	-0.33
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159 ± 0.0302	<0.1 (LOQ) ± -	0.0542	-	-
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355 ± 0.041	0.423 ± 0.127	0.0781	119	0.87
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152 ± 0.0235	<0.1 (LOQ) ± -	0.038	-	-
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2 ± 0.0229	<0.1 (LOQ) ± -	0.0401	-	-
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52 ± 0.326	2.45 ± 0.73	0.656	97.1	-0.11
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.2 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.2 (LOQ) ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.2 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<0.2 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFOS	µg/kg dm	0.796 ± 0.0764	0.845 ± 0.254	0.159	106	0.31
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0010

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	13.5 ± 2.06	18.6 ± 5.6	3.77	138	1.36

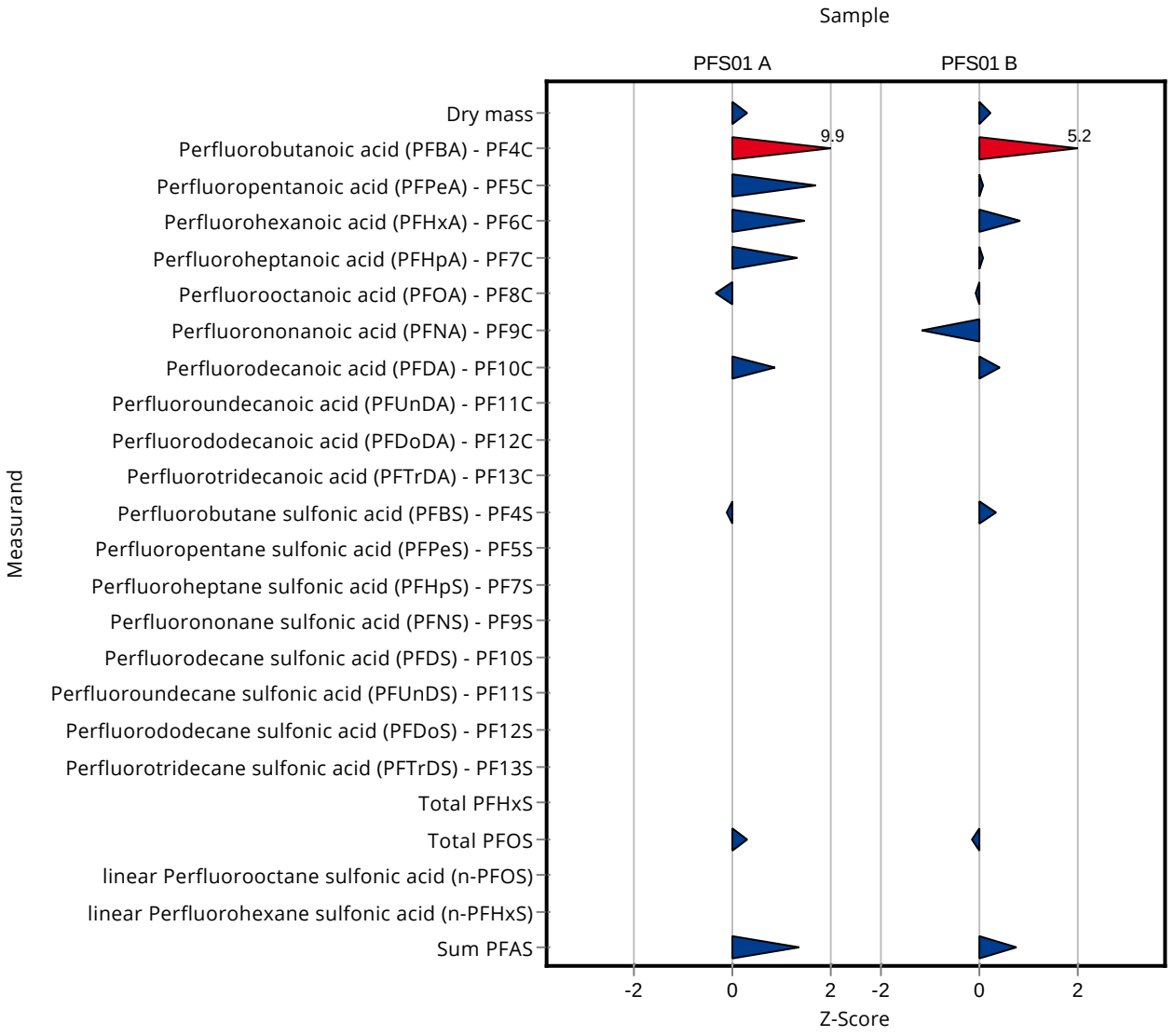
Sample: PFS01B

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	93.9 ± 0.941	94.3 ± 0.6	1.88	100	0.24
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28 ± 0.213	3.29 ± 0.95	0.384	257	5.23
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35 ± 0.338	1.39 ± 0.41	0.592	103	0.07
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12 ± 1.49	14.3 ± 4.3	2.88	119	0.81
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368 ± 0.0704	0.376 ± 0.113	0.114	102	0.07
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	1.02 ± 0.31	0.186	98.8	-0.07
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	0.114 ± 0.034	0.0849	53.7	-1.16
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	0.656 ± 0.197	0.127	108	0.40
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	<0.1 (LOQ) ± -	0.0944	-	-
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	<0.1 (LOQ) ± -	0.162	-	-
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	3.61 ± 1.08	0.895	109	0.33
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	0.191 ± 0.057	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.2 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.2 (LOQ) ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0010

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.2 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<0.2 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFOS	µg/kg dm	1.96 ± 0.192	1.9 ± 0.57	0.393	96.8	-0.16
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	26.9 ± 8.1	5.07	117	0.76



Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0010

Sample: PFS01A

Parameter	Unit	Assigned value	± U (k=2)	Result	± U	Criterion	Recovery [%]	En-Score
Dry mass	%	94.8	± 0.775	95.4	± 0.5	1.9	101	0.46
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09	± 0.281	5.49	± 1.65	0.445	506	1.33
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3	± 0.359	2.31	± 0.69	0.597	178	0.71
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98	± 0.355	6.06	± 1.81	0.746	122	0.30
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274	± 0.0361	0.345	± 0.104	0.0548	126	0.34
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724	± 0.105	0.658	± 0.197	0.203	90.9	-0.16
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159	± 0.0302	<0.1 (LOQ)	± -	0.0542	-	-
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355	± 0.041	0.423	± 0.127	0.0781	119	0.26
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152	± 0.0235	<0.1 (LOQ)	± -	0.038	-	-
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2	± 0.0229	<0.1 (LOQ)	± -	0.0401	-	-
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	-	± -	<0.1 (LOQ)	± -	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52	± 0.326	2.45	± 0.73	0.656	97.1	-0.05
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	-	± -	<0.1 (LOQ)	± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	-	± -	<0.1 (LOQ)	± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	-	± -	<0.1 (LOQ)	± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0010

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.2 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.2 (LOQ) ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.2 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<0.2 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFOS	µg/kg dm	0.796 ± 0.0764	0.845 ± 0.254	0.159	106	0.09
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	13.5 ± 2.06	18.6 ± 5.6	3.77	138	0.45

Sample: PFS01B

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Dry mass	%	93.9 ± 0.941	94.3 ± 0.6	1.88	100	0.29
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28 ± 0.213	3.29 ± 0.95	0.384	257	1.05
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35 ± 0.338	1.39 ± 0.41	0.592	103	0.05
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12 ± 1.49	14.3 ± 4.3	2.88	119	0.27
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368 ± 0.0704	0.376 ± 0.113	0.114	102	0.04

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

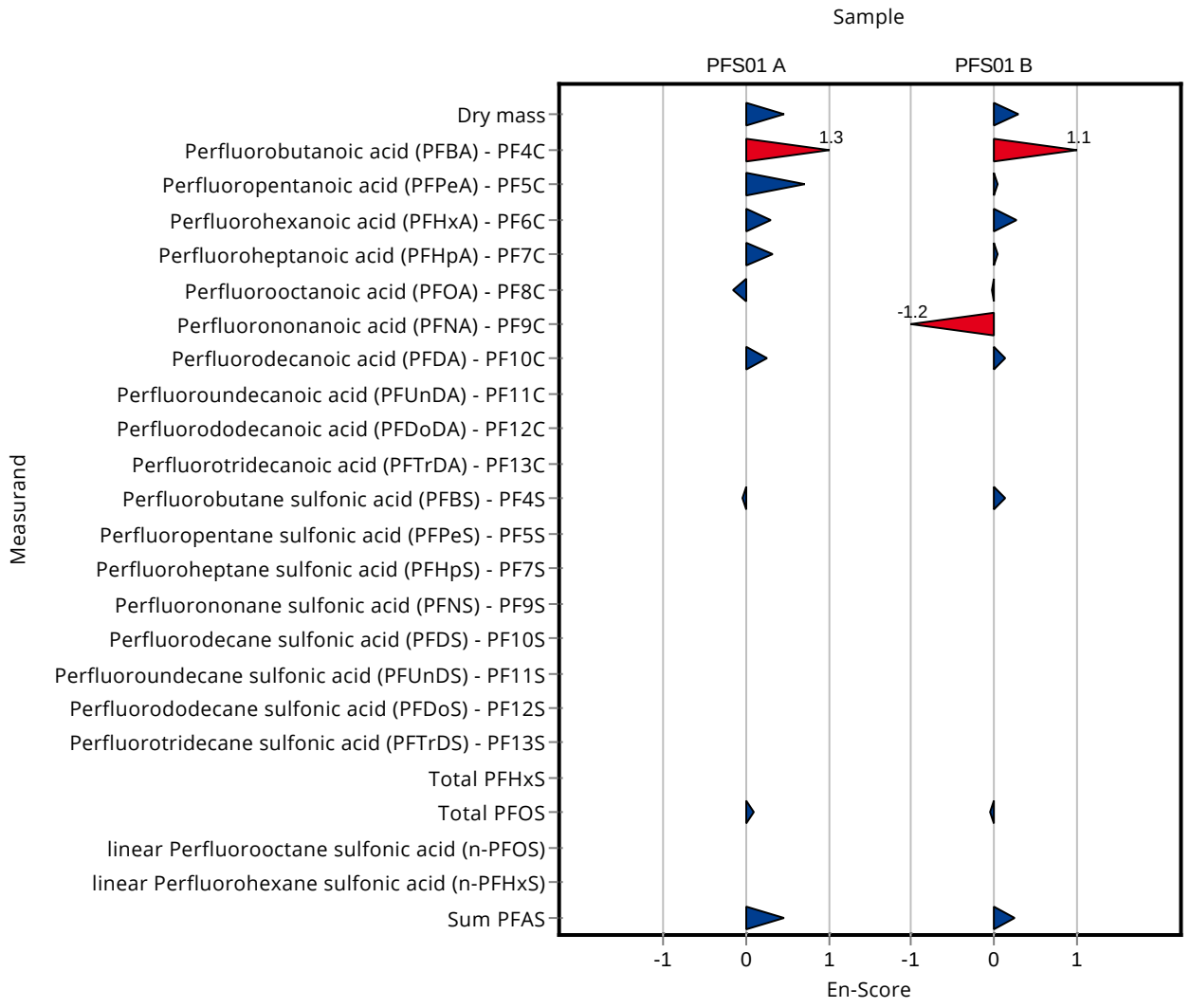
Labcode: LC0010

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	1.02 ± 0.31	0.186	98.8	-0.02
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	0.114 ± 0.034	0.0849	53.7	-1.19
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	0.656 ± 0.197	0.127	108	0.13
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	<0.1 (LOQ) ± -	0.0944	-	-
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	<0.1 (LOQ) ± -	0.162	-	-
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	3.61 ± 1.08	0.895	109	0.13
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	0.191 ± 0.057	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.2 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.2 (LOQ) ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.2 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<0.2 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0010

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Total PFOS	µg/kg dm	1.96 ± 0.192	1.9 ± 0.57	0.393	96.8	-0.05
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	26.9 ± 8.1	5.07	117	0.23



Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0011

Sample: PFS01A

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	94.8 ± 0.775	100 ± 1	1.9	105	2.73
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09 ± 0.281	1.01 ± 0.05	0.445	93.1	-0.17
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3 ± 0.359	0.907 ± 0.45	0.597	69.9	-0.65
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98 ± 0.355	5.07 ± 2.5	0.746	102	0.13
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274 ± 0.0361	0.285 ± 0.14	0.0548	104	0.20
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724 ± 0.105	0.556 ± 0.28	0.203	76.8	-0.83
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159 ± 0.0302	0.144 ± 0.07	0.0542	90.3	-0.28
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355 ± 0.041	<0.3 (LOQ) ± -	0.0781	-	-
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152 ± 0.0235	<0.3 (LOQ) ± -	0.038	-	-
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2 ± 0.0229	<0.3 (LOQ) ± -	0.0401	-	-
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	<0.3 (LOQ) ± -	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52 ± 0.326	1.94 ± 0.9	0.656	76.9	-0.89
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	<0.3 (LOQ) ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	<0.7 (LOQ) ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<3 (LOQ) ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<3 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<3 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFOS	µg/kg dm	0.796 ± 0.0764	0.795 ± 0.4	0.159	99.8	-0.01
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	0.4 ± 0.2	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0011

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Sum PFAS	µg/kg dm	13.5 ± 2.06	- ± -	3.77	-	-

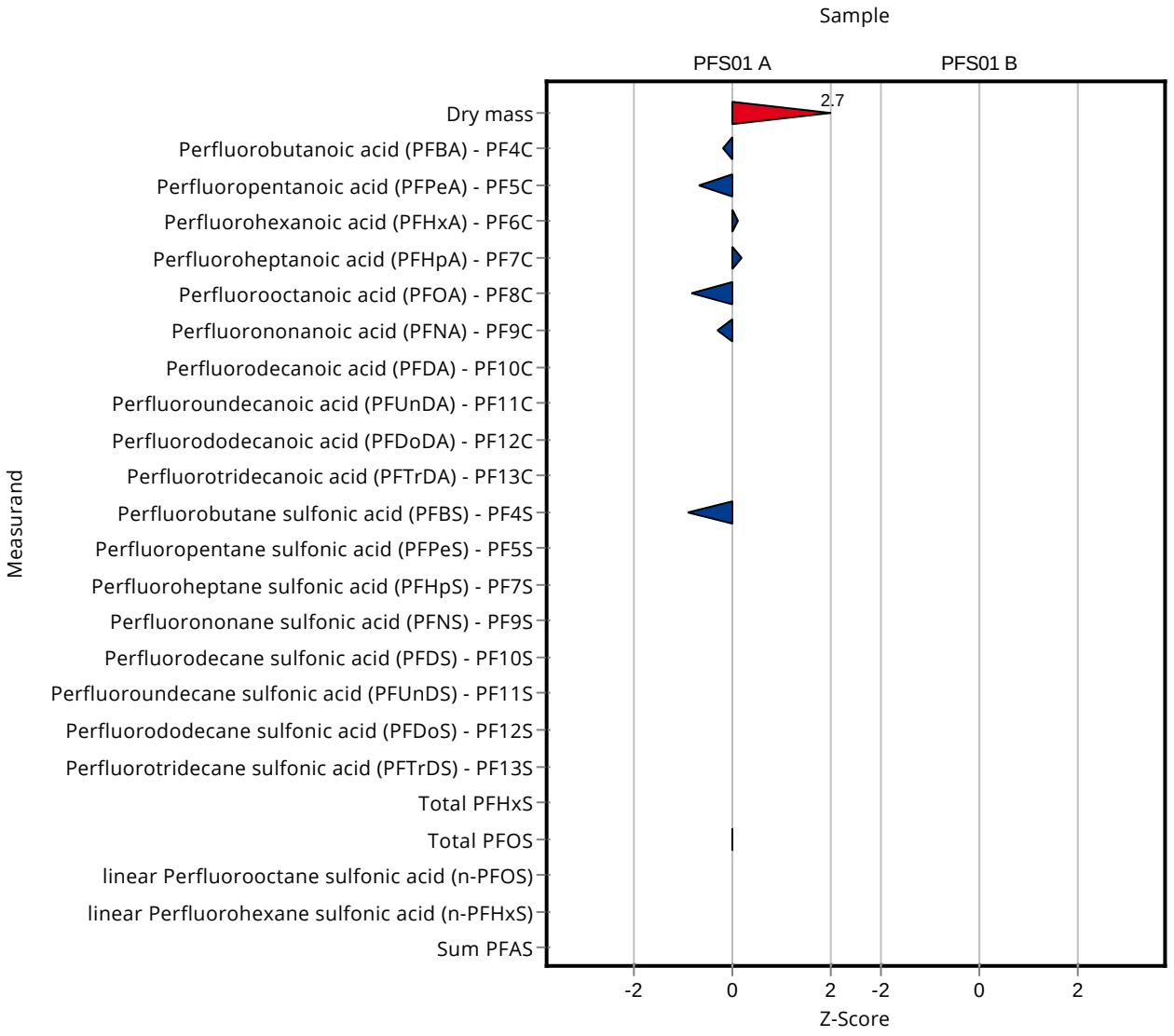
Sample: PFS01B

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	93.9 ± 0.941	- ± -	1.88	-	-
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28 ± 0.213	- ± -	0.384	-	-
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35 ± 0.338	- ± -	0.592	-	-
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12 ± 1.49	- ± -	2.88	-	-
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368 ± 0.0704	- ± -	0.114	-	-
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	- ± -	0.186	-	-
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	- ± -	0.0849	-	-
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	- ± -	0.127	-	-
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	- ± -	0.0944	-	-
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	- ± -	0.162	-	-
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	- ± -	0.895	-	-
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	- ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0011

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	- ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	- ± -	-	-	-
Total PFOS	µg/kg dm	1.96 ± 0.192	- ± -	0.393	-	-
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	- ± -	5.07	-	-



Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0011

Sample: PFS01A

Parameter	Unit	Assigned value	± U (k=2)	Result	± U	Criterion	Recovery [%]	En-Score
Dry mass	%	94.8	± 0.775	100	± 1	1.9	105	2.41
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09	± 0.281	1.01	± 0.05	0.445	93.1	-0.25
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3	± 0.359	0.907	± 0.45	0.597	69.9	-0.40
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98	± 0.355	5.07	± 2.5	0.746	102	0.02
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274	± 0.0361	0.285	± 0.14	0.0548	104	0.04
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724	± 0.105	0.556	± 0.28	0.203	76.8	-0.29
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159	± 0.0302	0.144	± 0.07	0.0542	90.3	-0.11
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355	± 0.041	<0.3 (LOQ)	± -	0.0781	-	-
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152	± 0.0235	<0.3 (LOQ)	± -	0.038	-	-
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2	± 0.0229	<0.3 (LOQ)	± -	0.0401	-	-
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	-	± -	<0.3 (LOQ)	± -	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52	± 0.326	1.94	± 0.9	0.656	76.9	-0.32
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	-	± -	<0.3 (LOQ)	± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	-	± -	<0.1 (LOQ)	± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	-	± -	<0.7 (LOQ)	± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0011

Parameter	Unit	Assigned value	±	U (k=2)	Result	±	U	Criterion	Recovery [%]	En-Score
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	-	±	-	<0.1 (LOQ)	±	-	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	-	±	-	<3 (LOQ)	±	-	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	-	±	-	<3 (LOQ)	±	-	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	-	±	-	<3 (LOQ)	±	-	-	-	-
Total PFHxS	µg/kg dm	-	±	-	<0.1 (LOQ)	±	-	-	-	-
Total PFOS	µg/kg dm	0.796	±	0.0764	0.795	±	0.4	0.159	99.8	0.00
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	-	±	-	0.4	±	0.2	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	-	±	-	<0.1 (LOQ)	±	-	-	-	-
Sum PFAS	µg/kg dm	13.5	±	2.06	-	±	-	3.77	-	-

Sample: PFS01B

Parameter	Unit	Assigned value	±	U (k=2)	Result	±	U	Criterion	Recovery [%]	En-Score
Dry mass	%	93.9	±	0.941	-	±	-	1.88	-	-
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28	±	0.213	-	±	-	0.384	-	-
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35	±	0.338	-	±	-	0.592	-	-
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12	±	1.49	-	±	-	2.88	-	-
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368	±	0.0704	-	±	-	0.114	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

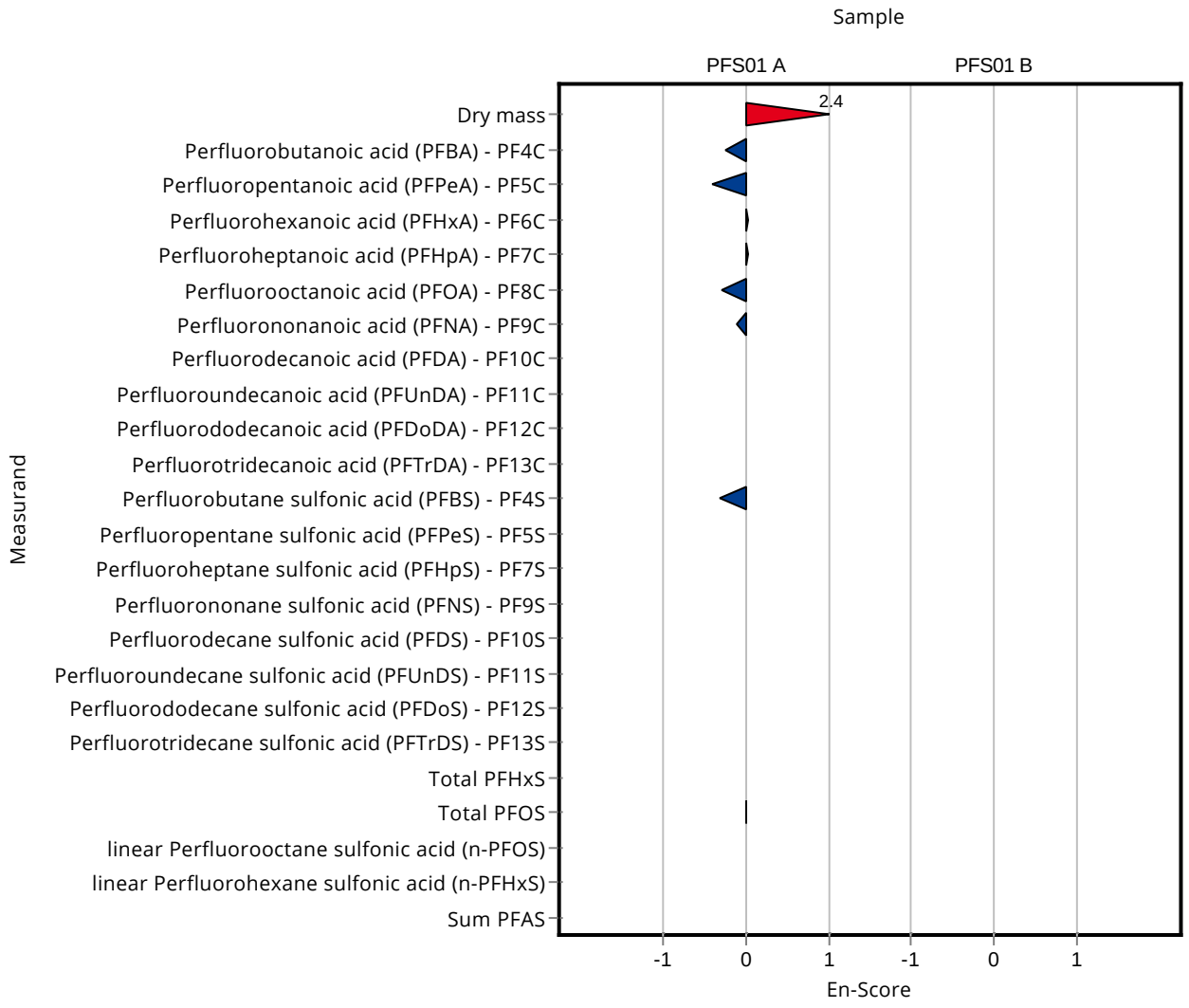
Labcode: LC0011

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	- ± -	0.186	-	-
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	- ± -	0.0849	-	-
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	- ± -	0.127	-	-
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	- ± -	0.0944	-	-
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	- ± -	0.162	-	-
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	- ± -	0.895	-	-
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	- ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	- ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0011

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Total PFOS	µg/kg dm	1.96 ± 0.192	- ± -	0.393	-	-
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	- ± -	5.07	-	-



Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0012

Sample: PFS01A

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	94.8 ± 0.775	94.74 ± 4	1.9	99.9	-0.04
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09 ± 0.281	<1 (LOQ) ± -	0.445	-	-
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3 ± 0.359	<1 (LOQ) ± -	0.597	-	-
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98 ± 0.355	5.45 ± 2.2	0.746	110	0.64
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274 ± 0.0361	0.34 ± 0.14	0.0548	124	1.21
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724 ± 0.105	1.07 ± 0.43	0.203	148	1.71
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159 ± 0.0302	0.25 ± 0.1	0.0542	157	1.67
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355 ± 0.041	0.49 ± 0.2	0.0781	138	1.73
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152 ± 0.0235	0.15 ± 0.06	0.038	98.6	-0.06
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2 ± 0.0229	0.13 ± 0.05	0.0401	64.9	-1.76
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	0.082 ± 0.03	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52 ± 0.326	2.72 ± 1.1	0.656	108	0.30
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	0.099 ± 0.04	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	0.017 ± 0.01	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	0.013 ± 0.01	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	0.014 ± 0.01	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	0.014 ± 0.01	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	0.014 ± 0.01	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	0.023 ± 0.01	-	-	-
Total PFHxS	µg/kg dm	- ± -	0.11 ± 0.04	-	-	-
Total PFOS	µg/kg dm	0.796 ± 0.0764	0.96 ± 0.38	0.159	121	1.03
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0012

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	13.5 ± 2.06	12 ± 4.8	3.77	89.2	-0.39

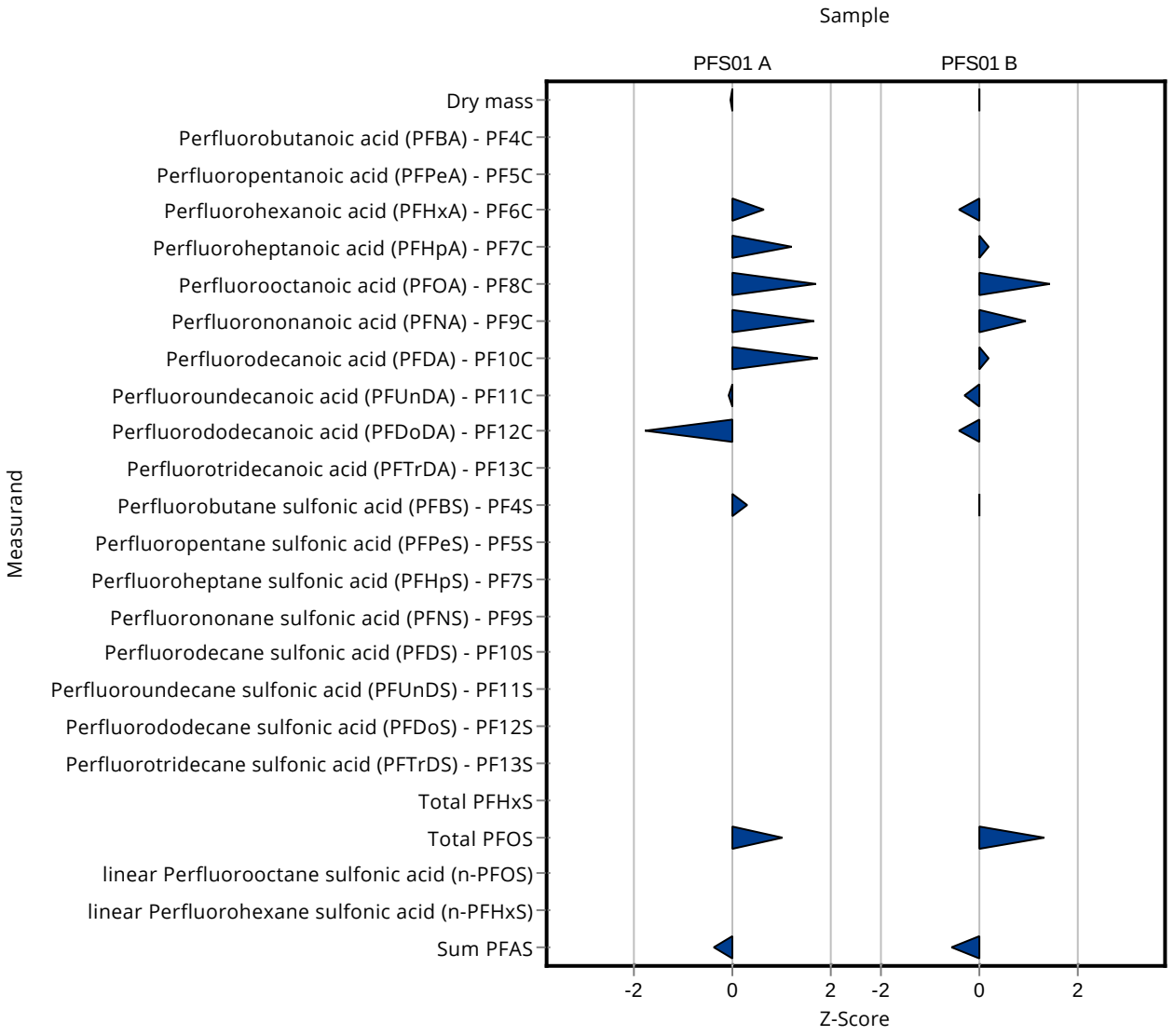
Sample: PFS01B

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	93.9 ± 0.941	93.86 ± 4	1.88	100	0.00
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28 ± 0.213	<1 (LOQ) ± -	0.384	-	-
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35 ± 0.338	<1 (LOQ) ± -	0.592	-	-
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12 ± 1.49	10.8 ± 4.3	2.88	90.1	-0.41
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368 ± 0.0704	0.39 ± 0.16	0.114	106	0.20
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	1.3 ± 0.52	0.186	126	1.44
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	0.29 ± 0.12	0.0849	137	0.92
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	0.63 ± 0.25	0.127	104	0.20
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	0.32 ± 0.13	0.0944	91.5	-0.31
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	0.34 ± 0.14	0.162	83.8	-0.41
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	0.12 ± 0.05	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	3.3 ± 1.3	0.895	99.6	-0.02
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	0.01 ± 0.01	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	0.025 ± 0.01	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	0.017 ± 0.01	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	0.041 ± 0.01	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	0.011 ± 0.01	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0012

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	0.022 ± 0.01	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	0.02 ± 0.01	-	-	-
Total PFHxS	µg/kg dm	- ± -	0.14 ± 0.06	-	-	-
Total PFOS	µg/kg dm	1.96 ± 0.192	2.48 ± 0.99	0.393	126	1.32
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	20.2 ± 8.1	5.07	87.7	-0.56



Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0012

Sample: PFS01A

Parameter	Unit	Assigned value	± U (k=2)	Result	± U	Criterion	Recovery [%]	En-Score
Dry mass	%	94.8	± 0.775	94.74	± 4	1.9	99.9	-0.01
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09	± 0.281	<1 (LOQ)	± -	0.445	-	-
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3	± 0.359	<1 (LOQ)	± -	0.597	-	-
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98	± 0.355	5.45	± 2.2	0.746	110	0.11
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274	± 0.0361	0.34	± 0.14	0.0548	124	0.23
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724	± 0.105	1.07	± 0.43	0.203	148	0.40
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159	± 0.0302	0.25	± 0.1	0.0542	157	0.45
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355	± 0.041	0.49	± 0.2	0.0781	138	0.34
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152	± 0.0235	0.15	± 0.06	0.038	98.6	-0.02
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2	± 0.0229	0.13	± 0.05	0.0401	64.9	-0.69
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	-	± -	0.082	± 0.03	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52	± 0.326	2.72	± 1.1	0.656	108	0.09
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	-	± -	0.099	± 0.04	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	-	± -	0.017	± 0.01	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	-	± -	0.013	± 0.01	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0012

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	0.014 ± 0.01	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	0.014 ± 0.01	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	0.014 ± 0.01	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	0.023 ± 0.01	-	-	-
Total PFHxS	µg/kg dm	- ± -	0.11 ± 0.04	-	-	-
Total PFOS	µg/kg dm	0.796 ± 0.0764	0.96 ± 0.38	0.159	121	0.21
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	13.5 ± 2.06	12 ± 4.8	3.77	89.2	-0.15

Sample: PFS01B

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Dry mass	%	93.9 ± 0.941	93.86 ± 4	1.88	100	0.00
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28 ± 0.213	<1 (LOQ) ± -	0.384	-	-
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35 ± 0.338	<1 (LOQ) ± -	0.592	-	-
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12 ± 1.49	10.8 ± 4.3	2.88	90.1	-0.14
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368 ± 0.0704	0.39 ± 0.16	0.114	106	0.07

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

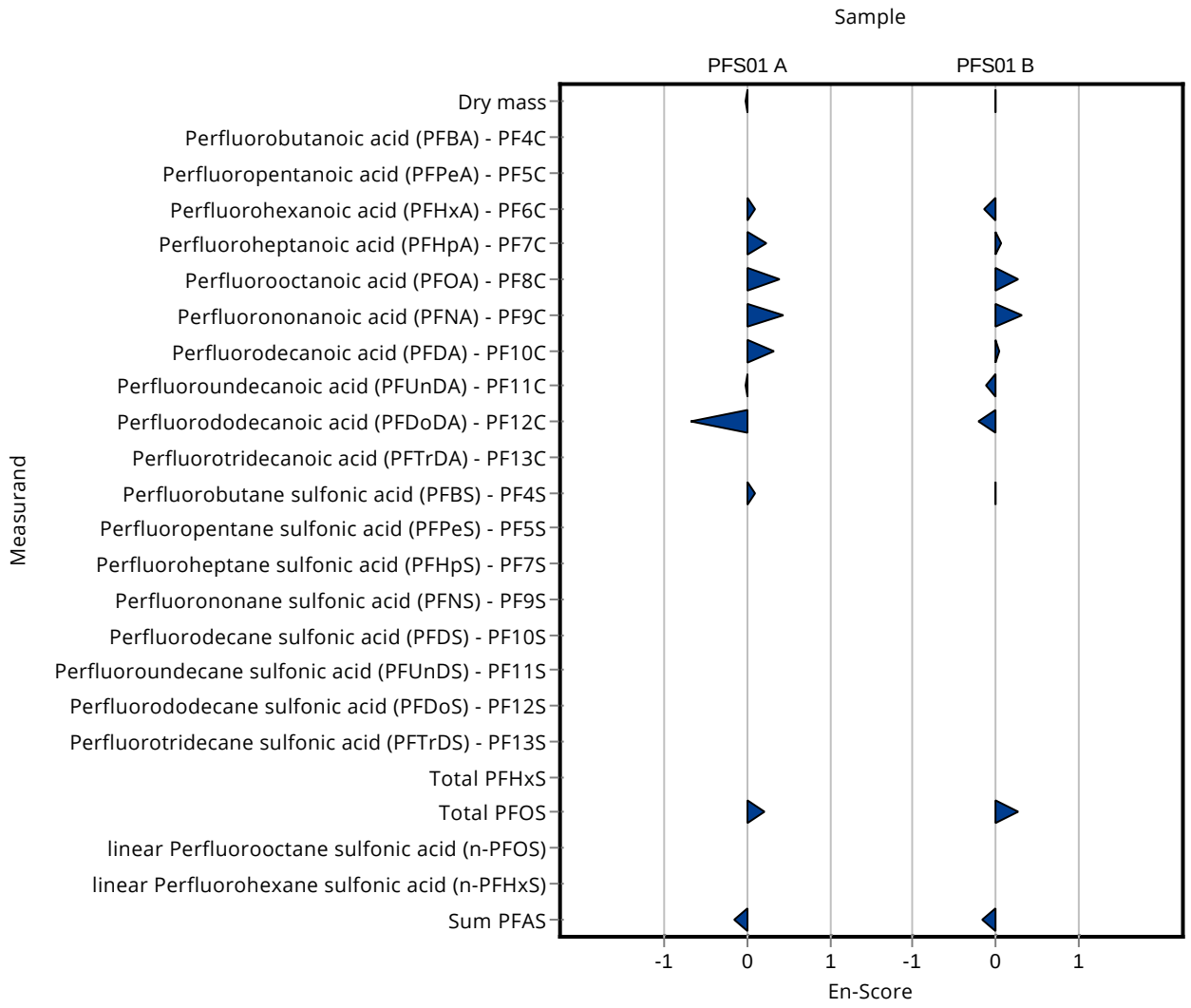
Labcode: LC0012

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	1.3 ± 0.52	0.186	126	0.26
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	0.29 ± 0.12	0.0849	137	0.32
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	0.63 ± 0.25	0.127	104	0.05
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	0.32 ± 0.13	0.0944	91.5	-0.11
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	0.34 ± 0.14	0.162	83.8	-0.22
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	0.12 ± 0.05	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	3.3 ± 1.3	0.895	99.6	-0.01
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	0.01 ± 0.01	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	0.025 ± 0.01	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	0.017 ± 0.01	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	0.041 ± 0.01	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	0.011 ± 0.01	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	0.022 ± 0.01	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	0.02 ± 0.01	-	-	-
Total PFHxS	µg/kg dm	- ± -	0.14 ± 0.06	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0012

