umweltbundesamt[u]
ENVIRONMENT AGENCY AUSTRIA

Proficiency Testing Scheme

Umweltanalytik

CBL09 Chlorierte Kohlenwasserstoffe (CKW) und BTEX & C5–C10

Proficiency Testing Scheme

Environmental Analysis

CBL09 Chlorinated hydrocarbons (CHC) and BTEX & C5–C10

BERICHT / REPORT

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D1. Beschreibung des Ringversuchs

D1.1. Ausgestaltung und Durchführung

- Anzahl der Anmeldungen: 25
- Anzahl der übermittelten Datensätze: 25
- Probenversand: 03.10.2023
- Einsendeschluss der Daten: 31.10.2023

Beim Ringversuch CBL09 bestand die Möglichkeit, an den Teilen CL10 (CKW) und/oder BL11 (BTEX & C5–C10) teilzunehmen.

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

Als Probe wurde jeweils ein mit zertifiziertem Kalibriergas beladenes Aktivkohleröhrchen versandt. Zusätzlich wurde ein unbeladenes Röhrchen zur Blindwertbestimmung beigelegt. Die Beladung der Röhrchen erfolgte in zwei Serien (CL10 und BL11). Es wurde ein definiertes Volumen des Kalibriergases der Firma Air Liquide mit einer Pumpe über Orbo 32S Aktivkohleröhrchen (Supelco) gesaugt. Die verwendeten Kalibriergase enthielten zum einen die Substanzen cis-1,2-Dichlorethen, trans-1,2-Dichlorethen, Trichlormethan, 1,1,1-Trichlorethan, Trichlorethen, Tetrachlor-methan und Tetrachlorethen (CL10) und zum anderen Benzol, Ethylbenzol, o-Xylol, Summe von m- und p-Xylol, Toluol, n-Pentan, n-Hexan, n-Heptan, n-Oktan, n-Nonan und n-Dekan (BL11). Die Beladung der Röhrchen erfolgte über ein Y-Stück im drucklosen Zustand. Der eingestellte Pumpenfluss wurde sowohl vor als auch nach der Beladung der Aktivkohleröhrchen kontrolliert. Das Beladen der Röhrchen erfolgte am 27.09.2023. Die Proben wurden bis zum Versand bei -80 °C gelagert und am 03.10.2023 verschickt.

Jedes Teilnehmerlabor erhielt je nach Anmeldung:

- 1 beladenes Aktivkohleröhrchen Probe CL10 und/oder
- 1 beladenes Aktivkohleröhrchen Probe BL11
- sowie 1 unbeladenes Aktivkohleröhrchen (Blindwert) pro Probe

D1.3. Anweisungen für die Teilnehmenden

Aus Stabilitätsgründen wurde empfohlen bis spätestens 11.10.2023 mit den Analysen zu beginnen.

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

D1.4. Kontrollanalytik zur Bewertung der Homogenität

Im Zuge der Abfüllung wurden zu willkürlichen Zeitpunkten mehrere Aliquote pro Probe zur Kontrollanalytik entnommen.
Es wurden für CL10 bzw. BL11 jeweils n=5 Kontrollproben sowie je n=1 unbeladene Kontrollprobe dem Labor zur Analyse übergeben.

Die Bestimmung der Parameter wurde an ein externes Labor (akkreditiert nach EN ISO/IEC 17025 für die o.a. Parameter) im Unterauftrag vergeben (verdeckte Vergabe, Proben anonymisiert) und erfolgte zeitnah zum Probenversand.

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 31.10.2023 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 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 Prüfgegenstände der vorangegangenen Runden im Zeitraum 2015 bis 2021 (RSD pooled) bzw. aus den ausreißerbereinigten Ergebnissen der Teilnehmenden (sR) des aktuellen Ringversuchs (falls noch weniger als 6 Ergebnisse für die Prüfgegenstände vorlagen).
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 alle Prüfgegenstände erfolgen seit 2019 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:

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

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

$U(\overline{X})$ 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-Score| ≤ 1.0   zufriedenstellende Leistung
- |E_n-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-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 labororientierten 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 labororientierten 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.

Als Ergebnis einer Langzeitauswertung über 7 Eignungsprüfungsrunden (2015–2021) wurden Kriterien (RSDpool) zur Ergebnisbewertung berechnet. Diese wurden im Zuge der Auswertung den relativen Vergleichsstandardabweichungen (vR) des aktuellen Ringversuchs gegenübergestellt.

Probe BL11
Bei den Parametern Benzol, Toluol und o-Xylol wurde zur Bewertung das Kriterium (RSDpool) herangezogen. Die Berechnung der Scores erfolgte nach D2.

Für Ethylbenzol, Summe aus m- und p-Xylol, n-Pentan, n-Hexan, n-Heptan und n-Oktan wurde die aktuelle Vergleichsstandardabweichung als Kriterium definiert (vR auf 2 signifikante Stellen gerundet).

Für n-Nonan und n-Dekan konnte aufgrund einer zu geringen Anzahl an übermittelten gültigen Ergebnissen der Teilnehmenden kein Sollwert berechnet werden (n < 6). Für diese Parameter wurde zum informativen Vergleich im Rahmen der qualitätssichernden Maßnahmen der teilnehmenden Labore informative Mittelwerte

über die Ergebnisse der akkreditierten Teilnehmenden (ohne Hampelausreißer) ermittelt (Kennzeichnung *).

Probe CL10

Bei den Parametern 1,1,1-Trichlorethan, cis-1,2-Dichlorethen und Tetrachlorethen wurde zur Bewertung das Kriterium (RSDpool) herangezogen. Die Berechnung der Scores erfolgte nach D2.

Für Tetrachlormethan, Trichlorethen und Trichlormethan wurde die aktuelle Vergleichsstandardabweichung als Kriterium definiert (vR auf 2 signifikante Stellen gerundet).

Bei trans-1,2-Dichlorethen lag die relative Vergleichsstandardabweichung über 50 %. Der zugewiesene Wert wurde daher über den Mittelwert der Ergebnisse der Gruppe der akkreditierten Labore ohne Hampel-Ausreißer (H95) berechnet. Die aktuelle Vergleichsstandardabweichung über die Ergebnisse der Gruppe der akkreditierten Labore wurden als Kriterium definiert (vR auf 2 signifikante Stellen gerundet).

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. µg/Röhrchen)
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, ausreißerbereinigt (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: Ableitung des informativen Vergleichswertes für n-Nonan und n-Dekan)

D5.2. Graphische Darstellung der Ergebnisse

Nachfolgend wird die graphische Darstellung anhand von kommentierten Beispieldiagrammen erläutert.

Beispieldiagramm: Messwerte
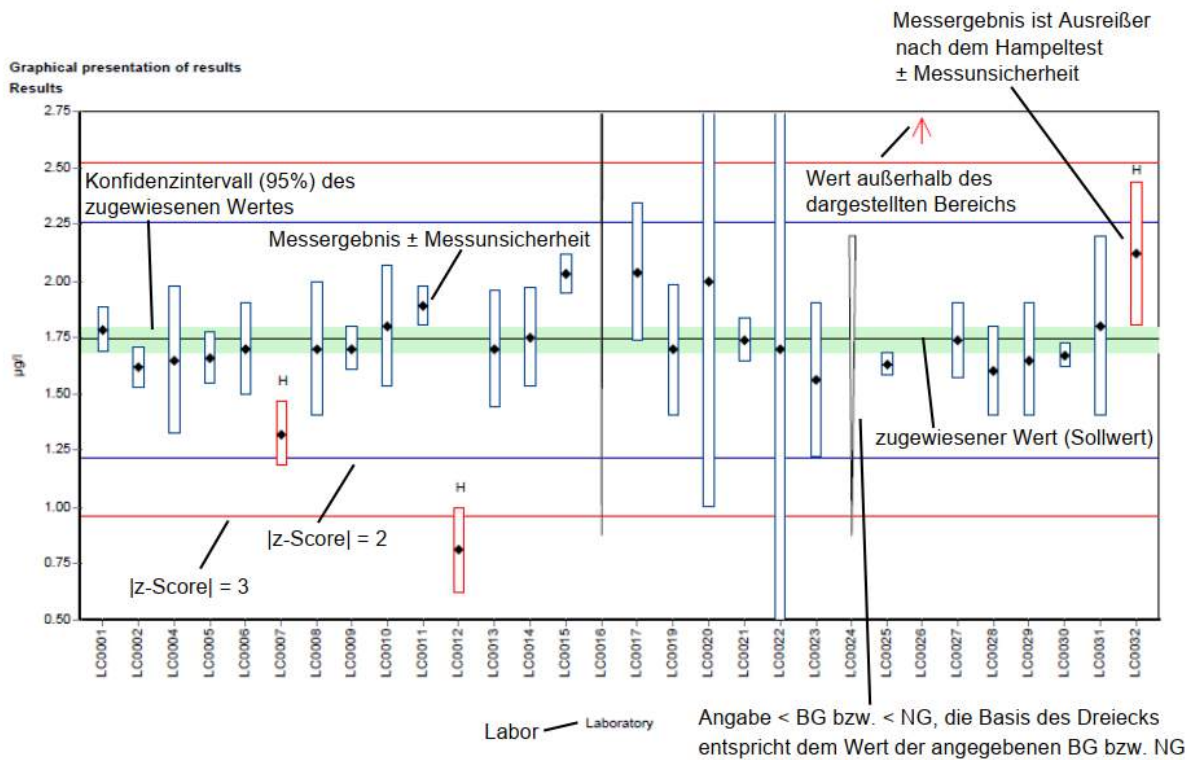
Unterschiedliche Analysenmethoden werden mit unterschiedlichen Farben kenntlich gemacht.

Beispieldiagramm: Wiederfindung zum zugewiesenen Wert
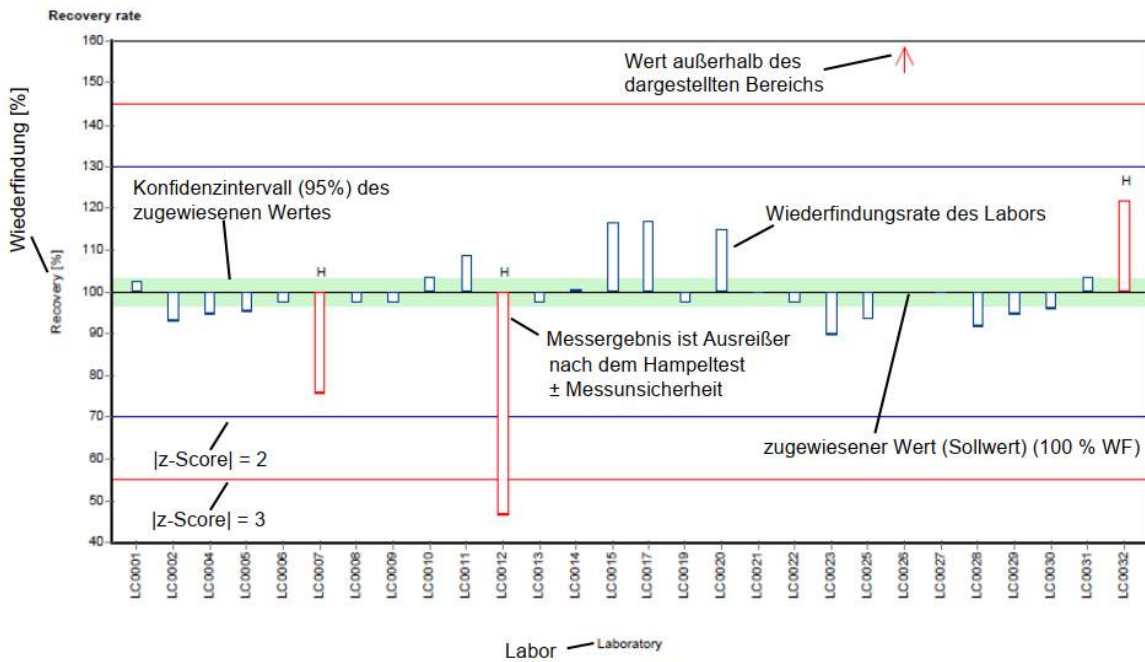
Unterschiedliche Analysenmethoden werden mit unterschiedlichen Farben kenntlich gemacht.

Beispieldiagramm: z-Score
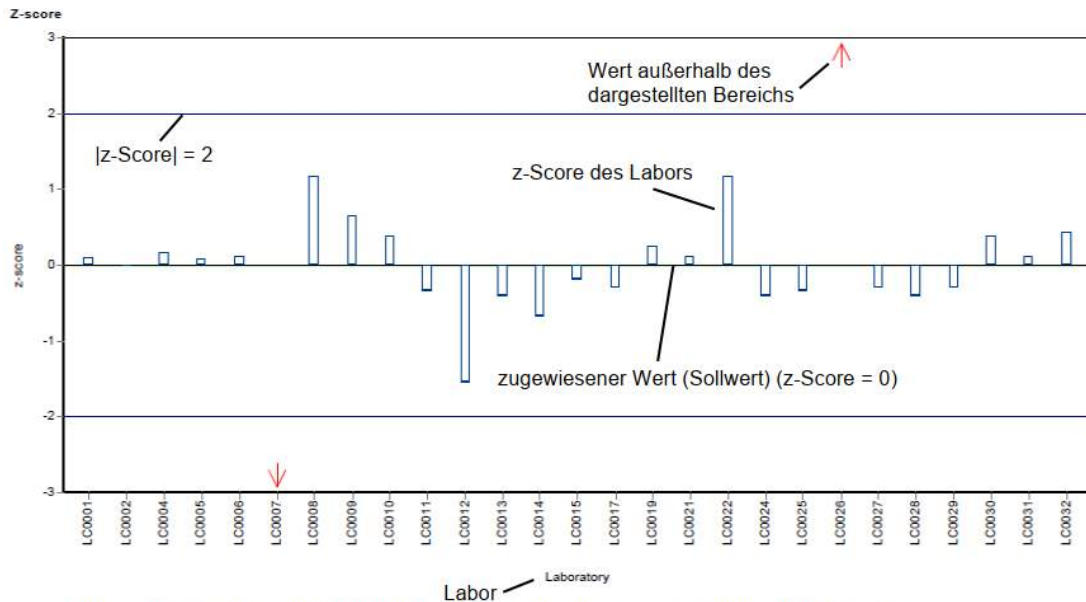
Unterschiedliche Analysenmethoden werden mit unterschiedlichen Farben kenntlich gemacht.

Beispieldiagramm: z-Score (labororientierte Auswertung)
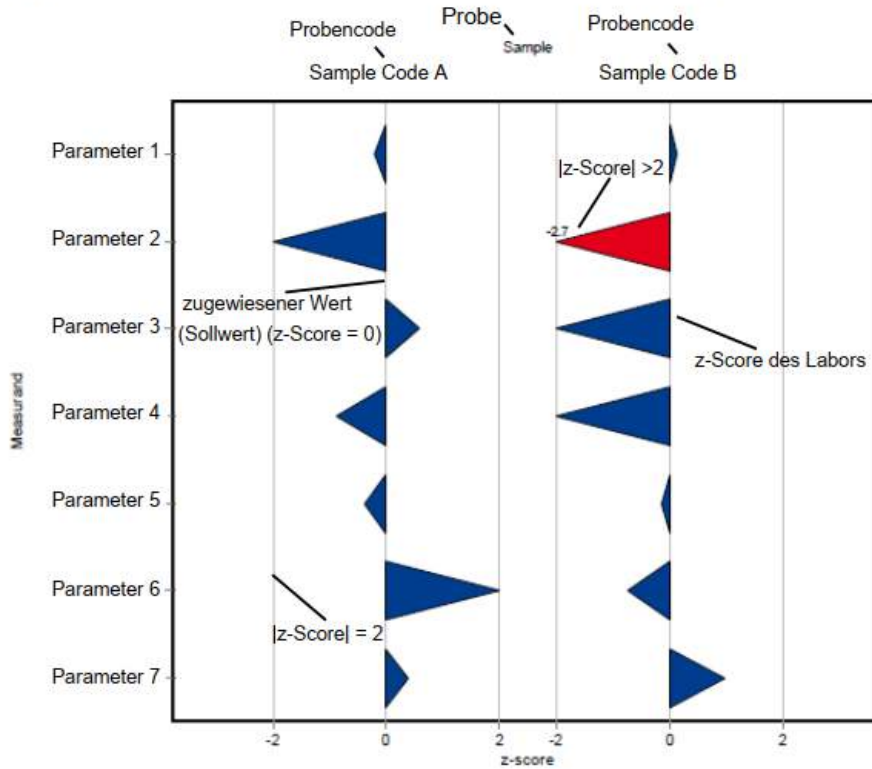
Beispieldiagramm: En-Score (labororientierte Auswertung)
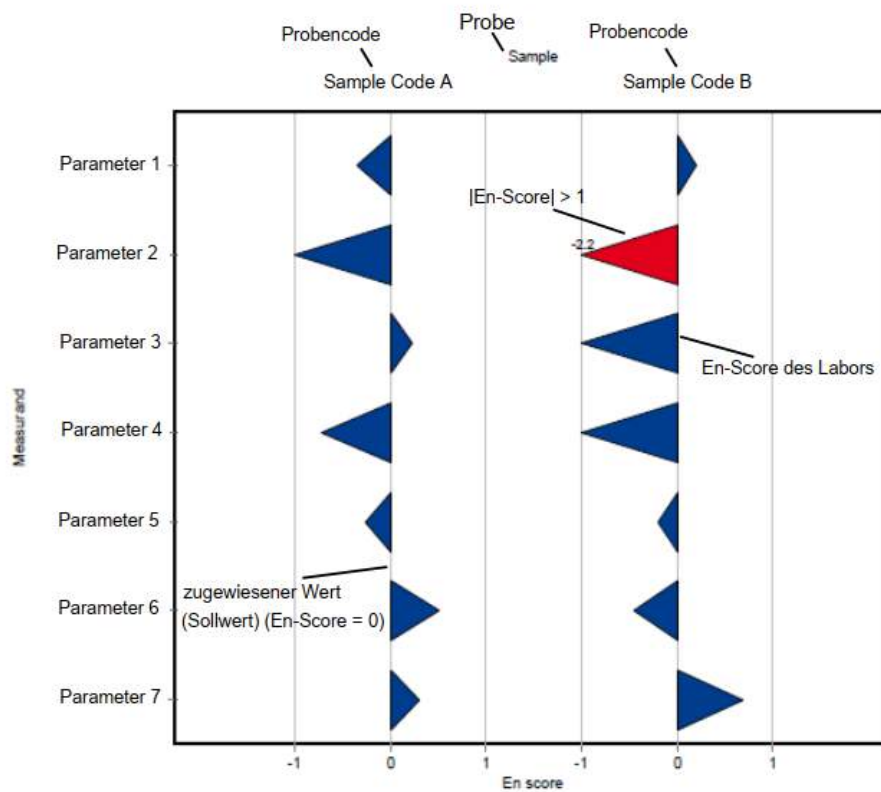
D6. Zusammenfassung

D6.1. Tabelle der zugewiesenen Werte

Parameter	Probe	Einheit	zugewiesener Wert	±	U (k=2)	Kriterium	Kriterium [%]
1,1,1-Trichlorethan	CL10 - CKW	µg/Röhrchen	4.71	±	0.281	0.753	16
Benzol	BL11 - BTEX & C5-C10	µg/Röhrchen	5.32	±	0.400	0.799	15
cis-1,2-Dichlorethen	CL10 - CKW	µg/Röhrchen	2.89	±	0.494	1.07	37
Ethylbenzol	BL11 - BTEX & C5-C10	µg/Röhrchen	5.33	±	0.579	1.17	22
n-Dekan *	BL11 - BTEX & C5-C10	µg/Röhrchen	-	±	-	-	-
n-Heptan	BL11 - BTEX & C5-C10	µg/Röhrchen	7.58	±	1.19	1.59	21
n-Hexan	BL11 - BTEX & C5-C10	µg/Röhrchen	6.10	±	0.928	1.16	19
n-Nonan *	BL11 - BTEX & C5-C10	µg/Röhrchen	-	±	-	-	-
n-Oktan	BL11 - BTEX & C5-C10	µg/Röhrchen	6.07	±	0.740	0.910	15
n-Pentan	BL11 - BTEX & C5-C10	µg/Röhrchen	6.78	±	1.52	1.90	28
o-Xylol	BL11 - BTEX & C5-C10	µg/Röhrchen	4.72	±	0.398	0.850	18
Summe von m-Xylol und p-Xylol	BL11 - BTEX & C5-C10	µg/Röhrchen	9.43	±	1.28	2.45	26
Tetrachlorethen	CL10 - CKW	µg/Röhrchen	3.93	±	0.234	0.826	21
Tetrachlormethan	CL10 - CKW	µg/Röhrchen	5.53	±	0.505	0.995	18
Toluol	BL11 - BTEX & C5-C10	µg/Röhrchen	5.41	±	0.418	0.812	15
trans-1,2-Dichlorethen	CL10 - CKW	µg/Röhrchen	2.96	±	0.684	1.27	43
Trichlorethen	CL10 - CKW	µg/Röhrchen	3.63	±	0.424	0.907	25
Trichlormethan	CL10 - CKW	µg/Röhrchen	4.14	±	0.317	0.662	16

* Für nachfolgende Substanzen sind zur Information die berechneten Mittelwerte MW +/- U(k=2) über die Daten der akkreditierten Labore (n) angeführt.

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

n-Nonan MW (n=3, akkr.) +/- U(k=2): 4.87+/- 1.76 µg/Röhrchen
n-Dekan MW (n=3, akkr.) +/- U(k=2): 2.72 +/- 1.61 µg/Röhrchen

D6.2. Zusammenfassung der ausreißerbereinigten Ringversuchsergebnisse

Parameter	Probe	Anzahl Labors für Berechnung	Anzahl Ausreißer Labors	Einheit	Mittelwert	± VB (99%)	Minimum	Maximum	sR	vR [%]
1,1,1-Trichlorethan	CL10 - CKW	18	1	µg/Röhrchen	4.71	± 0.421	3.63	5.54	0.595	13
Benzol	BL11 - BTEX & C5-C10	19	1	µg/Röhrchen	5.32	± 0.601	3.68	7.47	0.873	16
cis-1,2-Dichlorethen	CL10 - CKW	17	0	µg/Röhrchen	2.89	± 0.74	0.75	4.19	1.02	35
Ethylbenzol	BL11 - BTEX & C5-C10	17	2	µg/Röhrchen	5.33	± 0.869	2.76	8.28	1.19	22
n-Dekan	BL11 - BTEX & C5-C10	5	1	µg/Röhrchen	-	± -	1.41	4.19	-	-
n-Heptan	BL11 - BTEX & C5-C10	7	0	µg/Röhrchen	7.58	± 1.78	5.69	9.93	1.57	21
n-Hexan	BL11 - BTEX & C5-C10	6	1	µg/Röhrchen	6.1	± 1.39	4.31	7.75	1.14	19
n-Nonan	BL11 - BTEX & C5-C10	5	1	µg/Röhrchen	-	± -	3.28	6.31	-	-
n-Oktan	BL11 - BTEX & C5-C10	6	1	µg/Röhrchen	6.07	± 1.11	4.79	7.27	0.907	15
n-Pentan	BL11 - BTEX & C5-C10	6	0	µg/Röhrchen	6.78	± 2.28	5.13	10.3	1.86	27
o-Xylol	BL11 - BTEX & C5-C10	15	4	µg/Röhrchen	4.72	± 0.597	2.96	5.52	0.77	16
Summe von m-Xylol und p-Xylol	BL11 - BTEX & C5-C10	15	4	µg/Röhrchen	9.43	± 1.92	4.49	11.9	2.48	26
Tetrachlorethen	CL10 - CKW	17	2	µg/Röhrchen	3.93	± 0.351	2.77	4.56	0.483	12
Tetrachlormethan	CL10 - CKW	16	2	µg/Röhrchen	5.53	± 0.757	3.14	7.09	1.01	18
Toluol	BL11 - BTEX & C5-C10	16	3	µg/Röhrchen	5.41	± 0.627	3.52	7.09	0.836	15
trans-1,2-Dichlorethen	CL10 - CKW	16	0	µg/Röhrchen	3.09	± 1.27	0.844	7.2	1.7	55
Trichlorethen	CL10 - CKW	18	1	µg/Röhrchen	3.63	± 0.636	1.81	4.77	0.9	25
Trichlormethan	CL10 - CKW	17	1	µg/Röhrchen	4.14	± 0.475	3.04	5.5	0.653	16

E1. Description of the proficiency test

E1.1. Design and implementation

- Number of registrations: 25
- Number of submitted data records: 25
- Dispatch of samples: October 03rd, 2023
- Closing date for submission of data: October 31st, 2023

For the interlaboratory comparison test CBL09 the participants could participate in CL10 (CHC) and/or BL11 (BTEX & C5–C10).

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

An activated charcoal tube loaded with certified calibration gas was prepared. In addition, an unloaded activated charcoal tube was made available to determine the blank value. The tubes were loaded in two series (CL10 and BL11). A defined volume of the calibration gas from Air Liquide was loaded on Orbo 32S activated charcoal tubes (Supelco) with a pump. The calibration gases contained the substances cis-1,2-Dichloroethene, trans-1,2-Dichloroethene, Trichloromethane, 1,1,1-Trichloroethane, Trichloroethene, Tetrachloromethane and Tetrachloroethene for CL10 and the substances Benzene, Ethylbenzene, o-Xylene, sum of m- and p-Xylene, Toluene, n-Pentane, n-Hexane, n-Heptane, n-Octane, n-Nonane and n-Decane for BL11. The tubes were loaded using a Y-piece under pressure-less condition. The set flow of the pump was checked before and after loading of the activated charcoal tubes.

The tubes were loaded on September, 27th 2023. The samples were stored at -80 °C and dispatched on October, 3rd 2023.

Each participant received (depending on the registration):

- 1 loaded activated charcoal tube sample CL10 and/or
- 1 loaded activated charcoal tube sample BL11
- and 1 unloaded charcoal tube (blank value) per each sample

E1.3. Instructions for the participants

For reasons of stability, it was recommended to start the analysis by the 11th of October 2023 at the latest.

The participants are 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

During filling of the bottles, aliquots of each sample were collected randomly for control testing. From each of the samples CL10 and BL11, n=5 control test samples and n=1 unspiked control sample were transferred to the laboratory for control testing.

The determination of the parameters was performed at an external laboratory (accredited by EN ISO/IEC 17025 for the parameters listed) in subcontract (anonymous submission) and testing was performed close to the time of sample dispatch.

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.

According to data obtained from previous rounds and based 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 31st of October 2023. 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.

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 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 previous rounds for proficiency tests from 2015 to 2021 (as RSD pooled) or from the participants' results after removal of outliers (sR) in the current round (e.g. if less than 6 previous rounds are available).
	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

Since 2019 additional assessment of the participants' results using E_n-Scores for proficiency testing is performed. This additional assessment takes into account the expanded measurement uncertainties of the participants' 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:

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

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

$U(\overline{X})$ 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-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-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.

As a result of a long-term evaluation of 7 proficiency testing rounds (2015–2021), evaluation criteria (RSDpool) were calculated. These criteria were compared with the relative reproducibility standard deviation (vR) of the current proficiency testing.

Sample BL11
For the parameters benzene, toluene and o-xylene, the criterion (RSDpool) was used for evaluation. The scores were calculated according to E2.

For the parameters ethylbenzene, sum of m- and p-xylene, n-pentane, n-hexane, n-heptane and n-octane the actual reproducibility standard deviation was defined as the criterion (vR rounded to 2 significant digits).

For the parameters n-nonane and n-decane assigned values could not be defined because of the small number of submitted valid results (n < 6). An informative mean value based on all available results of accredited laboratories (without Hampel outliers) was calculated for comparison in course of the internal quality measures (marked by *).

Sample CL10
For the parameters 1,1,1-trichloroethane, cis-1,2-dichloroethene and tetrachloroethene, the criterion (RSDpool) was used for evaluation. The scores were calculated according to E2.

For the parameters tetrachlormethane, trichlorethene and trichlormethane the actual reproducibility standard deviation was defined as the criterion (vR rounded to 2 significant digits).

The relative reproducibility standard deviation for trans-1,2-dichloroethene in the current proficiency testing was higher than 50 %. Therefore, the assigned value was defined by the results of the group of accredited participating laboratories without Hampel outlier (H95). The actual reproducibility standard deviation of this group was defined as the criterion (vR rounded to 2 significant digits.)

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/tube)
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 (e.g. for n-nonane and n-decane in this report)

E5.2. Graphical presentation of results

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

Example chart: Results
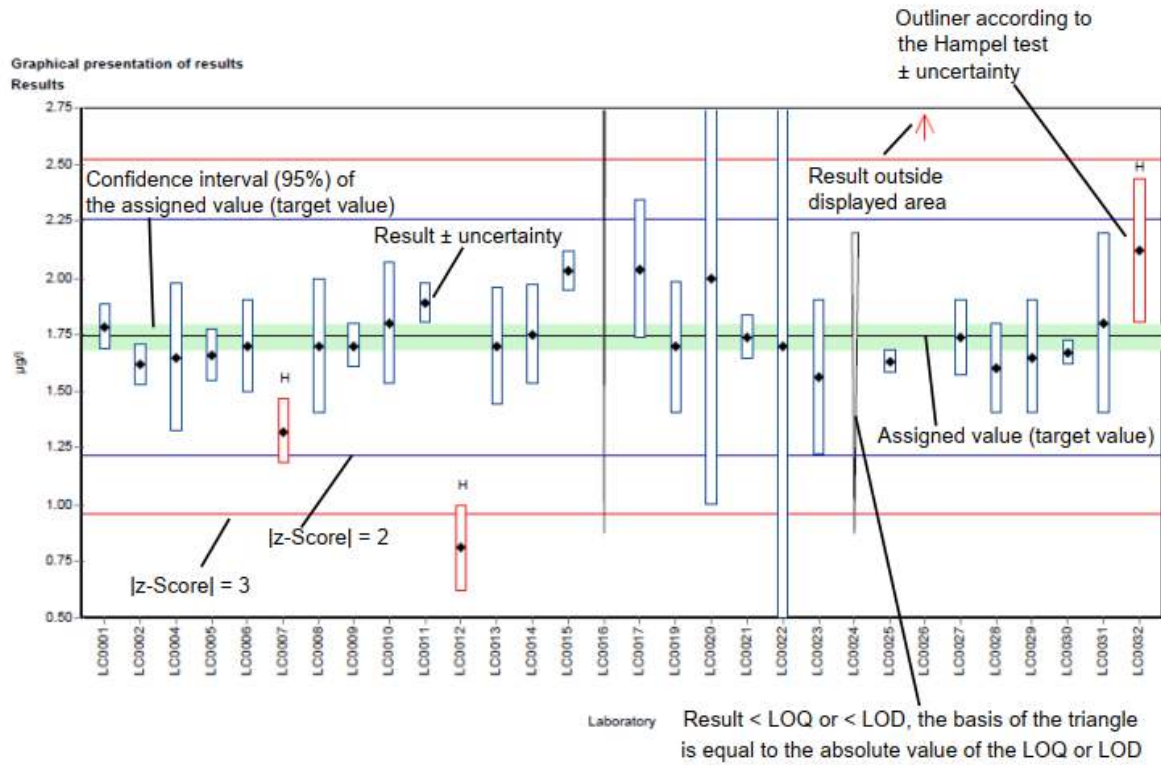
Different analysis methods are represented with different colors.

Example chart: Recovery
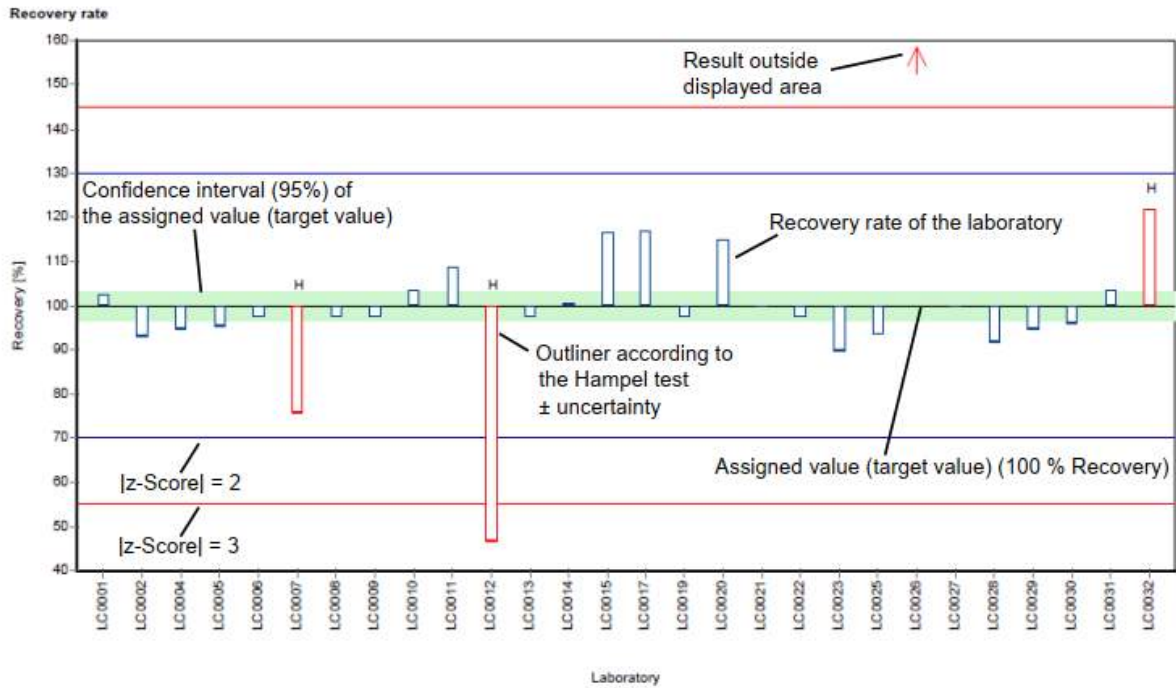
Different analysis methods are represented with different colors.

Example chart: z-Score
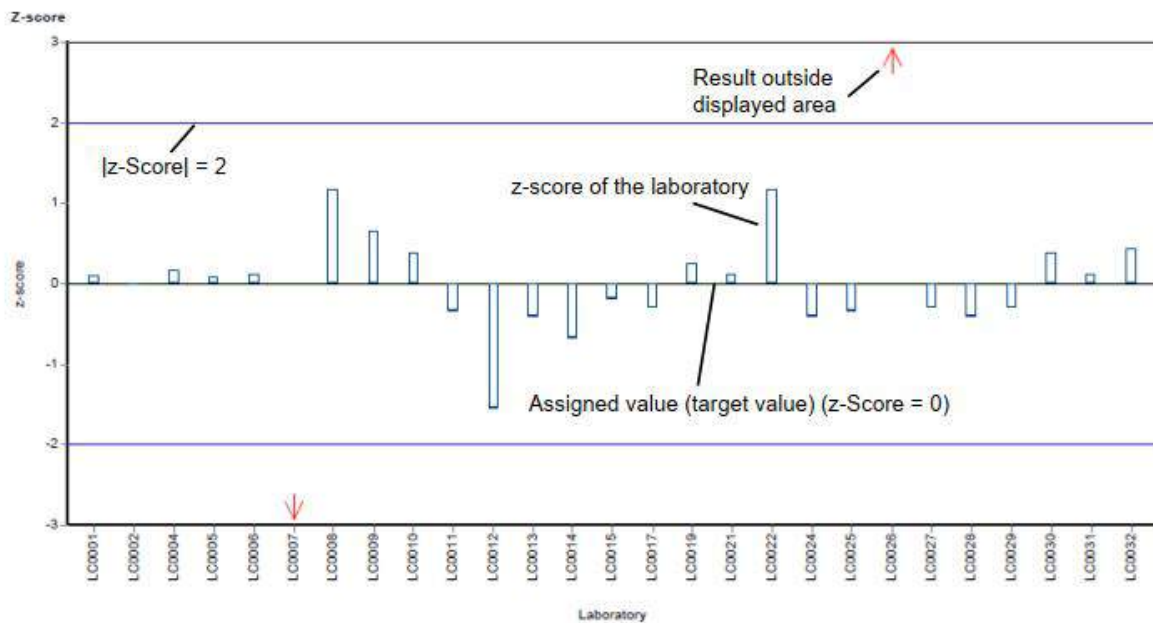
Different analysis methods are represented with different colors.

Example chart: z-Score (laboratory oriented report)
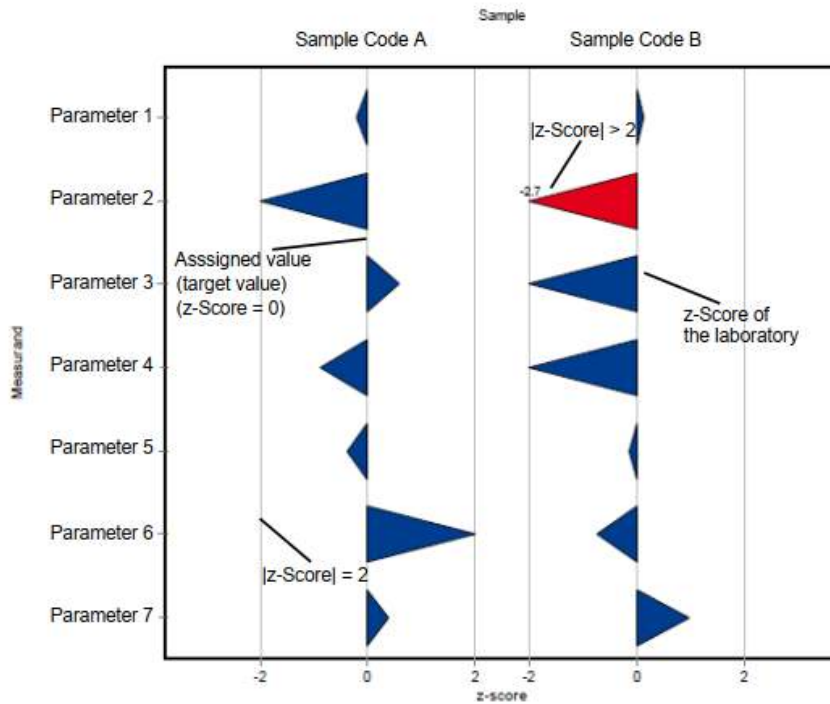
Example chart: En-Score (laboratory oriented report)
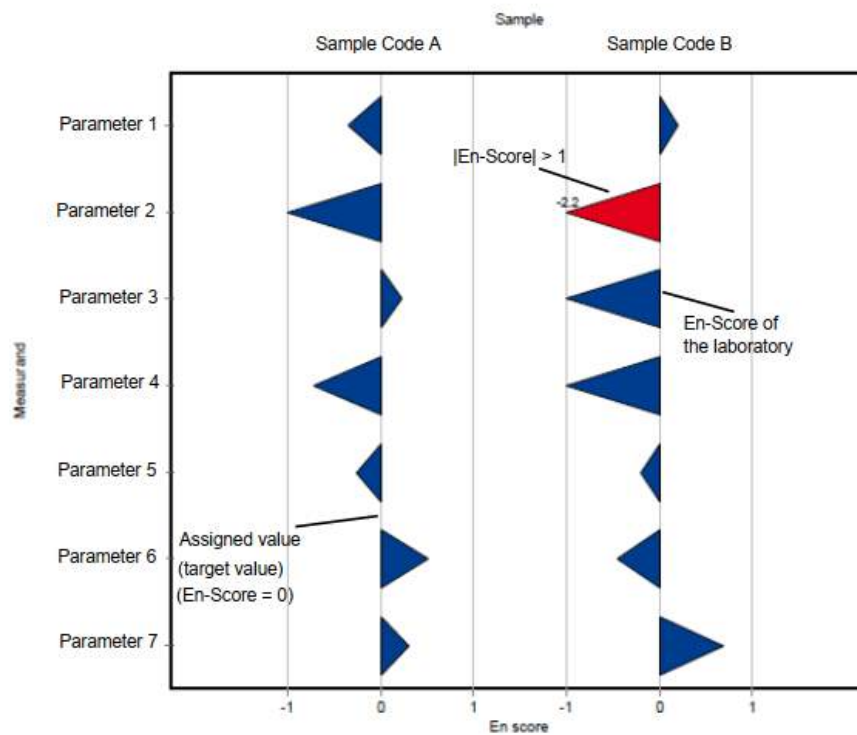
E6. Summary

E6.1. Table of assigned values

Parameter	Sample	Unit	Assigned value	±	U (k=2)	Criterion	Criterion [%]
1,1,1-Trichloroethane	CL10 - CHC	µg/tube	4.71	±	0.281	0.753	16
Benzene	BL11 - BTEX & C5-C10	µg/tube	5.32	±	0.400	0.799	15
cis-1,2-Dichloroethene	CL10 - CHC	µg/tube	2.89	±	0.494	1.07	37
Ethylbenzene	BL11 - BTEX & C5-C10	µg/tube	5.33	±	0.579	1.17	22
n-Decane *	BL11 - BTEX & C5-C10	µg/tube	-	±	-	-	-
n-Heptane	BL11 - BTEX & C5-C10	µg/tube	7.58	±	1.19	1.59	21
n-Hexane	BL11 - BTEX & C5-C10	µg/tube	6.10	±	0.928	1.16	19
n-Nonane*	BL11 - BTEX & C5-C10	µg/tube	-	±	-	-	-
n-Octane	BL11 - BTEX & C5-C10	µg/tube	6.07	±	0.740	0.910	15
n-Pentane	BL11 - BTEX & C5-C10	µg/tube	6.78	±	1.52	1.90	28
o-Xylene	BL11 - BTEX & C5-C10	µg/tube	4.72	±	0.398	0.850	18
Sum of m-Xylene and p-Xylene	BL11 - BTEX & C5-C10	µg/tube	9.43	±	1.28	2.45	26
Tetrachloroethene	CL10 - CHC	µg/tube	3.93	±	0.234	0.826	21
Tetrachloromethane	CL10 - CHC	µg/tube	5.53	±	0.505	0.995	18
Toluene	BL11 - BTEX & C5-C10	µg/tube	5.41	±	0.418	0.812	15
trans-1,2-Dichloroethene	CL10 - CHC	µg/tube	2.96	±	0.684	1.27	43
Trichloroethene	CL10 - CHC	µg/tube	3.63	±	0.424	0.907	25
Trichloromethane	CL10 - CHC	µg/tube	4.14	±	0.317	0.662	16

* For the following substances, the calculated mean values MV +/- U(k=2) based on the data of the accredited laboratories (n) are listed for information.

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

n-Nonane MV (n=3, accr.) +/- U(k=2): 4.87 +/- 1.76 µg/tube
n-Decane MV (n=3, accr.) +/- U(k=2): 2.72 +/- 1.61 µg/tube

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 [%]
1,1,1-Trichloroethane	CL10 - CHC	18	1	µg/tube	4.71	±	0.421	3.63	5.54	0.595	13
Benzene	BL11 - BTEX & C5-C10	19	1	µg/tube	5.32	±	0.601	3.68	7.47	0.873	16
cis-1,2-Dichloroethene	CL10 - CHC	17	0	µg/tube	2.89	±	0.74	0.75	4.19	1.02	35
Ethylbenzene	BL11 - BTEX & C5-C10	17	2	µg/tube	5.33	±	0.869	2.76	8.28	1.19	22
n-Decane	BL11 - BTEX & C5-C10	5	1	µg/tube	-	±	-	1.41	4.19	-	-
n-Heptane	BL11 - BTEX & C5-C10	7	0	µg/tube	7.58	±	1.78	5.69	9.93	1.57	21
n-Hexane	BL11 - BTEX & C5-C10	6	1	µg/tube	6.1	±	1.39	4.31	7.75	1.14	19
n-Nonane	BL11 - BTEX & C5-C10	5	1	µg/tube	-	±	-	3.28	6.31	-	-
n-Octane	BL11 - BTEX & C5-C10	6	1	µg/tube	6.07	±	1.11	4.79	7.27	0.907	15
n-Pentane	BL11 - BTEX & C5-C10	6	0	µg/tube	6.78	±	2.28	5.13	10.3	1.86	27
o-Xylene	BL11 - BTEX & C5-C10	15	4	µg/tube	4.72	±	0.597	2.96	5.52	0.77	16
Sum of m-Xylene and p-Xylene	BL11 - BTEX & C5-C10	15	4	µg/tube	9.43	±	1.92	4.49	11.9	2.48	26
Tetrachloroethene	CL10 - CHC	17	2	µg/tube	3.93	±	0.351	2.77	4.56	0.483	12
Tetrachloromethane	CL10 - CHC	16	2	µg/tube	5.53	±	0.757	3.14	7.09	1.01	18
Toluene	BL11 - BTEX & C5-C10	16	3	µg/tube	5.41	±	0.627	3.52	7.09	0.836	15
trans-1,2-Dichloroethene	CL10 - CHC	16	0	µg/tube	3.09	±	1.27	0.844	7.2	1.7	55
Trichloroethene	CL10 - CHC	18	1	µg/tube	3.63	±	0.636	1.81	4.77	0.9	25
Trichloromethane	CL10 - CHC	17	1	µg/tube	4.14	±	0.475	3.04	5.5	0.653	16

E7. Parameterorientierte Auswertung / Parameter oriented report

Parameter oriented report

CL10 - CHC

1,1,1-Trichloroethane

Unit	µg/tube
Assigned value ± U (k=2)	4.71 ± 0.281
Criterion	0.753 (16 %)
Minimum - Maximum	3.63 - 5.54
Control test value ± U (k=2)	5.16 ± 0.878

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	3.63	0.49	77.1	-1.43	
LC0002	4.572	0.686	97.2	-0.18	
LC0003	4.71	0.078	100	0.01	
LC0004	8.524	3	181	5.07	H
LC0005	5.53	0.51	118	1.09	
LC0006	4.326	0.87	91.9	-0.5	
LC0007	5.29	2.38	112	0.78	
LC0008	4.65	0.87	98.8	-0.07	
LC0009	4.31	0.86	91.6	-0.53	
LC0012	5.28	1.056	112	0.76	
LC0013	5.54	0.831	118	1.11	
LC0014	5.097	0.61	108	0.52	
LC0015	5.53	0.83	118	1.09	
LC0016	4.39	0.44	93.3	-0.42	
LC0017	4.074	0.306	86.6	-0.84	
LC0020	5.106	0.94	109	0.53	
LC0021	3.808	0.19	80.9	-1.19	
LC0022	4.58	0.344	97.3	-0.17	
LC0025	4.281	0.22	91	-0.56	

Characteristics of parameter

	all results	without outliers	Unit
Mean ± CI (99%)	4.91 ± 0.722	4.71 ± 0.421	µg/tube
Minimum	3.63	3.63	µg/tube
Maximum	8.52	5.54	µg/tube
Standard deviation	1.05	0.595	µg/tube
rel. standard deviation	21.4	12.6	%
n	19	18	-

Graphical presentation of results
Results

Recovery rate

Z-score

Laboratory

■ DIN 38407-43 (HS-GC-MS)	■ EN 14662-2 (GC)	■ GC-MS	■ ON M 5700-2 (GC)	■ VDI 2100-2 (GC)
■ VDI 2100-2 (HS-GC-MS)	■ VDI 3865-3 (GC)	■ VDI 3865-3 (GC-ECD)	■ VDI 3865-3 (GC-ECD/FID)	■ VDI 3865-3 (GC-MS)
■ VDI 3865-3 (HS-GC-MS)	— Control limit	— Limit of tolerance		
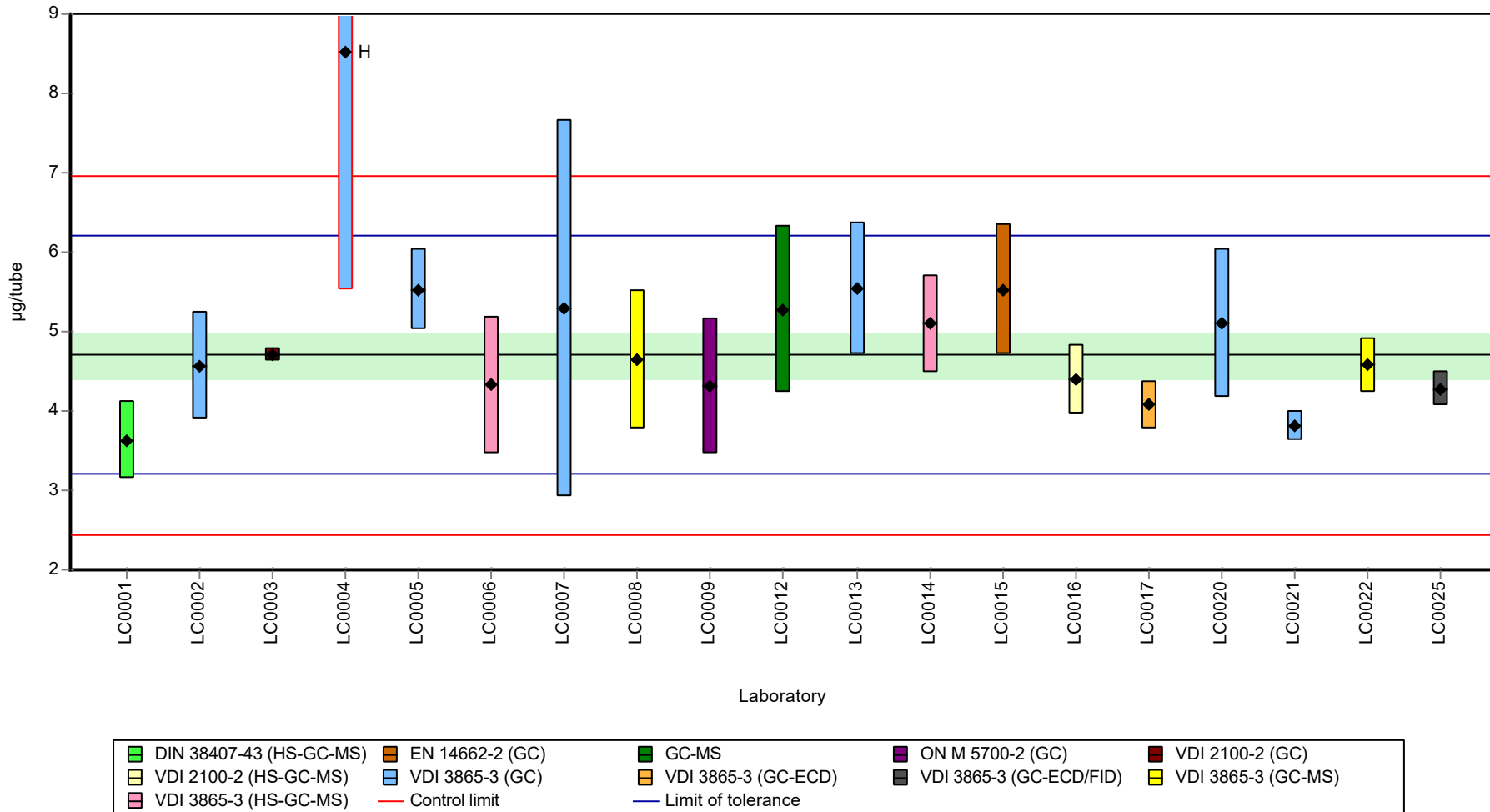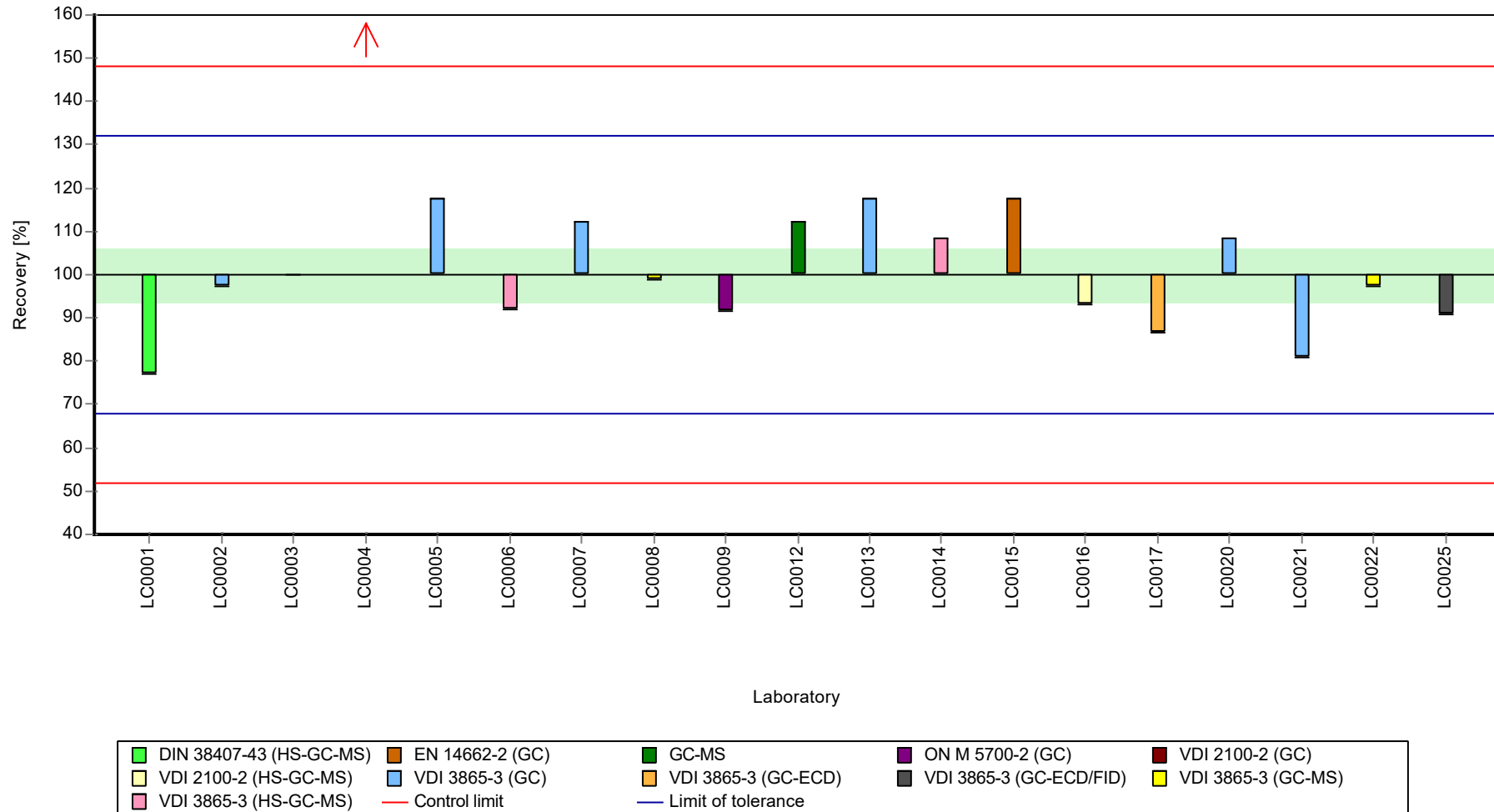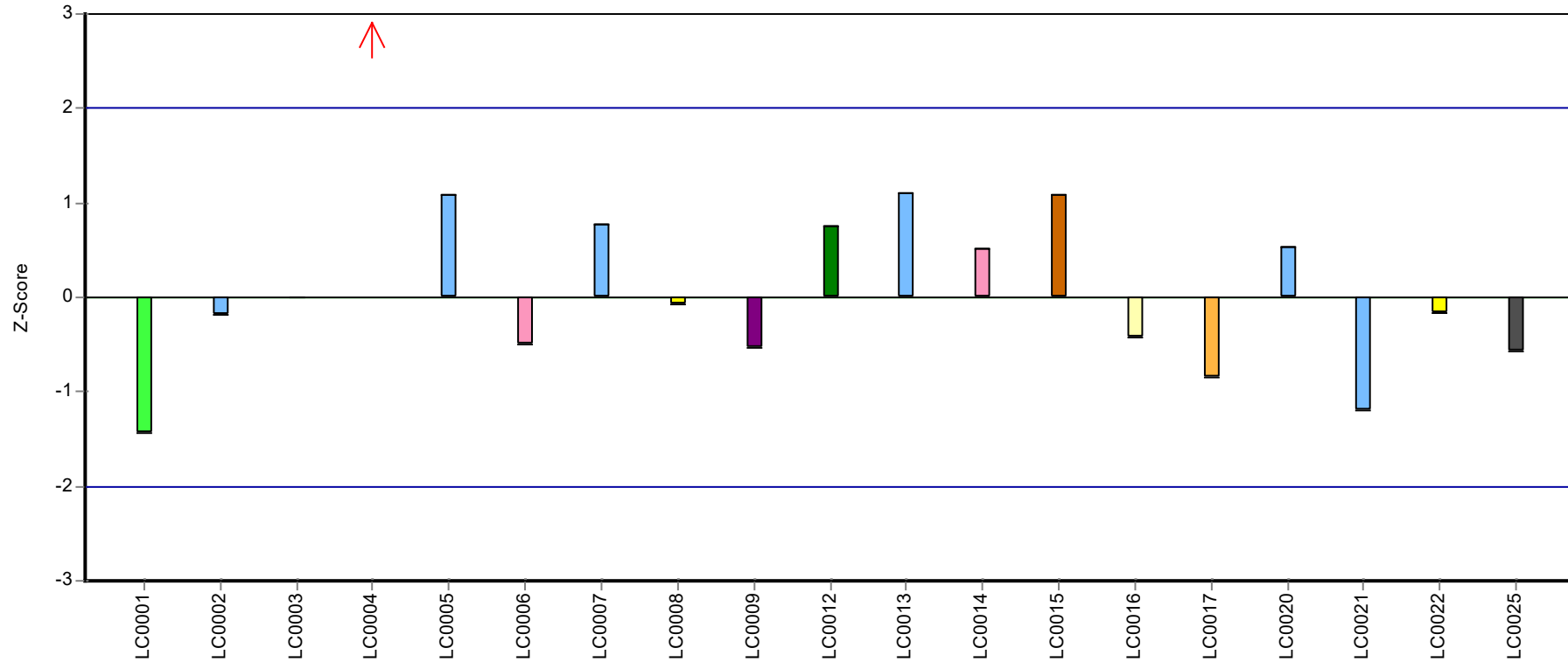
Parameter oriented report

BL11 - BTEX & C5-C10

Benzene

Unit	µg/tube
Assigned value ± U (k=2)	5.32 ± 0.4
Criterion	0.799 (15 %)
Minimum - Maximum	3.68 - 7.47
Control test value ± U (k=2)	5.08 ± 0.965

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	3.68	0.46	69.1	-2.06	
LC0003	4.63	0.074	87	-0.87	
LC0004	-	-	-	-	
LC0005	6.72	0.61	126	1.75	
LC0006	4.509	0.9	84.7	-1.02	
LC0007	4.18	1.33	78.5	-1.43	
LC0008	5.29	0.36	99.4	-0.04	
LC0009	7.47	1.49	140	2.69	
LC0010	5.48	0.084	103	0.2	
LC0011	4.61	0.01	86.6	-0.89	
LC0012	5.98	1.196	112	0.82	
LC0014	5.391	0.75	101	0.08	
LC0015	5.78	0.87	109	0.57	
LC0016	1.95	0.2	36.6	-4.22	H
LC0018	4.93	0.74	92.6	-0.49	
LC0019	5.716	0.497	107	0.49	
LC0020	5.888	0.453	111	0.71	
LC0021	4.953	0.248	93	-0.46	
LC0022	5.49	0.412	103	0.21	
LC0023	5.15	0.46	96.7	-0.22	
LC0024	5.31	1.59	99.7	-0.02	

Characteristics of parameter

	all results	without outliers	Unit
Mean ± CI (99%)	5.16 ± 0.762	5.32 ± 0.601	µg/tube
Minimum	1.95	3.68	µg/tube
Maximum	7.47	7.47	µg/tube
Standard deviation	1.14	0.873	µg/tube
rel. standard deviation	22	16.4	%
n	20	19	-

Graphical presentation of results
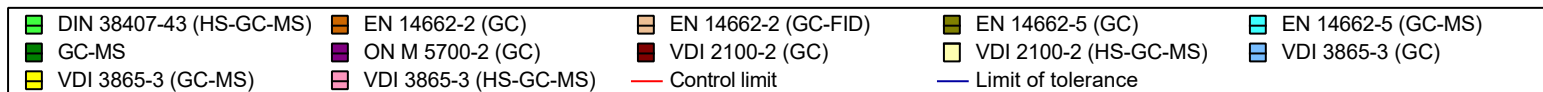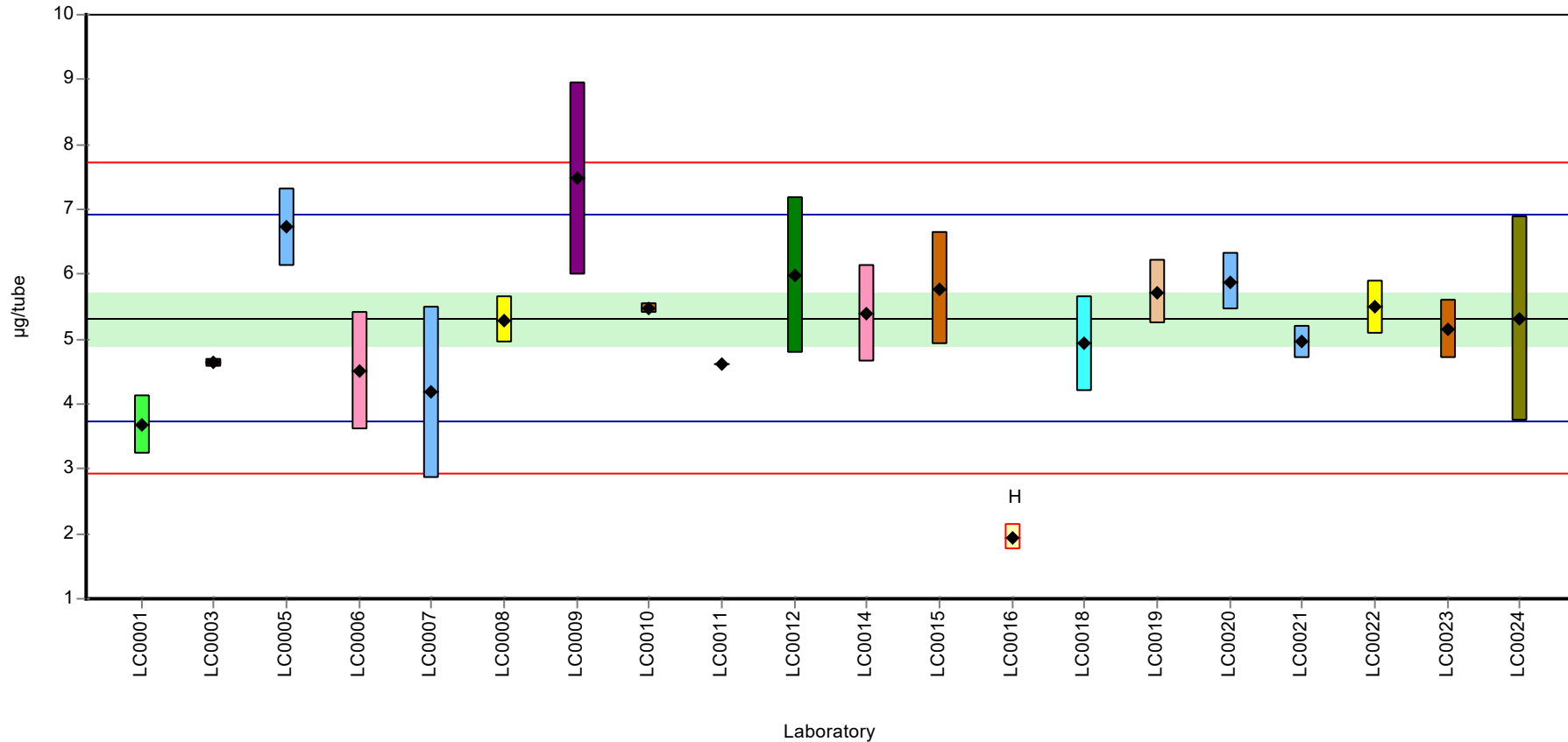
Results

Laboratory

■ DIN 38407-43 (HS-GC-MS)	■ EN 14662-2 (GC)	■ EN 14662-2 (GC-FID)	■ EN 14662-5 (GC)	■ EN 14662-5 (GC-MS)
■ GC-MS	■ ON M 5700-2 (GC)	■ VDI 2100-2 (GC)	☐ VDI 2100-2 (HS-GC-MS)	■ VDI 3865-3 (GC)
■ VDI 3865-3 (GC-MS)	■ VDI 3865-3 (HS-GC-MS)	— Control limit	— Limit of tolerance	
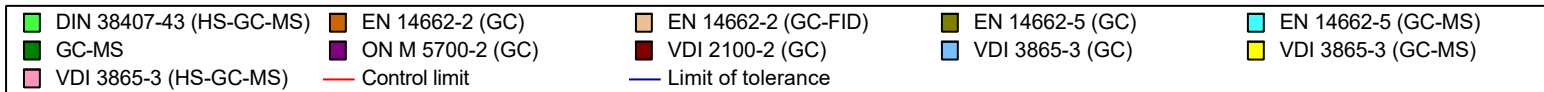
Recovery rate
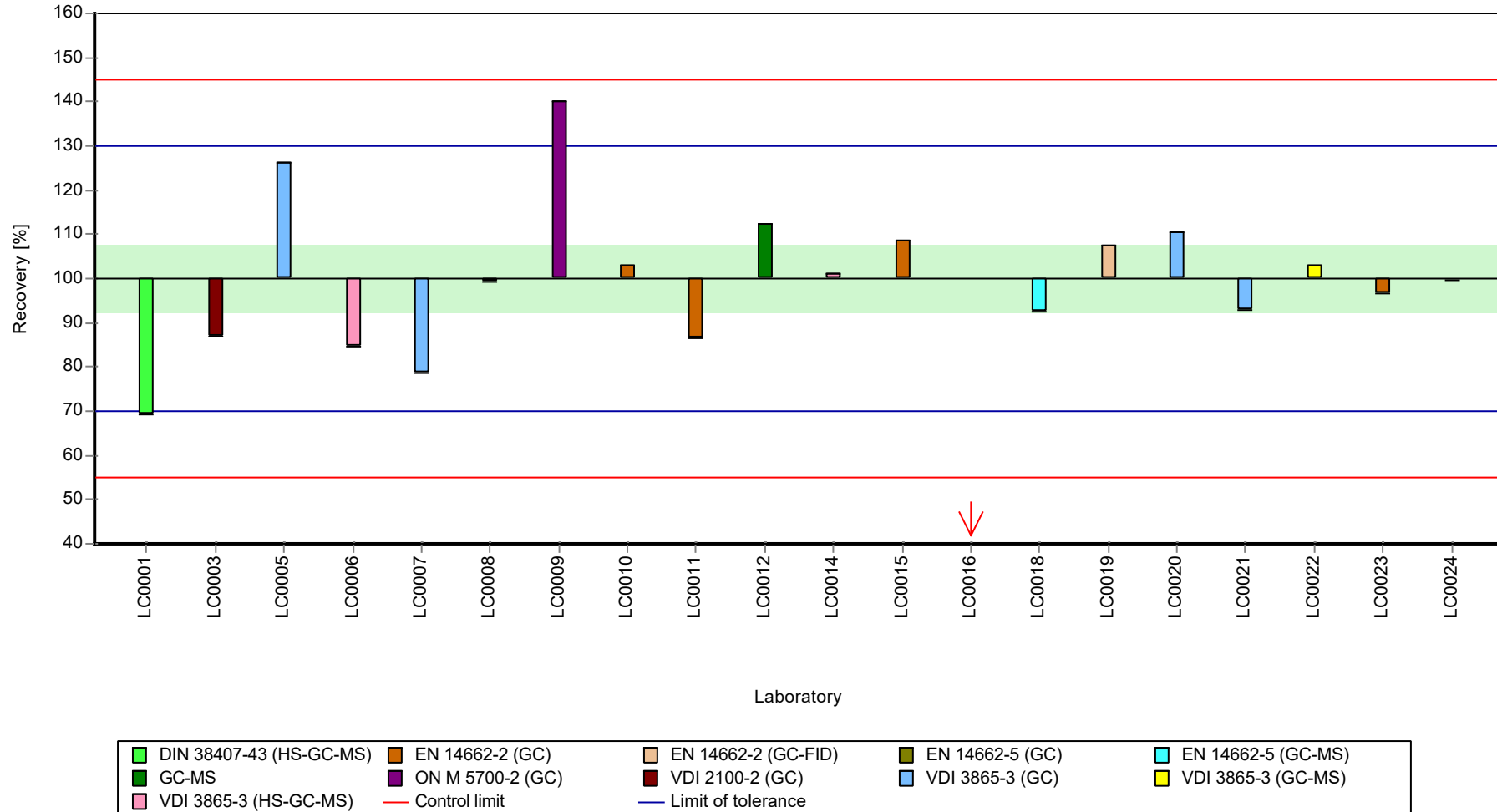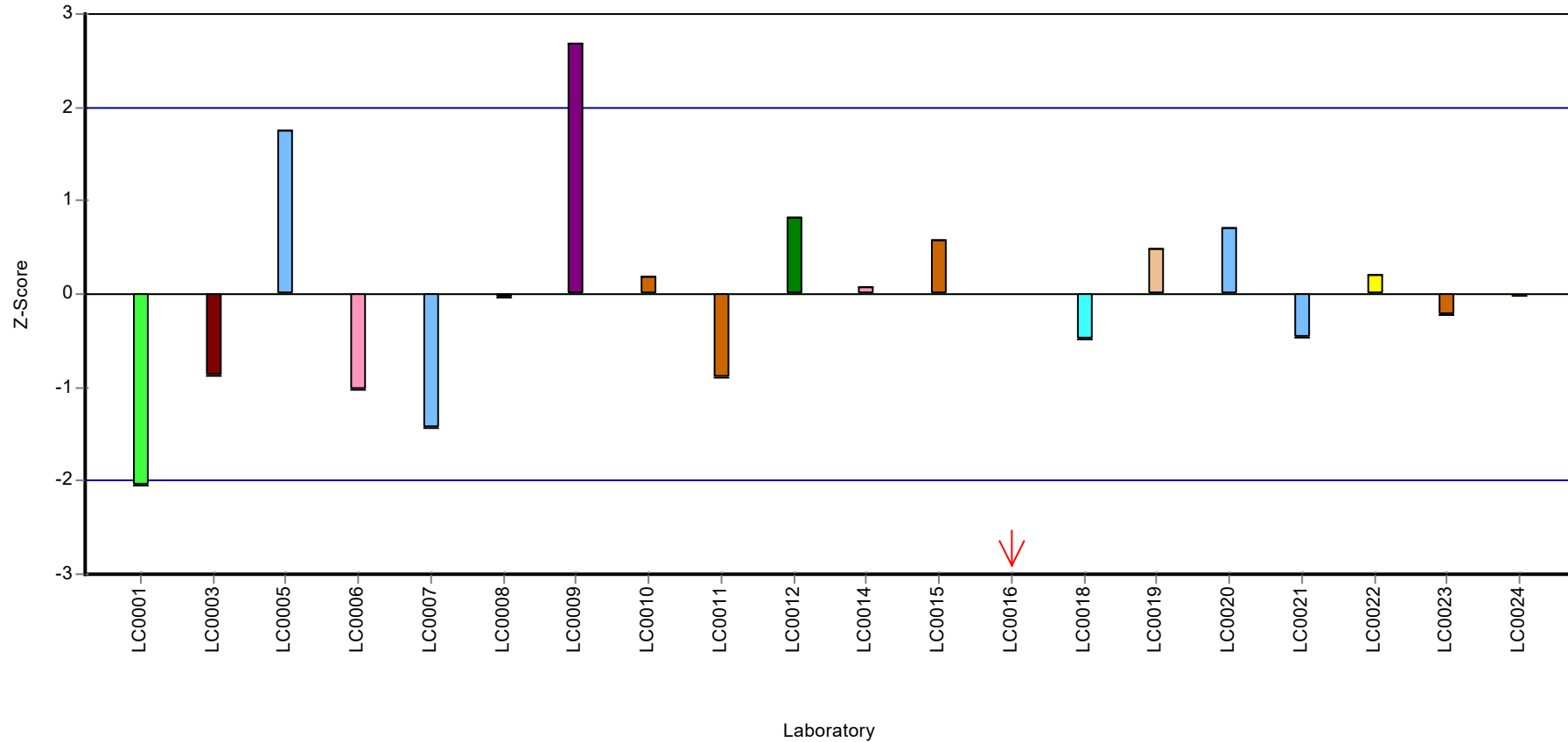
Parameter oriented report