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Total PFOS	µg/kg dm	1.96 ± 0.192	2.48 ± 0.99	0.393	126	0.26
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	20.2 ± 8.1	5.07	87.7	-0.17



Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0013

Sample: PFS01A

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	94.8 ± 0.775	100 ± 20	1.9	105	2.73
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09 ± 0.281	<0.1 (LOQ) ± -	0.445	-	-
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3 ± 0.359	<0.1 (LOQ) ± -	0.597	-	-
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98 ± 0.355	29.6 ± 11.8	0.746	595	32.99
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274 ± 0.0361	0.636 ± 0.25	0.0548	232	6.61
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724 ± 0.105	1.57 ± 0.63	0.203	217	4.17
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159 ± 0.0302	0.273 ± 0.1	0.0542	171	2.10
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355 ± 0.041	0.295 ± 0.11	0.0781	83.1	-0.77
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152 ± 0.0235	0.198 ± 0.08	0.038	130	1.21
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2 ± 0.0229	<0.1 (LOQ) ± -	0.0401	-	-
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	0.22 ± 0.08	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52 ± 0.326	11.84 ± 4.5	0.656	469	14.20
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	0.15 ± 0.06	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	1.76 ± 0.06	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	0.12 ± 0.05	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	0.198 ± 0.08	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	0.32 ± 0.12	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	4.12 ± 1	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	0.369 ± 0.14	-	-	-
Total PFHxS	µg/kg dm	- ± -	1.66 ± 0.6	-	-	-
Total PFOS	µg/kg dm	0.796 ± 0.0764	1.88 ± 0.7	0.159	236	6.81
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	1.88 ± 0.7	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0013

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	0.292 ± 1.2	-	-	-
Sum PFAS	µg/kg dm	13.5 ± 2.06	55.3 ± 38	3.77	411	11.10

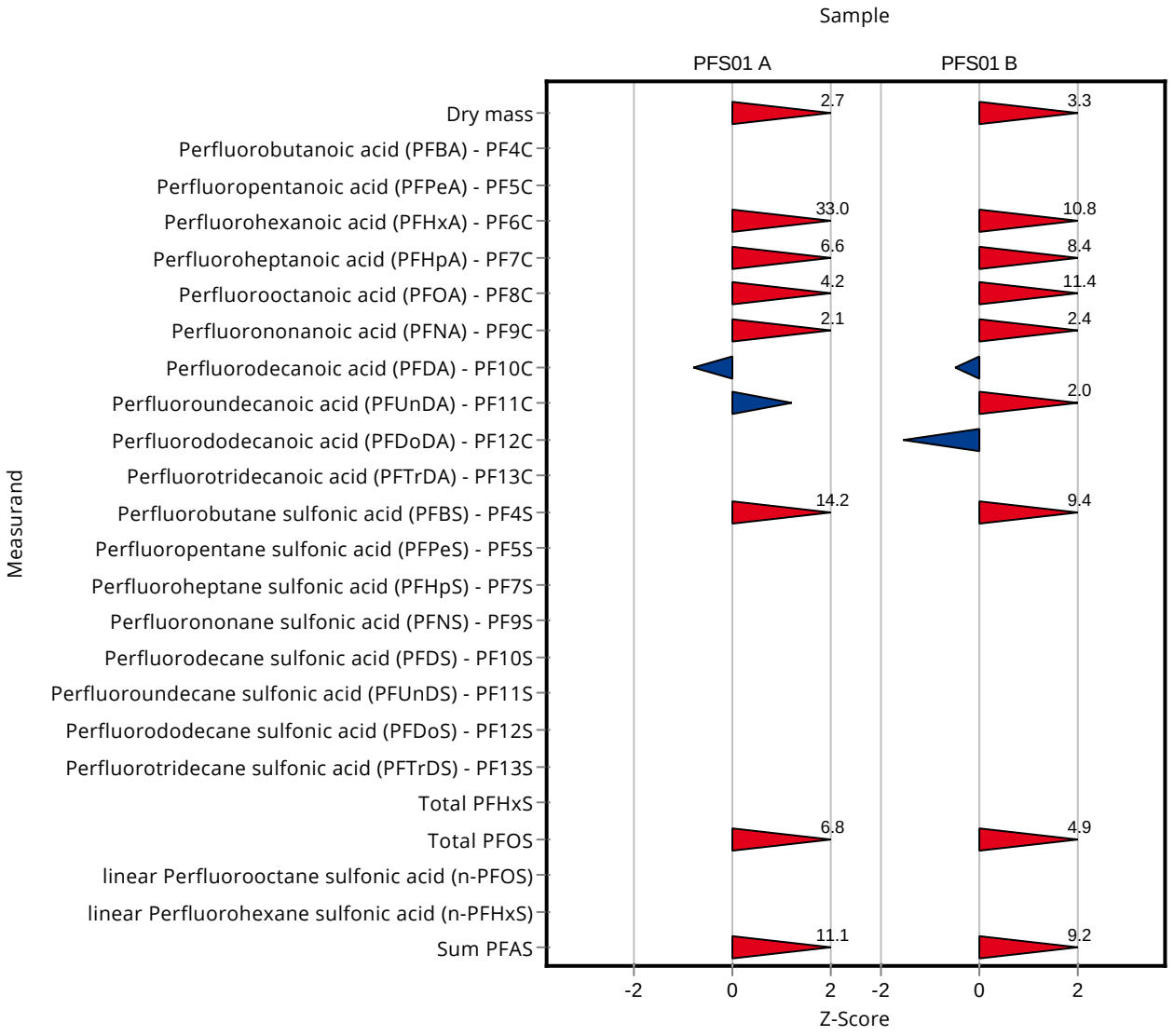
Sample: PFS01B

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	93.9 ± 0.941	100 ± 20	1.88	107	3.27
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28 ± 0.213	<0.1 (LOQ) ± -	0.384	-	-
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35 ± 0.338	<0.1 (LOQ) ± -	0.592	-	-
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12 ± 1.49	43.1 ± 10	2.88	360	10.82
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368 ± 0.0704	1.32 ± 0.4	0.114	359	8.36
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	3.15 ± 0.8	0.186	305	11.39
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	0.418 ± 0.1	0.0849	197	2.43
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	0.545 ± 0.12	0.127	90.1	-0.47
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	0.54 ± 0.12	0.0944	154	2.02
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	0.156 ± 0.06	0.162	38.4	-1.54
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	0.22 ± 0.08	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	11.7 ± 4	0.895	353	9.37
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	4.53 ± 1	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0013

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	0.915 ± 0.35	-	-	-
Total PFHxS	µg/kg dm	- ± -	2.24 ± 0.8	-	-	-
Total PFOS	µg/kg dm	1.96 ± 0.192	3.88 ± 1	0.393	198	4.88
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	1.88 ± 0.6	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	2.24 ± 0.8	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	69.9 ± 15	5.07	303	9.24



Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0013

Sample: PFS01A

Parameter	Unit	Assigned value	± U (k=2)	Result	± U	Criterion	Recovery [%]	En-Score
Dry mass	%	94.8	± 0.775	100	± 20	1.9	105	0.13
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09	± 0.281	<0.1 (LOQ)	± -	0.445	-	-
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3	± 0.359	<0.1 (LOQ)	± -	0.597	-	-
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98	± 0.355	29.6	± 11.8	0.746	595	1.04
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274	± 0.0361	0.636	± 0.25	0.0548	232	0.72
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724	± 0.105	1.57	± 0.63	0.203	217	0.67
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159	± 0.0302	0.273	± 0.1	0.0542	171	0.56
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355	± 0.041	0.295	± 0.11	0.0781	83.1	-0.27
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152	± 0.0235	0.198	± 0.08	0.038	130	0.28
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2	± 0.0229	<0.1 (LOQ)	± -	0.0401	-	-
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	-	± -	0.22	± 0.08	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52	± 0.326	11.84	± 4.5	0.656	469	1.03
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	-	± -	0.15	± 0.06	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	-	± -	1.76	± 0.06	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	-	± -	0.12	± 0.05	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0013

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	0.198 ± 0.08	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	0.32 ± 0.12	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	4.12 ± 1	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	0.369 ± 0.14	-	-	-
Total PFHxS	µg/kg dm	- ± -	1.66 ± 0.6	-	-	-
Total PFOS	µg/kg dm	0.796 ± 0.0764	1.88 ± 0.7	0.159	236	0.77
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	1.88 ± 0.7	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	0.292 ± 1.2	-	-	-
Sum PFAS	µg/kg dm	13.5 ± 2.06	55.3 ± 38	3.77	411	0.55

Sample: PFS01B

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Dry mass	%	93.9 ± 0.941	100 ± 20	1.88	107	0.15
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28 ± 0.213	<0.1 (LOQ) ± -	0.384	-	-
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35 ± 0.338	<0.1 (LOQ) ± -	0.592	-	-
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12 ± 1.49	43.1 ± 10	2.88	360	1.55
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368 ± 0.0704	1.32 ± 0.4	0.114	359	1.19

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

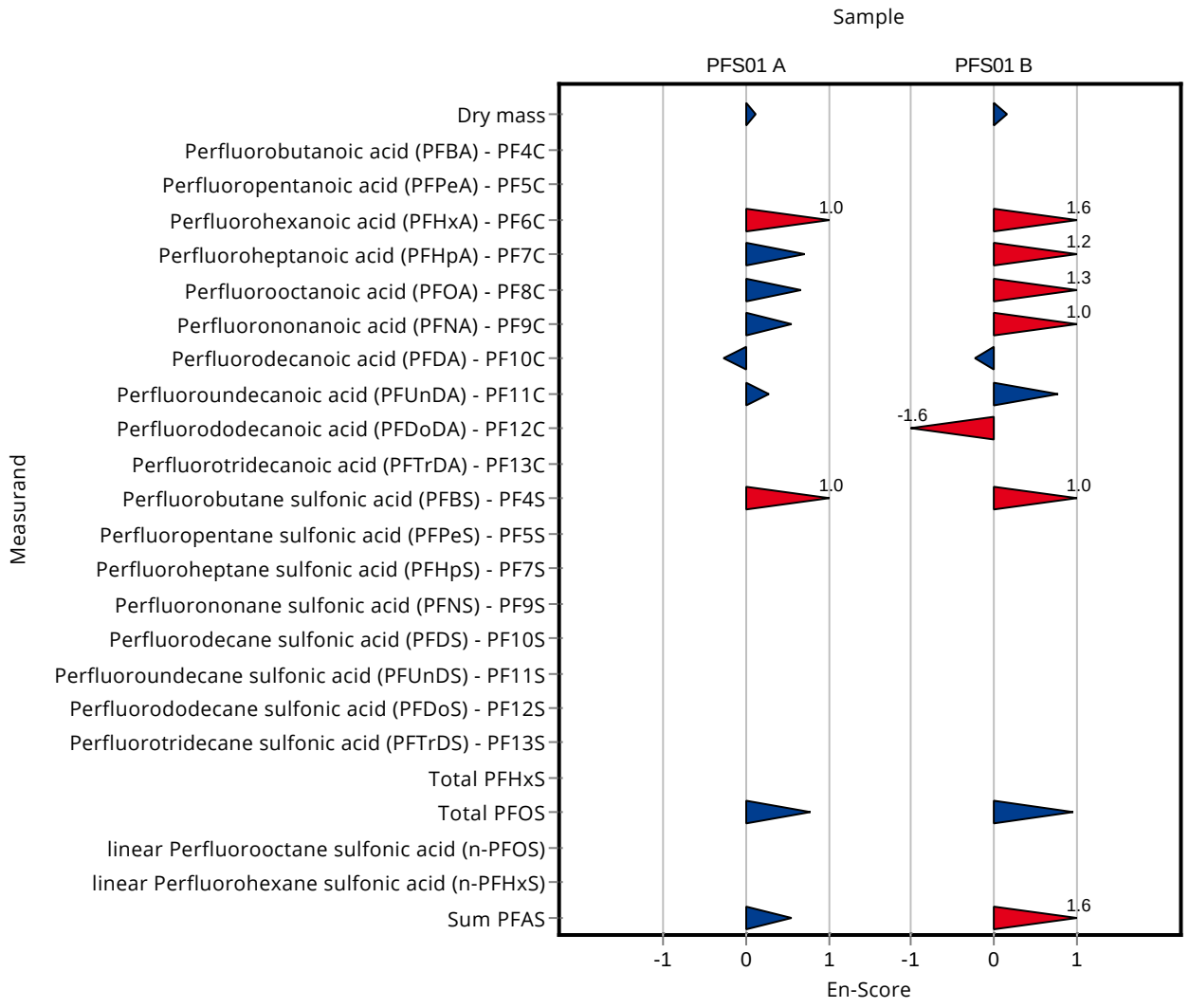
Labcode: LC0013

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	3.15 ± 0.8	0.186	305	1.32
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	0.418 ± 0.1	0.0849	197	1.00
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	0.545 ± 0.12	0.127	90.1	-0.24
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	0.54 ± 0.12	0.0944	154	0.77
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	0.156 ± 0.06	0.162	38.4	-1.62
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	0.22 ± 0.08	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	11.7 ± 4	0.895	353	1.05
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	4.53 ± 1	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	0.915 ± 0.35	-	-	-
Total PFHxS	µg/kg dm	- ± -	2.24 ± 0.8	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0013

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Total PFOS	µg/kg dm	1.96 ± 0.192	3.88 ± 1	0.393	198	0.95
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	1.88 ± 0.6	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	2.24 ± 0.8	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	69.9 ± 15	5.07	303	1.55



Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0014

Sample: PFS01A

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	94.8 ± 0.775	98.1 ± 10.8	1.9	103	1.73
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09 ± 0.281	2.576 ± 1.13	0.445	237	3.35
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3 ± 0.359	2.312 ± 0.92	0.597	178	1.70
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98 ± 0.355	4.784 ± 1.1	0.746	96.1	-0.26
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274 ± 0.0361	0.621 ± 0.24	0.0548	227	6.34
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724 ± 0.105	1.036 ± 0.31	0.203	143	1.54
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159 ± 0.0302	0.161 ± 0.04	0.0542	101	0.03
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355 ± 0.041	0.307 ± 0.11	0.0781	86.5	-0.62
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152 ± 0.0235	0.219 ± 0.07	0.038	144	1.76
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2 ± 0.0229	<0.1 (LOQ) ± -	0.0401	-	-
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	0.202 ± 0.06	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52 ± 0.326	1.69 ± 0.21	0.656	67	-1.27
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	0.06 ± 0.02	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	0.226 ± 0.06	-	-	-
Total PFOS	µg/kg dm	0.796 ± 0.0764	1.124 ± 0.37	0.159	141	2.06
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	0.63 ± 0.21	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0014

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	0.161 ± 0.04	-	-	-
Sum PFAS	µg/kg dm	13.5 ± 2.06	15.259 ± 5	3.77	113	0.48