CL10 - CHC

cis-1,2-Dichloroethene

Unit	µg/tube
Assigned value ± U (k=2)	2.89 ± 0.494
Criterion	1.07 (37 %)
Minimum - Maximum	0.75 - 4.19
Control test value ± U (k=2)	3.64 ± 0.619

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	2.54	0.45	87.9	-0.33	
LC0002	3.022	0.453	105	0.12	
LC0003	1.39	0.141	48.1	-1.4	
LC0004	4.03	1	139	1.07	
LC0005	3.82	0.41	132	0.87	
LC0006	3.132	0.63	108	0.23	
LC0007	0.75	0.33	26	-2	
LC0008	2.64	0.74	91.4	-0.23	
LC0009	3.61	0.72	125	0.67	
LC0012	3.95	0.79	137	0.99	
LC0013	4.19	0.629	145	1.22	
LC0014	2.569	0.26	88.9	-0.3	
LC0015	-	-	-	-	
LC0016	-	-	-	-	
LC0017	1.743	0.131	60.3	-1.07	
LC0020	3.821	0.722	132	0.87	
LC0021	2.77	0.139	95.9	-0.11	
LC0022	3.43	0.257	119	0.51	
LC0025	1.71	0.1	59.2	-1.1	

Characteristics of parameter

	all results	without outliers	Unit
Mean ± CI (99%)	2.89 ± 0.74	2.89 ± 0.74	µg/tube
Minimum	0.75	0.75	µg/tube
Maximum	4.19	4.19	µg/tube
Standard deviation	1.02	1.02	µg/tube
rel. standard deviation	35.2	35.2	%
n	17	17	-

Graphical presentation of results

Results
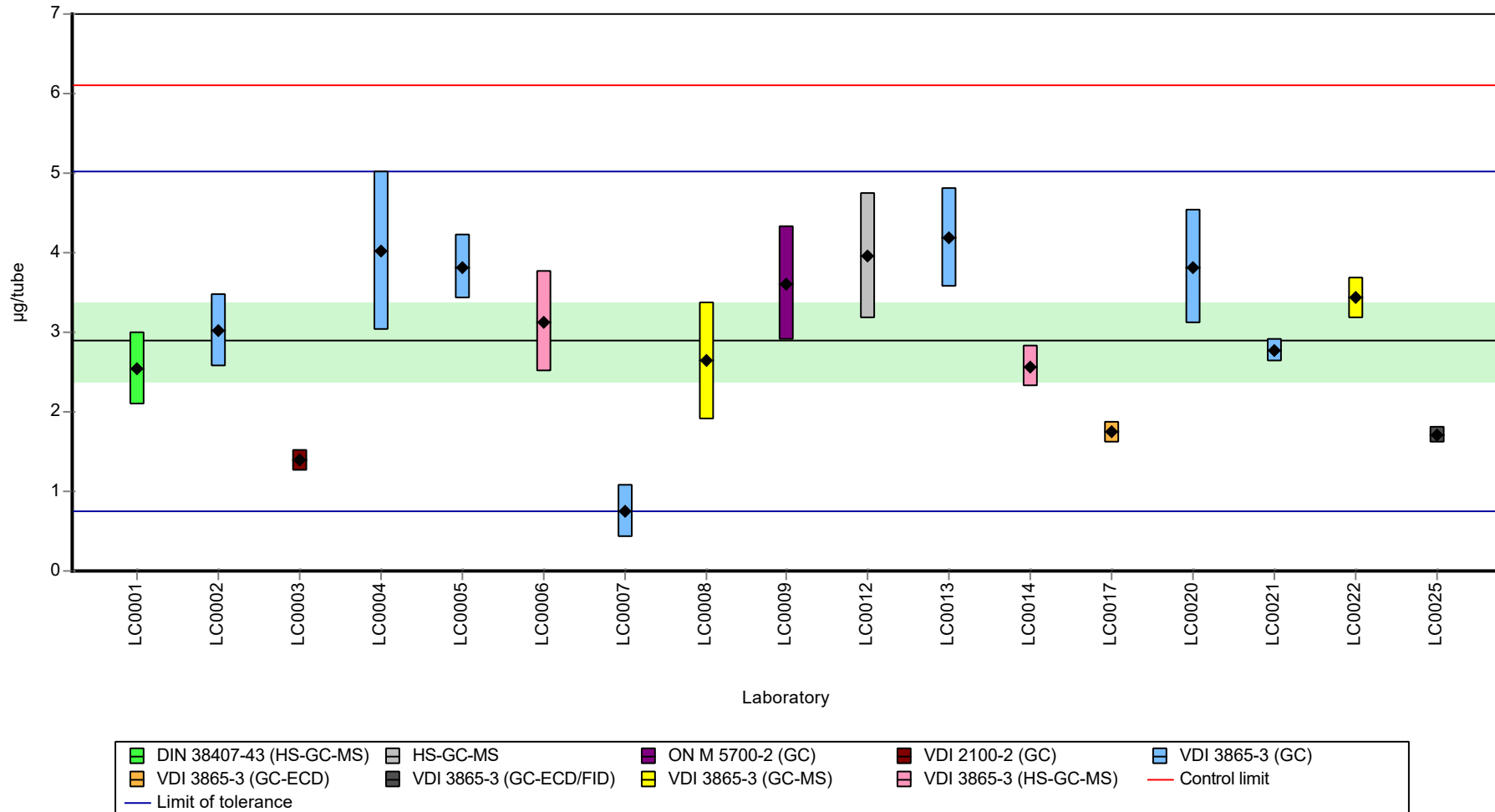
Recovery rate
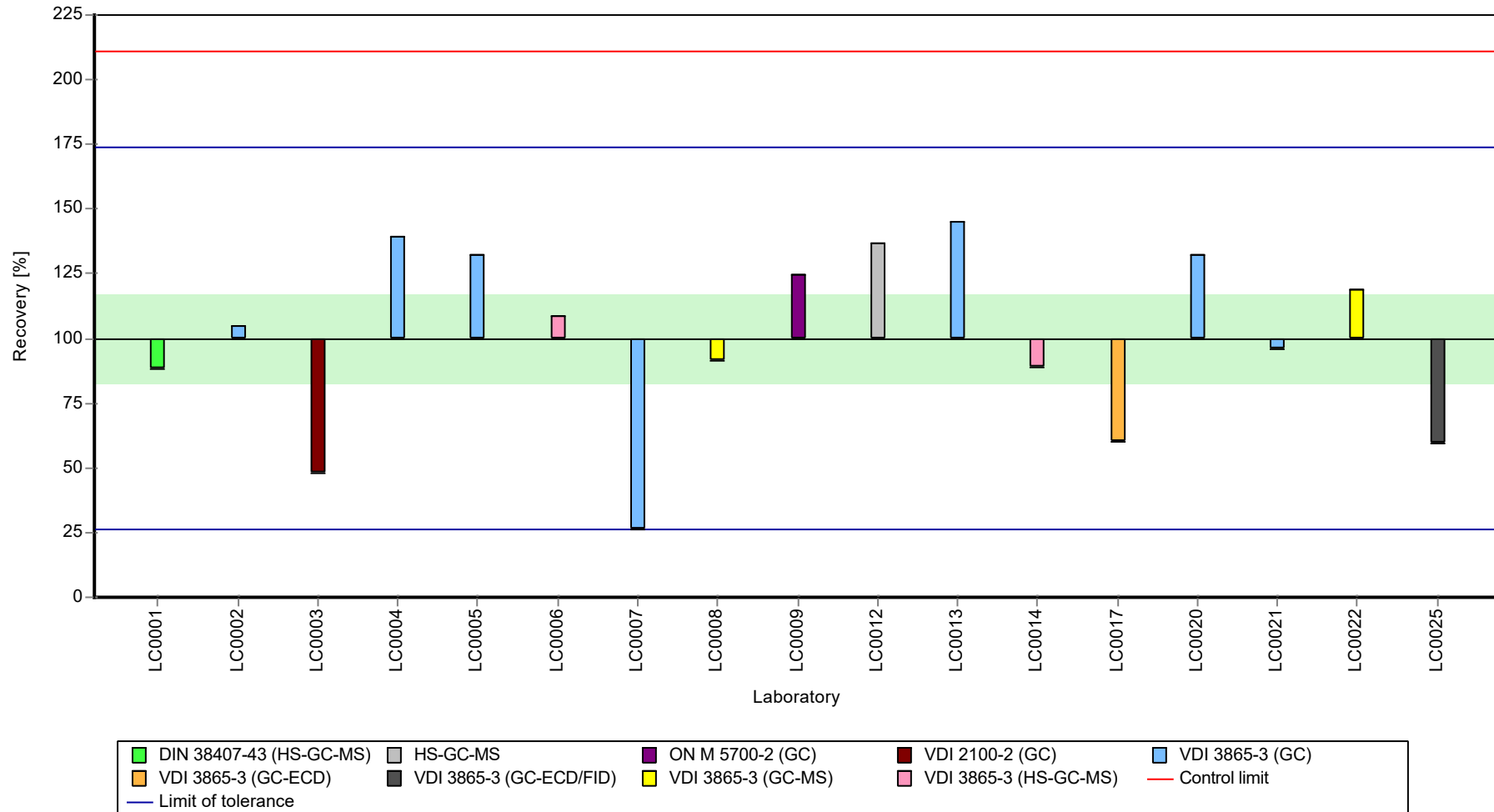
Z-score
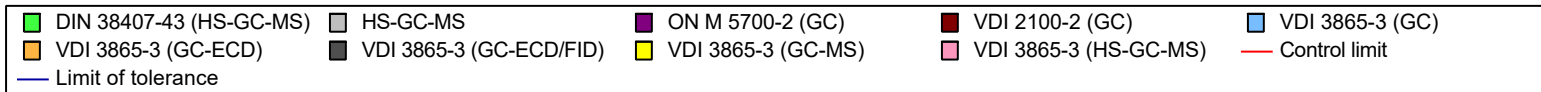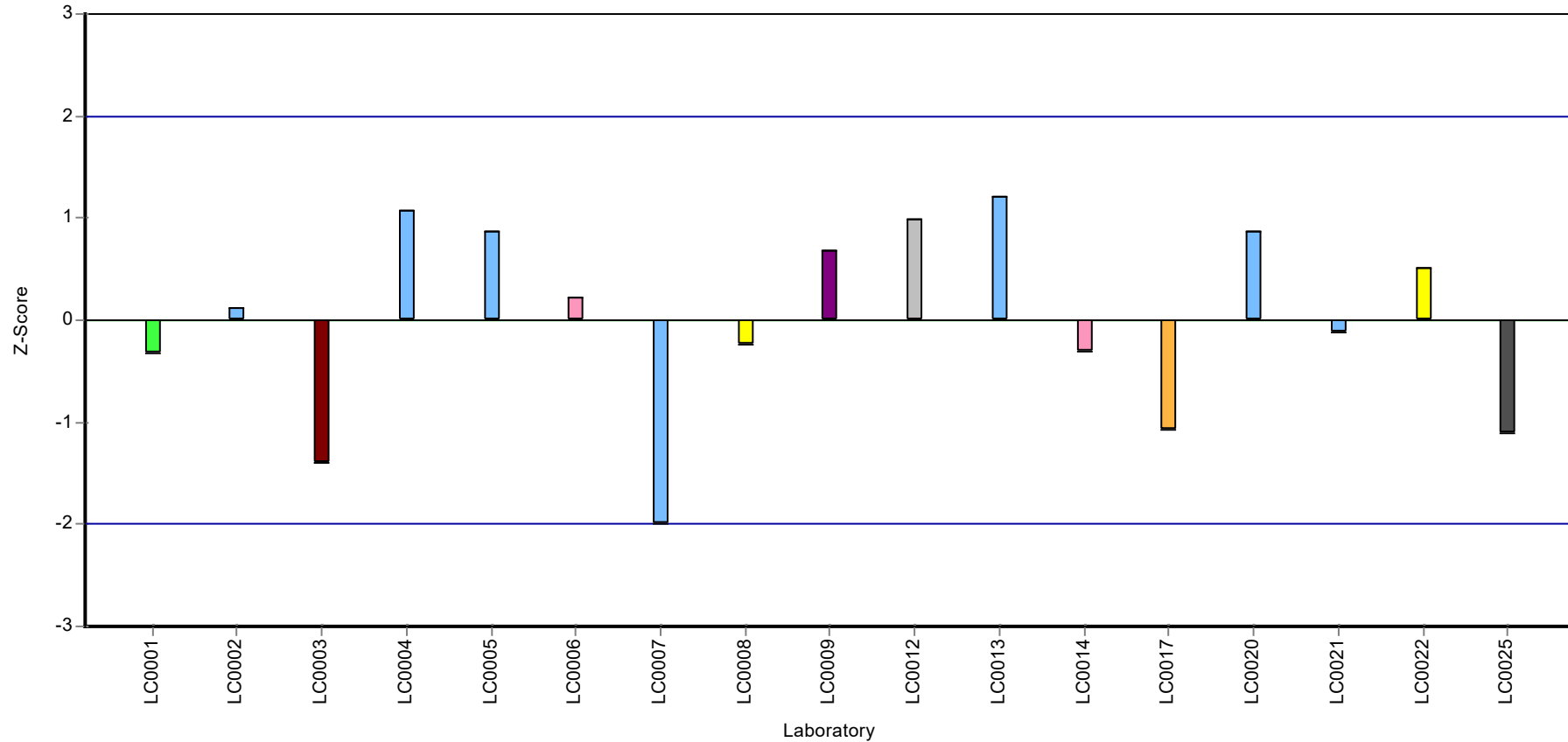
Parameter oriented report

BL11 - BTEX & C5-C10

Ethylbenzene

Unit	µg/tube
Assigned value ± U (k=2)	5.33 ± 0.579
Criterion	1.17 (22 %)
Minimum - Maximum	2.76 - 8.28
Control test value ± U (k=2)	4.50 ± 0.854

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	2.76	0.38	51.8	-2.19	
LC0003	4.29	0.139	80.5	-0.89	
LC0004	10.3	3	193	4.24	H
LC0005	8.28	0.85	155	2.52	
LC0006	4.138	0.83	77.7	-1.02	
LC0007	6.23	3.23	117	0.77	
LC0008	5.72	0.4	107	0.33	
LC0009	5.45	1.09	102	0.1	
LC0010	-	-	-	-	
LC0011	4.69	0.06	88	-0.54	
LC0012	5.8	1	109	0.4	
LC0014	5.612	0.73	105	0.24	
LC0015	5.1	0.76	95.7	-0.19	
LC0016	2.1	0.21	39.4	-2.75	H
LC0018	3.93	0.42	73.8	-1.19	
LC0019	6.011	0.673	113	0.58	
LC0020	6.189	0.668	116	0.73	
LC0021	5.625	0.281	106	0.25	
LC0022	5.26	0.395	98.7	-0.06	
LC0023	-	-	-	-	
LC0024	5.49	1.65	103	0.14	

Characteristics of parameter

	all results	without outliers	Unit
Mean ± CI (99%)	5.42 ± 1.23	5.33 ± 0.869	µg/tube
Minimum	2.1	2.76	µg/tube
Maximum	10.3	8.28	µg/tube
Standard deviation	1.79	1.19	µg/tube
rel. standard deviation	33.1	22.4	%
n	19	17	-

Graphical presentation of results
Results
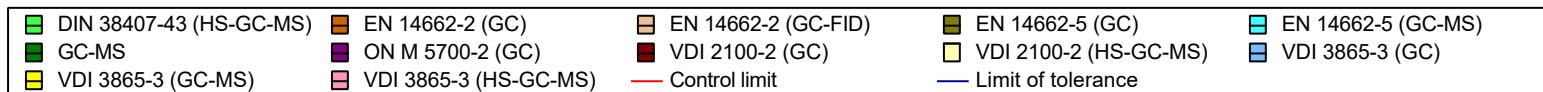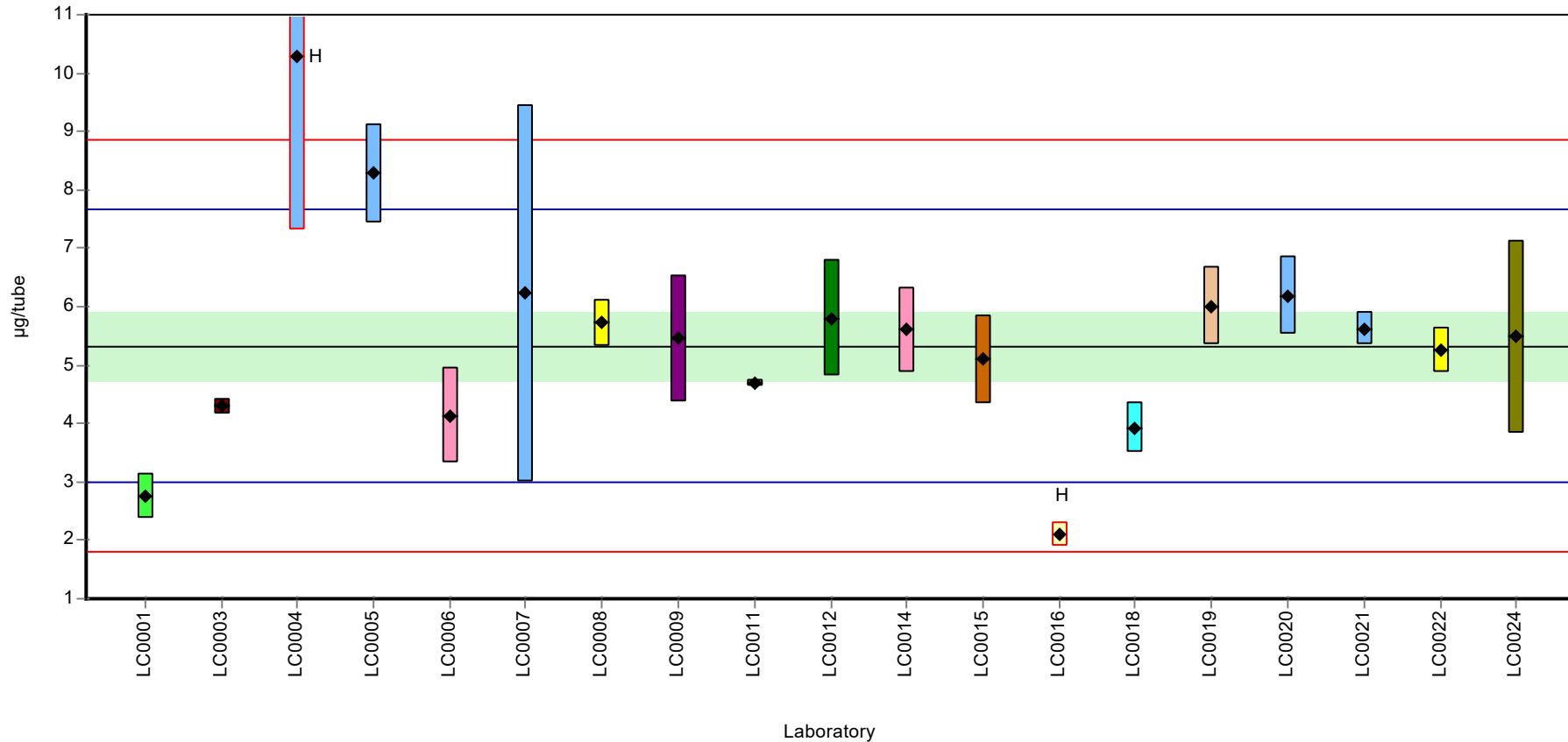
Laboratory

Legend				
■ DIN 38407-43 (HS-GC-MS)	■ EN 14662-2 (GC)	■ EN 14662-2 (GC-FID)	■ EN 14662-5 (GC)	■ EN 14662-5 (GC-MS)
■ GC-MS	■ ON M 5700-2 (GC)	■ VDI 2100-2 (GC)	□ VDI 2100-2 (HS-GC-MS)	■ VDI 3865-3 (GC)
■ VDI 3865-3 (GC-MS)	■ VDI 3865-3 (HS-GC-MS)	— Control limit	— Limit of tolerance	

Recovery rate

Z-score

Laboratory

■ DIN 38407-43 (HS-GC-MS)	■ EN 14662-2 (GC)	■ EN 14662-2 (GC-FID)	■ EN 14662-5 (GC)	■ EN 14662-5 (GC-MS)
■ GC-MS	■ ON M 5700-2 (GC)	■ VDI 2100-2 (GC)	■ VDI 2100-2 (HS-GC-MS)	■ VDI 3865-3 (GC)
■ VDI 3865-3 (GC-MS)	■ VDI 3865-3 (HS-GC-MS)	— Control limit	— Limit of tolerance	
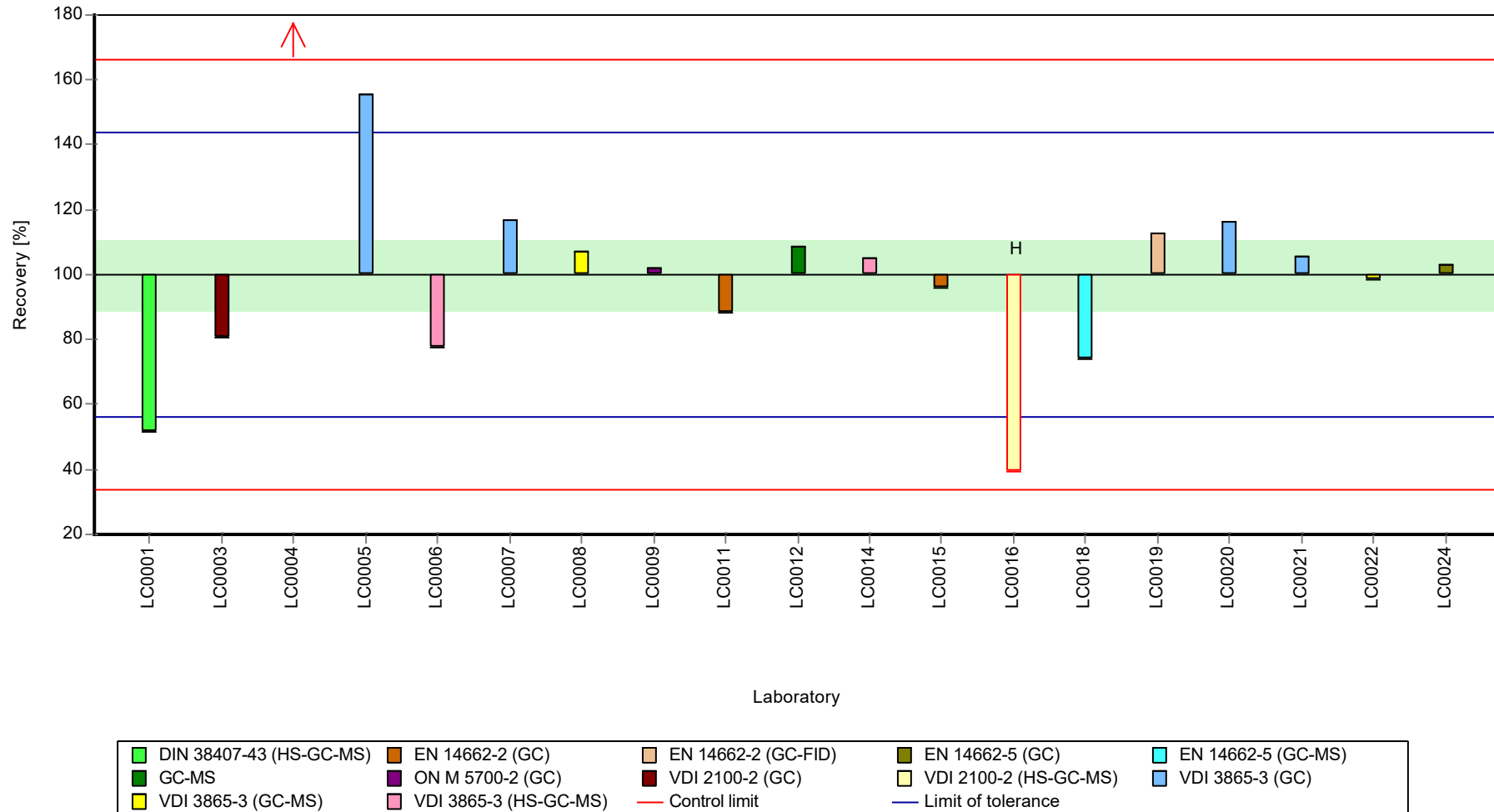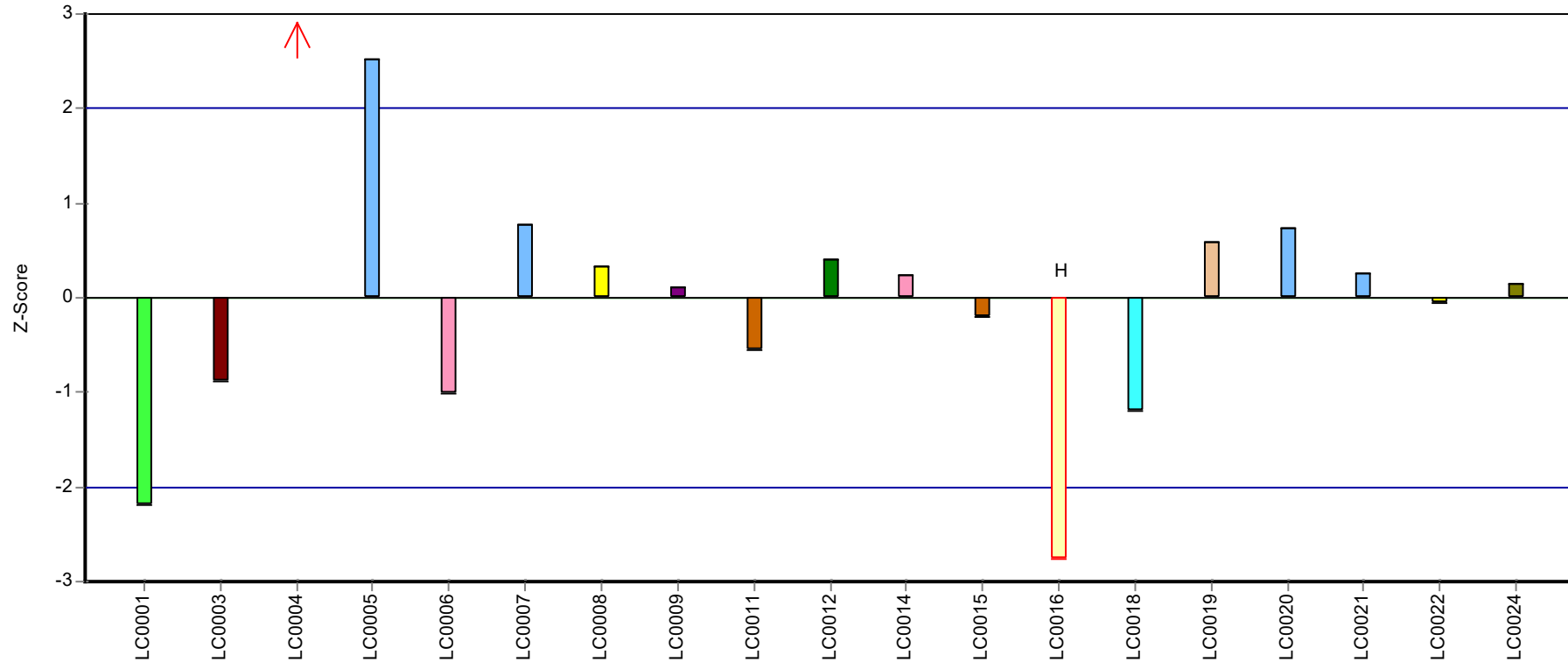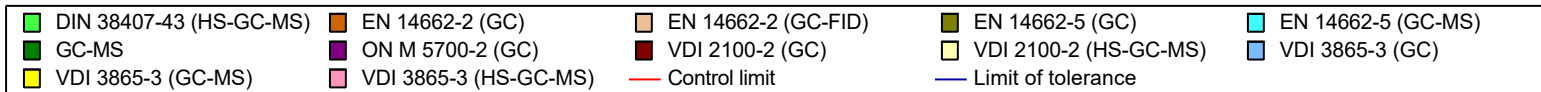
Parameter oriented report

BL11 - BTEX & C5-C10

n-Decane*

Unit	µg/tube
Assigned value ± U (k=2)	-
Criterion	-
Minimum - Maximum	1.41 - 4.19
Control test value ± U (k=2)	3.04 ± 0.487

*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) +/- U(k=2): 2.72 +/- 1.67 µg/tube

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	-	-	-	-	
LC0003	-	-	-	-	
LC0004	< 0.5 (LOQ)	-	-	-	FN
LC0005	10.93	1.08	-	-	H
LC0006	1.409	0.28	-	-	
LC0007	-	-	-	-	
LC0008	3.18	1.05	-	-	
LC0009	-	-	-	-	
LC0010	-	-	-	-	
LC0011	-	-	-	-	
LC0012	-	-	-	-	
LC0014	2.548	0.28	-	-	
LC0015	3.75	0.56	-	-	
LC0016	-	-	-	-	
LC0018	-	-	-	-	
LC0019	-	-	-	-	
LC0020	4.19	1.181	-	-	
LC0021	-	-	-	-	
LC0022	-	-	-	-	
LC0023	-	-	-	-	
LC0024	-	-	-	-	

Characteristics of parameter

	all results	without outliers	Unit
Mean ± CI (99%)	4.33 ± 4.13	-	µg/tube
Minimum	1.41	1.41	µg/tube
Maximum	10.9	4.19	µg/tube
Standard deviation	3.37	-	µg/tube
rel. standard deviation	77.9	-	%
n	6	5	-

Graphical presentation of results
Results
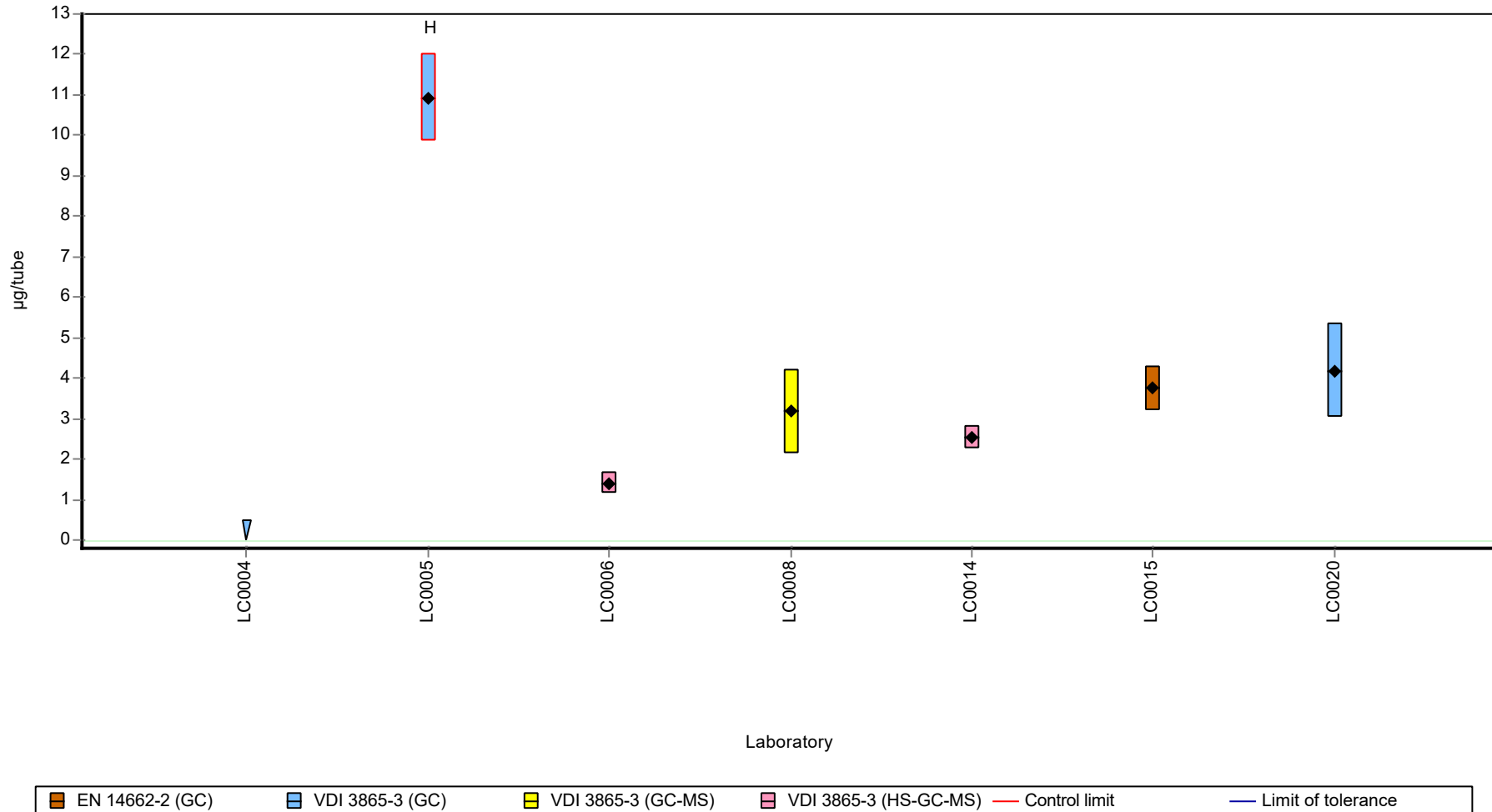
Laboratory

■ EN 14662-2 (GC)　　■ VDI 3865-3 (GC)　　■ VDI 3865-3 (GC-MS)　　■ VDI 3865-3 (HS-GC-MS)　── Control limit　　── Limit of tolerance

Parameter oriented report

BL11 - BTEX & C5-C10

n-Heptane

Unit	µg/tube
Assigned value ± U (k=2)	7.58 ± 1.19
Criterion	1.59 (21 %)
Minimum - Maximum	5.69 - 9.93
Control test value ± U (k=2)	6.56 ± 1.51

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	-	-	-	-	
LC0003	-	-	-	-	
LC0004	9.931	3	131	1.48	
LC0005	9.19	0.96	121	1.01	
LC0006	5.694	1.14	75.1	-1.18	
LC0007	-	-	-	-	
LC0008	6.31	1.73	83.3	-0.8	
LC0009	-	-	-	-	
LC0010	-	-	-	-	
LC0011	-	-	-	-	
LC0012	-	-	-	-	
LC0014	6.458	0.77	85.2	-0.7	
LC0015	8.06	1.21	106	0.3	
LC0016	-	-	-	-	
LC0018	-	-	-	-	
LC0019	-	-	-	-	
LC0020	7.41	0.682	97.8	-0.11	
LC0021	-	-	-	-	
LC0022	-	-	-	-	
LC0023	-	-	-	-	
LC0024	-	-	-	-	

Characteristics of parameter

	all results	without outliers	Unit
Mean ± CI (99%)	7.58 ± 1.78	7.58 ± 1.78	µg/tube
Minimum	5.69	5.69	µg/tube
Maximum	9.93	9.93	µg/tube
Standard deviation	1.57	1.57	µg/tube
rel. standard deviation	20.7	20.7	%
n	7	7	-

Graphical presentation of results

Results

Recovery rate

Z-score

Laboratory

| ■ EN 14662-2 (GC) | ■ VDI 3865-3 (GC) | ■ VDI 3865-3 (GC-MS) | ■ VDI 3865-3 (HS-GC-MS) | — Control limit | — Limit of tolerance |
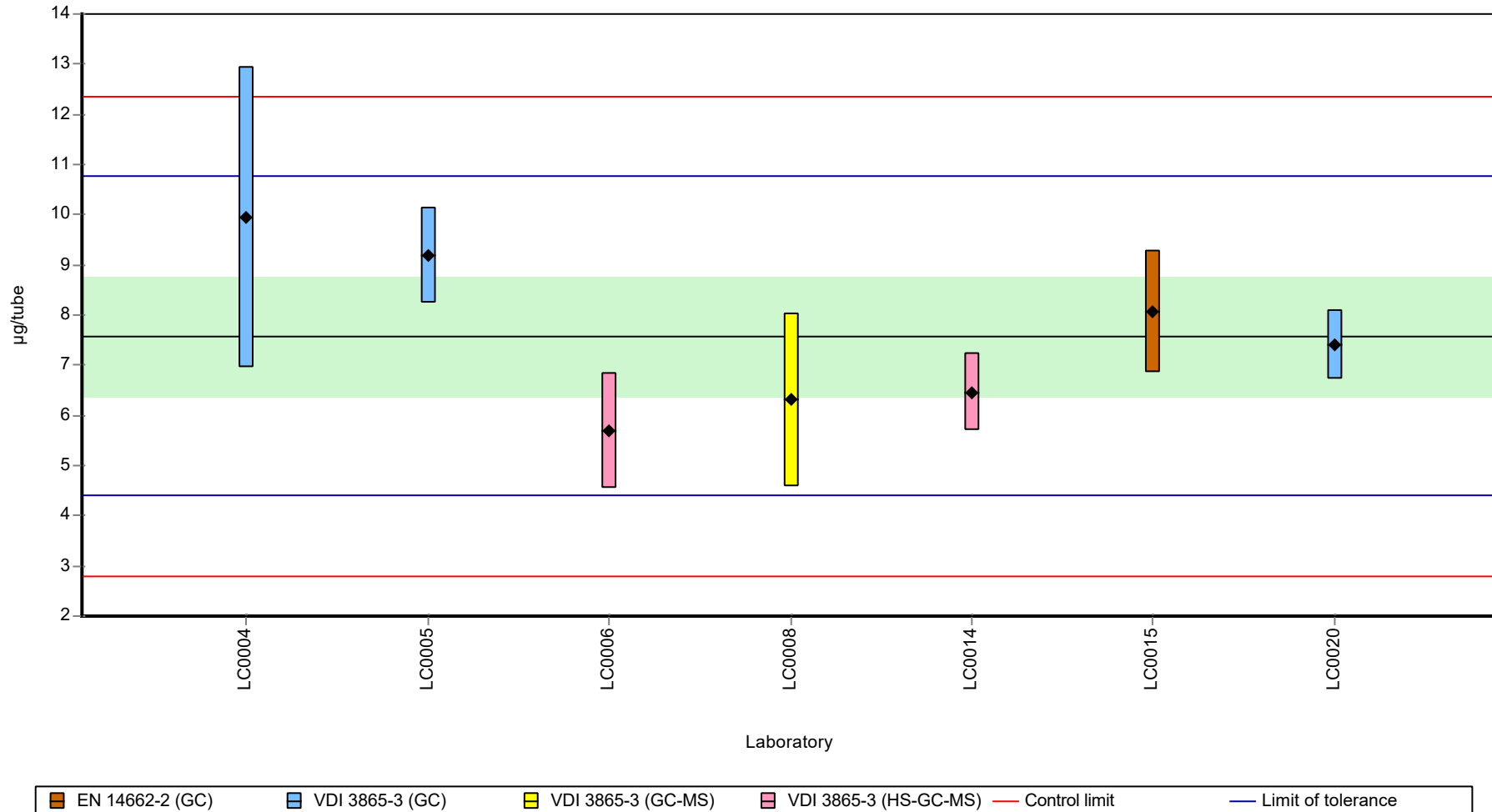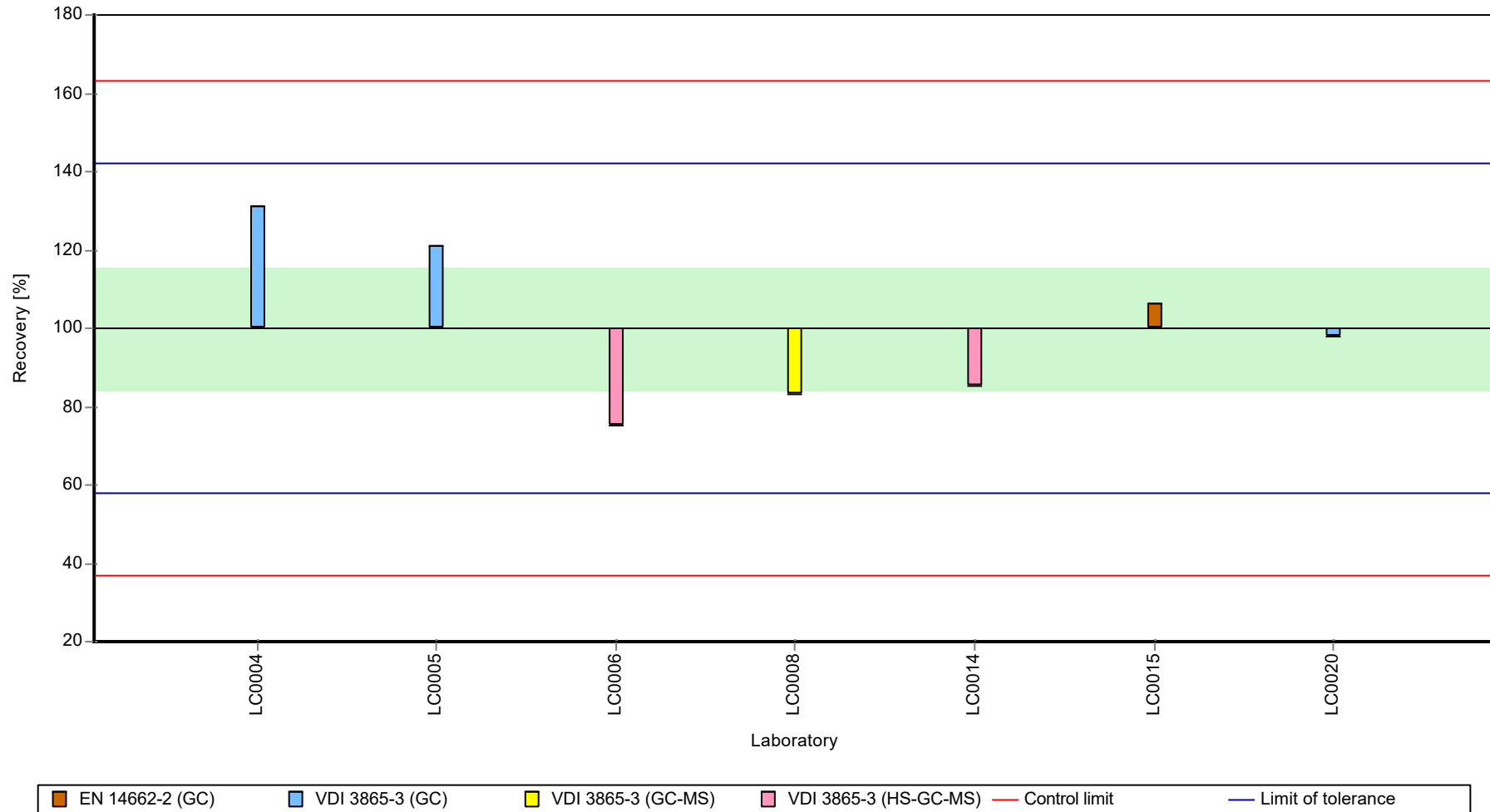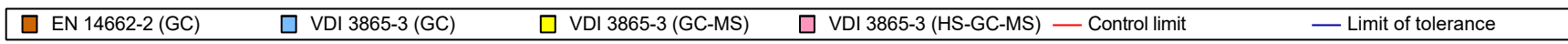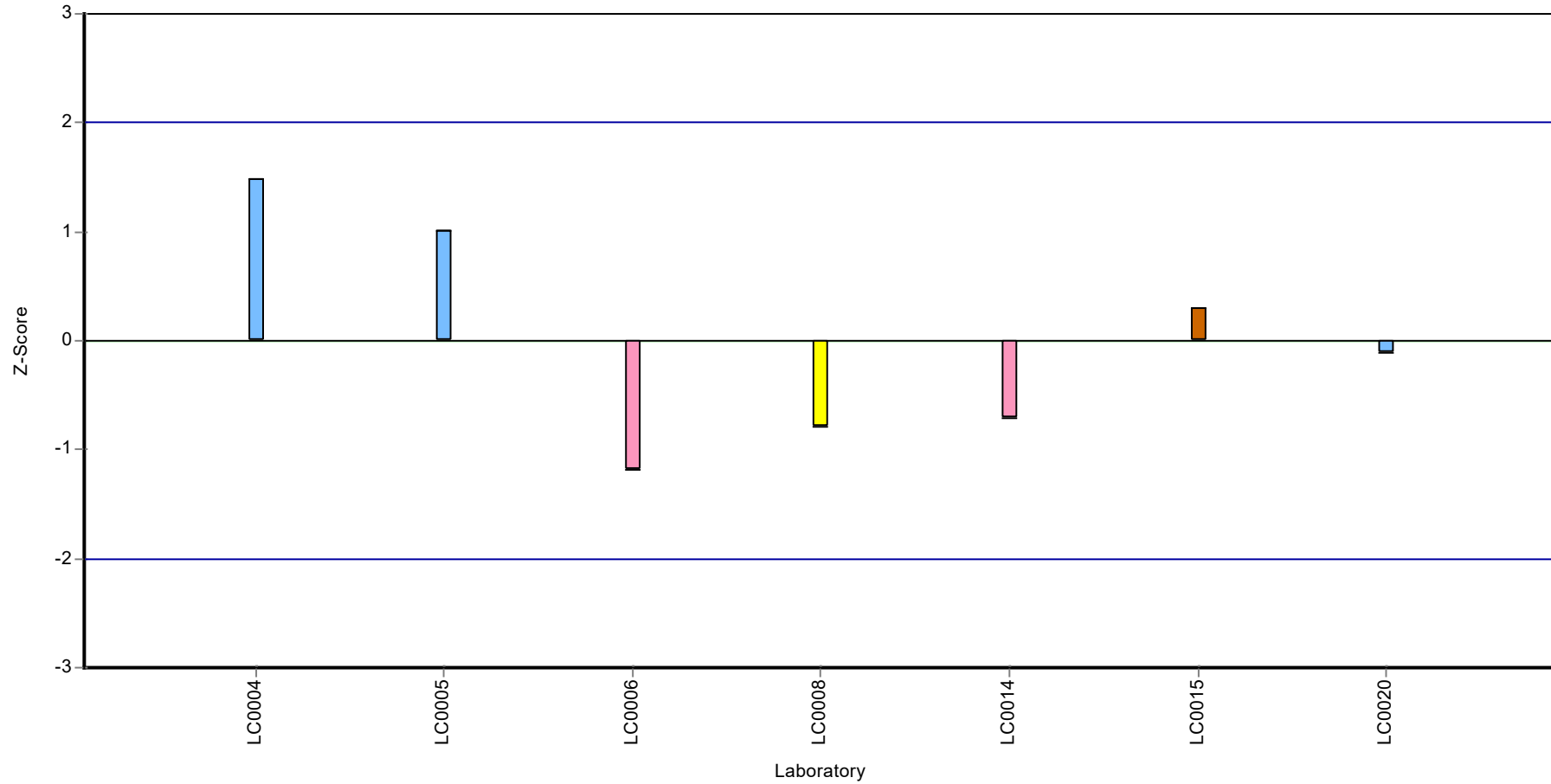
Parameter oriented report

BL11 - BTEX & C5-C10

n-Hexane

Unit	µg/tube
Assigned value ± U (k=2)	6.1 ± 0.928
Criterion	1.16 (19 %)
Minimum - Maximum	4.31 - 7.75
Control test value ± U (k=2)	6.52 ± 1.63

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	-	-	-	-	
LC0003	-	-	-	-	
LC0004	11.39	3	187	4.57	H
LC0005	4.31	0.41	70.7	-1.54	
LC0006	5.787	1.16	94.9	-0.27	
LC0007	-	-	-	-	
LC0008	6	0.8	98.4	-0.08	
LC0009	-	-	-	-	
LC0010	-	-	-	-	
LC0011	-	-	-	-	
LC0012	-	-	-	-	
LC0014	5.993	0.59	98.3	-0.09	
LC0015	6.75	1.01	111	0.56	
LC0016	-	-	-	-	
LC0018	-	-	-	-	
LC0019	-	-	-	-	
LC0020	7.746	0.462	127	1.42	
LC0021	-	-	-	-	
LC0022	-	-	-	-	
LC0023	-	-	-	-	
LC0024	-	-	-	-	

Characteristics of parameter

	all results	without outliers	Unit
Mean ± CI (99%)	6.85 ± 2.55	6.1 ± 1.39	µg/tube
Minimum	4.31	4.31	µg/tube
Maximum	11.4	7.75	µg/tube
Standard deviation	2.25	1.14	µg/tube
rel. standard deviation	32.9	18.6	%
n	7	6	-

Graphical presentation of results
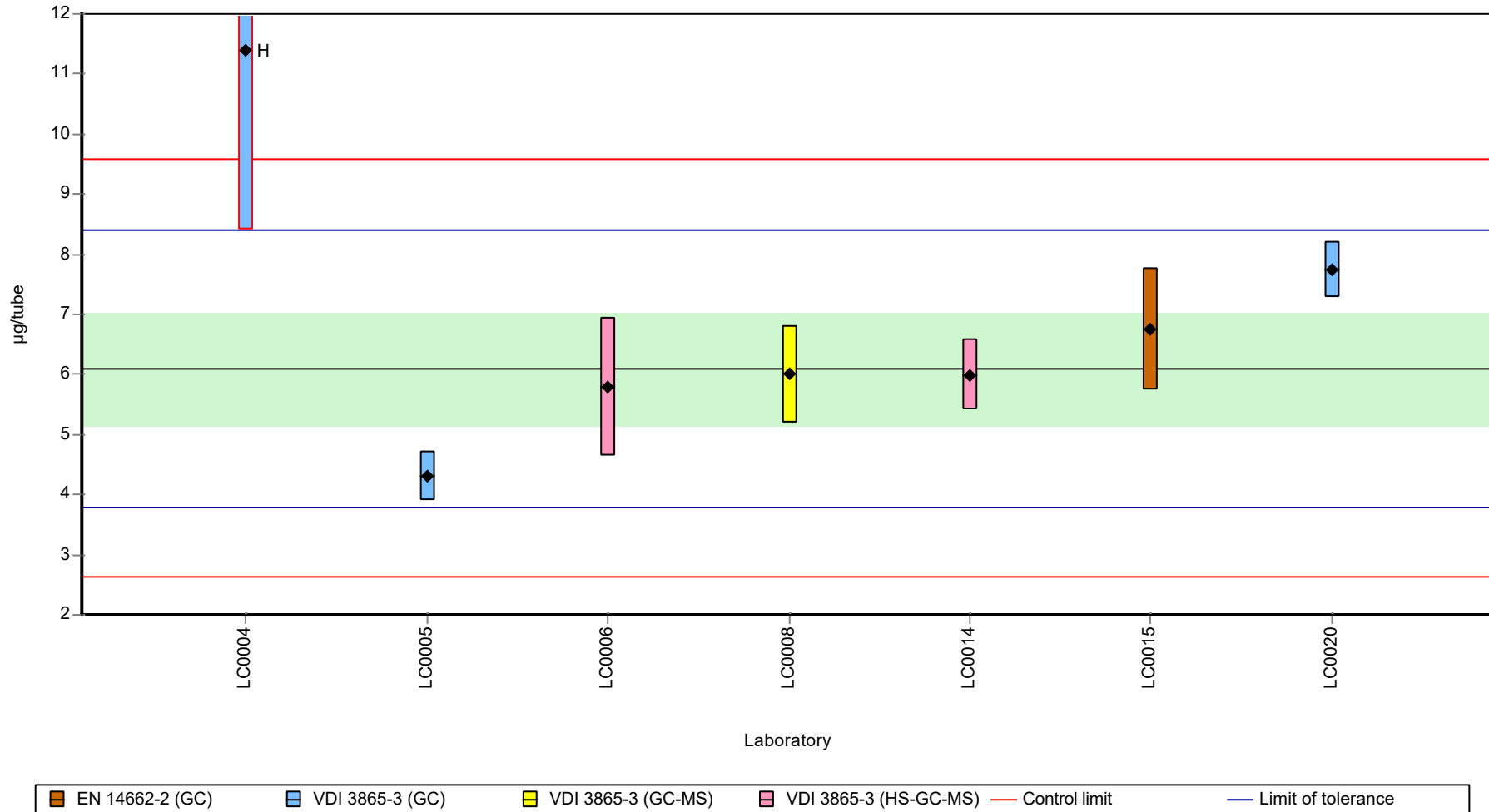
Results

Laboratory

| ■ EN 14662-2 (GC) | ■ VDI 3865-3 (GC) | ■ VDI 3865-3 (GC-MS) | ■ VDI 3865-3 (HS-GC-MS) | — Control limit | — Limit of tolerance |

Recovery rate

CBL09_Ausgabe/Edition 1_09.11.2023

Z-score

Laboratory

■ EN 14662-2 (GC)　　■ VDI 3865-3 (GC)　　■ VDI 3865-3 (GC-MS)　　■ VDI 3865-3 (HS-GC-MS)　　— Control limit　　— Limit of tolerance
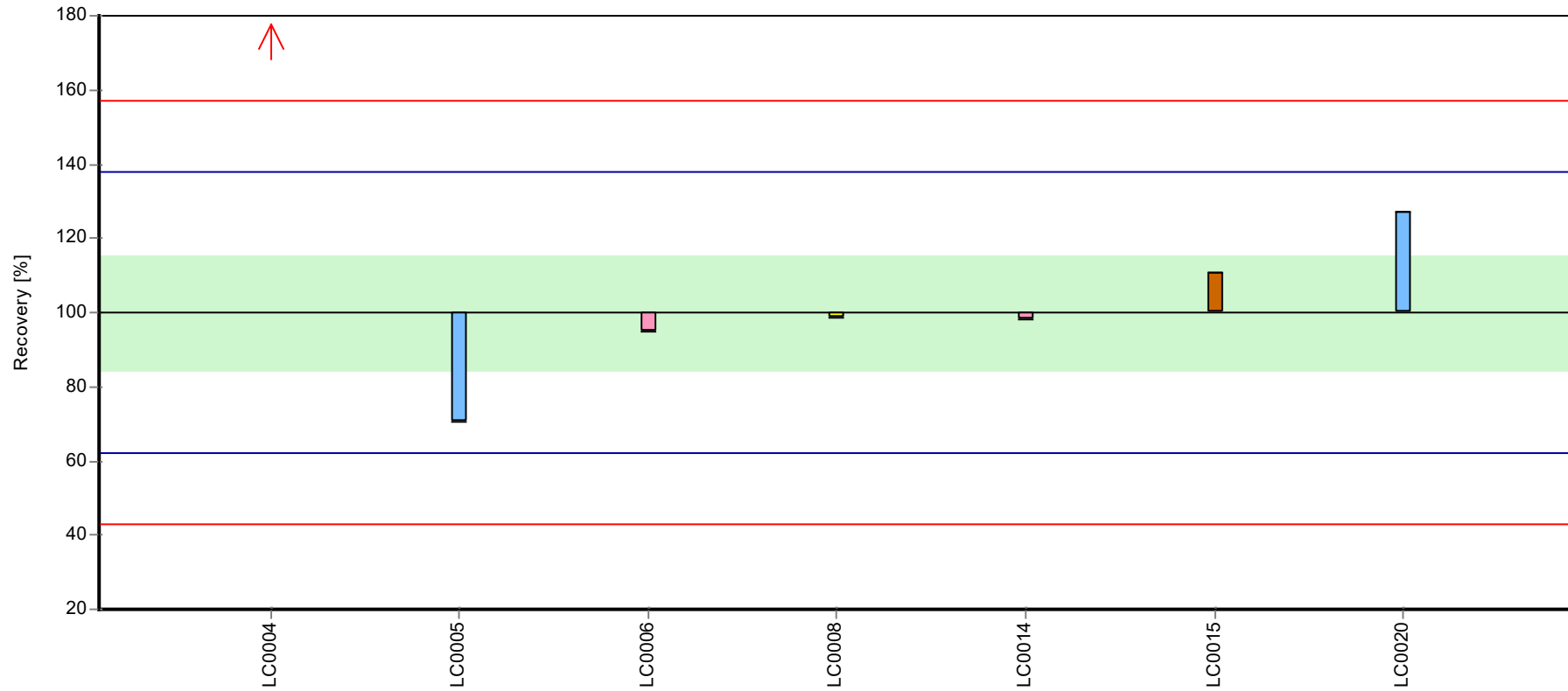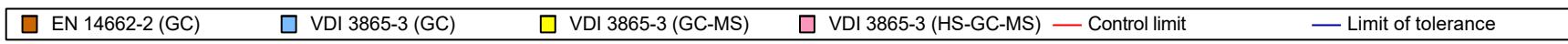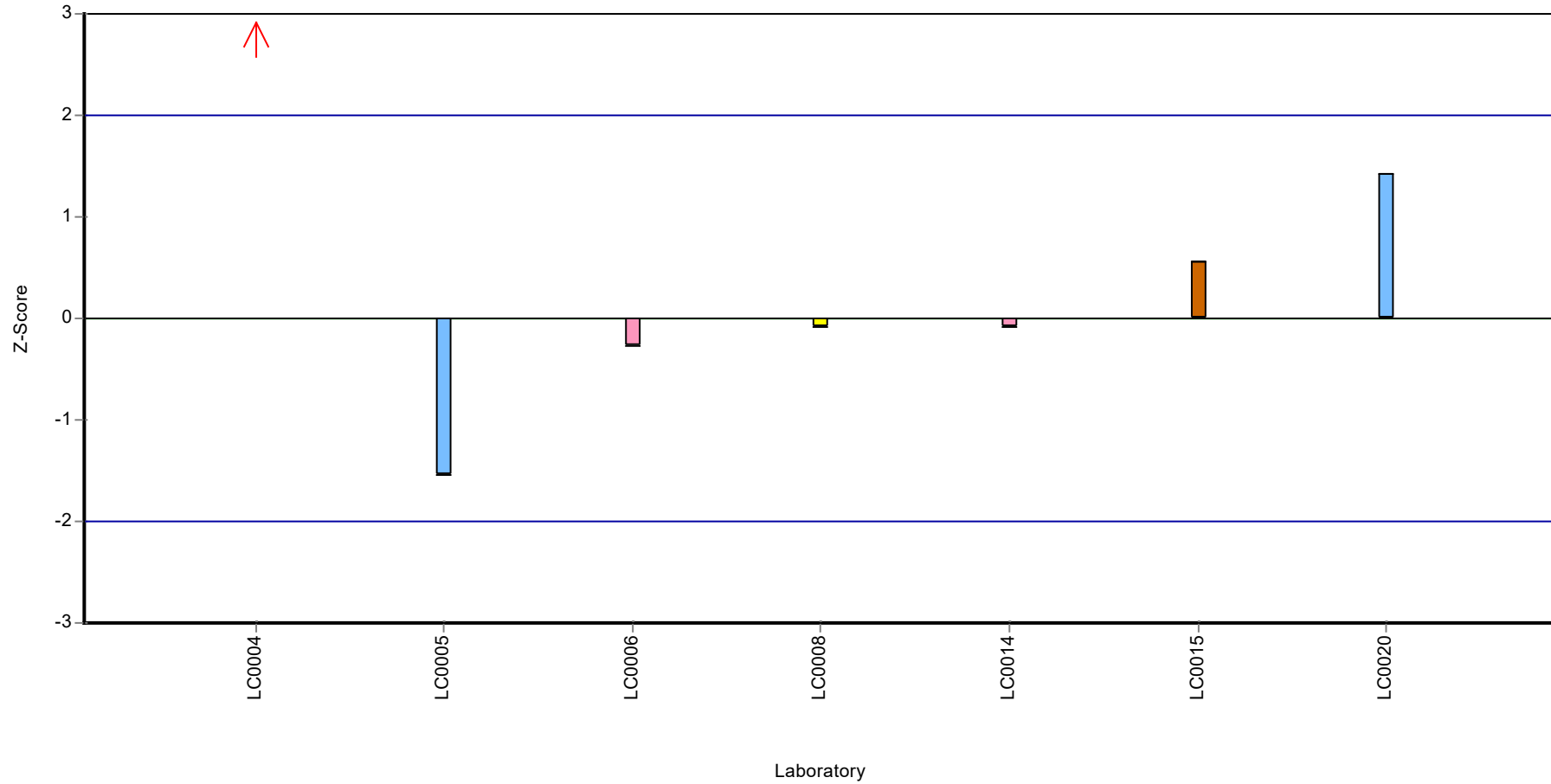
Parameter oriented report

BL11 - BTEX & C5-C10

n-Nonane*

Unit	µg/tube
Assigned value ± U (k=2)	-
Criterion	-
Minimum - Maximum	3.28 - 6.31
Control test value ± U (k=2)	4.86 ± 0.681

*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) +/- U(k=2): 4.87 +/- 1.61 µg/tube

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	-	-	-	-	
LC0003	-	-	-	-	
LC0004	< 0.5 (LOQ)	-	-	-	FN
LC0005	13.32	1.25	-	-	H
LC0006	3.28	0.66	-	-	
LC0007	-	-	-	-	
LC0008	5.03	1.53	-	-	
LC0009	-	-	-	-	
LC0010	-	-	-	-	
LC0011	-	-	-	-	
LC0012	-	-	-	-	
LC0014	5.003	0.55	-	-	
LC0015	5.95	0.89	-	-	
LC0016	-	-	-	-	
LC0018	-	-	-	-	
LC0019	-	-	-	-	
LC0020	6.312	1.207	-	-	
LC0021	-	-	-	-	
LC0022	-	-	-	-	
LC0023	-	-	-	-	
LC0024	-	-	-	-	

Characteristics of parameter

	all results	without outliers	Unit
Mean ± CI (99%)	6.48 ± 4.3	-	µg/tube
Minimum	3.28	3.28	µg/tube
Maximum	13.3	6.31	µg/tube
Standard deviation	3.51	-	µg/tube
rel. standard deviation	54.2	-	%
n	6	5	-

Graphical presentation of results
Results
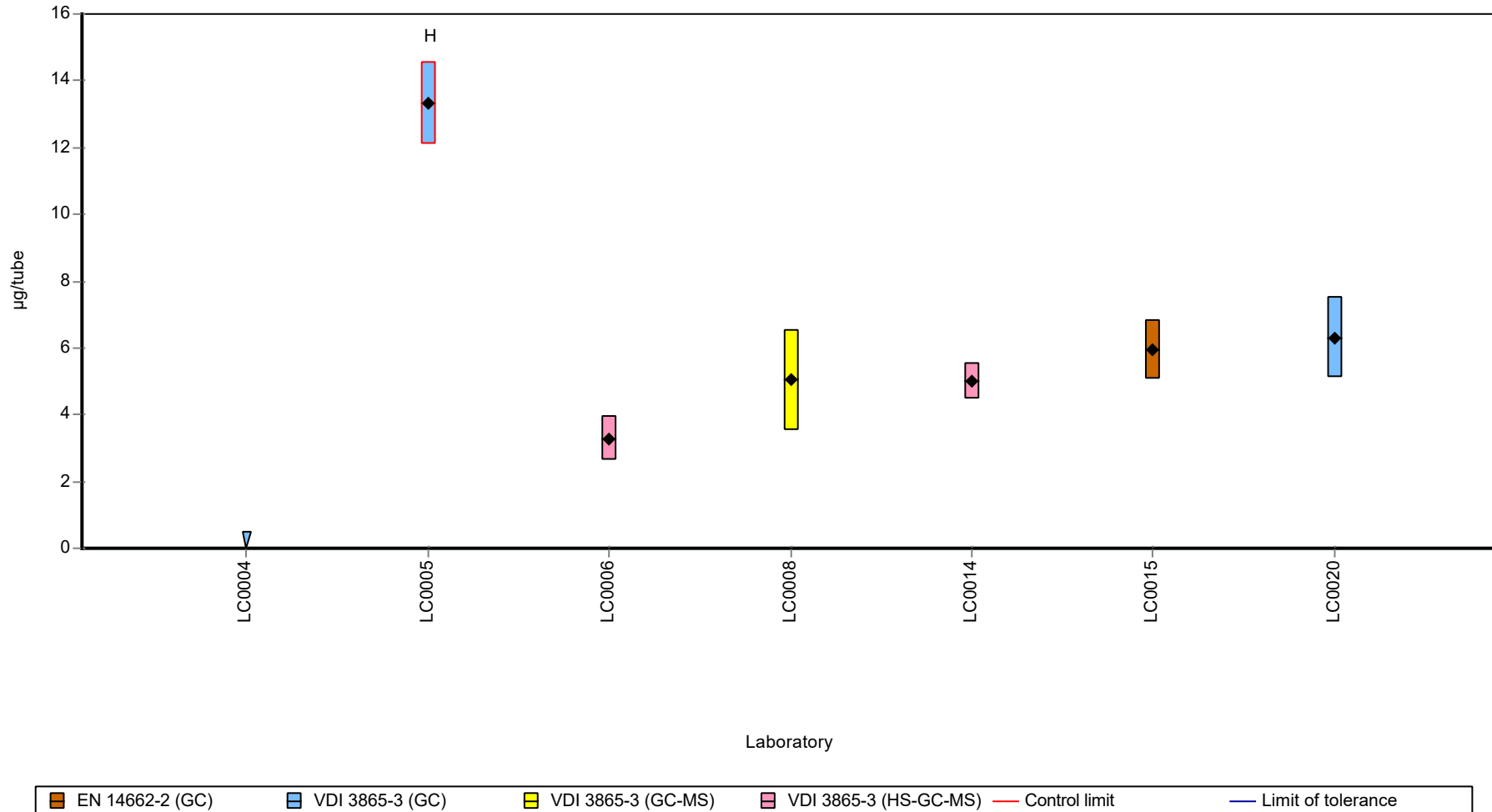
Laboratory

| ■ EN 14662-2 (GC) | ■ VDI 3865-3 (GC) | ■ VDI 3865-3 (GC-MS) | ■ VDI 3865-3 (HS-GC-MS) | — Control limit | — Limit of tolerance |

Parameter oriented report

BL11 - BTEX & C5-C10

n-Octane

Unit	µg/tube
Assigned value ± U (k=2)	6.07 ± 0.74
Criterion	0.91 (15 %)
Minimum - Maximum	4.79 - 7.27
Control test value ± U (k=2)	6.12 ± 1.59