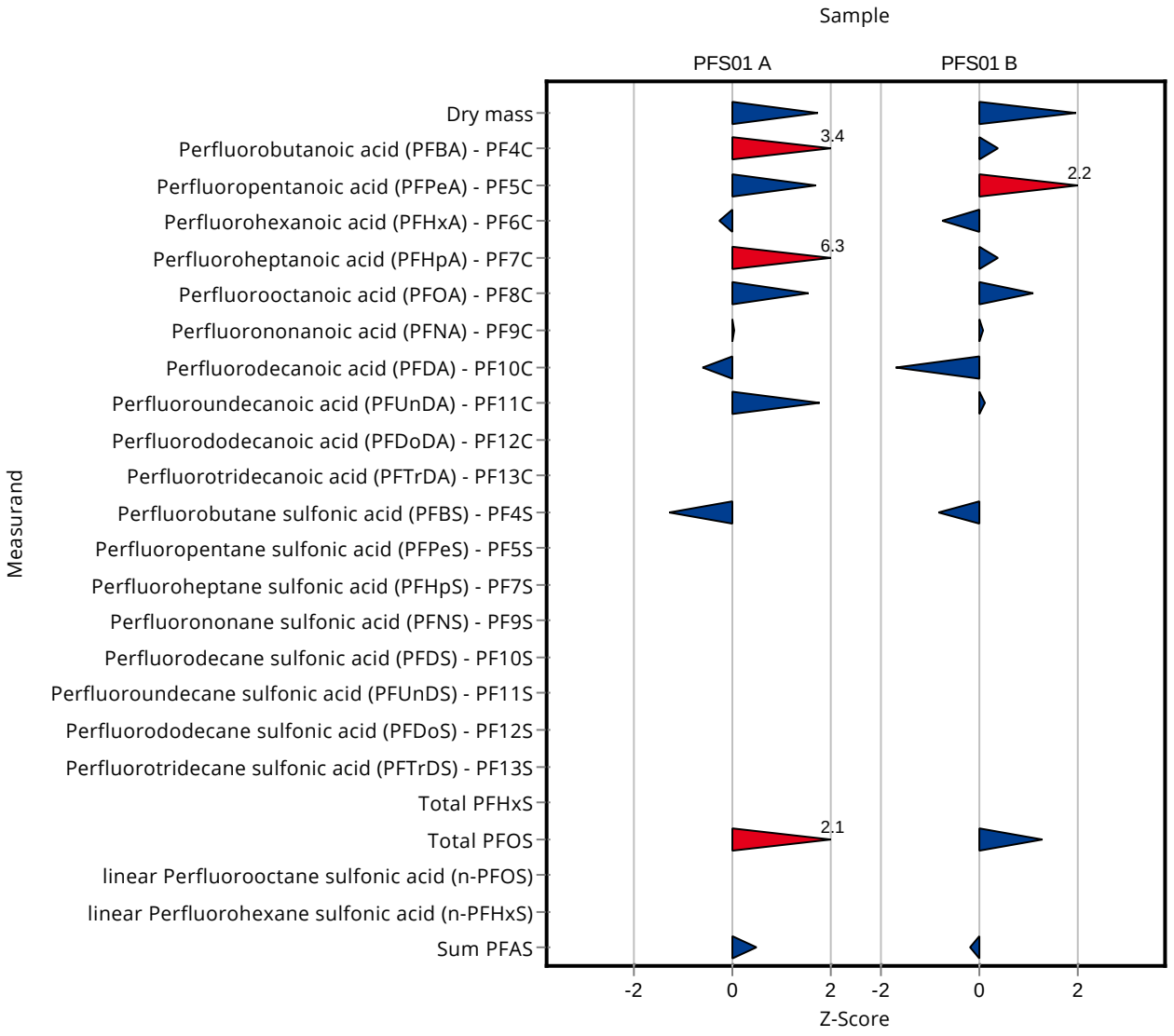
Sample: PFS01B

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	93.9 ± 0.941	97.5 ± 10.7	1.88	104	1.94
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28 ± 0.213	1.429 ± 0.63	0.384	112	0.39
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35 ± 0.338	2.658 ± 1.06	0.592	197	2.22
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12 ± 1.49	9.773 ± 2.25	2.88	81.6	-0.77
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368 ± 0.0704	0.41 ± 0.16	0.114	112	0.37
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	1.232 ± 0.37	0.186	119	1.07
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	0.219 ± 0.09	0.0849	103	0.08
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	0.388 ± 0.13	0.127	64.1	-1.71
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	0.36 ± 0.09	0.0944	103	0.11
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	<0.1 (LOQ) ± -	0.162	-	-
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	0.293 ± 0.11	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	2.566 ± 0.38	0.895	77.4	-0.84
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0014

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	0.364 ± 0.09	-	-	-
Total PFOS	µg/kg dm	1.96 ± 0.192	2.464 ± 0.81	0.393	126	1.28
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	1.823 ± 0.55	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	0.364 ± 0.09	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	22.16 ± 7.31	5.07	96.2	-0.17



Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0014

Sample: PFS01A

Parameter	Unit	Assigned value	± U (k=2)	Result	± U	Criterion	Recovery [%]	En-Score
Dry mass	%	94.8	± 0.775	98.1	± 10.8	1.9	103	0.15
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09	± 0.281	2.576	± 1.13	0.445	237	0.65
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3	± 0.359	2.312	± 0.92	0.597	178	0.54
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98	± 0.355	4.784	± 1.1	0.746	96.1	-0.09
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274	± 0.0361	0.621	± 0.24	0.0548	227	0.72
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724	± 0.105	1.036	± 0.31	0.203	143	0.50
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159	± 0.0302	0.161	± 0.04	0.0542	101	0.02
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355	± 0.041	0.307	± 0.11	0.0781	86.5	-0.21
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152	± 0.0235	0.219	± 0.07	0.038	144	0.47
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2	± 0.0229	<0.1 (LOQ)	± -	0.0401	-	-
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	-	± -	0.202	± 0.06	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52	± 0.326	1.69	± 0.21	0.656	67	-1.57
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	-	± -	<0.1 (LOQ)	± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	-	± -	<0.1 (LOQ)	± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	-	± -	<0.1 (LOQ)	± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0014

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	0.06 ± 0.02	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	0.226 ± 0.06	-	-	-
Total PFOS	µg/kg dm	0.796 ± 0.0764	1.124 ± 0.37	0.159	141	0.44
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	0.63 ± 0.21	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	0.161 ± 0.04	-	-	-
Sum PFAS	µg/kg dm	13.5 ± 2.06	15.259 ± 5	3.77	113	0.18

Sample: PFS01B

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Dry mass	%	93.9 ± 0.941	97.5 ± 10.7	1.88	104	0.17
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28 ± 0.213	1.429 ± 0.63	0.384	112	0.12
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35 ± 0.338	2.658 ± 1.06	0.592	197	0.61
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12 ± 1.49	9.773 ± 2.25	2.88	81.6	-0.47
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368 ± 0.0704	0.41 ± 0.16	0.114	112	0.13

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

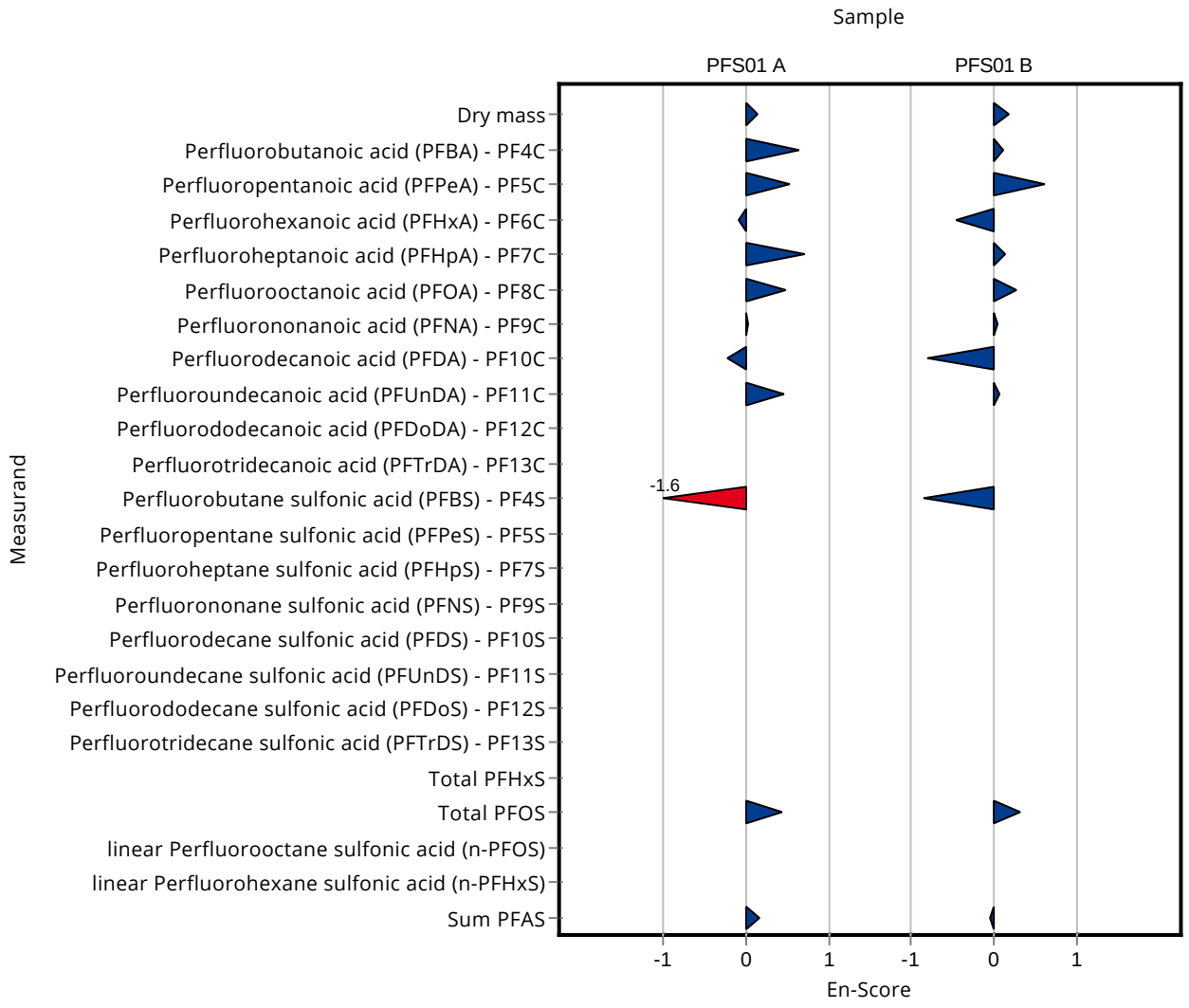
Labcode: LC0014

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	1.232 ± 0.37	0.186	119	0.27
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	0.219 ± 0.09	0.0849	103	0.04
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	0.388 ± 0.13	0.127	64.1	-0.81
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	0.36 ± 0.09	0.0944	103	0.05
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	<0.1 (LOQ) ± -	0.162	-	-
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	0.293 ± 0.11	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	2.566 ± 0.38	0.895	77.4	-0.84
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	0.364 ± 0.09	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0014

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Total PFOS	µg/kg dm	1.96 ± 0.192	2.464 ± 0.81	0.393	126	0.31
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	1.823 ± 0.55	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	0.364 ± 0.09	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	22.16 ± 7.31	5.07	96.2	-0.06



Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0015

Sample: PFS01A

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	94.8 ± 0.775	43.7 ± 2.62	1.9	46.1	-26.96
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09 ± 0.281	<5 (LOQ) ± -	0.445	-	-
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3 ± 0.359	<5 (LOQ) ± -	0.597	-	-
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98 ± 0.355	5.168 ± 1.29	0.746	104	0.26
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274 ± 0.0361	<5 (LOQ) ± -	0.0548	-	-
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724 ± 0.105	<5 (LOQ) ± -	0.203	-	-
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159 ± 0.0302	<5 (LOQ) ± -	0.0542	-	-
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355 ± 0.041	<5 (LOQ) ± -	0.0781	-	-
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152 ± 0.0235	<5 (LOQ) ± -	0.038	-	-
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2 ± 0.0229	<5 (LOQ) ± -	0.0401	-	-
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	<5 (LOQ) ± -	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52 ± 0.326	2.86 ± 0.715	0.656	113	0.51
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	<5 (LOQ) ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	<5 (LOQ) ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	<5 (LOQ) ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<5 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<5 (LOQ) ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<5 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<5 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	<5 (LOQ) ± -	-	-	-
Total PFOS	µg/kg dm	0.796 ± 0.0764	<5 (LOQ) ± -	0.159	-	-
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0015

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	13.5 ± 2.06	8.028 ± 2	3.77	59.7	-1.44

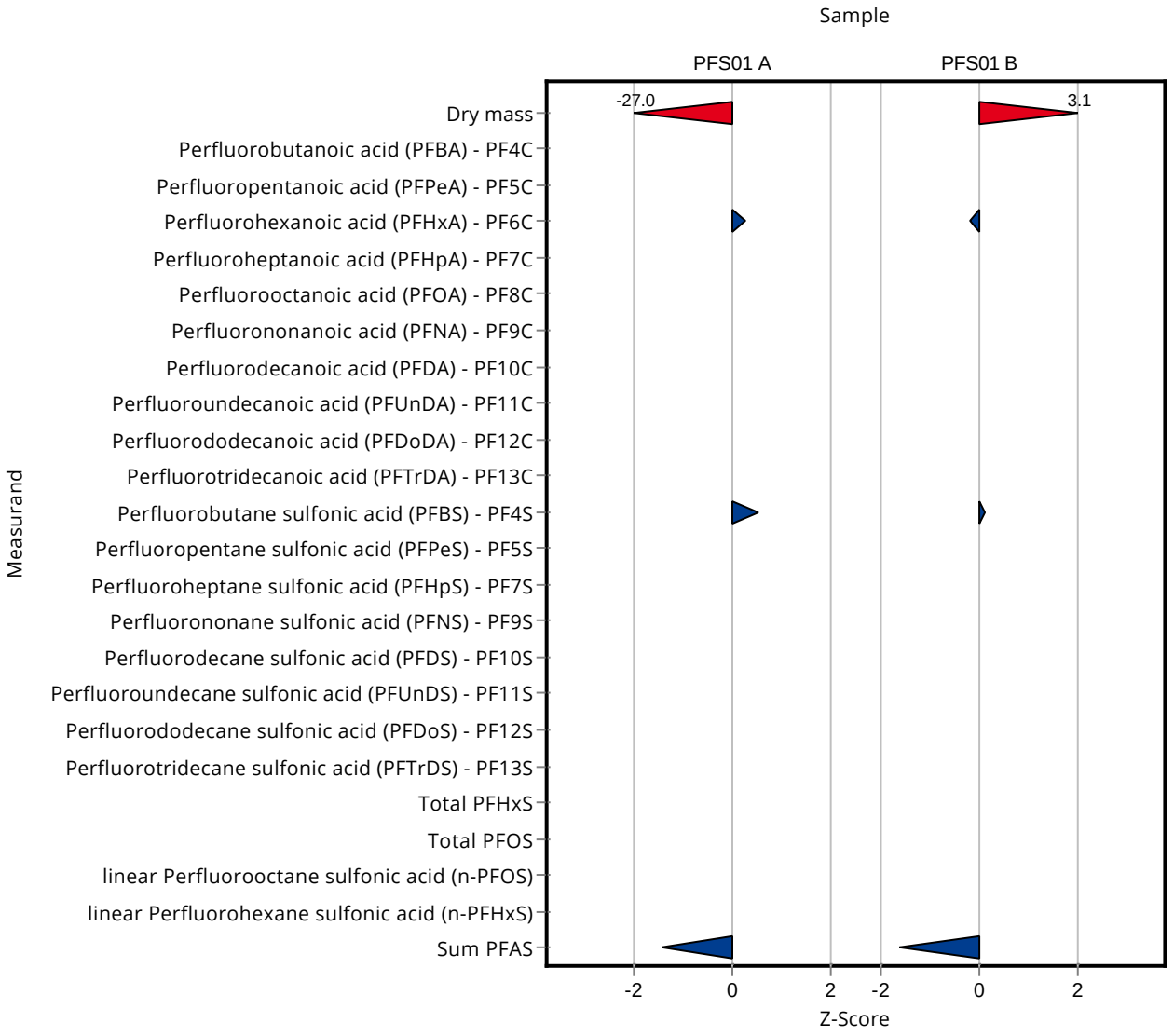
Sample: PFS01B

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	93.9 ± 0.941	99.7 ± 5.98	1.88	106	3.11
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28 ± 0.213	<5 (LOQ) ± -	0.384	-	-
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35 ± 0.338	<5 (LOQ) ± -	0.592	-	-
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12 ± 1.49	11.42 ± 2.85	2.88	95.3	-0.20
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368 ± 0.0704	<5 (LOQ) ± -	0.114	-	-
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	<5 (LOQ) ± -	0.186	-	-
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	<5 (LOQ) ± -	0.0849	-	-
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	<5 (LOQ) ± -	0.127	-	-
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	<5 (LOQ) ± -	0.0944	-	-
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	<5 (LOQ) ± -	0.162	-	-
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	<5 (LOQ) ± -	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	3.41 ± 0.852	0.895	103	0.11
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	<5 (LOQ) ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	<5 (LOQ) ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	<5 (LOQ) ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<5 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<5 (LOQ) ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0015

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<5 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<5 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	<5 (LOQ) ± -	-	-	-
Total PFOS	µg/kg dm	1.96 ± 0.192	<5 (LOQ) ± -	0.393	-	-
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	14.8 ± 3.7	5.07	64.2	-1.63



Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0015

Sample: PFS01A

Parameter	Unit	Assigned value	± U (k=2)	Result	± U	Criterion	Recovery [%]	En-Score
Dry mass	%	94.8	± 0.775	43.7	± 2.62	1.9	46.1	-9.65
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09	± 0.281	<5 (LOQ)	± -	0.445	-	-
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3	± 0.359	<5 (LOQ)	± -	0.597	-	-
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98	± 0.355	5.168	± 1.29	0.746	104	0.07
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274	± 0.0361	<5 (LOQ)	± -	0.0548	-	-
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724	± 0.105	<5 (LOQ)	± -	0.203	-	-
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159	± 0.0302	<5 (LOQ)	± -	0.0542	-	-
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355	± 0.041	<5 (LOQ)	± -	0.0781	-	-
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152	± 0.0235	<5 (LOQ)	± -	0.038	-	-
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2	± 0.0229	<5 (LOQ)	± -	0.0401	-	-
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	-	± -	<5 (LOQ)	± -	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52	± 0.326	2.86	± 0.715	0.656	113	0.23
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	-	± -	<5 (LOQ)	± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	-	± -	<5 (LOQ)	± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	-	± -	<5 (LOQ)	± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0015

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<5 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<5 (LOQ) ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<5 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<5 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	<5 (LOQ) ± -	-	-	-
Total PFOS	µg/kg dm	0.796 ± 0.0764	<5 (LOQ) ± -	0.159	-	-
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	13.5 ± 2.06	8.028 ± 2	3.77	59.7	-1.21