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	-	-	-	-	
LC0003	-	-	-	-	
LC0004	5.261	2	86.7	-0.89	
LC0005	12.83	1.28	211	7.43	H
LC0006	4.794	0.96	79	-1.4	
LC0007	-	-	-	-	
LC0008	6.16	1.67	102	0.1	
LC0009	-	-	-	-	
LC0010	-	-	-	-	
LC0011	-	-	-	-	
LC0012	-	-	-	-	
LC0014	6.646	0.86	110	0.63	
LC0015	6.28	0.94	103	0.23	
LC0016	-	-	-	-	
LC0018	-	-	-	-	
LC0019	-	-	-	-	
LC0020	7.271	0.716	120	1.32	
LC0021	-	-	-	-	
LC0022	-	-	-	-	
LC0023	-	-	-	-	
LC0024	-	-	-	-	

Characteristics of parameter

	all results	without outliers	Unit
Mean ± CI (99%)	7.03 ± 3.05	6.07 ± 1.11	µg/tube
Minimum	4.79	4.79	µg/tube
Maximum	12.8	7.27	µg/tube
Standard deviation	2.69	0.907	µg/tube
rel. standard deviation	38.2	14.9	%
n	7	6	-

Graphical presentation of results
Results

Laboratory

| ■ EN 14662-2 (GC) | ■ VDI 3865-3 (GC) | ■ VDI 3865-3 (GC-MS) | ■ VDI 3865-3 (HS-GC-MS) | —— Control limit | —— Limit of tolerance |

Recovery rate

Laboratory

| ■ EN 14662-2 (GC) | ■ VDI 3865-3 (GC) | ■ VDI 3865-3 (GC-MS) | ■ VDI 3865-3 (HS-GC-MS) | —— Control limit | —— Limit of tolerance |

Z-score

Laboratory
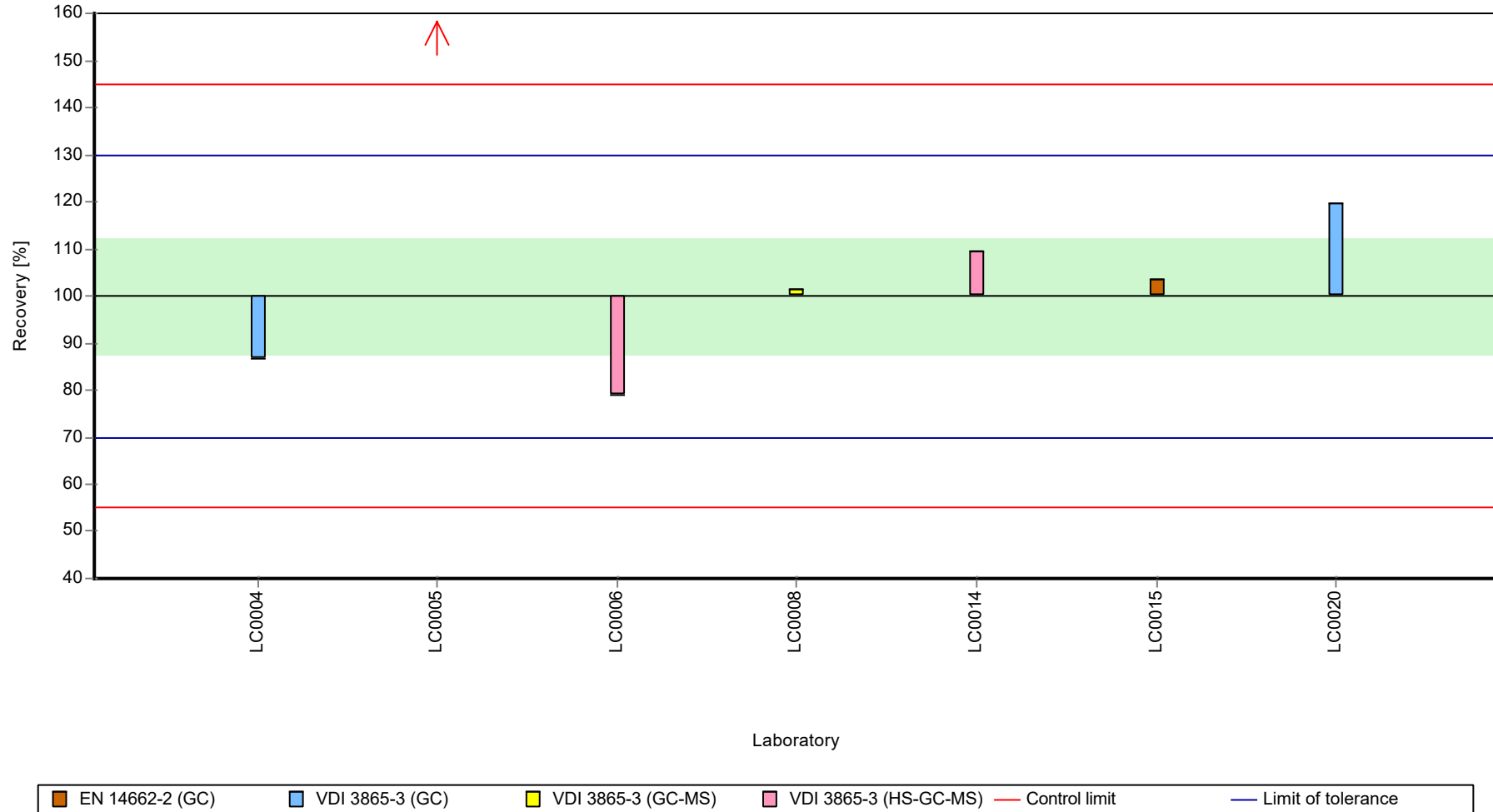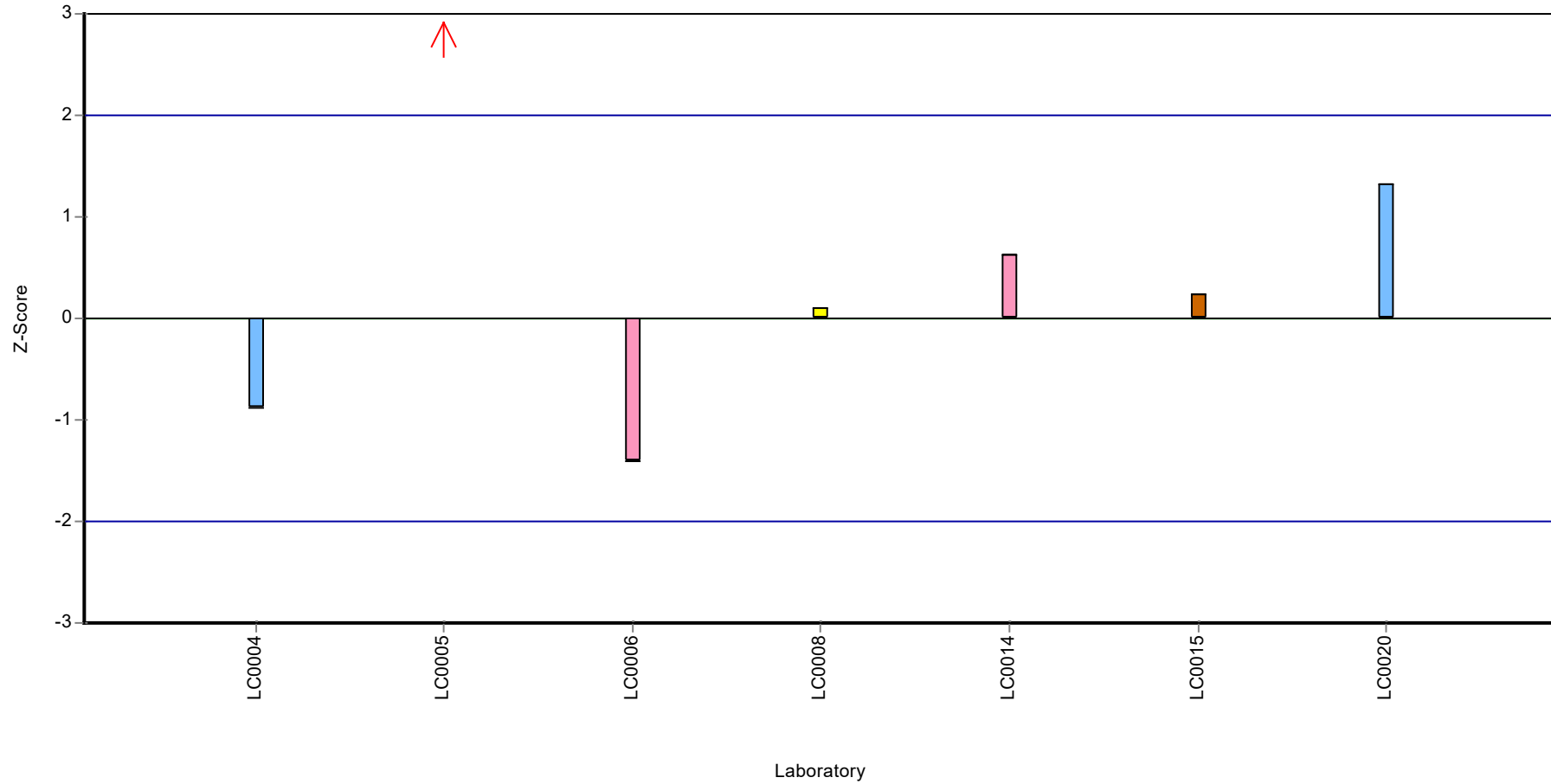
| ■ EN 14662-2 (GC) | ■ VDI 3865-3 (GC) | ■ VDI 3865-3 (GC-MS) | ■ VDI 3865-3 (HS-GC-MS) | —— Control limit | —— Limit of tolerance |

Parameter oriented report

BL11 - BTEX & C5-C10

n-Pentane

Unit	µg/tube
Assigned value ± U (k=2)	6.78 ± 1.52
Criterion	1.9 (28 %)
Minimum - Maximum	5.13 - 10.3
Control test value ± U (k=2)	7.73 ± 2.01

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	-	-	-	-	
LC0003	-	-	-	-	
LC0004	10.28	3	152	1.85	
LC0005	7.19	0.69	106	0.22	
LC0006	5.125	1.02	75.6	-0.87	
LC0007	-	-	-	-	
LC0008	5.49	1.44	81	-0.68	
LC0009	-	-	-	-	
LC0010	-	-	-	-	
LC0011	-	-	-	-	
LC0012	-	-	-	-	
LC0014	6.117	0.67	90.3	-0.35	
LC0015	-	-	-	-	
LC0016	-	-	-	-	
LC0018	-	-	-	-	
LC0019	-	-	-	-	
LC0020	6.464	0.685	95.4	-0.17	
LC0021	-	-	-	-	
LC0022	-	-	-	-	
LC0023	-	-	-	-	
LC0024	-	-	-	-	

Characteristics of parameter

	all results	w ithout outliers	Unit
Mean ± CI (99%)	6.78 ± 2.28	6.78 ± 2.28	µg/tube
Minimum	5.13	5.13	µg/tube
Maximum	10.3	10.3	µg/tube
Standard deviation	1.86	1.86	µg/tube
rel. standard deviation	27.5	27.5	%
n	6	6	-

Graphical presentation of results

Results

Laboratory

| ■ VDI 3865-3 (GC) | ■ VDI 3865-3 (GC-MS) | ■ VDI 3865-3 (HS-GC-MS) | — Control limit | — Limit of tolerance |
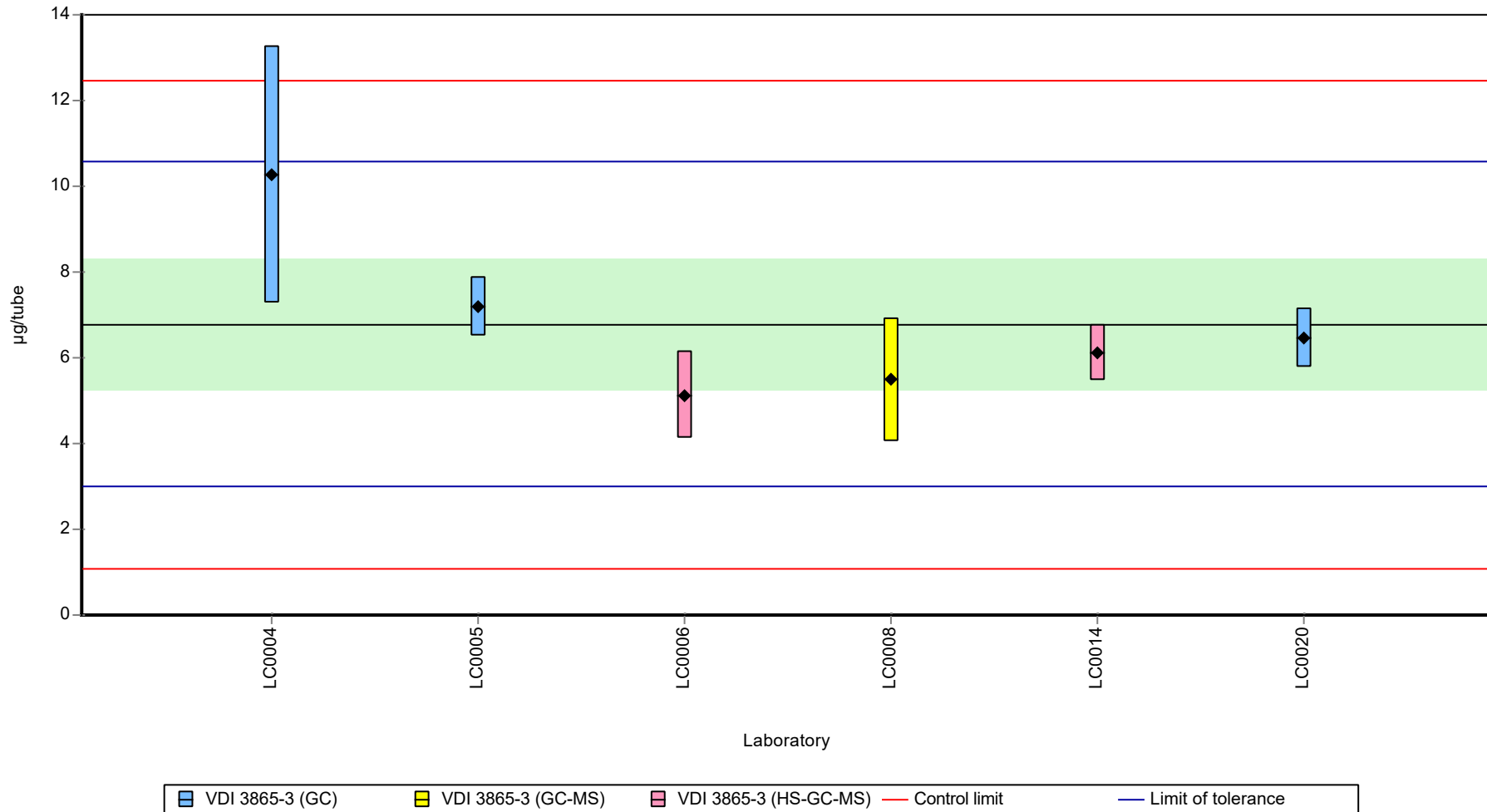
Recovery rate
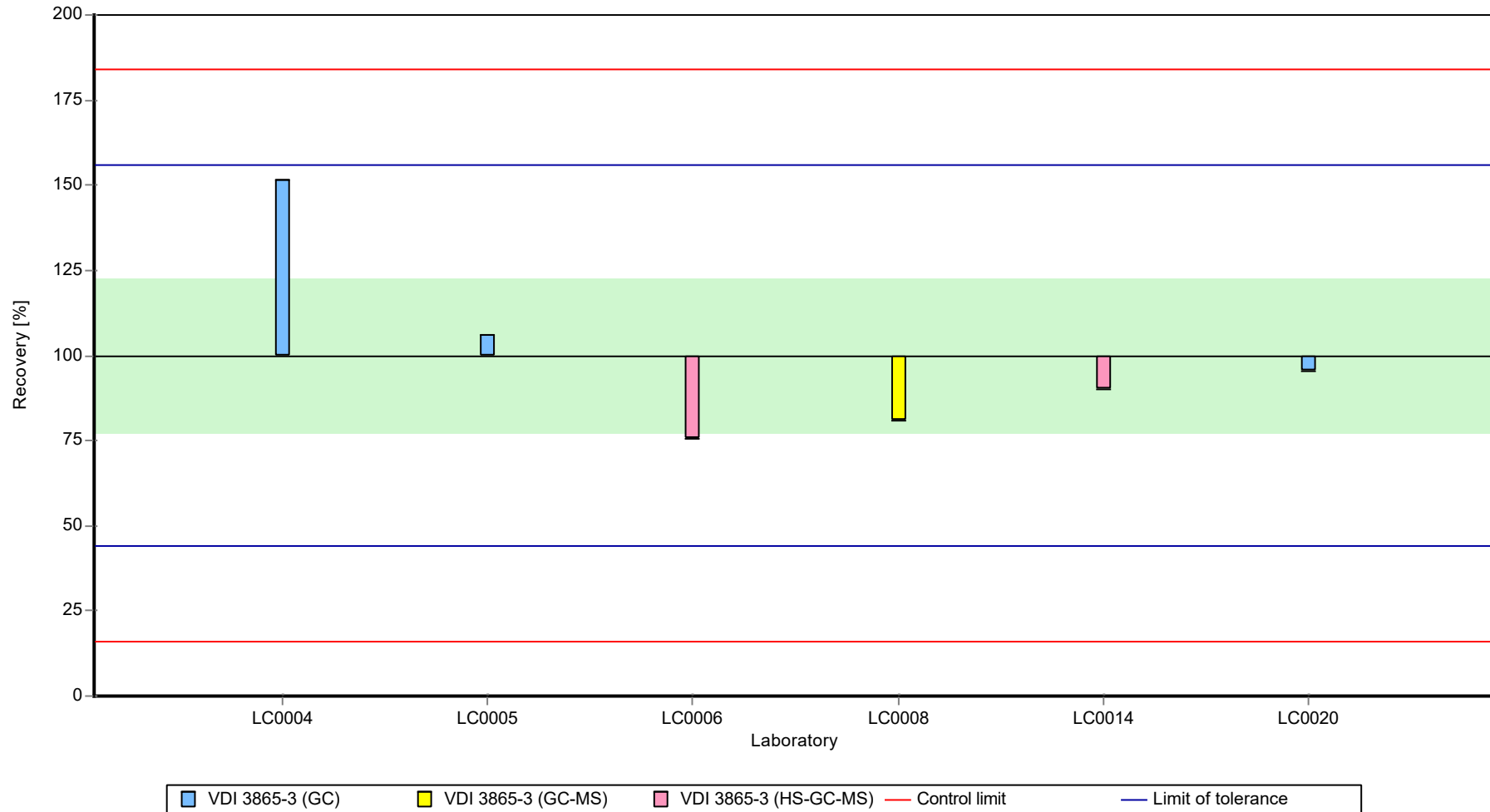
Z-score
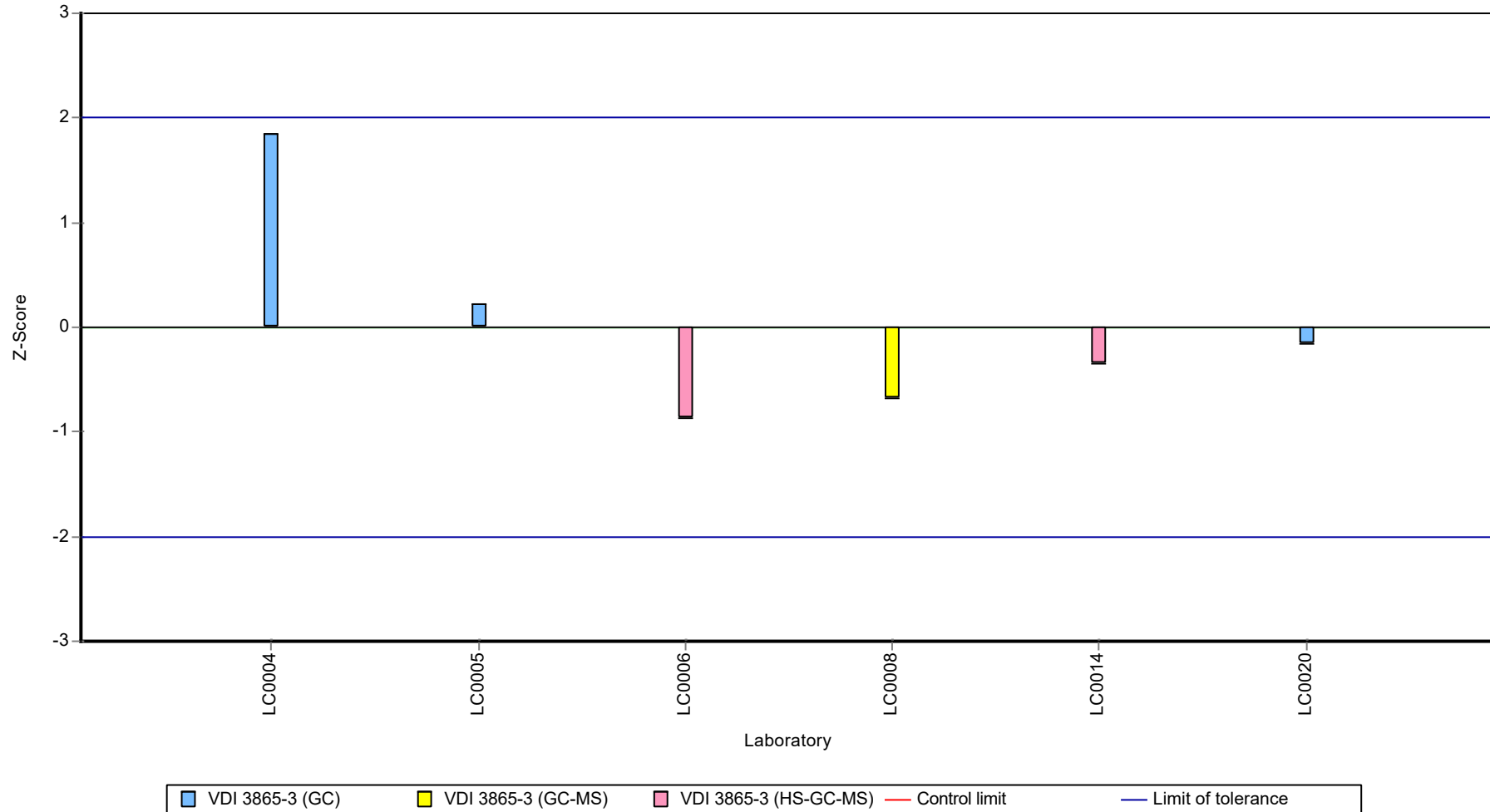
Parameter oriented report

BL11 - BTEX & C5-C10

o-Xylene

Unit	µg/tube
Assigned value ± U (k=2)	4.72 ± 0.398
Criterion	0.85 (18 %)
Minimum - Maximum	2.96 - 5.52
Control test value ± U (k=2)	3.97 ± 0.793

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	2.31	0.35	48.9	-2.84	H
LC0003	3.67	0.314	77.7	-1.24	
LC0004	9.285	3	197	5.37	H
LC0005	9.26	0.91	196	5.34	H
LC0006	3.571	0.71	75.6	-1.35	
LC0007	4.73	2.45	100	0.01	
LC0008	5.21	0.47	110	0.57	
LC0009	4.91	0.98	104	0.22	
LC0010	-	-	-	-	
LC0011	4.24	0.07	89.8	-0.57	
LC0012	5.52	1.104	117	0.94	
LC0014	5.31	0.53	112	0.69	
LC0015	4.82	0.72	102	0.12	
LC0016	1.16	0.12	24.6	-4.19	H
LC0018	2.96	0.36	62.7	-2.07	
LC0019	5.392	0.609	114	0.79	
LC0020	5.376	0.868	114	0.77	
LC0021	5.153	0.258	109	0.51	
LC0022	4.8	0.36	102	0.09	
LC0023	-	-	-	-	
LC0024	5.17	1.55	109	0.53	

Characteristics of parameter

	all results	without outliers	Unit
Mean ± CI (99%)	4.89 ± 1.33	4.72 ± 0.597	µg/tube
Minimum	1.16	2.96	µg/tube
Maximum	9.29	5.52	µg/tube
Standard deviation	1.94	0.77	µg/tube
rel. standard deviation	39.7	16.3	%
n	19	15	-

Graphical presentation of results
Results
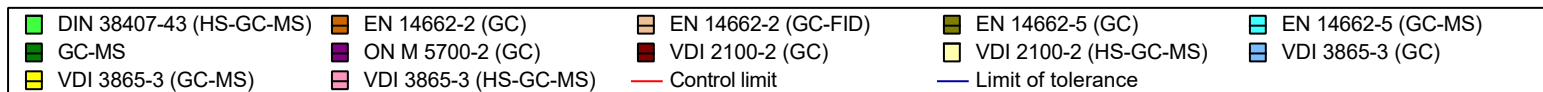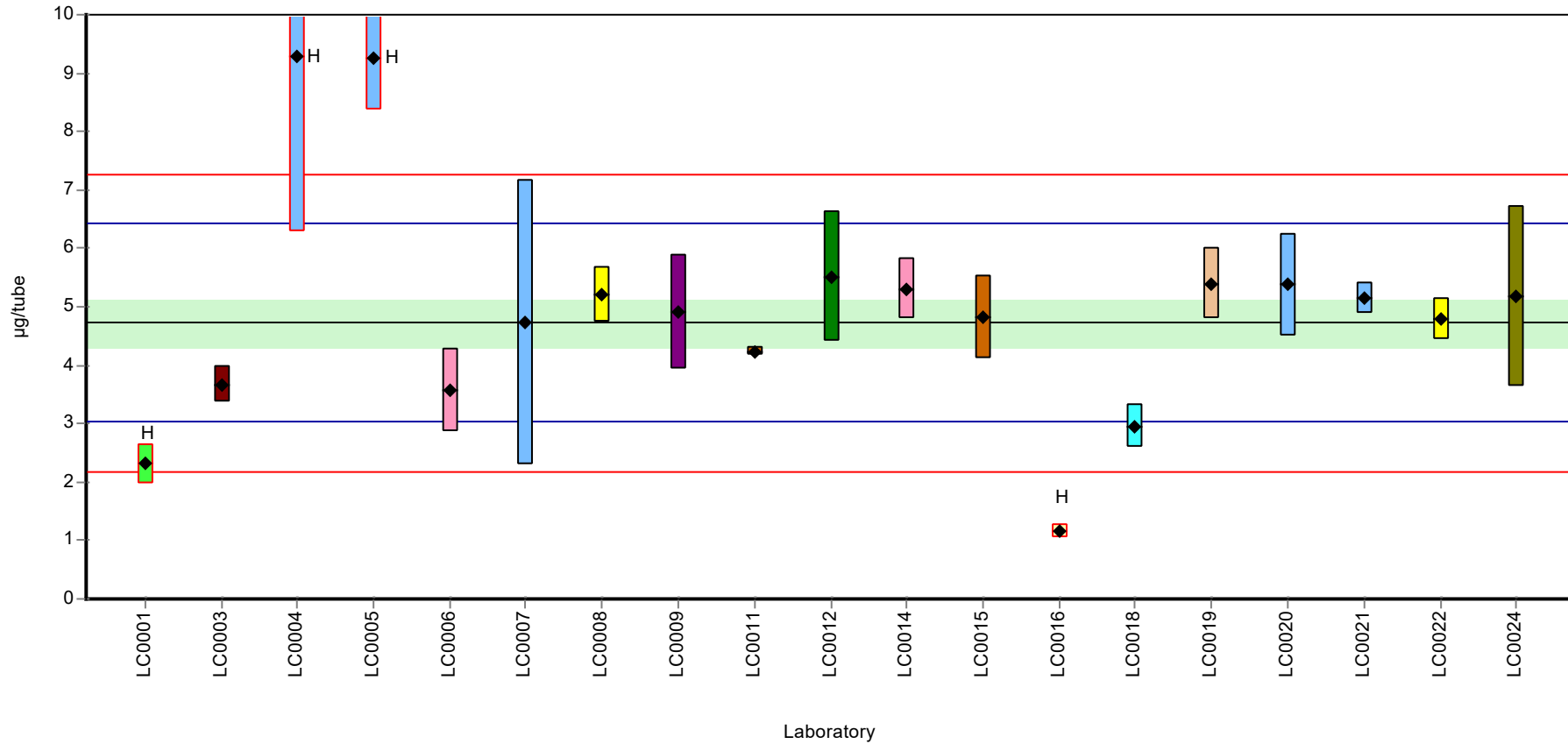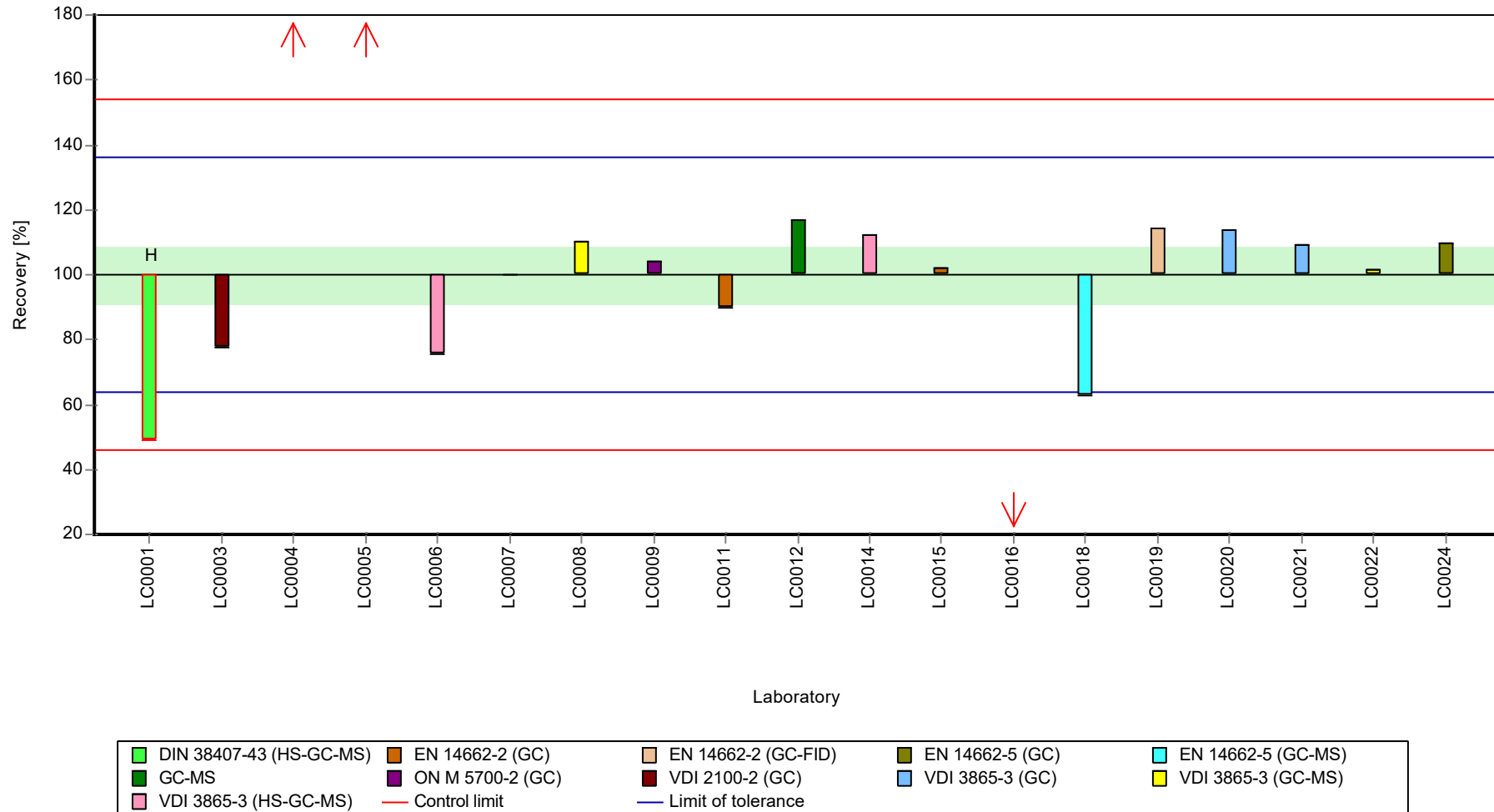
Laboratory

■ DIN 38407-43 (HS-GC-MS)	■ EN 14662-2 (GC)	■ EN 14662-2 (GC-FID)	■ EN 14662-5 (GC)	■ EN 14662-5 (GC-MS)
■ GC-MS	■ ON M 5700-2 (GC)	■ VDI 2100-2 (GC)	■ VDI 2100-2 (HS-GC-MS)	■ VDI 3865-3 (GC)
■ VDI 3865-3 (GC-MS)	■ VDI 3865-3 (HS-GC-MS)	— Control limit	— Limit of tolerance	

Recovery rate
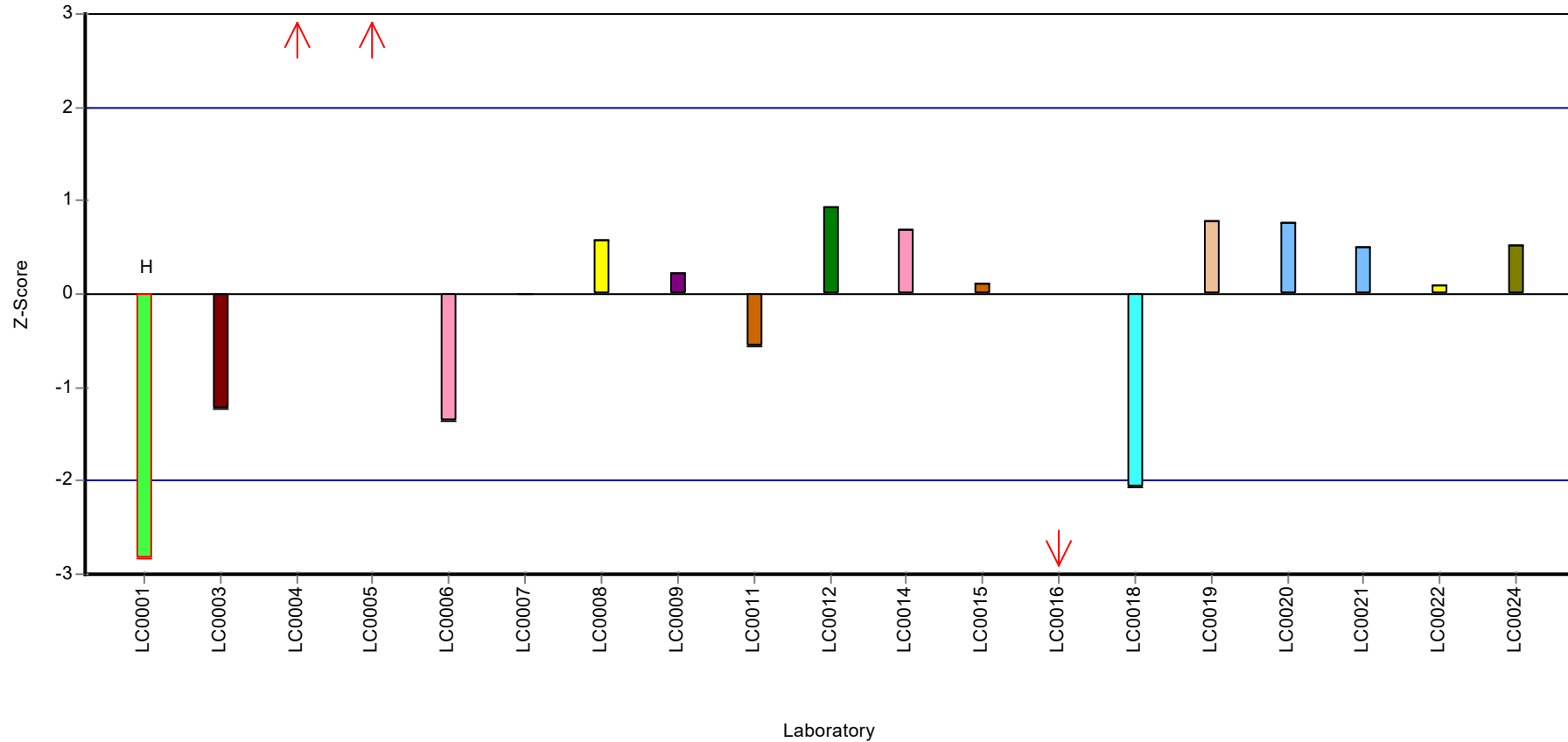
Parameter oriented report

BL11 - BTEX & C5-C10

Sum of m-Xylene and p-Xylene

Unit	µg/tube
Assigned value ± U (k=2)	9.43 ± 1.28
Criterion	2.45 (26 %)
Minimum - Maximum	4.49 - 11.9
Control test value ± U (k=2)	8.50 ± 1.53

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	2.47	0.31	26.2	-2.84	H
LC0003	8.34	0.421	88.5	-0.44	
LC0004	19.46	7	206	4.09	H
LC0005	18.43	1.56	195	3.67	H
LC0006	7.44	1.49	78.9	-0.81	
LC0007	11.37	5.91	121	0.79	
LC0008	10.6	0.76	112	0.48	
LC0009	10	2	106	0.23	
LC0010	-	-	-	-	
LC0011	4.49	0.02	47.6	-2.01	
LC0012	11.9	2.38	126	1.01	
LC0014	10.775	1.72	114	0.55	
LC0015	5.54	0.83	58.8	-1.59	
LC0016	3.36	0.34	35.6	-2.48	H
LC0018	5.71	0.66	60.6	-1.52	
LC0019	11.522	1.21	122	0.85	
LC0020	11.758	1.482	125	0.95	
LC0021	11.013	0.551	117	0.65	
LC0022	10.3	0.773	109	0.36	
LC0023	-	-	-	-	
LC0024	10.65	3.2	113	0.5	

Characteristics of parameter

	all results	without outliers	Unit
Mean ± CI (99%)	9.74 ± 3.04	9.43 ± 1.92	µg/tube
Minimum	2.47	4.49	µg/tube
Maximum	19.5	11.9	µg/tube
Standard deviation	4.42	2.48	µg/tube
rel. standard deviation	45.4	26.4	%
n	19	15	-

Graphical presentation of results
Results

Laboratory

■ DIN 38407-43 (HS-GC-MS)	■ EN 14662-2 (GC)	■ EN 14662-2 (GC-FID)	■ EN 14662-5 (GC)	■ EN 14662-5 (GC-MS)
■ GC-MS	■ ON M 5700-2 (GC)	■ VDI 2100-2 (GC)	■ VDI 2100-2 (HS-GC-MS)	■ VDI 3865-3 (GC)
■ VDI 3865-3 (GC-MS)	■ VDI 3865-3 (HS-GC-MS)	— Control limit	— Limit of tolerance	

Recovery rate
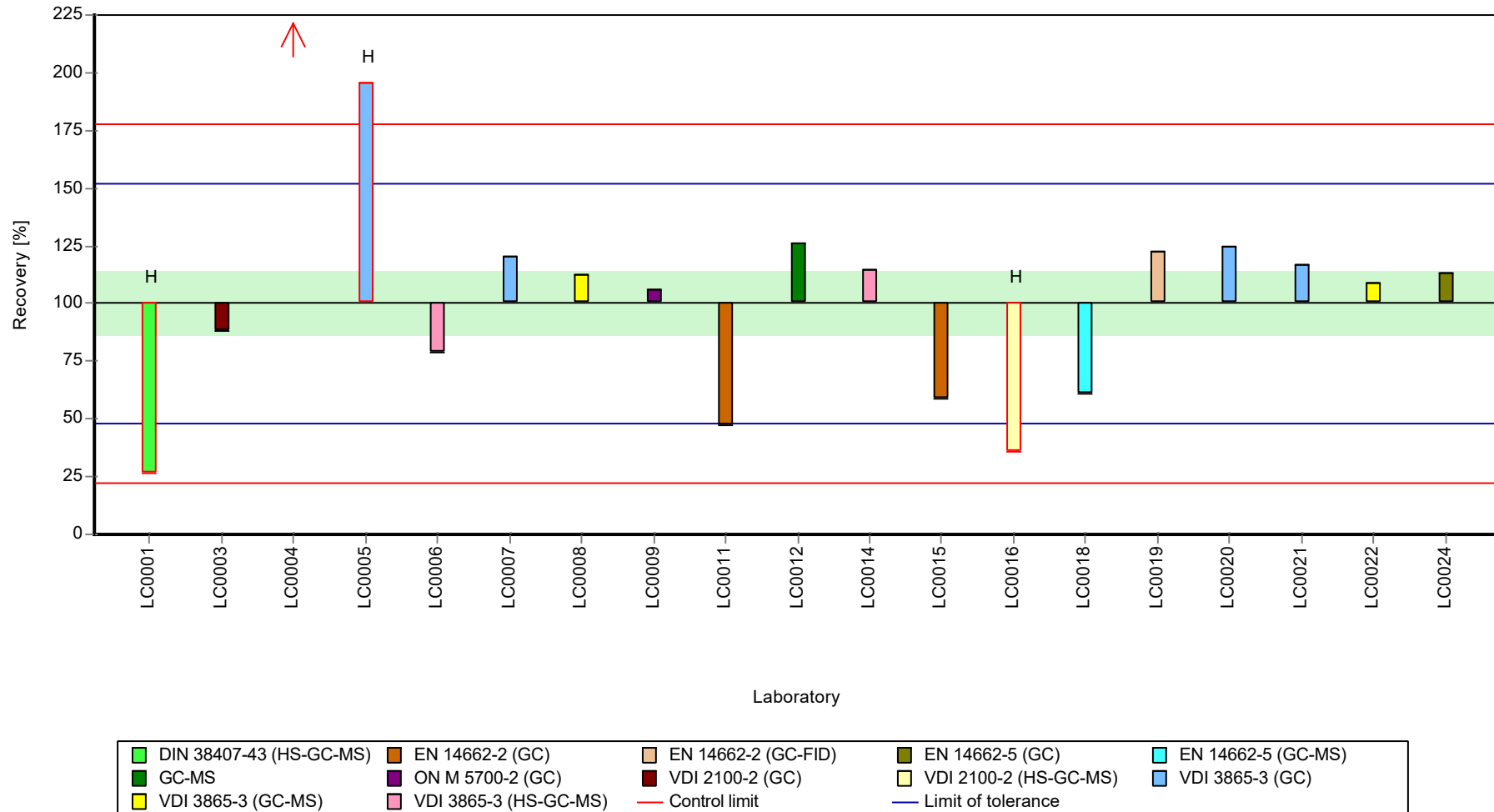
Parameter oriented report

CL10 - CHC

Tetrachloroethene

Unit	µg/tube
Assigned value ± U (k=2)	3.93 ± 0.234
Criterion	0.826 (21 %)
Minimum - Maximum	2.77 - 4.56
Control test value ± U (k=2)	3.49 ± 0.558

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	1.77	0.26	45	-2.62	H
LC0002	4.315	0.647	110	0.46	
LC0003	3.62	0.049	92.1	-0.38	
LC0004	7.611	2.5	194	4.45	H
LC0005	4.39	0.42	112	0.55	
LC0006	4.055	0.81	103	0.15	
LC0007	3.95	1.78	100	0.02	
LC0008	4.07	0.76	103	0.17	
LC0009	3.48	0.7	88.5	-0.55	
LC0012	4.27	0.854	109	0.41	
LC0013	4.56	0.834	116	0.76	
LC0014	4.429	1.42	113	0.6	
LC0015	4.33	0.65	110	0.48	
LC0016	3.9	0.39	99.2	-0.04	
LC0017	3.687	0.276	93.8	-0.3	
LC0020	3.935	1.066	100	0.00	
LC0021	3.09	0.155	78.6	-1.02	
LC0022	4	0.3	102	0.08	
LC0025	2.771	0.39	70.5	-1.41	

Characteristics of parameter

	all results	without outliers	Unit
Mean ± CI (99%)	4.01 ± 0.758	3.93 ± 0.351	µg/tube
Minimum	1.77	2.77	µg/tube
Maximum	7.61	4.56	µg/tube
Standard deviation	1.1	0.483	µg/tube
rel. standard deviation	27.4	12.3	%
n	19	17	-

Graphical presentation of results
Results
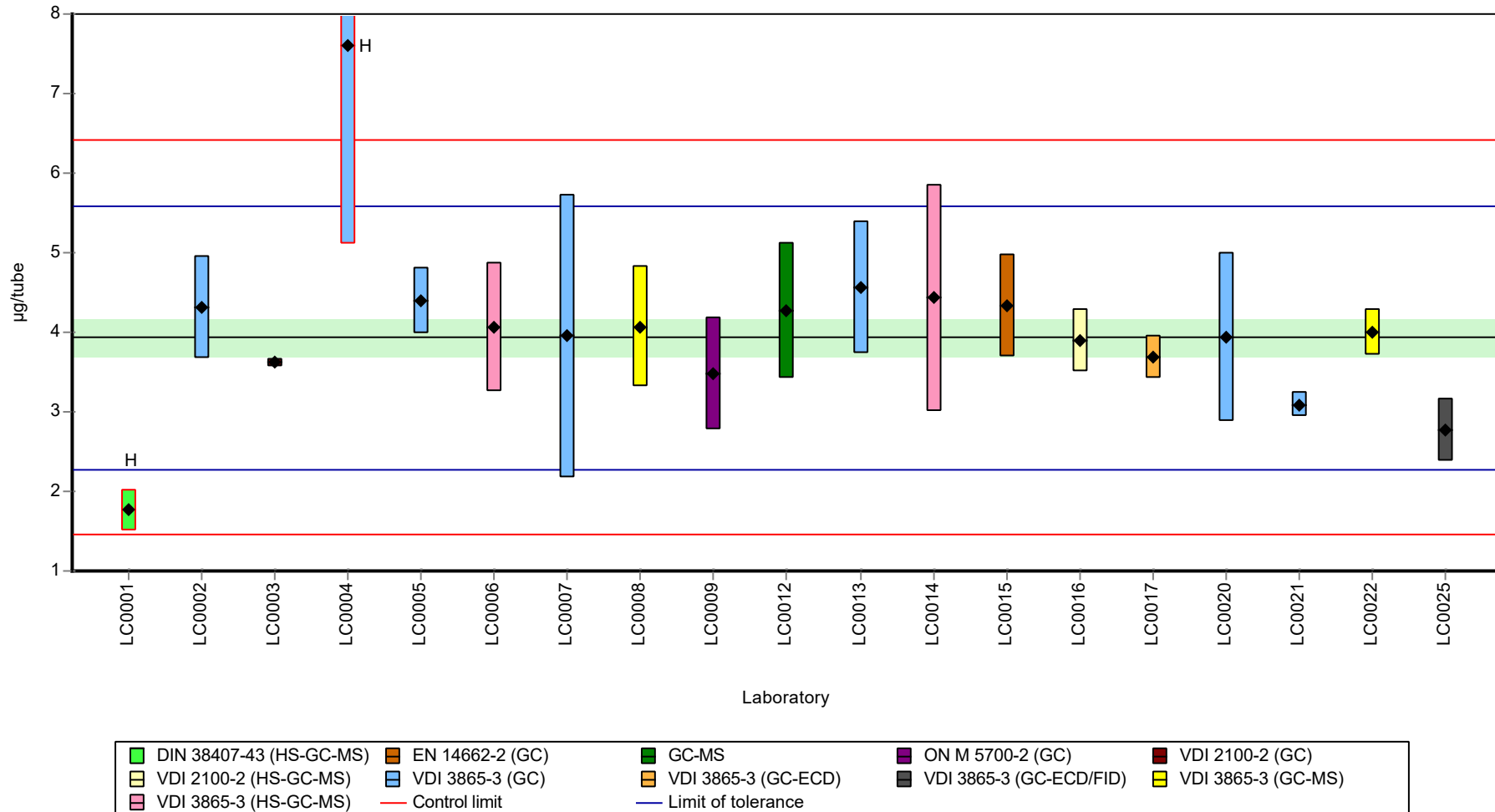
Laboratory

Legend		
■ DIN 38407-43 (HS-GC-MS)	■ EN 14662-2 (GC)	■ GC-MS
■ ON M 5700-2 (GC)	■ VDI 2100-2 (GC)	■ VDI 2100-2 (HS-GC-MS)
■ VDI 3865-3 (GC)	■ VDI 3865-3 (GC-ECD)	■ VDI 3865-3 (GC-ECD/FID)
■ VDI 3865-3 (GC-MS)	■ VDI 3865-3 (HS-GC-MS)	— Control limit
— Limit of tolerance		

Recovery rate
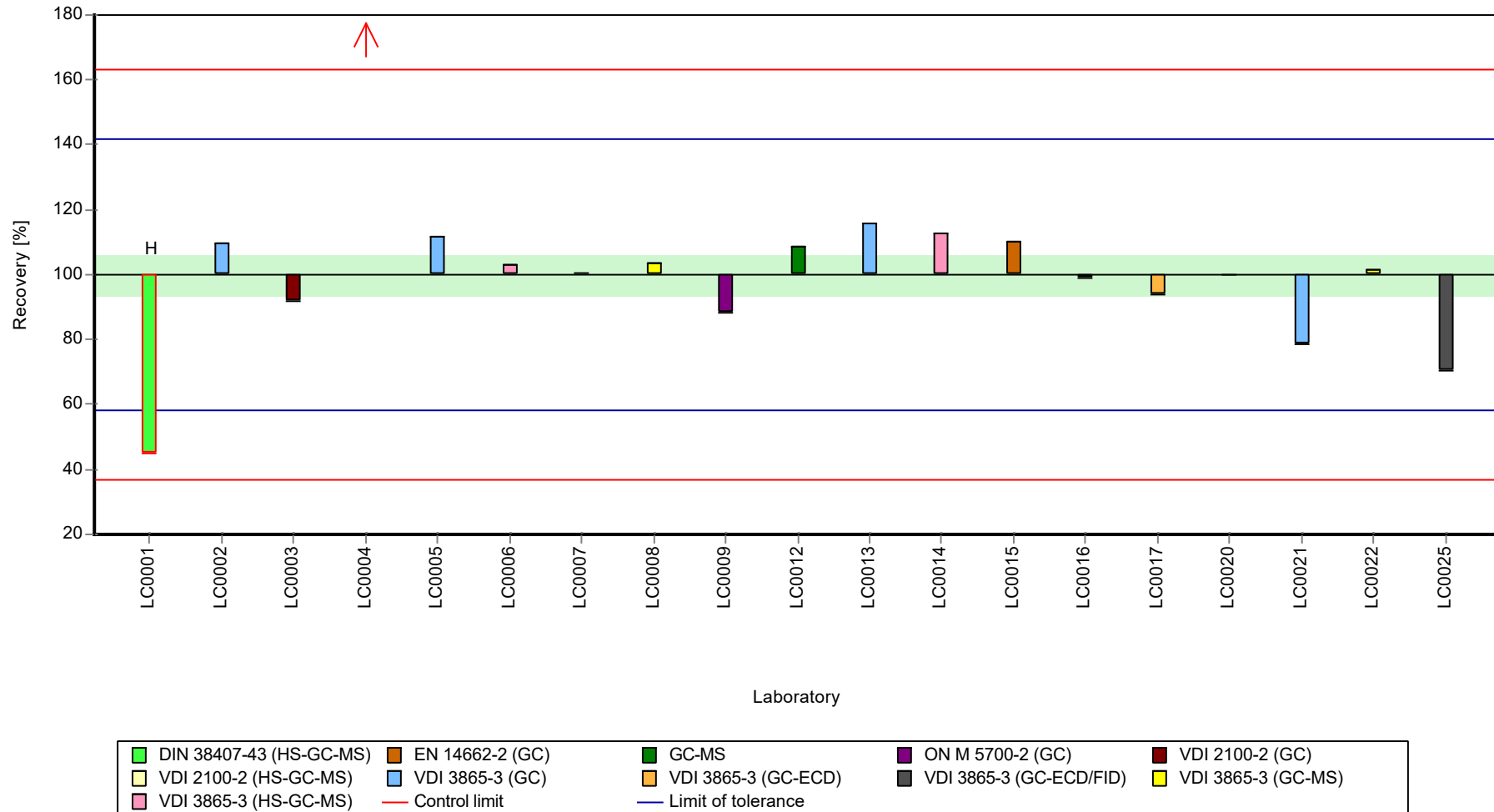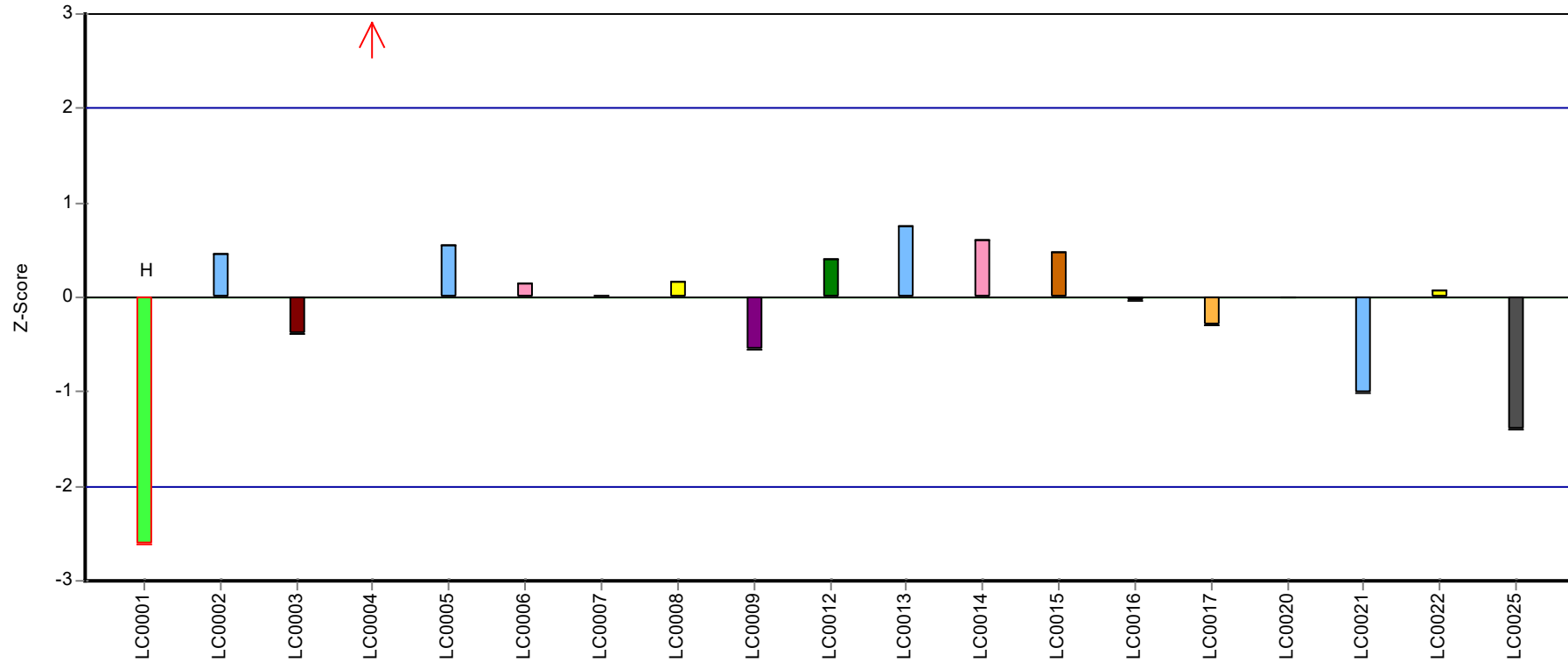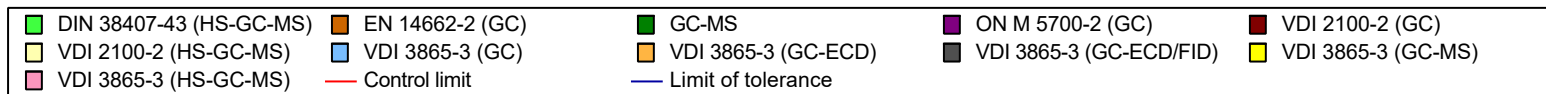
Parameter oriented report

CL10 - CHC

Tetrachloromethane

Unit	µg/tube
Assigned value ± U (k=2)	5.53 ± 0.505
Criterion	0.995 (18 %)
Minimum - Maximum	3.14 - 7.09
Control test value ± U (k=2)	5.19 ± 0.883

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	4.18	0.6	75.6	-1.35	
LC0002	5.57	0.836	101	0.04	
LC0003	5.67	0.078	103	0.14	
LC0004	8.494	3	154	2.98	H
LC0005	10.79	1.08	195	5.29	H
LC0006	5.04	1.01	91.2	-0.49	
LC0007	6.81	3.06	123	1.29	
LC0008	5.46	1.03	98.8	-0.07	
LC0009	3.14	0.63	56.8	-2.4	
LC0012	6.15	1.23	111	0.63	
LC0013	7.09	1.06	128	1.57	
LC0014	6.792	0.74	123	1.27	
LC0015	-	-	-	-	
LC0016	5.46	0.55	98.8	-0.07	
LC0017	5.931	0.445	107	0.41	
LC0020	6.005	1.285	109	0.48	
LC0021	4.58	0.229	82.9	-0.95	
LC0022	5.35	0.401	96.8	-0.18	
LC0025	5.191	0.29	93.9	-0.34	

Characteristics of parameter

	all results	without outliers	Unit
Mean ± CI (99%)	5.98 ± 1.19	5.53 ± 0.757	µg/tube
Minimum	3.14	3.14	µg/tube
Maximum	10.8	7.09	µg/tube
Standard deviation	1.68	1.01	µg/tube
rel. standard deviation	28.1	18.3	%
n	18	16	-

Graphical presentation of results
Results

Laboratory

Legend		
■ DIN 38407-43 (HS-GC-MS)	■ GC-MS	■ ON M 5700-2 (GC)
■ VDI 2100-2 (GC)	■ VDI 2100-2 (HS-GC-MS)	■ VDI 3865-3 (GC)
■ VDI 3865-3 (GC-ECD)	■ VDI 3865-3 (GC-ECD/FID)	■ VDI 3865-3 (GC-MS)
■ VDI 3865-3 (HS-GC-MS)	— Control limit	— Limit of tolerance

Recovery rate

Z-score

Laboratory

■ DIN 38407-43 (HS-GC-MS)	■ GC-MS	■ ON M 5700-2 (GC)	■ VDI 2100-2 (GC)	■ VDI 2100-2 (HS-GC-MS)
■ VDI 3865-3 (GC)	■ VDI 3865-3 (GC-ECD)	■ VDI 3865-3 (GC-ECD/FID)	■ VDI 3865-3 (GC-MS)	■ VDI 3865-3 (HS-GC-MS)
—— Control limit	—— Limit of tolerance		
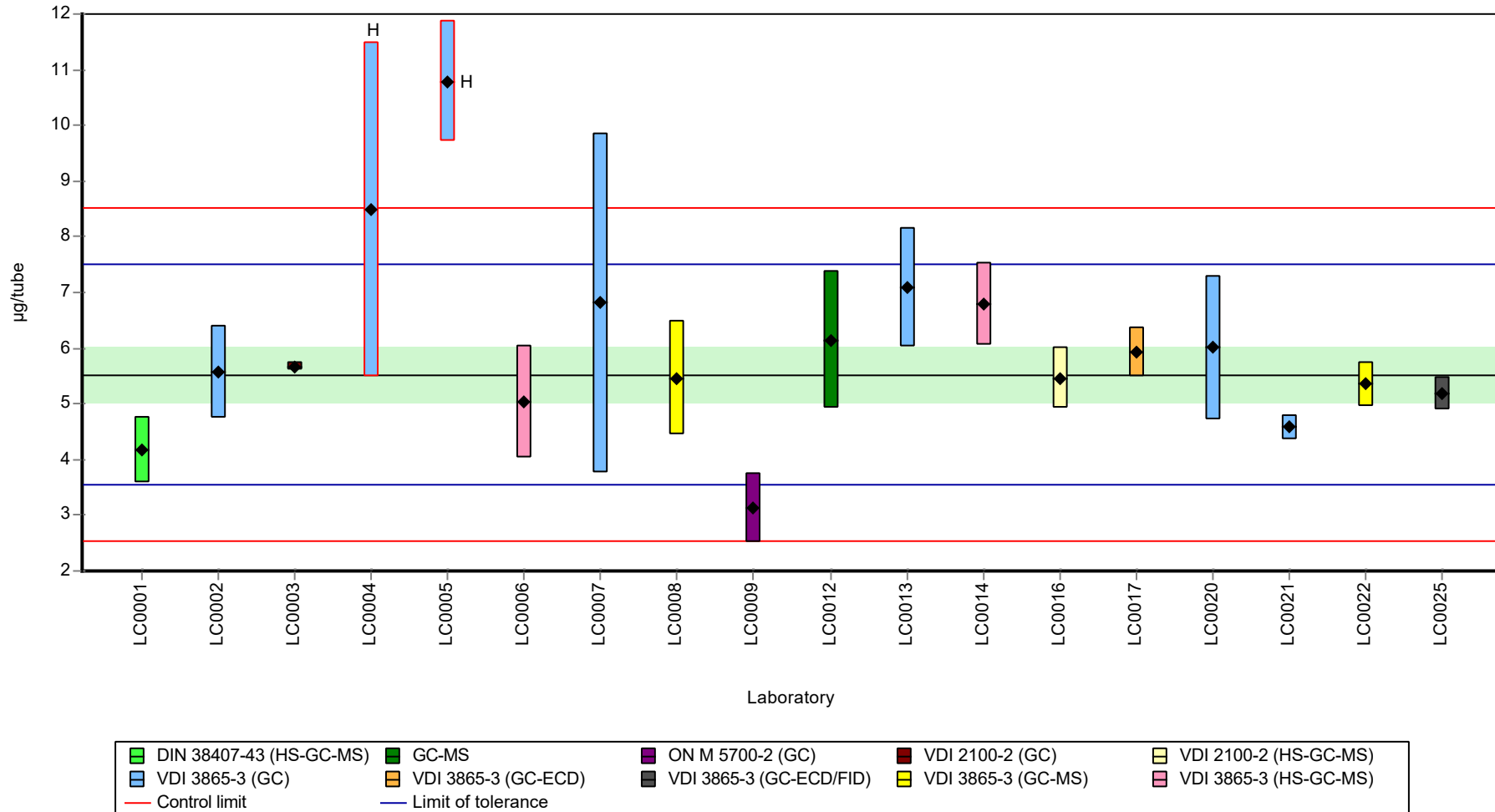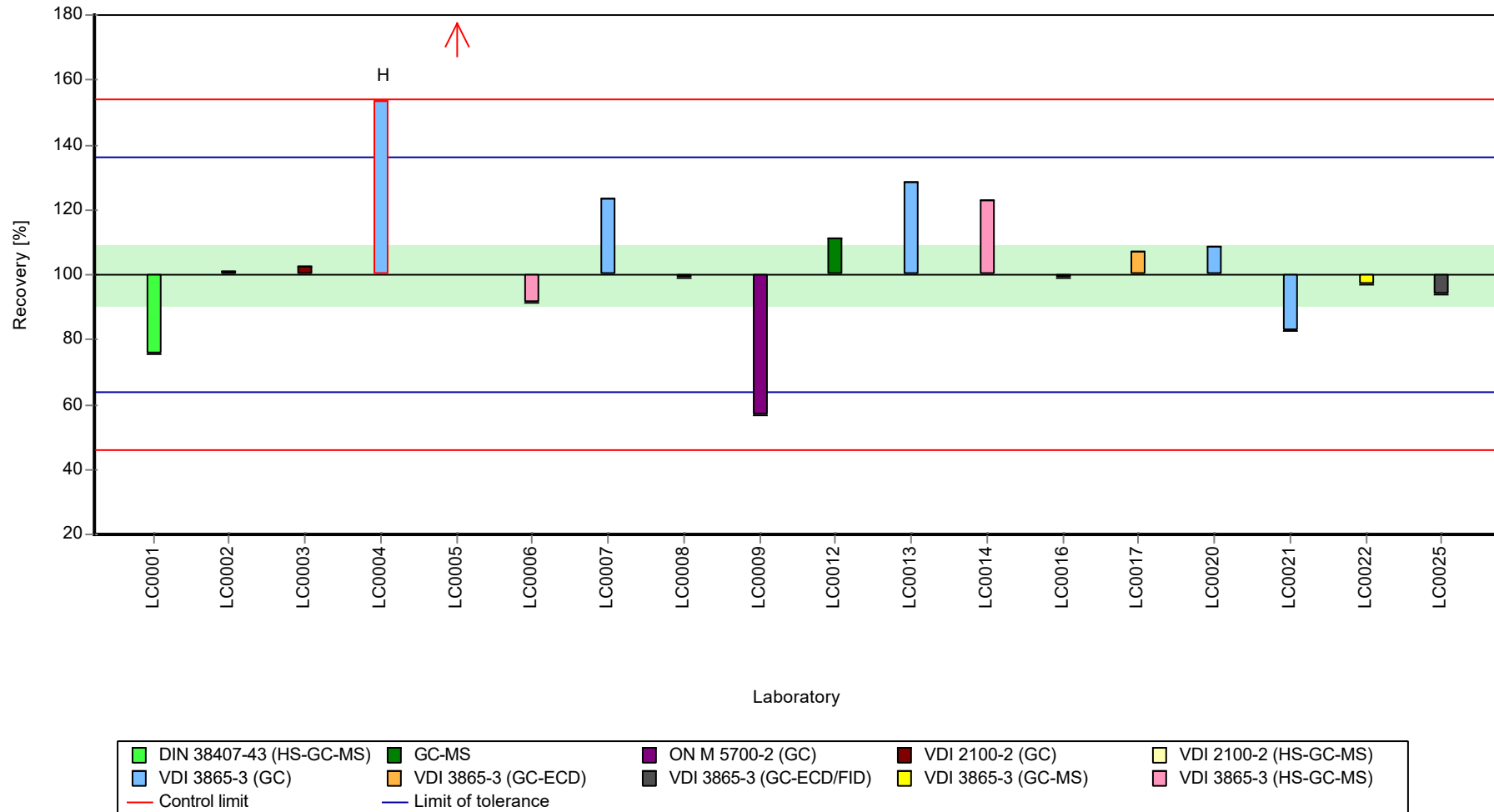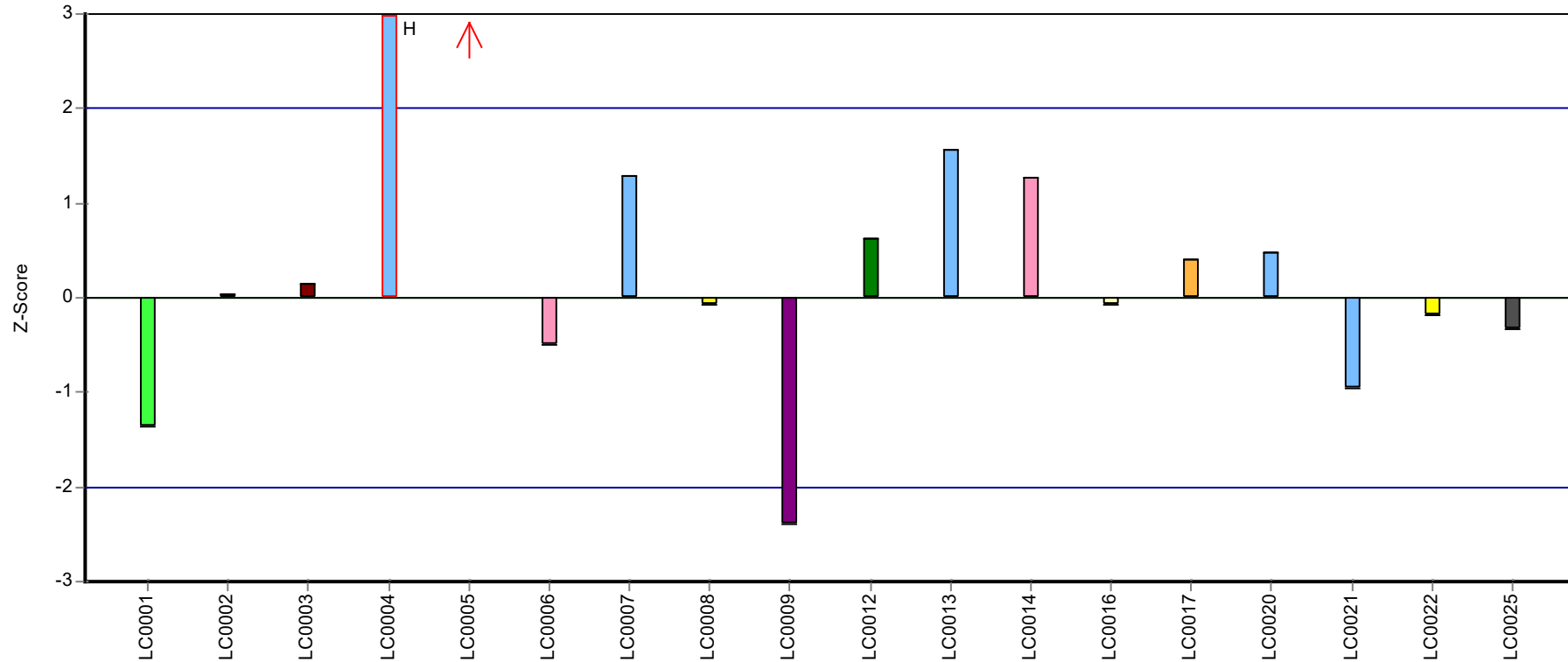
Parameter oriented report