Sample: PFS01B

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Dry mass	%	93.9 ± 0.941	99.7 ± 5.98	1.88	106	0.49
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28 ± 0.213	<5 (LOQ) ± -	0.384	-	-
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35 ± 0.338	<5 (LOQ) ± -	0.592	-	-
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12 ± 1.49	11.42 ± 2.85	2.88	95.3	-0.10
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368 ± 0.0704	<5 (LOQ) ± -	0.114	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

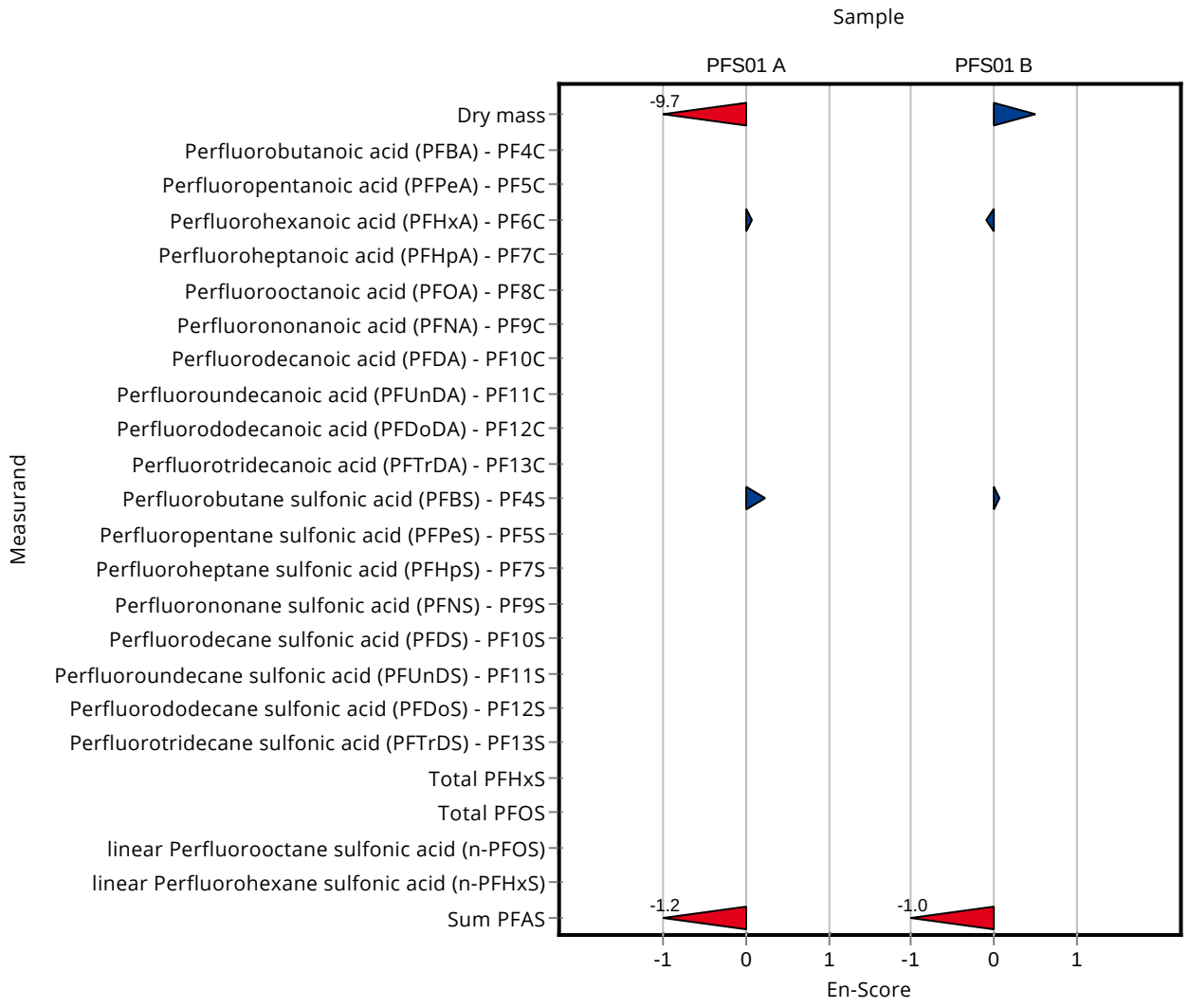
Labcode: LC0015

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	<5 (LOQ) ± -	0.186	-	-
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	<5 (LOQ) ± -	0.0849	-	-
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	<5 (LOQ) ± -	0.127	-	-
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	<5 (LOQ) ± -	0.0944	-	-
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	<5 (LOQ) ± -	0.162	-	-
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	<5 (LOQ) ± -	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	3.41 ± 0.852	0.895	103	0.05
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	<5 (LOQ) ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	<5 (LOQ) ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	<5 (LOQ) ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<5 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<5 (LOQ) ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<5 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<5 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	<5 (LOQ) ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0015

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Total PFOS	µg/kg dm	1.96 ± 0.192	<5 (LOQ) ± -	0.393	-	-
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	14.8 ± 3.7	5.07	64.2	-1.04



Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0016

Sample: PFS01A

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	94.8 ± 0.775	94.2 ± 5	1.9	99.3	-0.33
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09 ± 0.281	0.84 ± 0.15	0.445	77.4	-0.55
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3 ± 0.359	1.69 ± 0.34	0.597	130	0.66
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98 ± 0.355	5.15 ± 0.72	0.746	104	0.23
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274 ± 0.0361	0.24 ± 0.034	0.0548	87.6	-0.62
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724 ± 0.105	0.68 ± 0.16	0.203	93.9	-0.22
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159 ± 0.0302	<0.1 (LOQ) ± -	0.0542	-	-
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355 ± 0.041	0.29 ± 0.047	0.0781	81.7	-0.83
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152 ± 0.0235	0.15 ± 0.023	0.038	98.6	-0.06
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2 ± 0.0229	0.18 ± 0.027	0.0401	89.8	-0.51
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52 ± 0.326	2.86 ± 0.57	0.656	113	0.51
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFOS	µg/kg dm	0.796 ± 0.0764	0.82 ± 0.12	0.159	103	0.15
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0016

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	13.5 ± 2.06	12.9 ± 2.58	3.77	95.9	-0.15

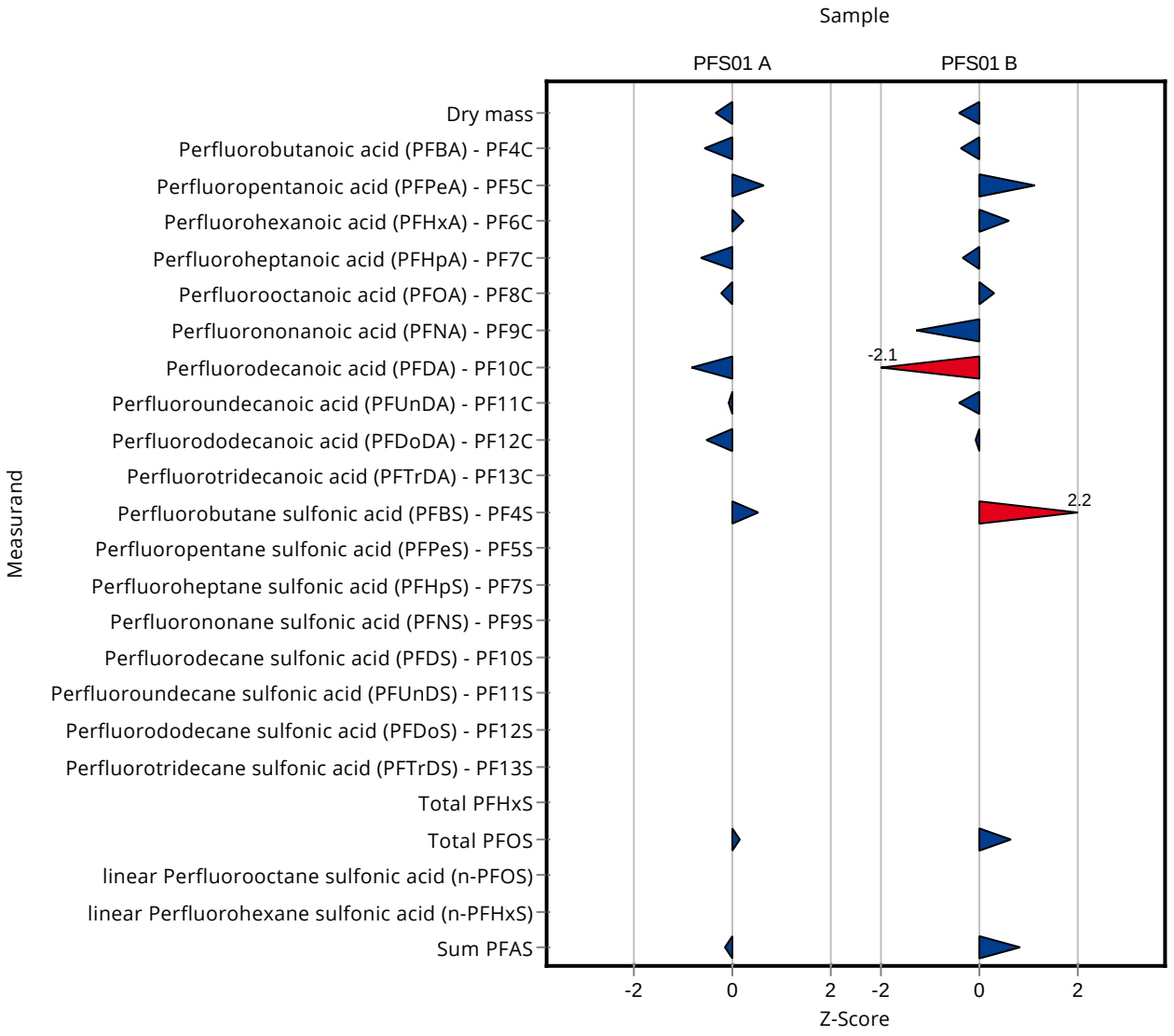
Sample: PFS01B

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	93.9 ± 0.941	93.1 ± 5	1.88	99.2	-0.40
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28 ± 0.213	1.14 ± 0.21	0.384	89.1	-0.36
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35 ± 0.338	2.01 ± 0.04	0.592	149	1.12
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12 ± 1.49	13.7 ± 1.9	2.88	114	0.60
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368 ± 0.0704	0.33 ± 0.046	0.114	89.8	-0.33
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	1.09 ± 0.25	0.186	106	0.31
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	0.105 ± 0.017	0.0849	49.5	-1.26
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	0.34 ± 0.055	0.127	56.2	-2.09
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	0.31 ± 0.047	0.0944	88.6	-0.42
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	0.39 ± 0.058	0.162	96.1	-0.10
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	0.39 ± 0.059	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	5.29 ± 1.1	0.895	160	2.21
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0016

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFOS	µg/kg dm	1.96 ± 0.192	2.21 ± 0.33	0.393	113	0.63
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	27.3 ± 5.46	5.07	118	0.84



Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0016

Sample: PFS01A

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Dry mass	%	94.8 ± 0.775	94.2 ± 5	1.9	99.3	-0.06
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09 ± 0.281	0.84 ± 0.15	0.445	77.4	-0.60
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3 ± 0.359	1.69 ± 0.34	0.597	130	0.51
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98 ± 0.355	5.15 ± 0.72	0.746	104	0.12
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274 ± 0.0361	0.24 ± 0.034	0.0548	87.6	-0.44
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724 ± 0.105	0.68 ± 0.16	0.203	93.9	-0.13
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159 ± 0.0302	<0.1 (LOQ) ± -	0.0542	-	-
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355 ± 0.041	0.29 ± 0.047	0.0781	81.7	-0.63
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152 ± 0.0235	0.15 ± 0.023	0.038	98.6	-0.04
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2 ± 0.0229	0.18 ± 0.027	0.0401	89.8	-0.35
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52 ± 0.326	2.86 ± 0.57	0.656	113	0.28
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0016

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFOS	µg/kg dm	0.796 ± 0.0764	0.82 ± 0.12	0.159	103	0.09
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	13.5 ± 2.06	12.9 ± 2.58	3.77	95.9	-0.10

Sample: PFS01B

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Dry mass	%	93.9 ± 0.941	93.1 ± 5	1.88	99.2	-0.08
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28 ± 0.213	1.14 ± 0.21	0.384	89.1	-0.30
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35 ± 0.338	2.01 ± 0.04	0.592	149	1.91
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12 ± 1.49	13.7 ± 1.9	2.88	114	0.42
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368 ± 0.0704	0.33 ± 0.046	0.114	89.8	-0.32

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

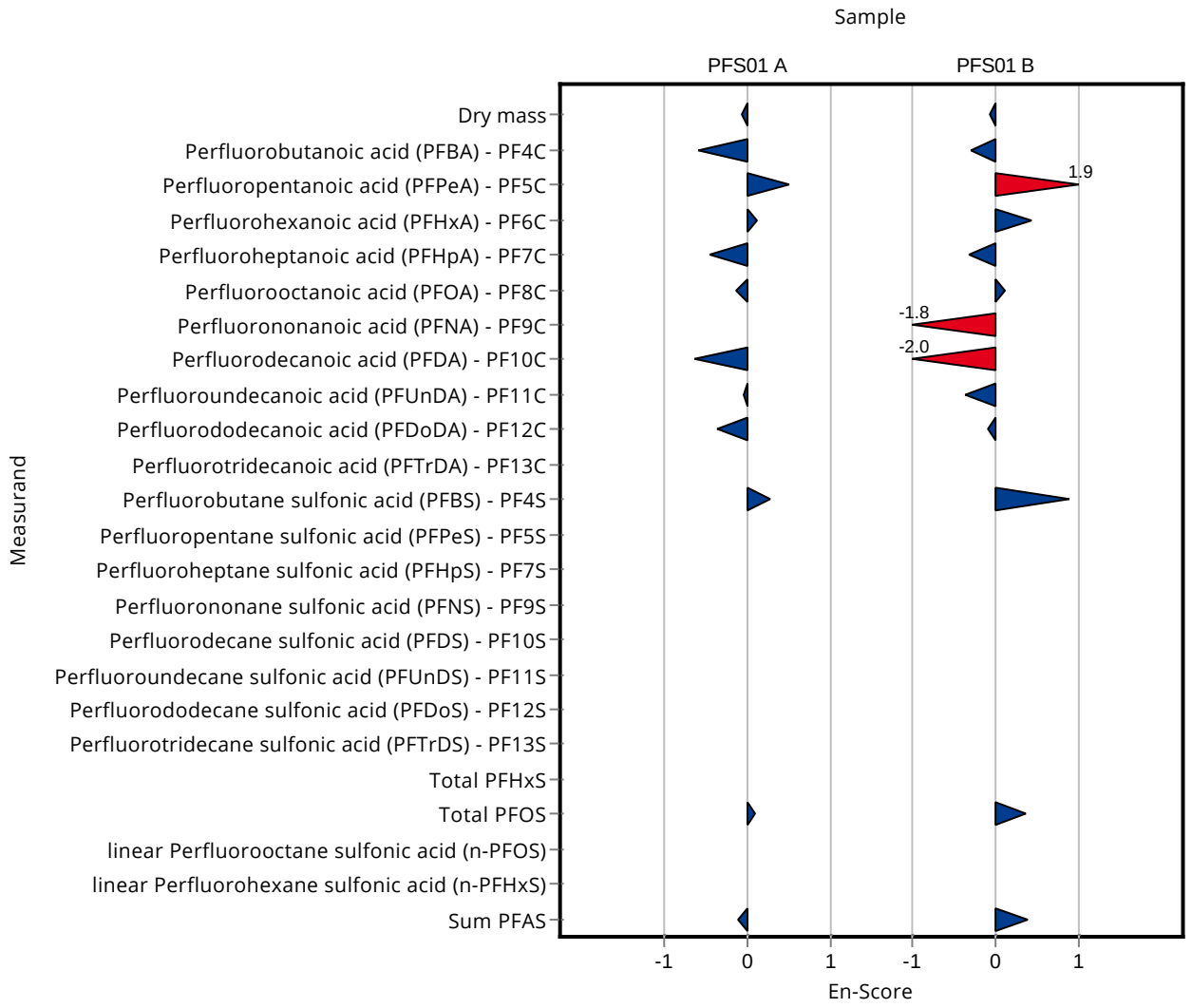
Labcode: LC0016

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	1.09 ± 0.25	0.186	106	0.11
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	0.105 ± 0.017	0.0849	49.5	-1.85
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	0.34 ± 0.055	0.127	56.2	-2.04
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	0.31 ± 0.047	0.0944	88.6	-0.37
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	0.39 ± 0.058	0.162	96.1	-0.10
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	0.39 ± 0.059	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	5.29 ± 1.1	0.895	160	0.88
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-
Total PFHxS	µg/kg dm	- ± -	<0.1 (LOQ) ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0016

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Total PFOS	µg/kg dm	1.96 ± 0.192	2.21 ± 0.33	0.393	113	0.36
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	27.3 ± 5.46	5.07	118	0.38



Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0017

Sample: PFS01A

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	94.8 ± 0.775	93.4 ± 1.5	1.9	98.5	-0.75
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09 ± 0.281	0.438 ± 0.022	0.445	40.4	-1.45
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3 ± 0.359	6.694 ± 0.157	0.597	516	9.04
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98 ± 0.355	4.166 ± 0.16	0.746	83.7	-1.08
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274 ± 0.0361	0.228 ± 0.012	0.0548	83.3	-0.84
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724 ± 0.105	0.727 ± 0.027	0.203	100	0.01
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159 ± 0.0302	0.191 ± 0.007	0.0542	120	0.58
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355 ± 0.041	0.405 ± 0.022	0.0781	114	0.64
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152 ± 0.0235	0.319 ± 0.015	0.038	210	4.39
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2 ± 0.0229	0.377 ± 0.021	0.0401	188	4.41
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	0.213 ± 0.011	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52 ± 0.326	4.285 ± 0.159	0.656	170	2.68
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	0.145 ± 0.006	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	<0.5 (LOQ) ± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	<0.5 (LOQ) ± -	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.52 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	0.159 ± 0.007	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.52 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	0.176 ± 0.004	-	-	-
Total PFHxS	µg/kg dm	- ± -	<0.54 (LOQ) ± -	-	-	-
Total PFOS	µg/kg dm	0.796 ± 0.0764	0.631 ± 0.018	0.159	79.2	-1.04
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0017

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	13.5 ± 2.06	19.155 ± 0.647	3.77	142	1.51

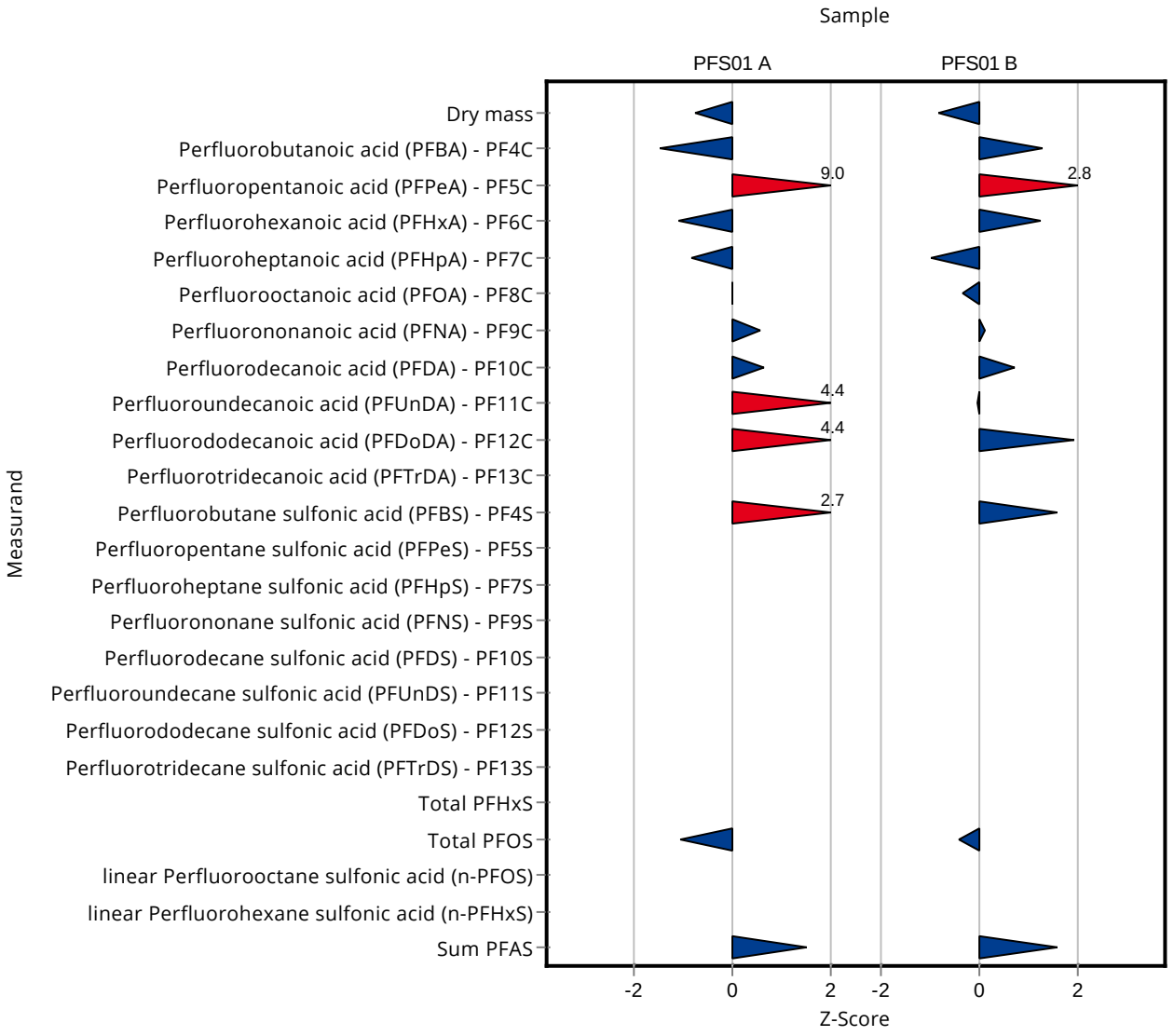
Sample: PFS01B

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	93.9 ± 0.941	92.3 ± 1.5	1.88	98.3	-0.83
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28 ± 0.213	1.765 ± 0.138	0.384	138	1.26
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35 ± 0.338	3.018 ± 0.1	0.592	224	2.82
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12 ± 1.49	15.496 ± 0.322	2.88	129	1.22
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368 ± 0.0704	0.258 ± 0.012	0.114	70.2	-0.96
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	0.971 ± 0.019	0.186	94	-0.33
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	0.22 ± 0.01	0.0849	104	0.09
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	0.697 ± 0.022	0.127	115	0.72
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	0.346 ± 0.024	0.0944	98.9	-0.04
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	0.714 ± 0.037	0.162	176	1.90
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	0.232 ± 0.013	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	4.726 ± 0.126	0.895	143	1.58
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	0.098 ± 0.0058	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	0.096 ± 0.0022	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	0.082 ± 0.003	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.52 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	0.266 ± 0.015	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0017

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.52 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	0.109 ± 0.0041	-	-	-
Total PFHxS	µg/kg dm	- ± -	0.104 ± 0.0035	-	-	-
Total PFOS	µg/kg dm	1.96 ± 0.192	1.8 ± 0.065	0.393	91.7	-0.42
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	30.997 ± 0.922	5.07	135	1.57



Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0017

Sample: PFS01A

Parameter	Unit	Assigned value	± U (k=2)	Result	± U	Criterion	Recovery [%]	En-Score
Dry mass	%	94.8	± 0.775	93.4	± 1.5	1.9	98.5	-0.46
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09	± 0.281	0.438	± 0.022	0.445	40.4	-2.28
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3	± 0.359	6.694	± 0.157	0.597	516	11.31
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98	± 0.355	4.166	± 0.16	0.746	83.7	-1.69
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274	± 0.0361	0.228	± 0.012	0.0548	83.3	-1.06
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724	± 0.105	0.727	± 0.027	0.203	100	0.02
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159	± 0.0302	0.191	± 0.007	0.0542	120	0.95
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355	± 0.041	0.405	± 0.022	0.0781	114	0.83
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152	± 0.0235	0.319	± 0.015	0.038	210	4.38
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2	± 0.0229	0.377	± 0.021	0.0401	188	3.69
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	-	± -	0.213	± 0.011	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52	± 0.326	4.285	± 0.159	0.656	170	3.87
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	-	± -	0.145	± 0.006	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	-	± -	<0.5 (LOQ)	± -	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	-	± -	<0.5 (LOQ)	± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0017

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.52 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	0.159 ± 0.007	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.52 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	0.176 ± 0.004	-	-	-
Total PFHxS	µg/kg dm	- ± -	<0.54 (LOQ) ± -	-	-	-
Total PFOS	µg/kg dm	0.796 ± 0.0764	0.631 ± 0.018	0.159	79.2	-1.96
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	13.5 ± 2.06	19.155 ± 0.647	3.77	142	2.34

Sample: PFS01B

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Dry mass	%	93.9 ± 0.941	92.3 ± 1.5	1.88	98.3	-0.50
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28 ± 0.213	1.765 ± 0.138	0.384	138	1.39
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35 ± 0.338	3.018 ± 0.1	0.592	224	4.26
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12 ± 1.49	15.496 ± 0.322	2.88	129	2.17
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368 ± 0.0704	0.258 ± 0.012	0.114	70.2	-1.47

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

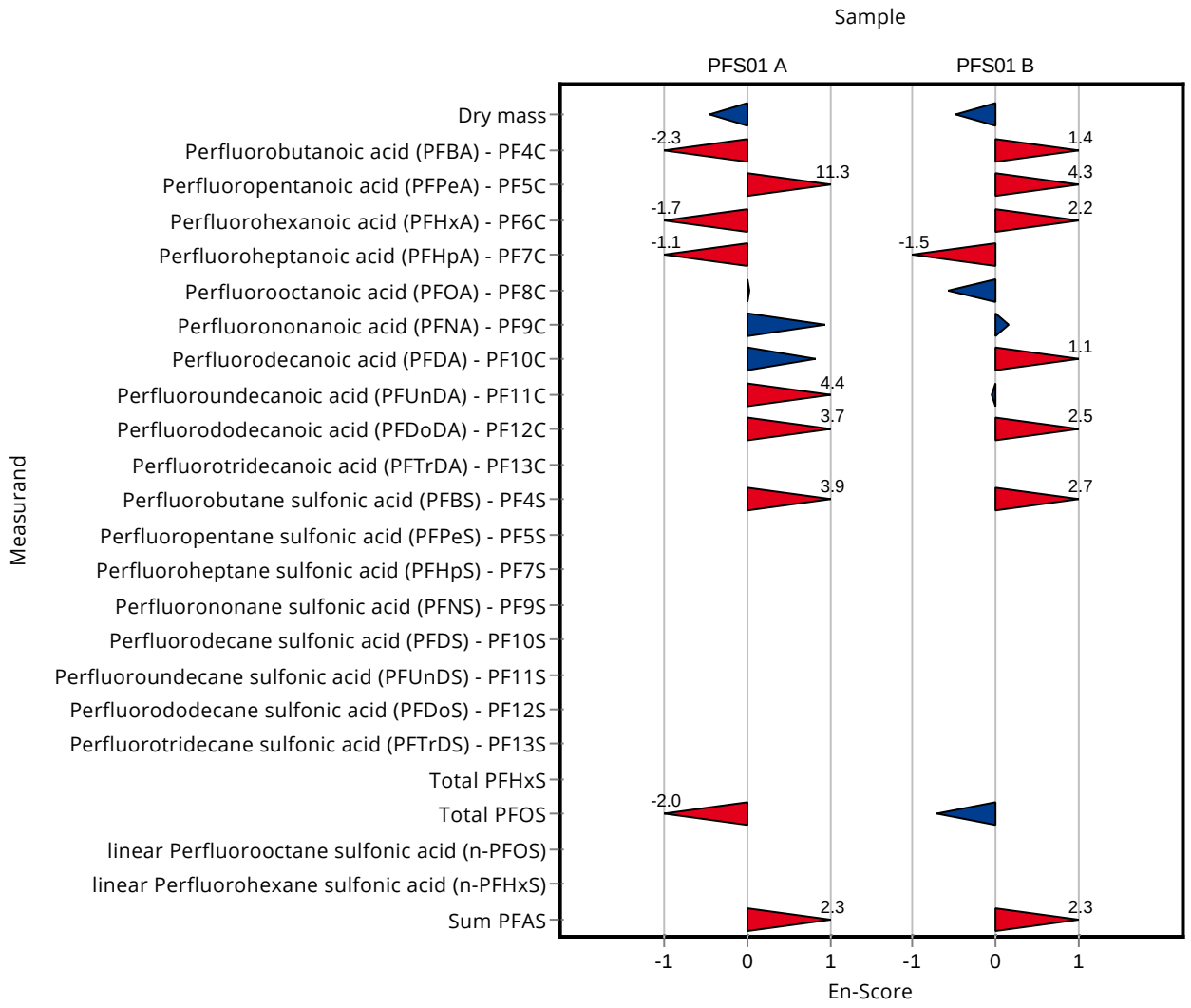
Labcode: LC0017

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	0.971 ± 0.019	0.186	94	-0.58
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	0.22 ± 0.01	0.0849	104	0.15
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	0.697 ± 0.022	0.127	115	1.12
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	0.346 ± 0.024	0.0944	98.9	-0.05
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	0.714 ± 0.037	0.162	176	2.53
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	0.232 ± 0.013	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	4.726 ± 0.126	0.895	143	2.67
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	0.098 ± 0.0058	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	0.096 ± 0.0022	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	0.082 ± 0.003	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	<0.52 (LOQ) ± -	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	0.266 ± 0.015	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	<0.52 (LOQ) ± -	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	0.109 ± 0.0041	-	-	-
Total PFHxS	µg/kg dm	- ± -	0.104 ± 0.0035	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0017

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Total PFOS	µg/kg dm	1.96 ± 0.192	1.8 ± 0.065	0.393	91.7	-0.70
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	30.997 ± 0.922	5.07	135	2.34



Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0018

Sample: PFS01A

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	94.8 ± 0.775	94.58 ± 5.67	1.9	99.7	-0.13
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09 ± 0.281	0.7582 ± 0.341	0.445	69.9	-0.73
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3 ± 0.359	0.8918 ± 0.312	0.597	68.7	-0.68
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98 ± 0.355	3.8295 ± 1.34	0.746	77	-1.54
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274 ± 0.0361	0.1745 ± 0.0611	0.0548	63.7	-1.81
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724 ± 0.105	0.5619 ± 0.1966	0.203	77.6	-0.80
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159 ± 0.0302	0.0994 ± 0.0348	0.0542	62.4	-1.11
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355 ± 0.041	0.2238 ± 0.0671	0.0781	63	-1.68
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152 ± 0.0235	0.0855 ± 0.0257	0.038	56.2	-1.75
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2 ± 0.0229	0.1567 ± 0.047	0.0401	78.2	-1.09
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	0.0658 ± 0.023	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52 ± 0.326	2.9717 ± 1.04	0.656	118	0.68
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	- ± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	0.0767 ± 0.0268	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	0.0307 ± 0.0107	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	0.0485 ± 0.0243	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	0.0393 ± 0.0138	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	0.037 ± 0.0129	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	0.0558 ± 0.0195	-	-	-
Total PFHxS	µg/kg dm	- ± -	0.065 ± 0.0227	-	-	-
Total PFOS	µg/kg dm	0.796 ± 0.0764	0.6383 ± 0.223	0.159	80.2	-0.99
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0018

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	13.5 ± 2.06	10.8101 ± 5.405	3.77	80.3	-0.70

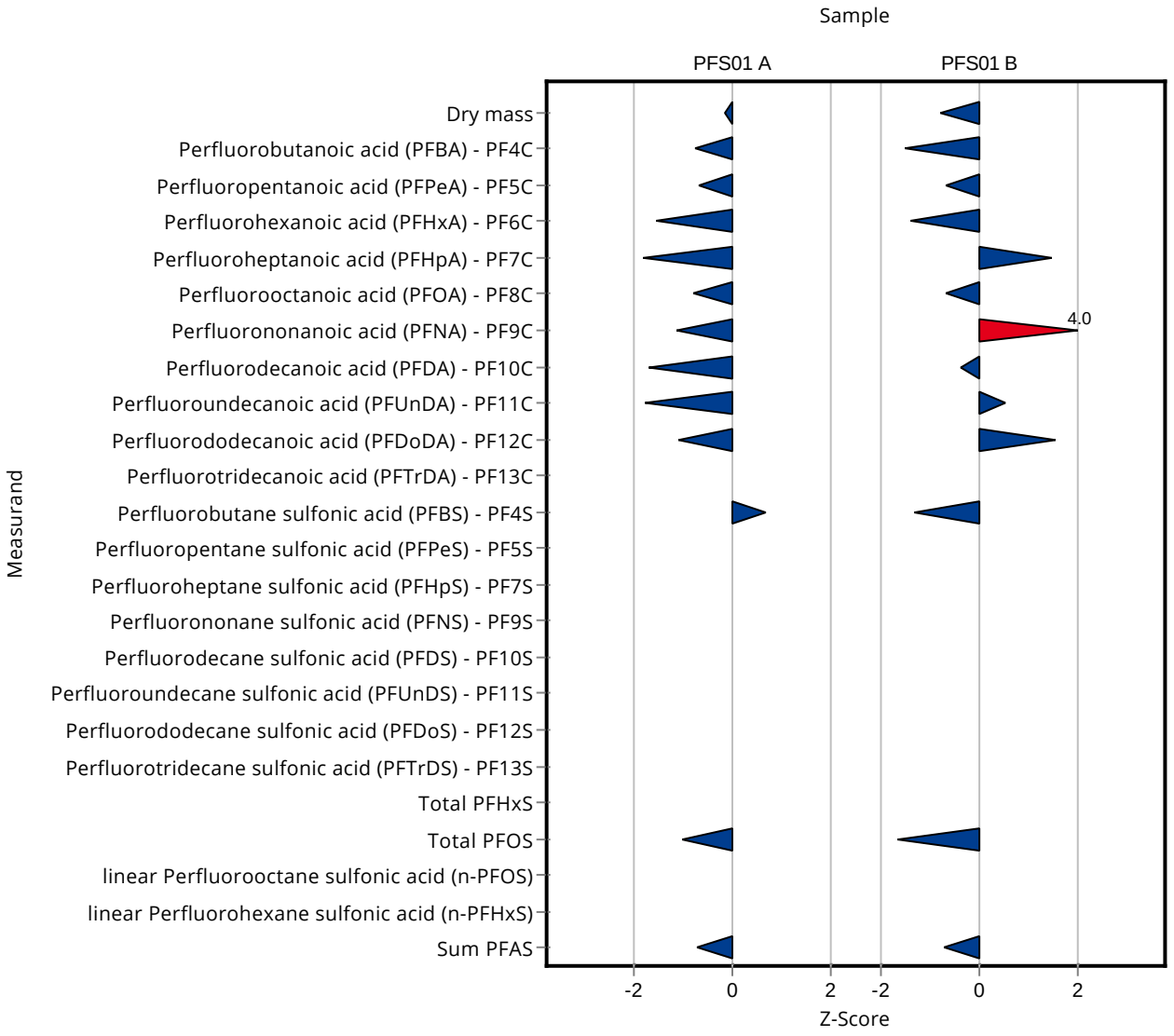
Sample: PFS01B

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Dry mass	%	93.9 ± 0.941	92.35 ± 9.23	1.88	98.4	-0.80
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28 ± 0.213	0.6998 ± 0.35	0.384	54.7	-1.51
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35 ± 0.338	0.9333 ± 0.467	0.592	69.3	-0.70
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12 ± 1.49	7.959 ± 3.98	2.88	66.4	-1.40
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368 ± 0.0704	0.5347 ± 0.267	0.114	145	1.47
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	0.9053 ± 0.453	0.186	87.7	-0.69
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	0.549 ± 0.275	0.0849	259	3.97
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	0.5569 ± 0.279	0.127	92	-0.38
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	0.3974 ± 0.199	0.0944	114	0.50
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	0.658 ± 0.329	0.162	162	1.55
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	0.369 ± 0.221	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	2.13 ± 1.065	0.895	64.3	-1.32
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	0.1019 ± 0.0509	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	0.3177 ± 0.159	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	0.1434 ± 0.0717	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	0.5092 ± 0.255	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	0.4263 ± 0.213	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01