BL11 - BTEX & C5-C10

Toluene

Unit	µg/tube
Assigned value ± U (k=2)	5.41 ± 0.418
Criterion	0.812 (15 %)
Minimum - Maximum	3.52 - 7.09
Control test value ± U (k=2)	4.77 ± 1

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	3.52	0.51	65	-2.33	
LC0003	4.9	0.064	90.5	-0.63	
LC0004	9.814	3	181	5.42	H
LC0005	8.39	0.87	155	3.66	H
LC0006	4.716	0.94	87.1	-0.86	
LC0007	5.37	1.72	99.2	-0.06	
LC0008	5.68	0.35	105	0.33	
LC0009	7.09	1.42	131	2.06	
LC0010	-	-	-	-	
LC0011	4.78	0.06	88.3	-0.78	
LC0012	5.82	1	107	0.5	
LC0014	5.818	0.87	107	0.5	
LC0015	5.67	0.85	105	0.31	
LC0016	1.97	0.2	36.4	-4.24	H
LC0018	4.34	0.41	80.1	-1.32	
LC0019	6.162	0.585	114	0.92	
LC0020	6.2	0.397	114	0.97	
LC0021	5.602	0.28	103	0.23	
LC0022	5.28	0.396	97.5	-0.17	
LC0023	-	-	-	-	
LC0024	5.69	1.71	105	0.34	

Characteristics of parameter

	all results	without outliers	Unit
Mean ± CI (99%)	5.62 ± 1.14	5.41 ± 0.627	µg/tube
Minimum	1.97	3.52	µg/tube
Maximum	9.81	7.09	µg/tube
Standard deviation	1.66	0.836	µg/tube
rel. standard deviation	29.6	15.4	%
n	19	16	-

Graphical presentation of results
Results

Laboratory

■ DIN 38407-43 (HS-GC-MS)	■ EN 14662-2 (GC)	■ EN 14662-2 (GC-FID)	■ EN 14662-5 (GC)	■ EN 14662-5 (GC-MS)
■ GC-MS	■ ON M 5700-2 (GC)	■ VDI 2100-2 (GC)	■ VDI 2100-2 (HS-GC-MS)	■ VDI 3865-3 (GC)
■ VDI 3865-3 (GC-MS)	■ VDI 3865-3 (HS-GC-MS)	— Control limit	— Limit of tolerance	

Recovery rate

Z-score

Laboratory

■ DIN 38407-43 (HS-GC-MS)	■ EN 14662-2 (GC)	■ EN 14662-2 (GC-FID)	■ EN 14662-5 (GC)	■ EN 14662-5 (GC-MS)
■ GC-MS	■ ON M 5700-2 (GC)	■ VDI 2100-2 (GC)	■ VDI 3865-3 (GC)	■ VDI 3865-3 (GC-MS)
■ VDI 3865-3 (HS-GC-MS)	— Control limit	— Limit of tolerance		
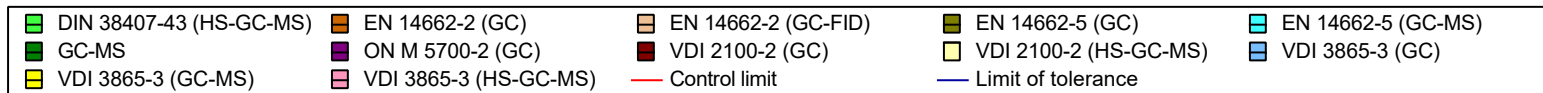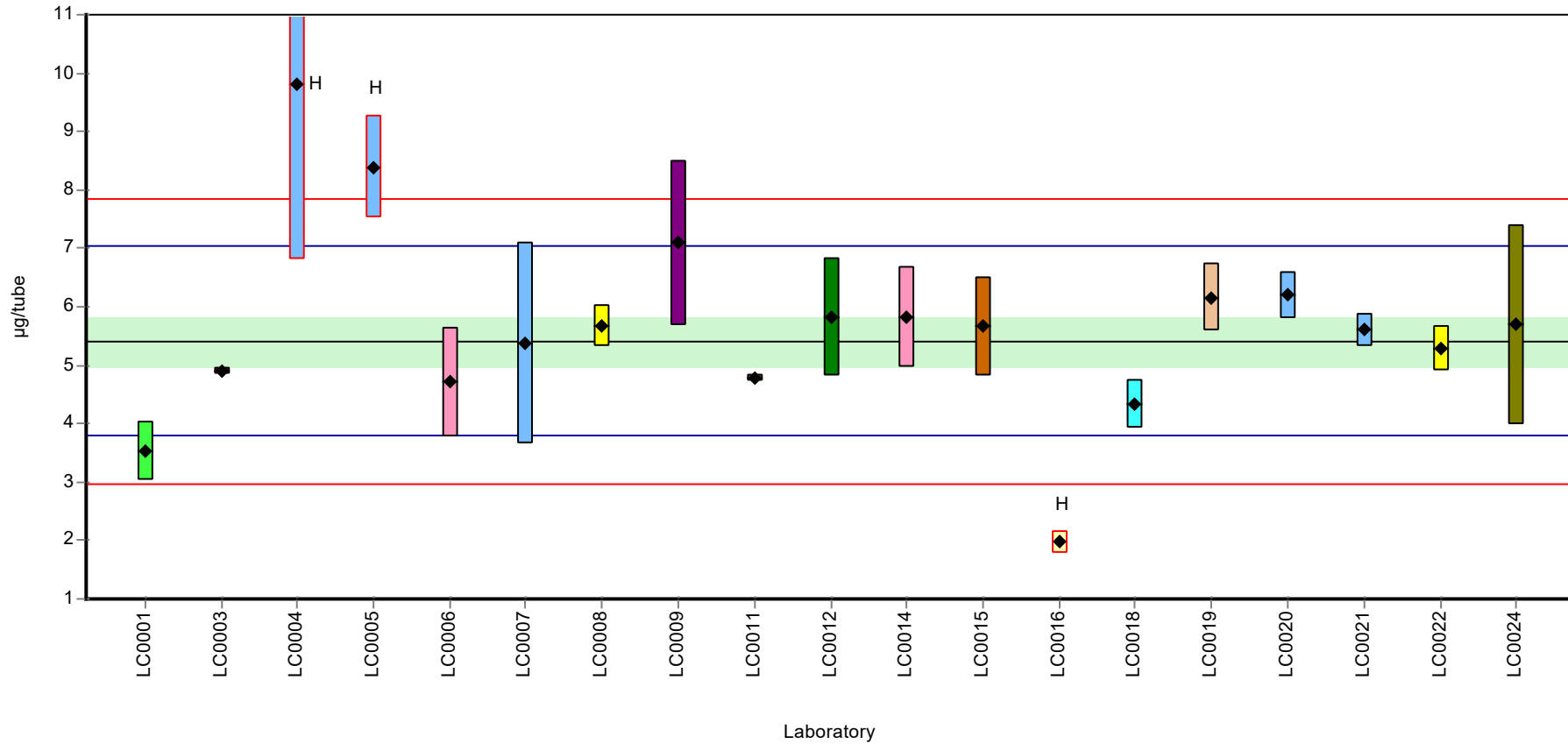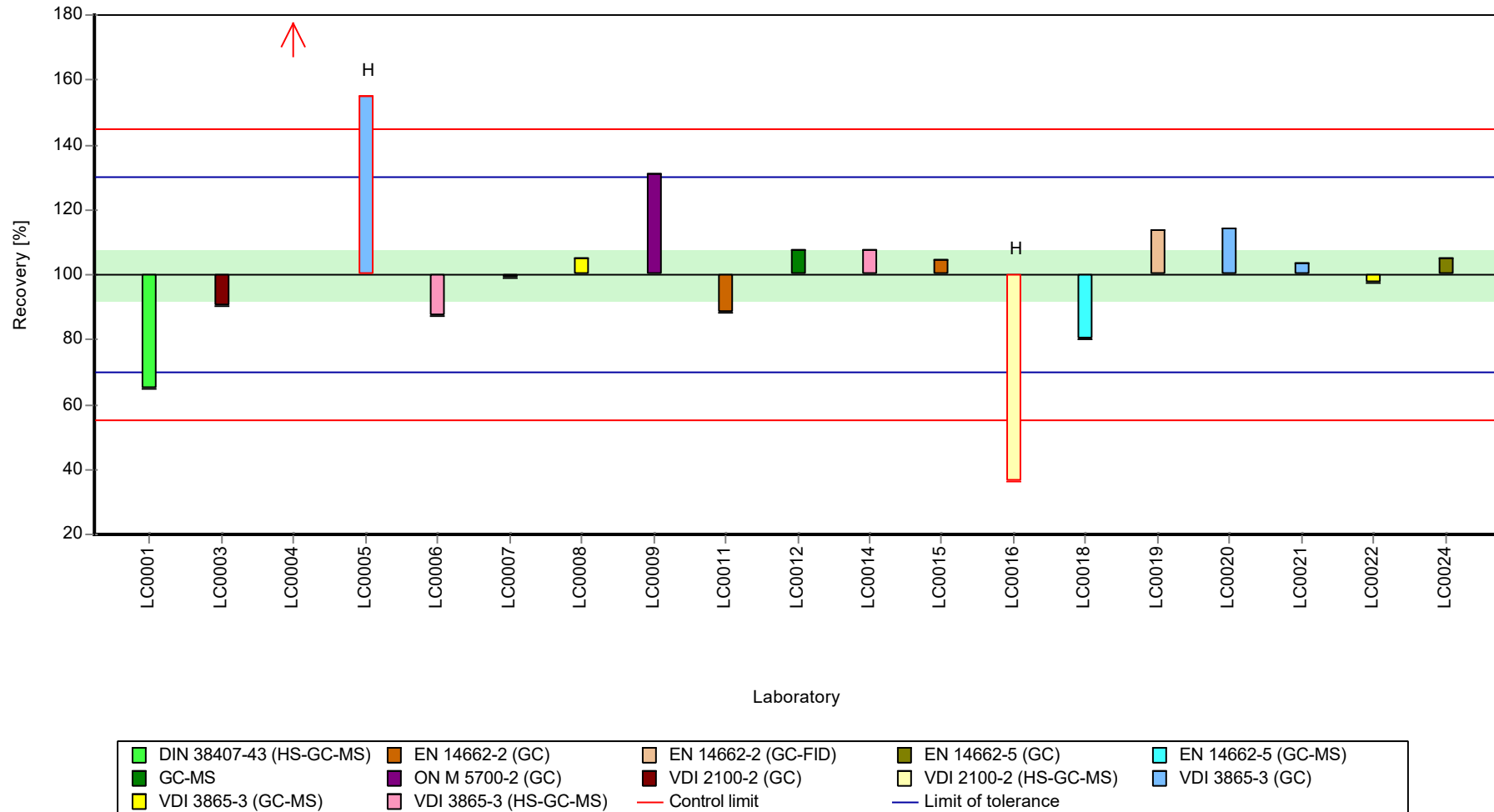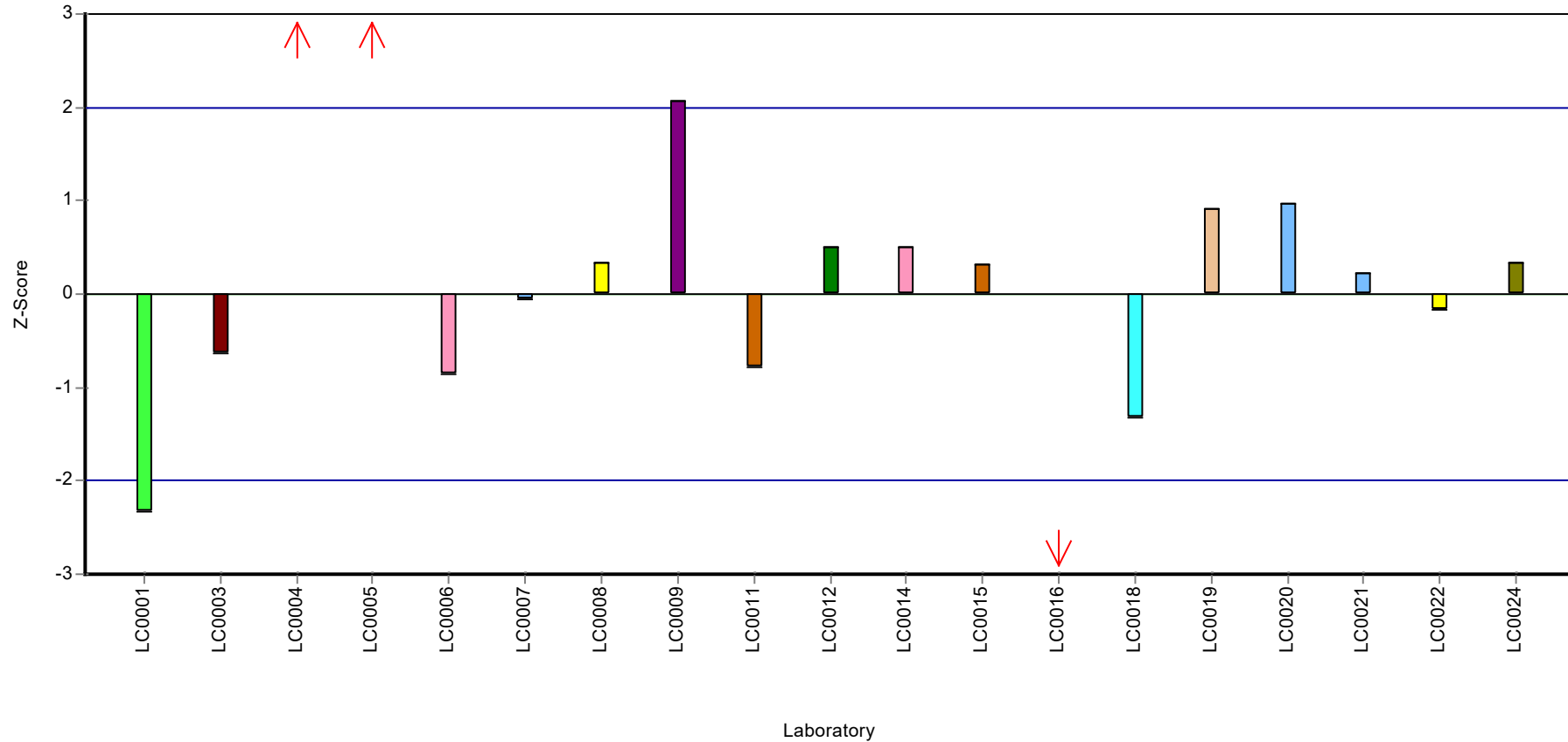
Parameter oriented report

CL10 - CHC

trans-1,2-Dichloroethene

Unit	µg/tube
Assigned value ± U (k=2)	2.96 ± 0.684
Criterion	1.27 (43 %)
Minimum - Maximum	0.844 - 7.2
Control test value ± U (k=2)	3.70 ± 0.665

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	2.46	0.38	83.1	-0.39	
LC0002	2.456	0.368	83	-0.4	
LC0003	0.885	0.007	29.9	-1.63	
LC0004	7.196	2.5	243	3.33	
LC0005	4.16	0.39	141	0.94	
LC0006	2.805	0.56	94.8	-0.12	
LC0007	-	-	-	-	
LC0008	1.88	0.87	63.5	-0.85	
LC0009	4.57	0.91	154	1.27	
LC0012	4.5	0.9	152	1.21	
LC0013	4.61	0.692	156	1.3	
LC0014	1.897	0.15	64.1	-0.84	
LC0015	-	-	-	-	
LC0016	-	-	-	-	
LC0017	0.844	0.063	28.5	-1.66	
LC0020	3.902	0.823	132	0.74	
LC0021	2.764	0.138	93.4	-0.15	
LC0022	3.53	0.265	119	0.45	
LC0025	1.06	0.02	35.8	-1.49	

Characteristics of parameter

	all results	without outliers	Unit
Mean ± CI (99%)	3.09 ± 1.27	3.09 ± 1.27	µg/tube
Minimum	0.844	0.844	µg/tube
Maximum	7.2	7.2	µg/tube
Standard deviation	1.7	1.7	µg/tube
rel. standard deviation	54.9	54.9	%
n	16	16	-

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Graphical presentation of results
Results

🟩 DIN 38407-43 (HS-GC-MS)	⬜ HS-GC-MS	🟪 ON M 5700-2 (GC)	🟥 VDI 2100-2 (GC)	🟦 VDI 3865-3 (GC)
🟧 VDI 3865-3 (GC-ECD)	⬛ VDI 3865-3 (GC-ECD/FID)	🟨 VDI 3865-3 (GC-MS)	🟪 VDI 3865-3 (HS-GC-MS)	— Control limit
— Limit of tolerance				
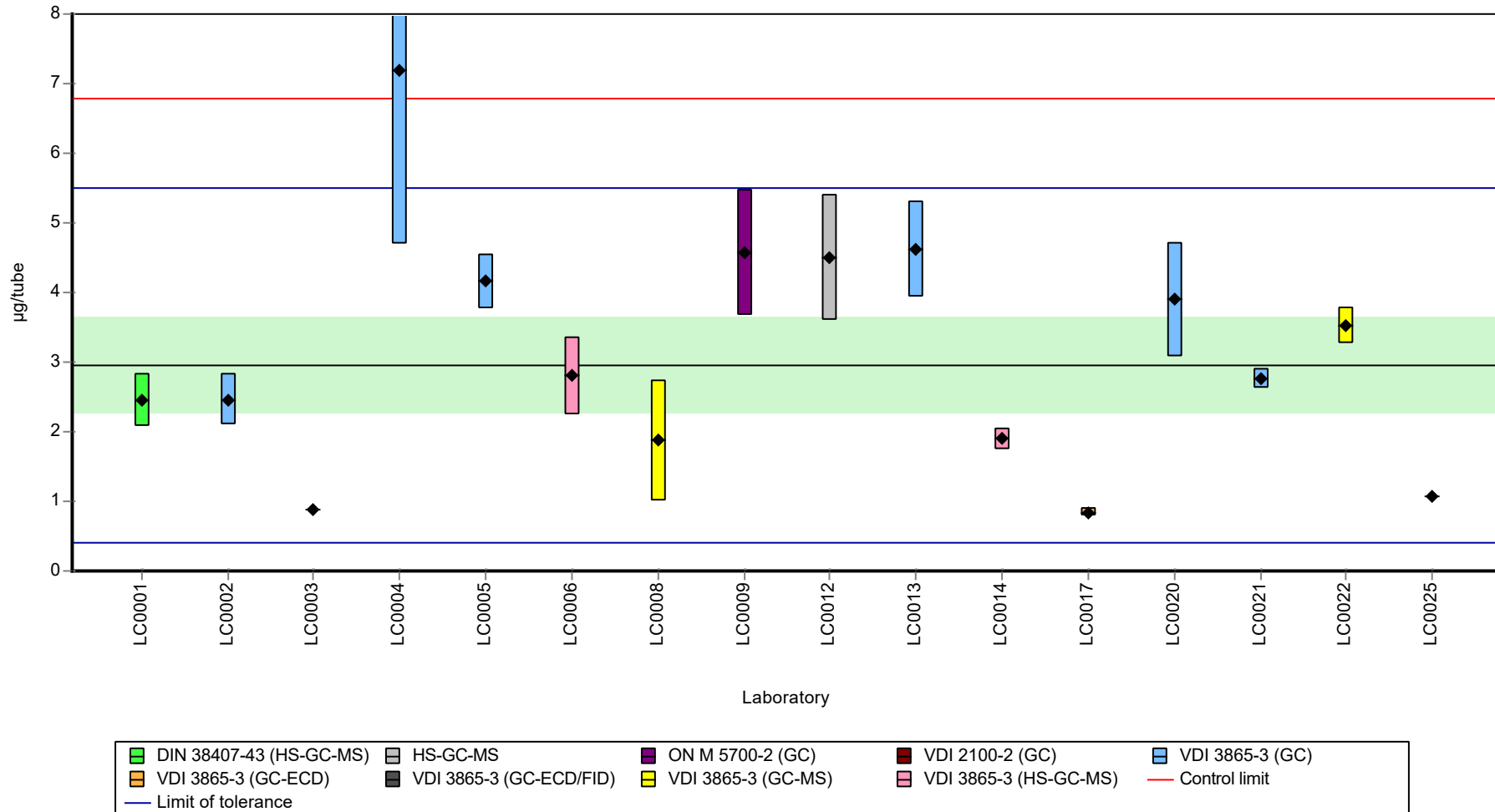
Recovery rate
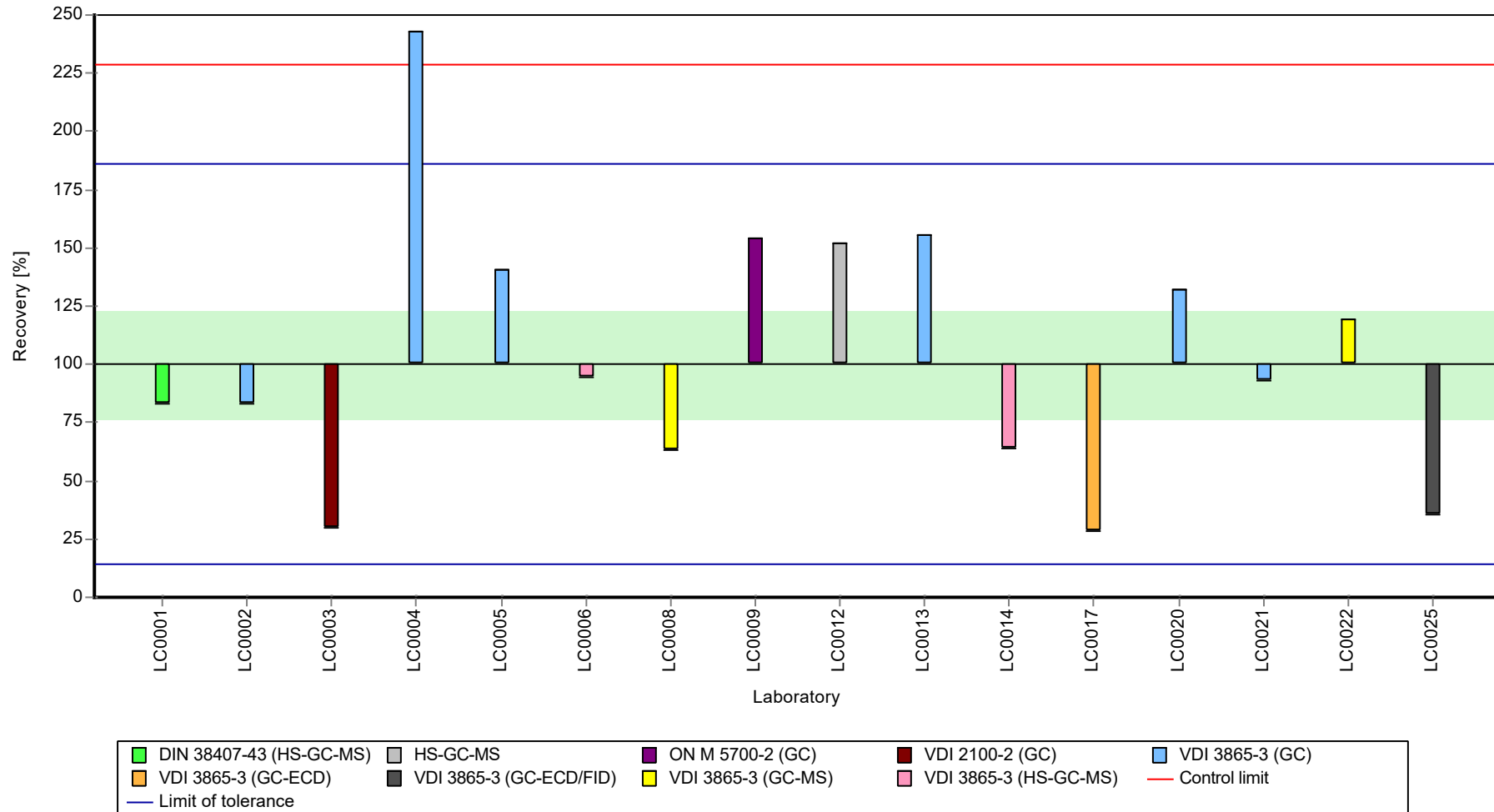
Parameter oriented report

CL10 - CHC

Trichloroethene

Unit	µg/tube
Assigned value ± U (k=2)	3.63 ± 0.424
Criterion	0.907 (25 %)
Minimum - Maximum	1.81 - 4.77
Control test value ± U (k=2)	3.81 ± 0.723

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	2.47	0.39	68.1	-1.28	
LC0002	4.031	0.605	111	0.44	
LC0003	3.95	0.014	109	0.36	
LC0004	7.672	2.5	211	4.46	H
LC0005	2.9	0.31	79.9	-0.8	
LC0006	3.994	0.8	110	0.4	
LC0007	1.81	0.58	49.9	-2	
LC0008	4.17	0.75	115	0.6	
LC0009	2.79	0.56	76.9	-0.92	
LC0012	4.77	0.954	131	1.26	
LC0013	4.22	0.633	116	0.65	
LC0014	4.399	0.48	121	0.85	
LC0015	4.46	0.67	123	0.92	
LC0016	3.55	0.36	97.9	-0.09	
LC0017	3.73	0.28	103	0.11	
LC0020	4.473	0.693	123	0.93	
LC0021	3.511	0.176	96.8	-0.13	
LC0022	4.22	0.316	116	0.65	
LC0025	1.849	0.1	51	-1.96	

Characteristics of parameter

	all results	w ithout outliers	Unit
Mean ± CI (99%)	3.84 ± 0.878	3.63 ± 0.636	µg/tube
Minimum	1.81	1.81	µg/tube
Maximum	7.67	4.77	µg/tube
Standard deviation	1.28	0.9	µg/tube
rel. standard deviation	33.2	24.8	%
n	19	18	_

Graphical presentation of results

Results

Laboratory

■ DIN 38407-43 (HS-GC-MS)	■ EN 14662-2 (GC)	■ GC-MS	■ ON M 5700-2 (GC)	■ VDI 2100-2 (GC)
■ VDI 2100-2 (HS-GC-MS)	■ VDI 3865-3 (GC)	■ VDI 3865-3 (GC-ECD)	■ VDI 3865-3 (GC-ECD/FID)	■ VDI 3865-3 (GC-MS)
■ VDI 3865-3 (HS-GC-MS)	— Control limit	— Limit of tolerance		

Recovery rate

Z-score

Laboratory

Legend	
■ DIN 38407-43 (HS-GC-MS)	■ EN 14662-2 (GC)
■ GC-MS	■ ON M 5700-2 (GC)
■ VDI 2100-2 (GC)	■ VDI 2100-2 (HS-GC-MS)
■ VDI 3865-3 (GC)	■ VDI 3865-3 (GC-ECD)
■ VDI 3865-3 (GC-ECD/FID)	■ VDI 3865-3 (GC-MS)
■ VDI 3865-3 (HS-GC-MS)	— Control limit
— Limit of tolerance	
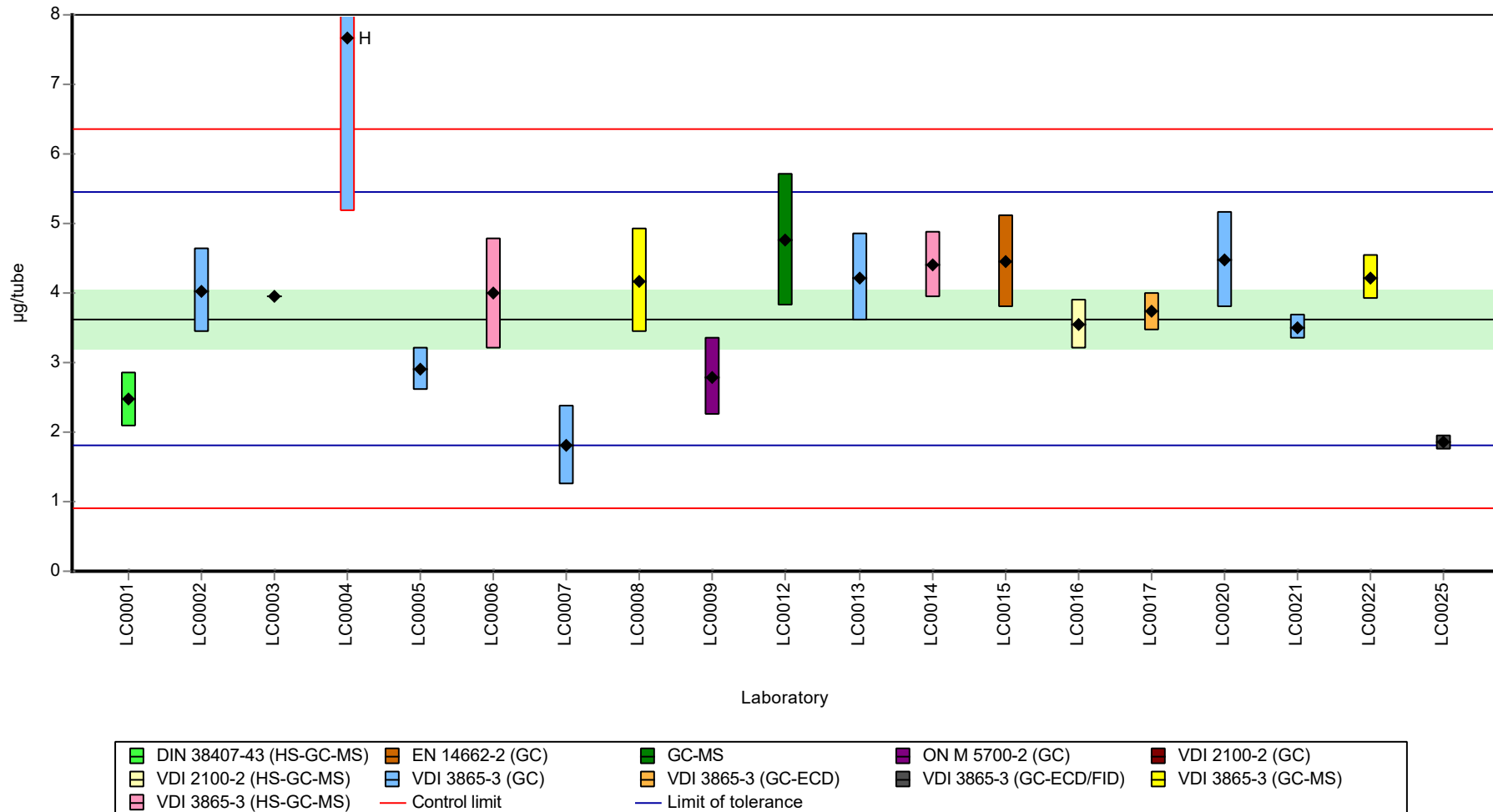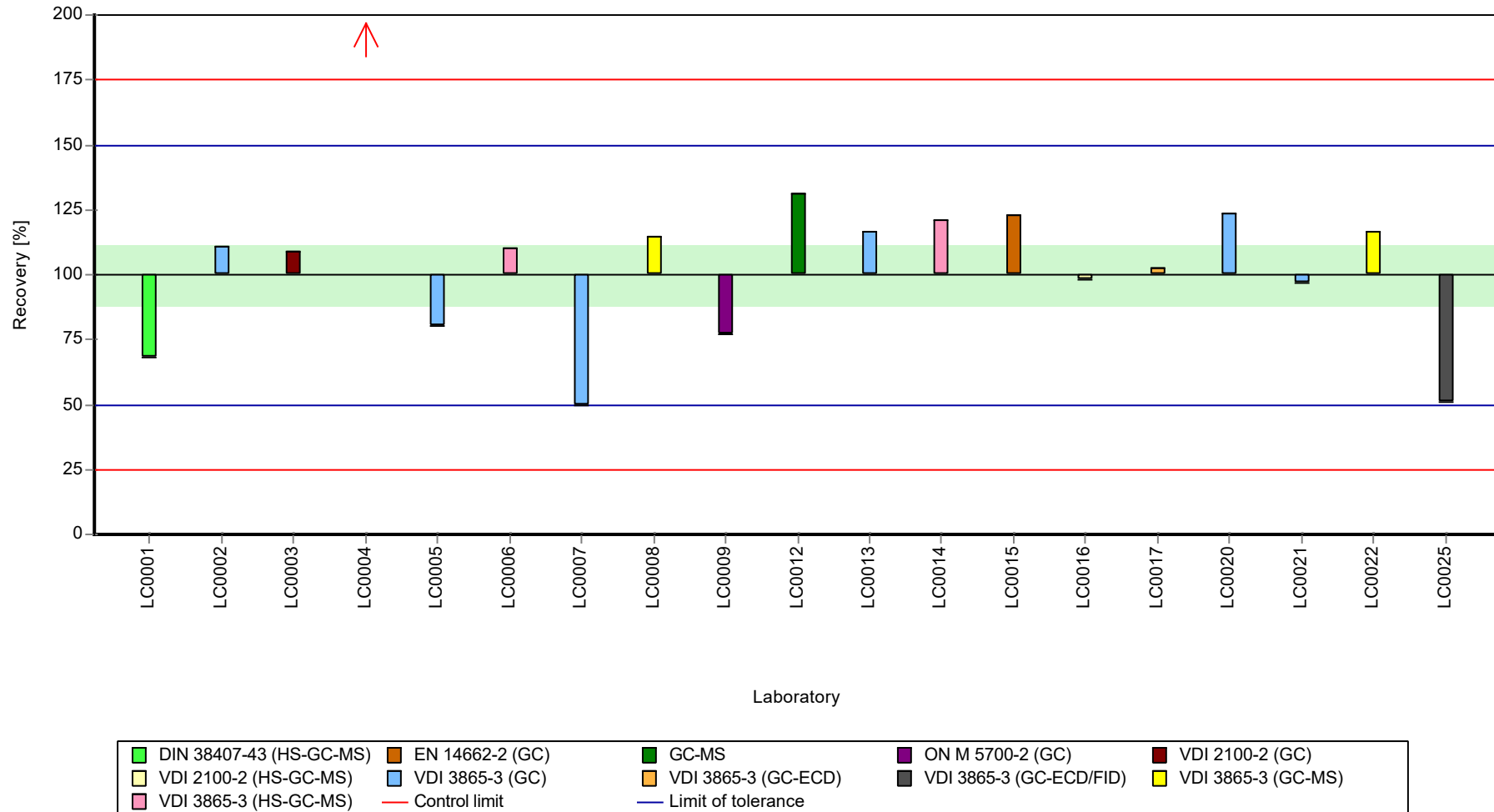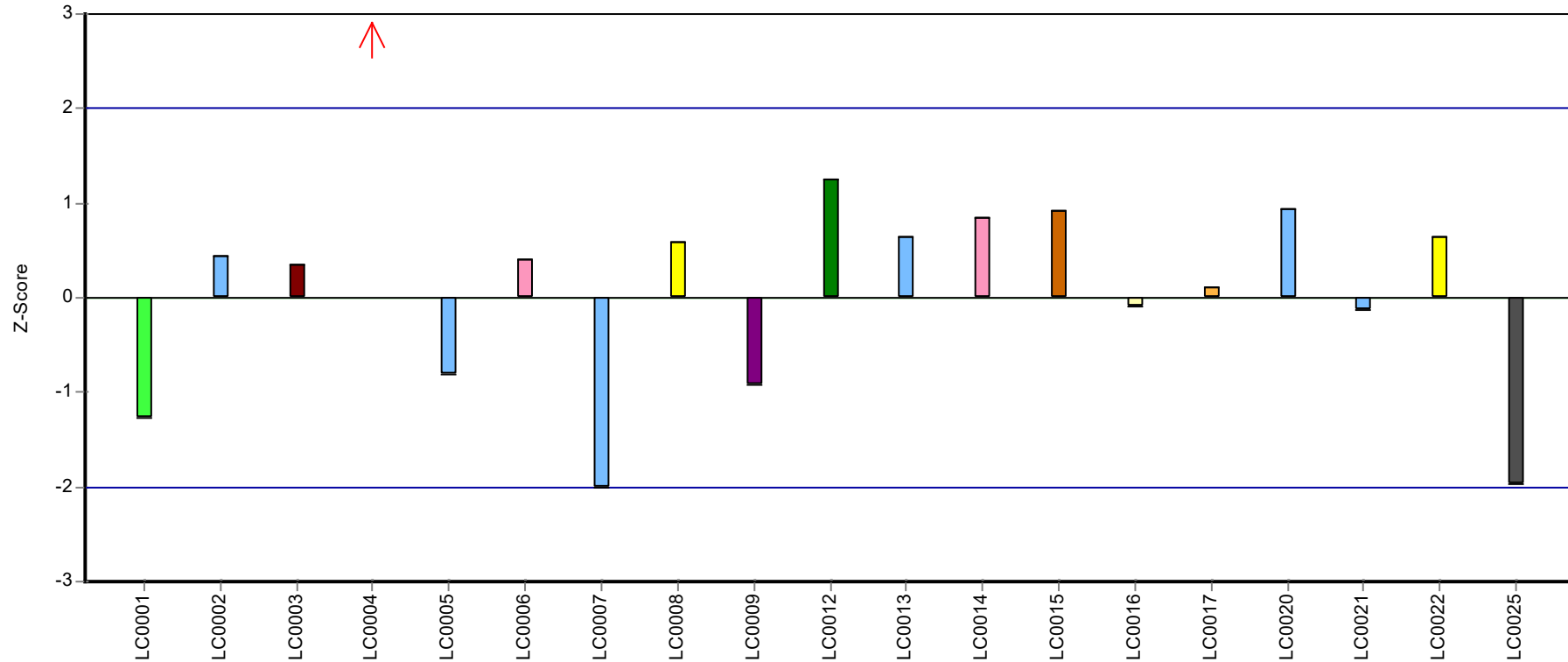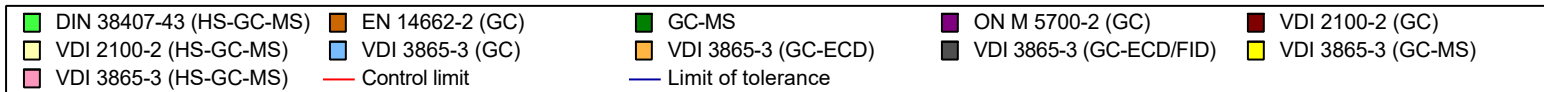
Parameter oriented report