Labcode: LC0018

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	z-Score
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	0.2402 ± 0.12	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	0.4821 ± 0.241	-	-	-
Total PFHxS	µg/kg dm	- ± -	0.2262 ± 0.113	-	-	-
Total PFOS	µg/kg dm	1.96 ± 0.192	1.3111 ± 0.656	0.393	66.8	-1.66
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	19.4505 ± 11.67	5.07	84.4	-0.71



Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0018

Sample: PFS01A

Parameter	Unit	Assigned value	± U (k=2)	Result	± U	Criterion	Recovery [%]	En-Score
Dry mass	%	94.8	± 0.775	94.58	± 5.67	1.9	99.7	-0.02
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.09	± 0.281	0.7582	± 0.341	0.445	69.9	-0.44
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.3	± 0.359	0.8918	± 0.312	0.597	68.7	-0.56
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	4.98	± 0.355	3.8295	± 1.34	0.746	77	-0.42
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.274	± 0.0361	0.1745	± 0.0611	0.0548	63.7	-0.78
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	0.724	± 0.105	0.5619	± 0.1966	0.203	77.6	-0.40
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.159	± 0.0302	0.0994	± 0.0348	0.0542	62.4	-0.79
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.355	± 0.041	0.2238	± 0.0671	0.0781	63	-0.94
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.152	± 0.0235	0.0855	± 0.0257	0.038	56.2	-1.18
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.2	± 0.0229	0.1567	± 0.047	0.0401	78.2	-0.45
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	-	± -	0.0658	± 0.023	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	2.52	± 0.326	2.9717	± 1.04	0.656	118	0.21
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	-	± -	-	± -	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	-	± -	0.0767	± 0.0268	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	-	± -	0.0307	± 0.0107	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0018

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	0.0485 ± 0.0243	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	0.0393 ± 0.0138	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	0.037 ± 0.0129	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	0.0558 ± 0.0195	-	-	-
Total PFHxS	µg/kg dm	- ± -	0.065 ± 0.0227	-	-	-
Total PFOS	µg/kg dm	0.796 ± 0.0764	0.6383 ± 0.223	0.159	80.2	-0.35
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	13.5 ± 2.06	10.8101 ± 5.405	3.77	80.3	-0.24

Sample: PFS01B

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Dry mass	%	93.9 ± 0.941	92.35 ± 9.23	1.88	98.4	-0.08
Perfluorobutanoic acid (PFBA) - PF4C	µg/kg dm	1.28 ± 0.213	0.6998 ± 0.35	0.384	54.7	-0.79
Perfluoropentanoic acid (PFPeA) - PF5C	µg/kg dm	1.35 ± 0.338	0.9333 ± 0.467	0.592	69.3	-0.42
Perfluorohexanoic acid (PFHxA) - PF6C	µg/kg dm	12 ± 1.49	7.959 ± 3.98	2.88	66.4	-0.50
Perfluoroheptanoic acid (PFHpA) - PF7C	µg/kg dm	0.368 ± 0.0704	0.5347 ± 0.267	0.114	145	0.31

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

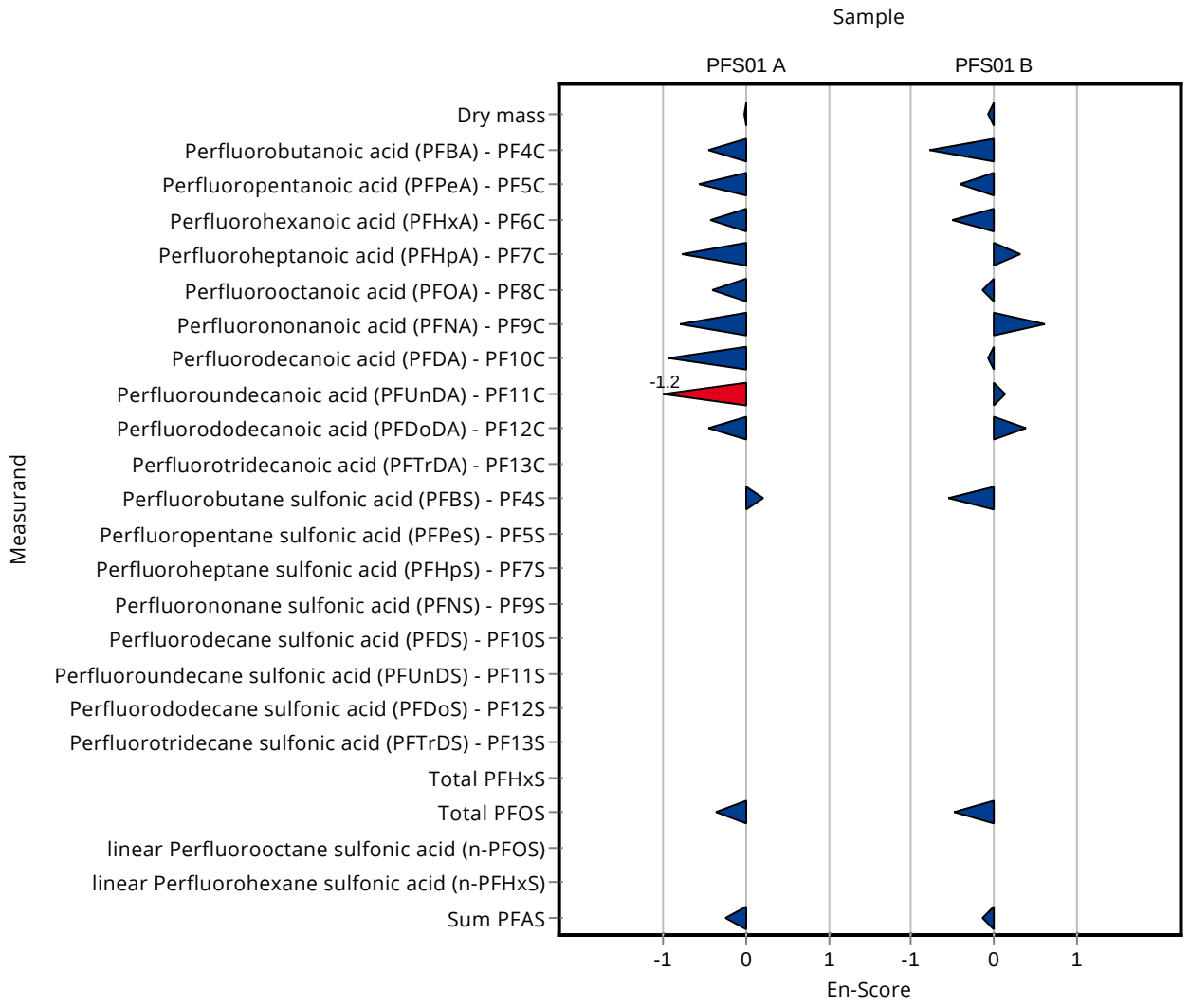
Labcode: LC0018

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Perfluorooctanoic acid (PFOA) - PF8C	µg/kg dm	1.03 ± 0.1	0.9053 ± 0.453	0.186	87.7	-0.14
Perfluorononanoic acid (PFNA) - PF9C	µg/kg dm	0.212 ± 0.0469	0.549 ± 0.275	0.0849	259	0.61
Perfluorodecanoic acid (PFDA) - PF10C	µg/kg dm	0.605 ± 0.069	0.5569 ± 0.279	0.127	92	-0.09
Perfluoroundecanoic acid (PFUnDA) - PF11C	µg/kg dm	0.35 ± 0.0519	0.3974 ± 0.199	0.0944	114	0.12
Perfluorododecanoic acid (PFDoDA) - PF12C	µg/kg dm	0.406 ± 0.097	0.658 ± 0.329	0.162	162	0.38
Perfluorotridecanoic acid (PFTrDA) - PF13C	µg/kg dm	- ± -	0.369 ± 0.221	-	-	-
Perfluorobutane sulfonic acid (PFBS) - PF4S	µg/kg dm	3.31 ± 0.465	2.13 ± 1.065	0.895	64.3	-0.54
Perfluoropentane sulfonic acid (PFPeS) - PF5S	µg/kg dm	- ± -	0.1019 ± 0.0509	-	-	-
Perfluoroheptane sulfonic acid (PFHpS) - PF7S	µg/kg dm	- ± -	0.3177 ± 0.159	-	-	-
Perfluorononane sulfonic acid (PFNS) - PF9S	µg/kg dm	- ± -	0.1434 ± 0.0717	-	-	-
Perfluorodecane sulfonic acid (PFDS) - PF10S	µg/kg dm	- ± -	0.5092 ± 0.255	-	-	-
Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	µg/kg dm	- ± -	0.4263 ± 0.213	-	-	-
Perfluorododecane sulfonic acid (PFDoS) - PF12S	µg/kg dm	- ± -	0.2402 ± 0.12	-	-	-
Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	µg/kg dm	- ± -	0.4821 ± 0.241	-	-	-
Total PFHxS	µg/kg dm	- ± -	0.2262 ± 0.113	-	-	-

Summary of results Per- and polyfluoroalkyl substances in solid samples - PFS01 - En-Score

Labcode: LC0018

Parameter	Unit	Assigned value ± U (k=2)	Result ± U	Criterion	Recovery [%]	En-Score
Total PFOS	µg/kg dm	1.96 ± 0.192	1.3111 ± 0.656	0.393	66.8	-0.49
linear Perfluorooctane sulfonic acid (n-PFOS)	µg/kg dm	- ± -	- ± -	-	-	-
linear Perfluorohexane sulfonic acid (n-PFHxS)	µg/kg dm	- ± -	- ± -	-	-	-
Sum PFAS	µg/kg dm	23 ± 2.86	19.4505 ± 11.67	5.07	84.4	-0.15



E9. Methodenübersicht / Overview of methods

LabCode	Sample	Dry mass	Perfluorobutanoic acid (PFBA) - PF4C	Perfluoropentanoic acid (PFPeA) - PF5C	Perfluorohexanoic acid (PFHxA) - PF6C	Perfluoroheptanoic acid (PFHpA) - PF7C
LC0001	PFS01A	DIN 38414-2; (S2)	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0002	PFS01A	DS 204;	DIN 38414-14 mod.; LC-MS/MS	DIN 38414-14 mod.; LC-MS/MS	DIN 38414-14 mod.; LC-MS/MS	DIN 38414-14 mod.; LC-MS/MS
LC0003	PFS01A	EN 14346; method A		DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS
LC0004	PFS01A	EN 14346;	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS
LC0005	PFS01A	IR; Smart6	LC-MS/MS;	LC-MS/MS;	LC-MS/MS;	LC-MS/MS;
LC0006	PFS01A	dry balance;	DIN 38414-14; LC-MS	DIN 38414-14; LC-MS	DIN 38414-14; LC-MS	DIN 38414-14; LC-MS
LC0007	PFS01A					
LC0008	PFS01A	ISO 11465;	LC-MS/MS; QUECHERS	LC-MS/MS; QUECHERS	LC-MS/MS; QUECHERS	LC-MS/MS; QUECHERS
LC0009	PFS01A	IR; infrared-halogen dryer 105°C	DI-LC-MS/MS; shaking extraction	DI-LC-MS/MS; shaking extraction	DI-LC-MS/MS; shaking extraction	DI-LC-MS/MS; shaking extraction
LC0010	PFS01A	EN 14346;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0011	PFS01A	100% DM f. calc.;	LC-MS/MS; in house method	LC-MS/MS; in house method	LC-MS/MS; in house method	LC-MS/MS; in house method
LC0012	PFS01A	EN 14346;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0013	PFS01A	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0014	PFS01A	EN 12880;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0015	PFS01A	EN 14346;	DIN 38414-14; (S14)	DIN 38414-14; (S14)	DIN 38414-14; (S14)	DIN 38414-14; (S14)
LC0016	PFS01A	EN 14346;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0017	PFS01A	EPA 1633; SOP	EPA 1633; SOP	EPA 1633; SOP	EPA 1633; SOP	EPA 1633; SOP
LC0018	PFS01A	DIN 38414-22;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;

LabCode	Sample	Perfluorooctanoic acid (PFOA) - PF8C	Perfluorononanoic acid (PFNA) - PF9C	Perfluorodecanoic acid (PFDA) - PF10C	Perfluoroundecanoic acid (PFUnDA) - PF11C	Perfluorododecanoic acid (PFDoDA) - PF12C
LC0001	PFS01A	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0002	PFS01A	DIN 38414-14 mod.; LC-MS/MS	DIN 38414-14 mod.; LC-MS/MS	DIN 38414-14 mod.; LC-MS/MS	DIN 38414-14 mod.; LC-MS/MS	DIN 38414-14 mod.; LC-MS/MS
LC0003	PFS01A	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS
LC0004	PFS01A	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS
LC0005	PFS01A	LC-MS/MS;	LC-MS/MS;	LC-MS/MS;	LC-MS/MS;	LC-MS/MS;
LC0006	PFS01A	DIN 38414-14; LC-MS	DIN 38414-14; LC-MS	DIN 38414-14; LC-MS		
LC0007	PFS01A					
LC0008	PFS01A	LC-MS/MS; QUECHERS	LC-MS/MS; QUECHERS	LC-MS/MS; QUECHERS	LC-MS/MS; QUECHERS	LC-MS/MS; QUECHERS
LC0009	PFS01A	DI-LC-MS/MS; shaking extraction	DI-LC-MS/MS; shaking extraction	DI-LC-MS/MS; shaking extraction	DI-LC-MS/MS; shaking extraction	DI-LC-MS/MS; shaking extraction
LC0010	PFS01A	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0011	PFS01A	LC-MS/MS; in house method	LC-MS/MS; in house method	LC-MS/MS; in house method	LC-MS/MS; in house method	LC-MS/MS; in house method
LC0012	PFS01A	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0013	PFS01A	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0014	PFS01A	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0015	PFS01A	DIN 38414-14; (S14)	DIN 38414-14; (S14)	DIN 38414-14; (S14)	DIN 38414-14; (S14)	DIN 38414-14; (S14)
LC0016	PFS01A	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0017	PFS01A	EPA 1633; SOP	EPA 1633; SOP	EPA 1633; SOP	EPA 1633; SOP	EPA 1633; SOP
LC0018	PFS01A	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;

LabCode	Sample	Perfluorotridecanoic acid (PFTrDA) - PF13C	Perfluorobutane sulfonic acid (PFBS) - PF4S	Perfluoropentane sulfonic acid (PFPeS) - PF5S	Perfluoroheptane sulfonic acid (PFHpS) - PF7S	Perfluorononane sulfonic acid (PFNS) - PF9S
LC0001	PFS01A	DIN 38414-14;	DIN 38414-14;		DIN 38414-14;	
LC0002	PFS01A	DIN 38414-14 mod.; LC-MS/MS	DIN 38414-14 mod.; LC-MS/MS	DIN 38414-14 mod.; LC-MS/MS	DIN 38414-14 mod.; LC-MS/MS	DIN 38414-14 mod.; LC-MS/MS
LC0003	PFS01A	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS
LC0004	PFS01A	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS
LC0005	PFS01A	LC-MS/MS;	LC-MS/MS;	LC-MS/MS;	LC-MS/MS;	LC-MS/MS;
LC0006	PFS01A		DIN 38414-14; LC-MS			
LC0007	PFS01A					
LC0008	PFS01A	LC-MS/MS; QUECHERS	LC-MS/MS; QUECHERS	LC-MS/MS; QUECHERS	LC-MS/MS; QUECHERS	LC-MS/MS; QUECHERS
LC0009	PFS01A	DI-LC-MS/MS; shaking extraction	DI-LC-MS/MS; shaking extraction	DI-LC-MS/MS; shaking extraction	DI-LC-MS/MS; shaking extraction	DI-LC-MS/MS; shaking extraction
LC0010	PFS01A	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0011	PFS01A	LC-MS/MS; in house method	LC-MS/MS; in house method	LC-MS/MS; in house method	LC-MS/MS; in house method	LC-MS/MS; in house method
LC0012	PFS01A	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0013	PFS01A	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0014	PFS01A	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0015	PFS01A	DIN 38414-14; (S14)	DIN 38414-14; (S14)	DIN 38414-14; (S14)	DIN 38414-14; (S14)	DIN 38414-14; (S14)
LC0016	PFS01A	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0017	PFS01A	EPA 1633; SOP	EPA 1633; SOP	EPA 1633; SOP	EPA 1633; SOP	EPA 1633; SOP
LC0018	PFS01A	DIN 38414-14;	DIN 38414-14;		DIN 38414-14;	DIN 38414-14;

LabCode	Sample	Perfluorodecane sulfonic acid (PFDS) - PF10S	Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	Perfluorododecane sulfonic acid (PFDoS) - PF12S	Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	Total PFHxS	Total PFOS
LC0001	PFS01A	DIN 38414-14;				DIN 38414-14;	DIN 38414-14;
LC0002	PFS01A	DIN 38414-14 mod.; LC-MS/MS	DIN 38414-14 mod.; LC-MS/MS	DIN 38414-14 mod.; LC-MS/MS	DIN 38414-14 mod.; LC-MS/MS	DIN 38414-14 mod.; LC-MS/MS	DIN 38414-14 mod.; LC-MS/MS
LC0003	PFS01A	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS
LC0004	PFS01A	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS		
LC0005	PFS01A	LC-MS/MS;	LC-MS/MS;	LC-MS/MS;	LC-MS/MS;	LC-MS/MS;	LC-MS/MS;
LC0006	PFS01A					DIN 38414-14; LC-MS	DIN 38414-14; LC-MS
LC0007	PFS01A						
LC0008	PFS01A	LC-MS/MS; QUECHERS	LC-MS/MS; QUECHERS	LC-MS/MS; QUECHERS	LC-MS/MS; QUECHERS	LC-MS/MS; QUECHERS	LC-MS/MS; QUECHERS
LC0009	PFS01A	DI-LC-MS/MS; shaking extraction	DI-LC-MS/MS; shaking extraction	DI-LC-MS/MS; shaking extraction	DI-LC-MS/MS; shaking extraction	DI-LC-MS/MS; shaking extraction	DI-LC-MS/MS; shaking extraction
LC0010	PFS01A	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0011	PFS01A	LC-MS/MS; in house method	LC-MS/MS; in house method	LC-MS/MS; in house method	LC-MS/MS; in house method	LC-MS/MS; in house method	LC-MS/MS; in house method
LC0012	PFS01A	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0013	PFS01A	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0014	PFS01A	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0015	PFS01A	DIN 38414-14; (S14)	DIN 38414-14; (S14)	DIN 38414-14; (S14)	DIN 38414-14; (S14)	DIN 38414-14; (S14)	DIN 38414-14; (S14)
LC0016	PFS01A	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0017	PFS01A	EPA 1633; SOP	EPA 1633; SOP	EPA 1633; SOP	EPA 1633; SOP	EPA 1633; SOP	EPA 1633; SOP
LC0018	PFS01A	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;

LabCode	Sample	linear Perfluorooctane sulfonic acid (n-PFOS)	linear Perfluorohexane sulfonic acid (n-PFHxS)	Sum PFAS	notes	additional method details
LC0001	**PFS01A**	**DIN 38414-14;**		**DIN 38414-14;**		CH3OH (5ml per 0.5g sample); US (45min); extract purification: no; recovery correction: no
LC0002	**PFS01A**	**DIN 38414-14 mod.; LC-MS/MS**	**DIN 38414-14 mod.; LC-MS/MS**	**calculation;**		CH3OH (10ml per 2.4g sample); Tumbling on rotator; extract purification: no (filtration); recovery correction: no
LC0003	**PFS01A**					CH3OH (10ml per 1g sample); US; extract purification: SPE (rinsing vessels with CH3OH); recovery correction: yes
LC0004	**PFS01A**	**DIN 38414-14; LC-MS/MS**	**DIN 38414-14; LC-MS/MS**	**DIN 38414-14; LC-MS/MS**	**drying 40°C for determination of dry mass**	CH3OH (15ml per 3g sample); US; extract purification: SPE; recovery correction: yes
LC0005	**PFS01A**			**LC-MS/MS;**		ACN/H2O; QUECHERS; extract purification: SPE; recovery correction: yes
LC0006	**PFS01A**					THF:Acetone:CH3OH (1:1:1); horizontal shaker (1h)+ US(15min); extract purification: NA ; recovery correction: NA
LC0007	**PFS01A**					
LC0008	**PFS01A**	**LC-MS/MS; QUECHERS**	**LC-MS/MS; QUECHERS**	**LC-MS/MS; QUECHERS**		CH3OH/ACN 1:1 (20 ml per sample); QUECHERS; US (1h); extract purification: dSPE; recovery correction: yes
LC0009	**PFS01A**	**DI-LC-MS/MS; shaking extraction**	**DI-LC-MS/MS; shaking extraction**	**DI-LC-MS/MS; shaking extraction**		CH3OH/H2O (25ml per 2.5g sample); shaking; extract purification: no; recovery correction: no
LC0010	**PFS01A**			**DIN 38414-14;**		CH3OH (50ml per 10g sample); US (10min) and shaking (1h); extract purification: filtration; recovery correction: no
LC0011	**PFS01A**	**LC-MS/MS; in house method**	**LC-MS/MS; in house method**		**DM 100% for calculation**	CH3OH; magnetic stirrer; extract purification: yes (Carbon; Envicarb); recovery correction: no
LC0012	**PFS01A**			**sum (EU DWD);**		CH3OH; Soxhlet; extract purification: no; recovery correction: yes
LC0013	**PFS01A**	**DIN 38414-14;**	**DIN 38414-14;**	**calculation;**		CH3OH; liquid; extract purification: SPE; recovery correction: NA
LC0014	**PFS01A**	**DIN 38414-14;**	**DIN 38414-14;**	**DIN 38414-14;**		CH3OH (15ml for 5g sample); US (1h); extract purification: SPE; recovery correction: yes
LC0015	**PFS01A**			**DIN 38414-14; (S14)**		CH3OH; US; extract purification: NA; recovery correction: yes
LC0016	**PFS01A**			**DIN 38414-14;**		n-Hexane; shaking (2h); extract purification: centrifugation; recovery correction: yes
LC0017	**PFS01A**	**EPA 1633; SOP**	**EPA 1633; SOP**	**EPA 1633; SOP**		1% NH4OH_CH3OH; US; extract purification: no; recovery correction: yes
LC0018	**PFS01A**			**DIN 38414-14;**		CH3OH (10ml CH3OH per 5g PFS01A; 4ml CH3OH per 1g PFS01B); vortex; US (2h) ; extract purification: no; recovery correction: yes

LabCode	Sample	Dry mass	Perfluorobutanoic acid (PFBA) - PF4C	Perfluoropentanoic acid (PFPeA) - PF5C	Perfluorohexanoic acid (PFHxA) - PF6C	Perfluoroheptanoic acid (PFHpA) - PF7C
LC0001	PFS01B	DIN 38414-2; (S2)	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0002	PFS01B	DS 204;	DIN 38414-14 mod.; LC-MS/MS	DIN 38414-14 mod.; LC-MS/MS	DIN 38414-14 mod.; LC-MS/MS	DIN 38414-14 mod.; LC-MS/MS
LC0003	PFS01B	DIN 38414-14; LC-MS/MS		DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS
LC0004	PFS01B	EN 14346;	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS
LC0005	PFS01B	IR; Smart6	LC-MS/MS;	LC-MS/MS;	LC-MS/MS;	LC-MS/MS;
LC0006	PFS01B	dry balance;	DIN 38414-14; LC-MS	DIN 38414-14; LC-MS	DIN 38414-14; LC-MS	DIN 38414-14; LC-MS
LC0007	PFS01B					
LC0008	PFS01B	ISO 11465;	LC-MS/MS; QUECHERS	LC-MS/MS; QUECHERS	LC-MS/MS; QUECHERS	LC-MS/MS; QUECHERS
LC0009	PFS01B	IR; infrared-halogen dryer 105°C	DI-LC-MS/MS; shaking extraction	DI-LC-MS/MS; shaking extraction	DI-LC-MS/MS; shaking extraction	DI-LC-MS/MS; shaking extraction
LC0010	PFS01B	EN 14346;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0011	PFS01B					
LC0012	PFS01B	EN 14346;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0013	PFS01B	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0014	PFS01B	EN 12880;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0015	PFS01B	EN 14346;	DIN 38414-14; (S14)	DIN 38414-14; (S14)	DIN 38414-14; (S14)	DIN 38414-14; (S14)
LC0016	PFS01B	EN 14346;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0017	PFS01B	EPA 1633; SOP	EPA 1633; SOP	EPA 1633; SOP	EPA 1633; SOP	EPA 1633; SOP
LC0018	PFS01B	DIN 38414-22;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;

LabCode	Sample	Perfluorooctanoic acid (PFOA) - PF8C	Perfluorononanoic acid (PFNA) - PF9C	Perfluorodecanoic acid (PFDA) - PF10C	Perfluoroundecanoic acid (PFUnDA) - PF11C	Perfluorododecanoic acid (PFDoDA) - PF12C
LC0001	PFS01B	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0002	PFS01B	DIN 38414-14 mod.; LC-MS/MS	DIN 38414-14 mod.; LC-MS/MS	DIN 38414-14 mod.; LC-MS/MS	DIN 38414-14 mod.; LC-MS/MS	DIN 38414-14 mod.; LC-MS/MS
LC0003	PFS01B	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS
LC0004	PFS01B	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS
LC0005	PFS01B	LC-MS/MS;	LC-MS/MS;	LC-MS/MS;	LC-MS/MS;	LC-MS/MS;
LC0006	PFS01B	DIN 38414-14; LC-MS	DIN 38414-14; LC-MS	DIN 38414-14; LC-MS		
LC0007	PFS01B					
LC0008	PFS01B	LC-MS/MS; QUECHERS	LC-MS/MS; QUECHERS	LC-MS/MS; QUECHERS	LC-MS/MS; QUECHERS	LC-MS/MS; QUECHERS
LC0009	PFS01B	DI-LC-MS/MS; shaking extraction	DI-LC-MS/MS; shaking extraction	DI-LC-MS/MS; shaking extraction	DI-LC-MS/MS; shaking extraction	DI-LC-MS/MS; shaking extraction
LC0010	PFS01B	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0011	PFS01B					
LC0012	PFS01B	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0013	PFS01B	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0014	PFS01B	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0015	PFS01B	DIN 38414-14; (S14)	DIN 38414-14; (S14)	DIN 38414-14; (S14)	DIN 38414-14; (S14)	DIN 38414-14; (S14)
LC0016	PFS01B	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0017	PFS01B	EPA 1633; SOP	EPA 1633; SOP	EPA 1633; SOP	EPA 1633; SOP	EPA 1633; SOP
LC0018	PFS01B	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;

LabCode	Sample	Perfluorotridecanoic acid (PFTrDA) - PF13C	Perfluorobutane sulfonic acid (PFBS) - PF4S	Perfluoropentane sulfonic acid (PFPeS) - PF5S	Perfluoroheptane sulfonic acid (PFHpS) - PF7S	Perfluorononane sulfonic acid (PFNS) - PF9S
LC0001	PFS01B	DIN 38414-14;	DIN 38414-14;		DIN 38414-14;	
LC0002	PFS01B	DIN 38414-14 mod.; LC-MS/MS	DIN 38414-14 mod.; LC-MS/MS	DIN 38414-14 mod.; LC-MS/MS	DIN 38414-14 mod.; LC-MS/MS	DIN 38414-14 mod.; LC-MS/MS
LC0003	PFS01B	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS
LC0004	PFS01B	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS
LC0005	PFS01B	LC-MS/MS;	LC-MS/MS;	LC-MS/MS;	LC-MS/MS;	LC-MS/MS;
LC0006	PFS01B		DIN 38414-14; LC-MS			
LC0007	PFS01B					
LC0008	PFS01B	LC-MS/MS; QUECHERS	LC-MS/MS; QUECHERS	LC-MS/MS; QUECHERS	LC-MS/MS; QUECHERS	LC-MS/MS; QUECHERS
LC0009	PFS01B	DI-LC-MS/MS; shaking extraction	DI-LC-MS/MS; shaking extraction	DI-LC-MS/MS; shaking extraction	DI-LC-MS/MS; shaking extraction	DI-LC-MS/MS; shaking extraction
LC0010	PFS01B	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0011	PFS01B					
LC0012	PFS01B	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0013	PFS01B	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0014	PFS01B	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0015	PFS01B	DIN 38414-14; (S14)	DIN 38414-14; (S14)	DIN 38414-14; (S14)	DIN 38414-14; (S14)	DIN 38414-14; (S14)
LC0016	PFS01B	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0017	PFS01B	EPA 1633; SOP	EPA 1633; SOP	EPA 1633; SOP	EPA 1633; SOP	EPA 1633; SOP
LC0018	PFS01B	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;

LabCode	Sample	Perfluorodecane sulfonic acid (PFDS) - PF10S	Perfluoroundecane sulfonic acid (PFUnDS) - PF11S	Perfluorododecane sulfonic acid (PFDoS) - PF12S	Perfluorotridecane sulfonic acid (PFTrDS) - PF13S	Total PFHxS	Total PFOS
LC0001	PFS01B	DIN 38414-14;				DIN 38414-14;	DIN 38414-14;
LC0002	PFS01B	DIN 38414-14 mod.; LC-MS/MS	DIN 38414-14 mod.; LC-MS/MS	DIN 38414-14 mod.; LC-MS/MS	DIN 38414-14 mod.; LC-MS/MS	DIN 38414-14 mod.; LC-MS/MS	DIN 38414-14 mod.; LC-MS/MS
LC0003	PFS01B	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS
LC0004	PFS01B	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS	DIN 38414-14; LC-MS/MS		
LC0005	PFS01B	LC-MS/MS;	LC-MS/MS;	LC-MS/MS;	LC-MS/MS;	LC-MS/MS;	LC-MS/MS;
LC0006	PFS01B					DIN 38414-14; LC-MS	DIN 38414-14; LC-MS
LC0007	PFS01B						
LC0008	PFS01B	LC-MS/MS; QUECHERS	LC-MS/MS; QUECHERS	LC-MS/MS; QUECHERS	LC-MS/MS; QUECHERS	LC-MS/MS; QUECHERS	LC-MS/MS; QUECHERS
LC0009	PFS01B	DI-LC-MS/MS; shaking extraction	DI-LC-MS/MS; shaking extraction	DI-LC-MS/MS; shaking extraction	DI-LC-MS/MS; shaking extraction	DI-LC-MS/MS; shaking extraction	DI-LC-MS/MS; shaking extraction
LC0010	PFS01B	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0011	PFS01B						
LC0012	PFS01B	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0013	PFS01B	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0014	PFS01B	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0015	PFS01B	DIN 38414-14; (S14)	DIN 38414-14; (S14)	DIN 38414-14; (S14)	DIN 38414-14; (S14)	DIN 38414-14; (S14)	DIN 38414-14; (S14)
LC0016	PFS01B	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;
LC0017	PFS01B	EPA 1633; SOP	EPA 1633; SOP	EPA 1633; SOP	EPA 1633; SOP	EPA 1633; SOP	EPA 1633; SOP
LC0018	PFS01B	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;	DIN 38414-14;

LabCode	Sample	linear Perfluorooctane sulfonic acid (n-PFOS)	linear Perfluorohexane sulfonic acid (n-PFHxS)	Sum PFAS	notes	additional method details
LC0001	**PFS01B**	**DIN 38414-14;**		**DIN 38414-14;**		CH3OH (5ml per 0.5g sample); US (45min); extract purification: no; recovery correction: no
LC0002	**PFS01B**	**DIN 38414-14 mod.; LC-MS/MS**	**DIN 38414-14 mod.; LC-MS/MS**	**calculation;**		CH3OH (10ml per 2.4g sample); Tumbling on rotator; extract purification: no (filtration); recovery correction: no
LC0003	**PFS01B**					CH3OH (10ml per 1g sample); US; extract purification: SPE (rinsing vessels with CH3OH); recovery correction: yes
LC0004	**PFS01B**	**DIN 38414-14; LC-MS/MS**	**DIN 38414-14; LC-MS/MS**	**DIN 38414-14; LC-MS/MS**	**drying 40°C for determination of dry mass**	CH3OH (15ml per 3g sample); US; extract purification: SPE; recovery correction: yes
LC0005	**PFS01B**			**LC-MS/MS;**		ACN/H2O; QUECHERS; extract purification: SPE; recovery correction: yes
LC0006	**PFS01B**					THF:Acetone:CH3OH (1:1:1); horizontal shaker (1h)+ US(15min); extract purification: NA ; recovery correction: NA
LC0007	**PFS01B**					
LC0008	**PFS01B**	**LC-MS/MS; QUECHERS**	**LC-MS/MS; QUECHERS**	**LC-MS/MS; QUECHERS**		CH3OH/ACN 1:1 (20 ml per sample); QUECHERS; US (1h); extract purification: dSPE; recovery correction: yes
LC0009	**PFS01B**	**DI-LC-MS/MS; shaking extraction**	**DI-LC-MS/MS; shaking extraction**	**DI-LC-MS/MS; shaking extraction**		CH3OH/H2O (25ml per 2.5g sample); shaking; extract purification: no; recovery correction: no
LC0010	**PFS01B**			**DIN 38414-14;**		CH3OH (50ml per 10g sample); US (10min) and shaking (1h); extract purification: filtration; recovery correction: no
LC0011	**PFS01B**					
LC0012	**PFS01B**			**sum (EU DWD);**		CH3OH; Soxhlet; extract purification: no; recovery correction: yes
LC0013	**PFS01B**	**DIN 38414-14;**	**DIN 38414-14;**	**calculation;**		CH3OH; liquid; extract purification: SPE; recovery correction: NA
LC0014	**PFS01B**	**DIN 38414-14;**	**DIN 38414-14;**	**DIN 38414-14;**		CH3OH (15ml for 5g sample); US (1h); extract purification: SPE; recovery correction: yes
LC0015	**PFS01B**			**DIN 38414-14; (S14)**		CH3OH; US; extract purification: NA; recovery correction: yes
LC0016	**PFS01B**			**DIN 38414-14;**		n-Hexane; shaking (2h); extract purification: centrifugation; recovery correction: yes
LC0017	**PFS01B**	**EPA 1633; SOP**	**EPA 1633; SOP**	**EPA 1633; SOP**		1% NH4OH_CH3OH; US; extract purification: no; recovery correction: yes
LC0018	**PFS01B**			**DIN 38414-14;**		CH3OH (10ml CH3OH per 5g PFS01A; 4ml CH3OH per 1g PFS01B); vortex; US (2h) ; extract purification: no; recovery correction: yes