CL10 - CHC

Trichloromethane

Unit	µg/tube
Assigned value ± U (k=2)	4.14 ± 0.317
Criterion	0.662 (16 %)
Minimum - Maximum	3.04 - 5.5
Control test value ± U (k=2)	4.00 ± 0.679

Labcode	Result	± U	Recovery [%]	z-score	Comments
LC0001	3.04	0.44	73.5	-1.66	
LC0002	4.227	0.634	102	0.13	
LC0003	4.43	0.064	107	0.44	
LC0004	8.069	3	195	5.94	H
LC0005	5	0.54	121	1.3	
LC0006	3.877	0.78	93.7	-0.39	
LC0007	4.3	1.93	104	0.24	
LC0008	4.01	0.85	96.9	-0.19	
LC0009	3.42	0.68	82.7	-1.08	
LC0012	5.07	1.014	123	1.41	
LC0013	5.5	0.825	133	2.06	
LC0014	4.241	0.34	102	0.16	
LC0015	-	-	-	-	
LC0016	3.82	0.38	92.3	-0.48	
LC0017	3.794	0.285	91.7	-0.52	
LC0020	4.507	0.87	109	0.56	
LC0021	3.372	0.169	81.5	-1.16	
LC0022	4.28	0.321	103	0.21	
LC0025	3.455	0.19	83.5	-1.03	

Characteristics of parameter

	all results	without outliers	Unit
Mean ± CI (99%)	4.36 ± 0.794	4.14 ± 0.475	µg/tube
Minimum	3.04	3.04	µg/tube
Maximum	8.07	5.5	µg/tube
Standard deviation	1.12	0.653	µg/tube
rel. standard deviation	25.8	15.8	%
n	18	17	-

Graphical presentation of results
Results

Laboratory

■ DIN 38407-43 (HS-GC-MS)	■ GC-MS	■ ON M 5700-2 (GC)	■ VDI 2100-2 (GC)	■ VDI 2100-2 (HS-GC-MS)
■ VDI 3865-3 (GC)	■ VDI 3865-3 (GC-ECD)	■ VDI 3865-3 (GC-ECD/FID)	■ VDI 3865-3 (GC-MS)	■ VDI 3865-3 (HS-GC-MS)
— Control limit	— Limit of tolerance			

Recovery rate

Z-score

CBL09_Ausgabe/Edition 1_09.11.2023
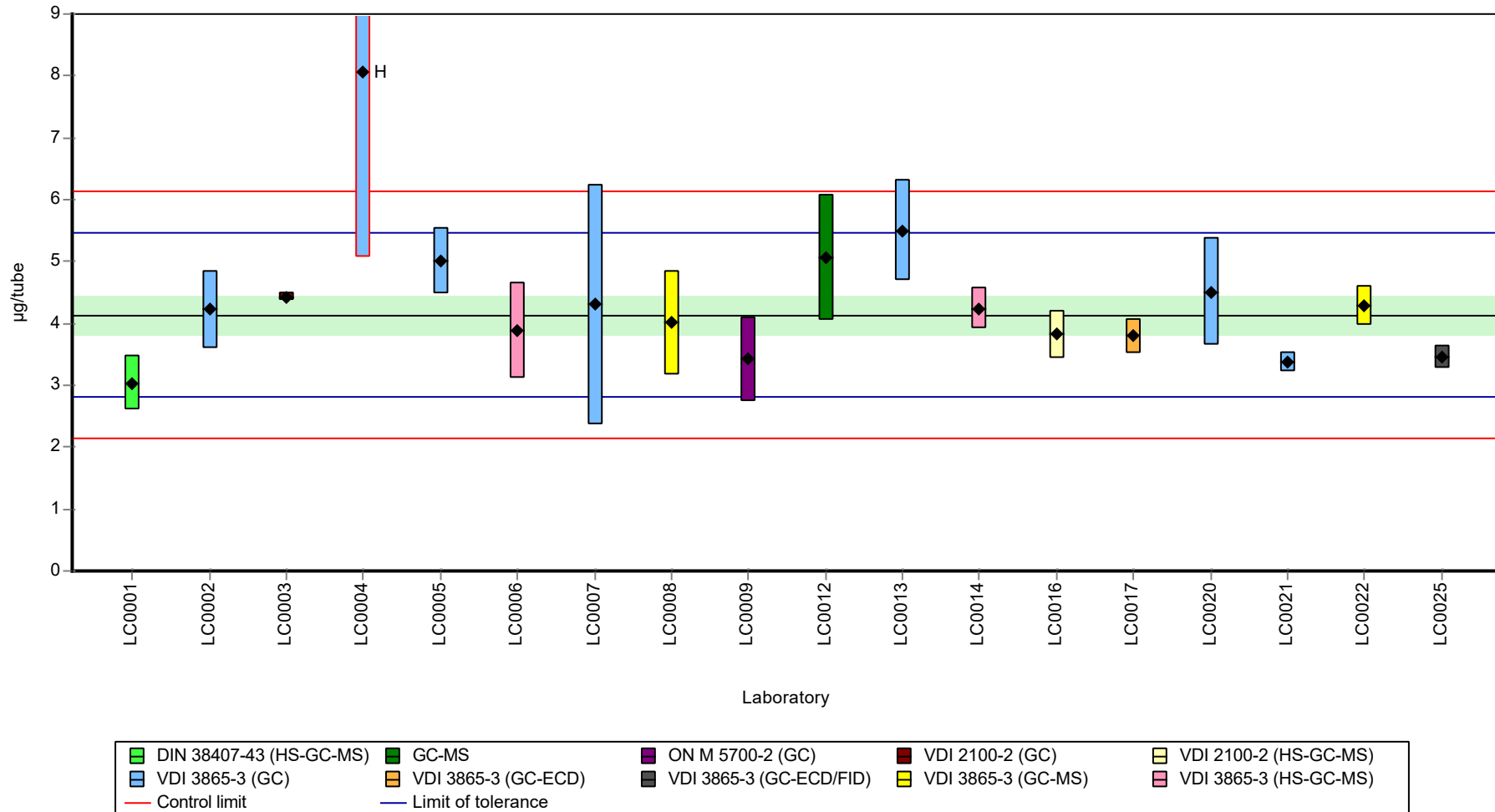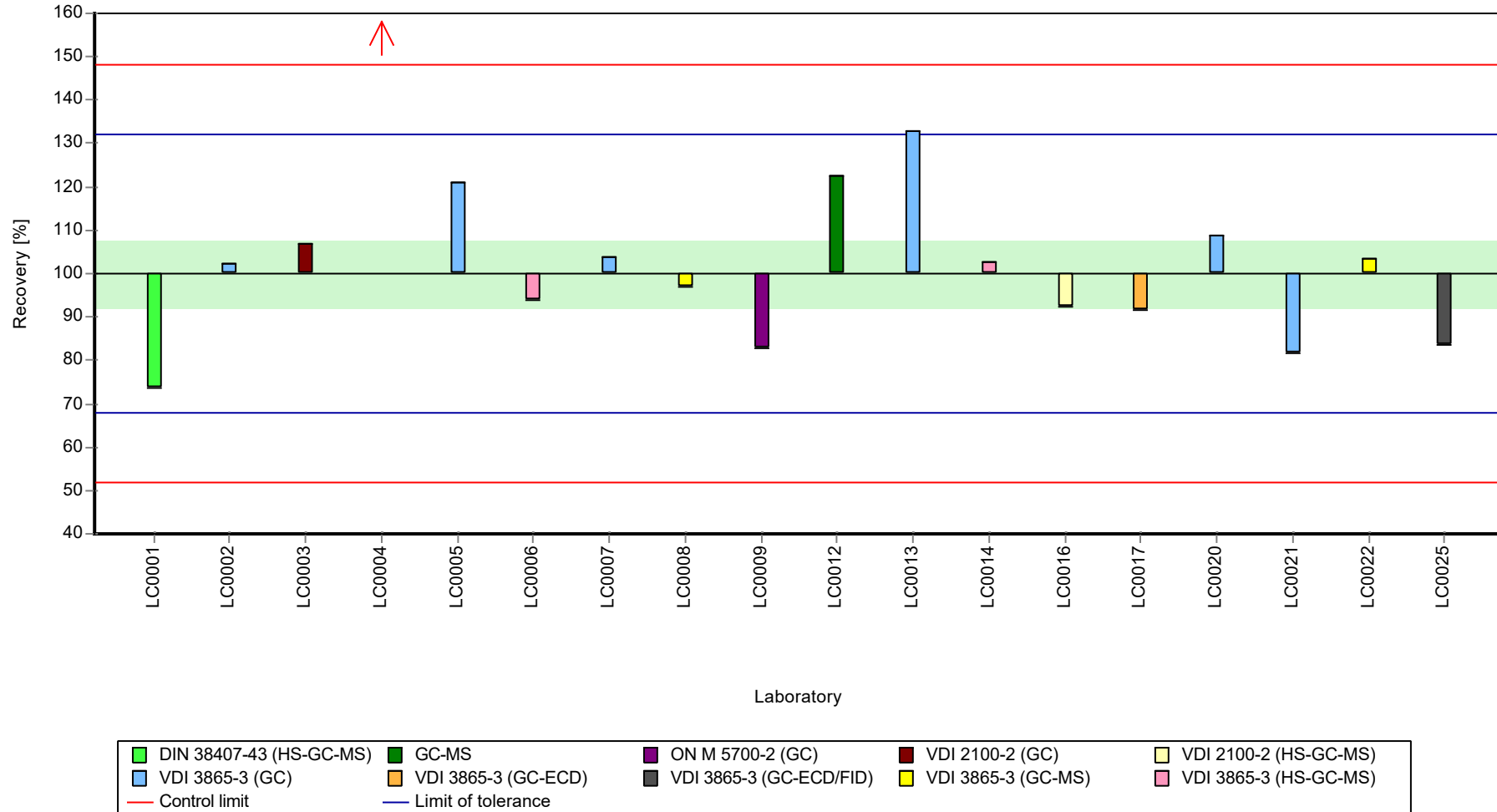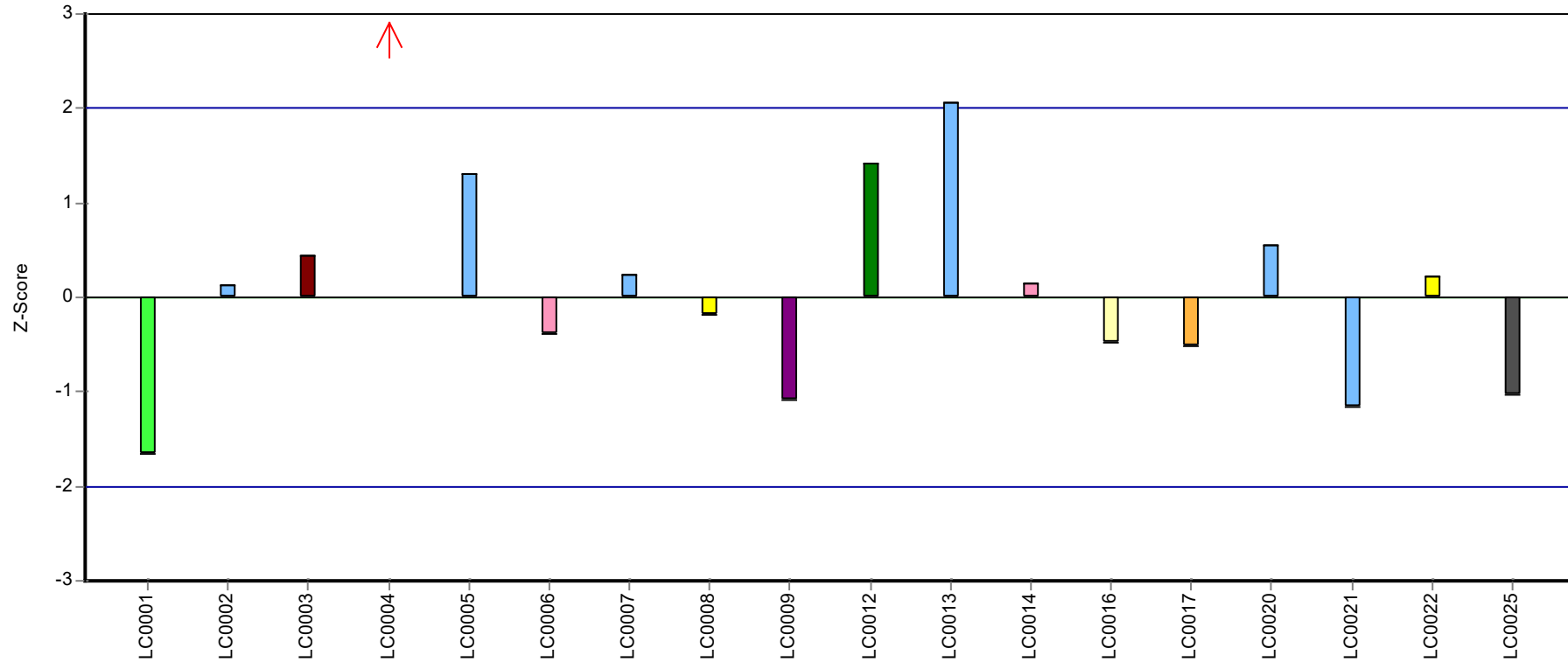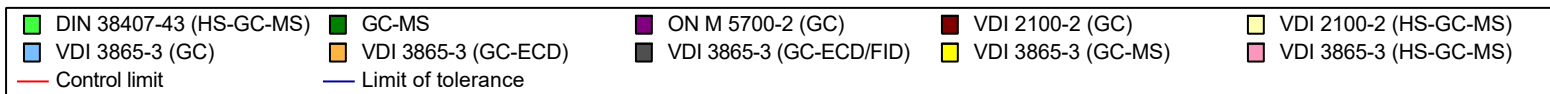
E8. Labororientierte Auswertung / Laboratory oriented report

Die Labororientierte Auswertung ist nach dem Laborcode sortiert.

The laboratory oriented report is sorted by laboratory code.

Sample: BL11

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
Benzene	µg/tube	5.32 ±	0.4	3.68 ±	0.46	0.799	69.1	-2.06
Ethylbenzene	µg/tube	5.33 ±	0.579	2.76 ±	0.38	1.17	51.8	-2.19
n-Decane	µg/tube	- ±	-	- ±	-	-	-	-
n-Heptane	µg/tube	7.58 ±	1.19	- ±	-	1.59	-	-
n-Hexane	µg/tube	6.1 ±	0.928	- ±	-	1.16	-	-
n-Nonane	µg/tube	- ±	-	- ±	-	-	-	-
n-Octane	µg/tube	6.07 ±	0.74	- ±	-	0.91	-	-
n-Pentane	µg/tube	6.78 ±	1.52	- ±	-	1.9	-	-
o-Xylene	µg/tube	4.72 ±	0.398	2.31 ±	0.35	0.85	48.9	-2.84
Sum of m-Xylene and p-Xylene	µg/tube	9.43 ±	1.28	2.47 ±	0.31	2.45	26.2	-2.84
Toluene	µg/tube	5.41 ±	0.418	3.52 ±	0.51	0.812	65	-2.33

Sample: CL10

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
1,1,1-Trichloroethane	µg/tube	4.71 ±	0.281	3.63 ±	0.49	0.753	77.1	-1.43
cis-1,2-Dichloroethene	µg/tube	2.89 ±	0.494	2.54 ±	0.45	1.07	87.9	-0.33
Tetrachloroethene	µg/tube	3.93 ±	0.234	1.77 ±	0.26	0.826	45	-2.62
Tetrachloromethane	µg/tube	5.53 ±	0.505	4.18 ±	0.6	0.995	75.6	-1.35
trans-1,2-Dichloroethene	µg/tube	2.96 ±	0.684	2.46 ±	0.38	1.27	83.1	-0.39
Trichloroethene	µg/tube	3.63 ±	0.424	2.47 ±	0.39	0.907	68.1	-1.28
Trichloromethane	µg/tube	4.14 ±	0.317	3.04 ±	0.44	0.662	73.5	-1.66
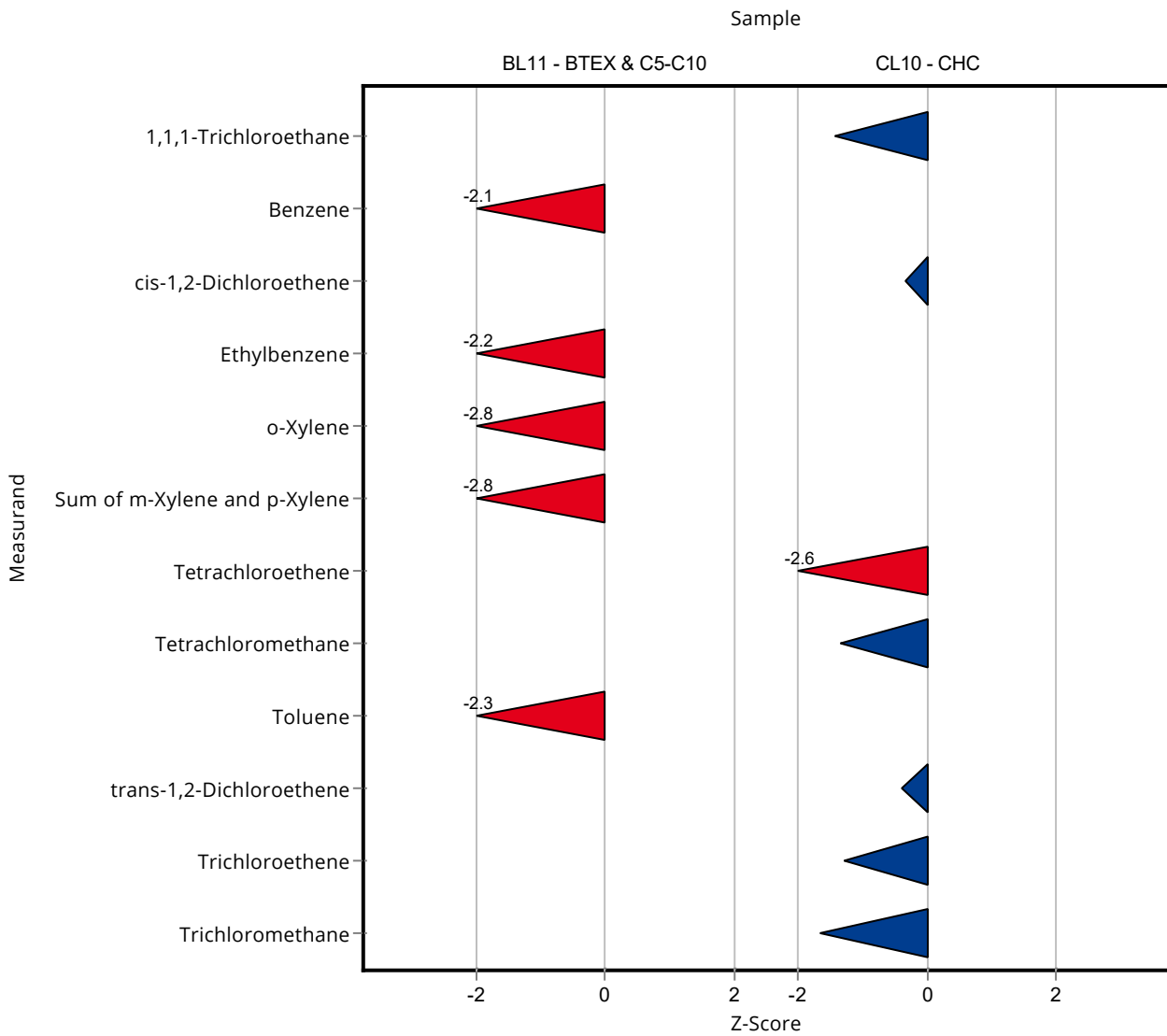
Sample: BL11

Parameter	Unit	Assigned value	± U (k=2)	Result	± U	Criterion	Recovery [%]	En-Score
Benzene	µg/tube	5.32	± 0.4	3.68	± 0.46	0.799	69.1	-1.64
Ethylbenzene	µg/tube	5.33	± 0.579	2.76	± 0.38	1.17	51.8	-2.69
n-Decane	µg/tube	-	± -	-	± -	-	-	-
n-Heptane	µg/tube	7.58	± 1.19	-	± -	1.59	-	-
n-Hexane	µg/tube	6.1	± 0.928	-	± -	1.16	-	-
n-Nonane	µg/tube	-	± -	-	± -	-	-	-
n-Octane	µg/tube	6.07	± 0.74	-	± -	0.91	-	-
n-Pentane	µg/tube	6.78	± 1.52	-	± -	1.9	-	-
o-Xylene	µg/tube	4.72	± 0.398	2.31	± 0.35	0.85	48.9	-3.00
Sum of m-Xylene and p-Xylene	µg/tube	9.43	± 1.28	2.47	± 0.31	2.45	26.2	-4.88
Toluene	µg/tube	5.41	± 0.418	3.52	± 0.51	0.812	65	-1.72

Sample: CL10

Parameter	Unit	Assigned value	± U (k=2)	Result	± U	Criterion	Recovery [%]	En-Score
1,1,1-Trichloroethane	µg/tube	4.71	± 0.281	3.63	± 0.49	0.753	77.1	-1.06
cis-1,2-Dichloroethene	µg/tube	2.89	± 0.494	2.54	± 0.45	1.07	87.9	-0.34
Tetrachloroethene	µg/tube	3.93	± 0.234	1.77	± 0.26	0.826	45	-3.79
Tetrachloromethane	µg/tube	5.53	± 0.505	4.18	± 0.6	0.995	75.6	-1.03
trans-1,2-Dichloroethene	µg/tube	2.96	± 0.684	2.46	± 0.38	1.27	83.1	-0.49
Trichloroethene	µg/tube	3.63	± 0.424	2.47	± 0.39	0.907	68.1	-1.30
Trichloromethane	µg/tube	4.14	± 0.317	3.04	± 0.44	0.662	73.5	-1.17
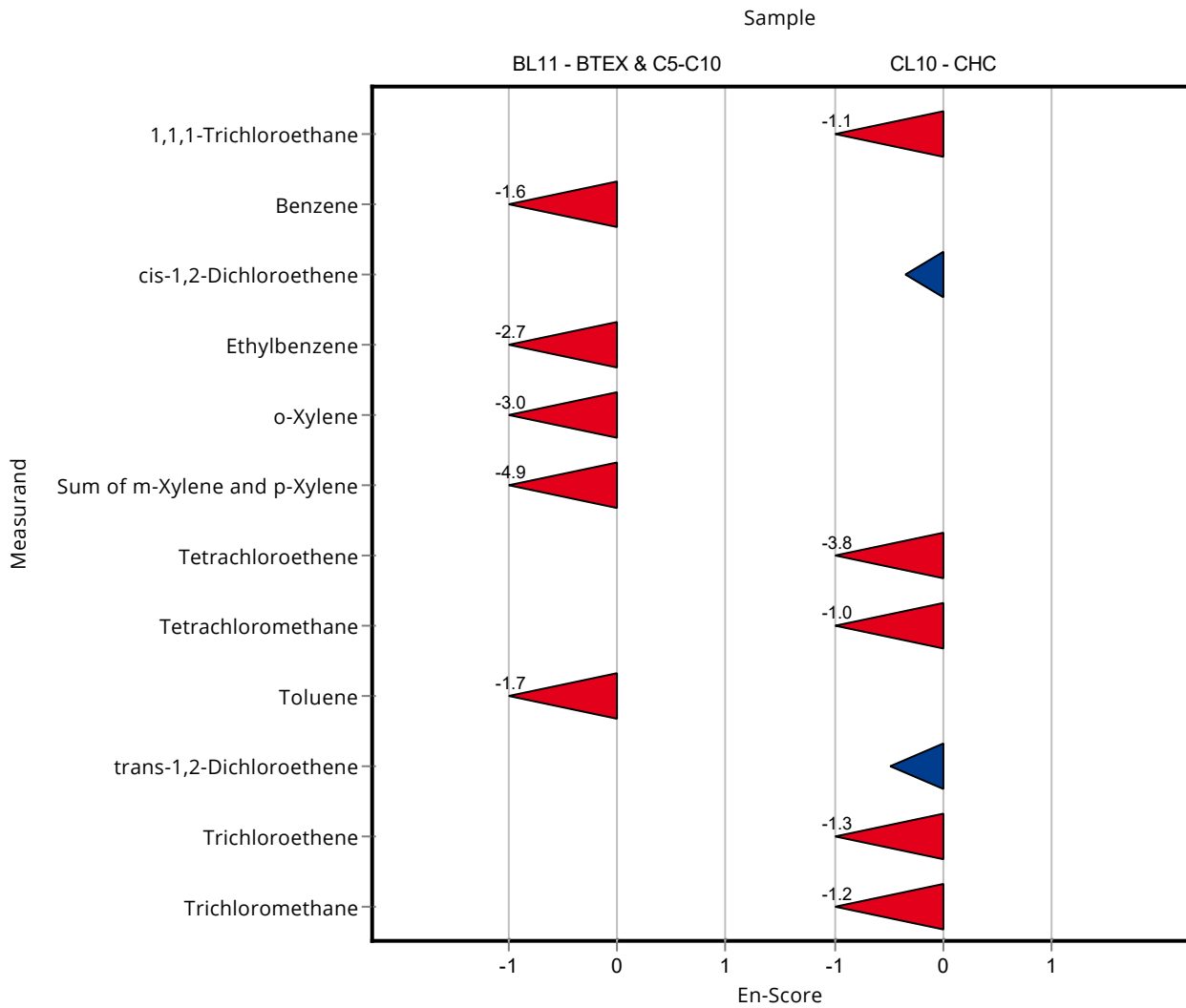
Sample

Sample: CL10

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
1,1,1-Trichloroethane	µg/tube	4.71 ±	0.281	4.572 ±	0.686	0.753	97.2	-0.18
cis-1,2-Dichloroethene	µg/tube	2.89 ±	0.494	3.022 ±	0.453	1.07	105	0.12
Tetrachloroethene	µg/tube	3.93 ±	0.234	4.315 ±	0.647	0.826	110	0.46
Tetrachloromethane	µg/tube	5.53 ±	0.505	5.57 ±	0.836	0.995	101	0.04
trans-1,2-Dichloroethene	µg/tube	2.96 ±	0.684	2.456 ±	0.368	1.27	83	-0.40
Trichloroethene	µg/tube	3.63 ±	0.424	4.031 ±	0.605	0.907	111	0.44
Trichloromethane	µg/tube	4.14 ±	0.317	4.227 ±	0.634	0.662	102	0.13
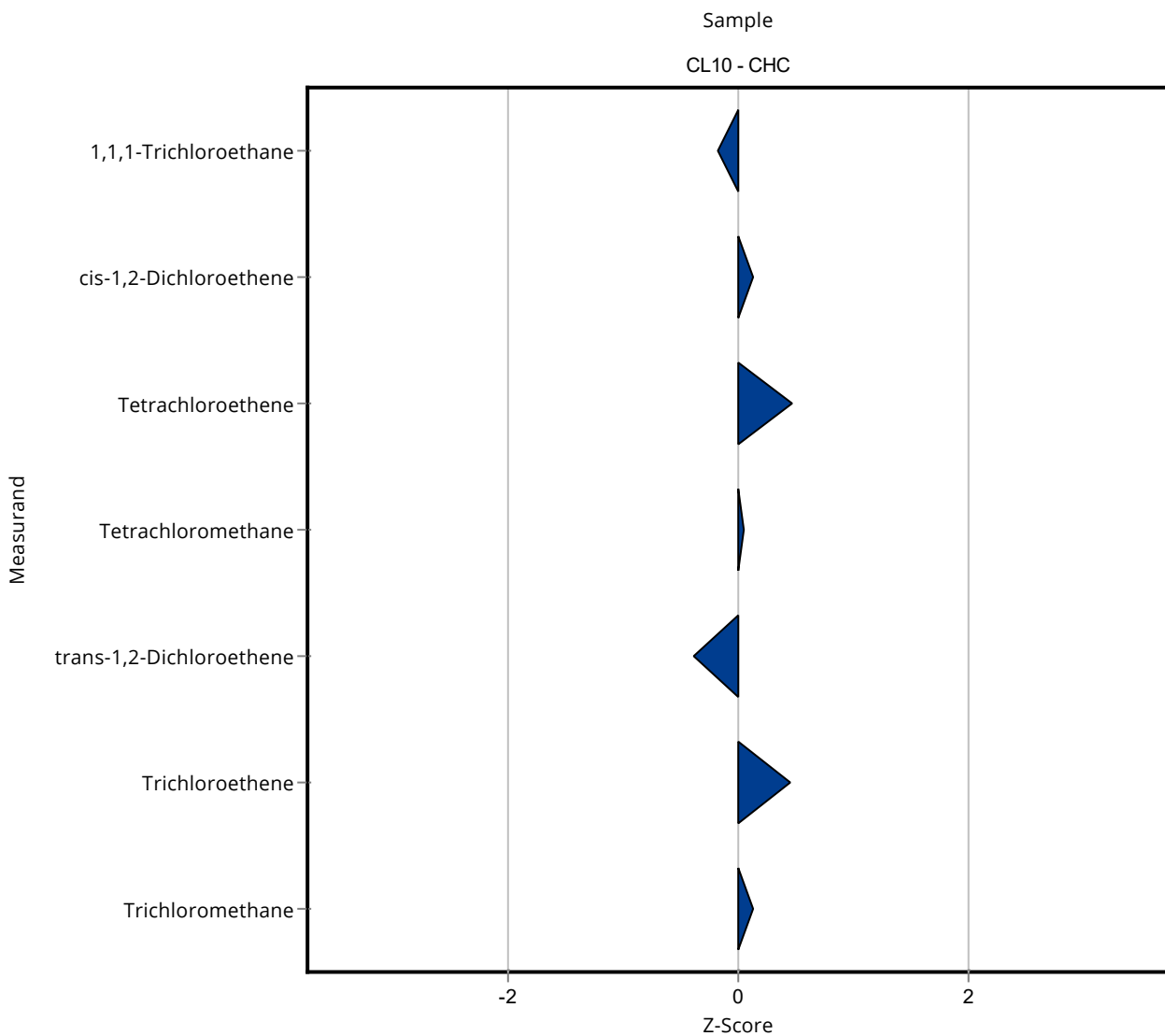
Sample

CL10 - CHC

Sample: CL10

Parameter	Unit	Assigned value	± U (k=2)	Result ± U		Criterion	Recovery [%]	En-Score
1,1,1-Trichloroethane	µg/tube	4.71	± 0.281	4.572	± 0.686	0.753	97.2	-0.10
cis-1,2-Dichloroethene	µg/tube	2.89	± 0.494	3.022	± 0.453	1.07	105	0.13
Tetrachloroethene	µg/tube	3.93	± 0.234	4.315	± 0.647	0.826	110	0.29
Tetrachloromethane	µg/tube	5.53	± 0.505	5.57	± 0.836	0.995	101	0.03
trans-1,2-Dichloroethene	µg/tube	2.96	± 0.684	2.456	± 0.368	1.27	83	-0.50
Trichloroethene	µg/tube	3.63	± 0.424	4.031	± 0.605	0.907	111	0.31
Trichloromethane	µg/tube	4.14	± 0.317	4.227	± 0.634	0.662	102	0.07
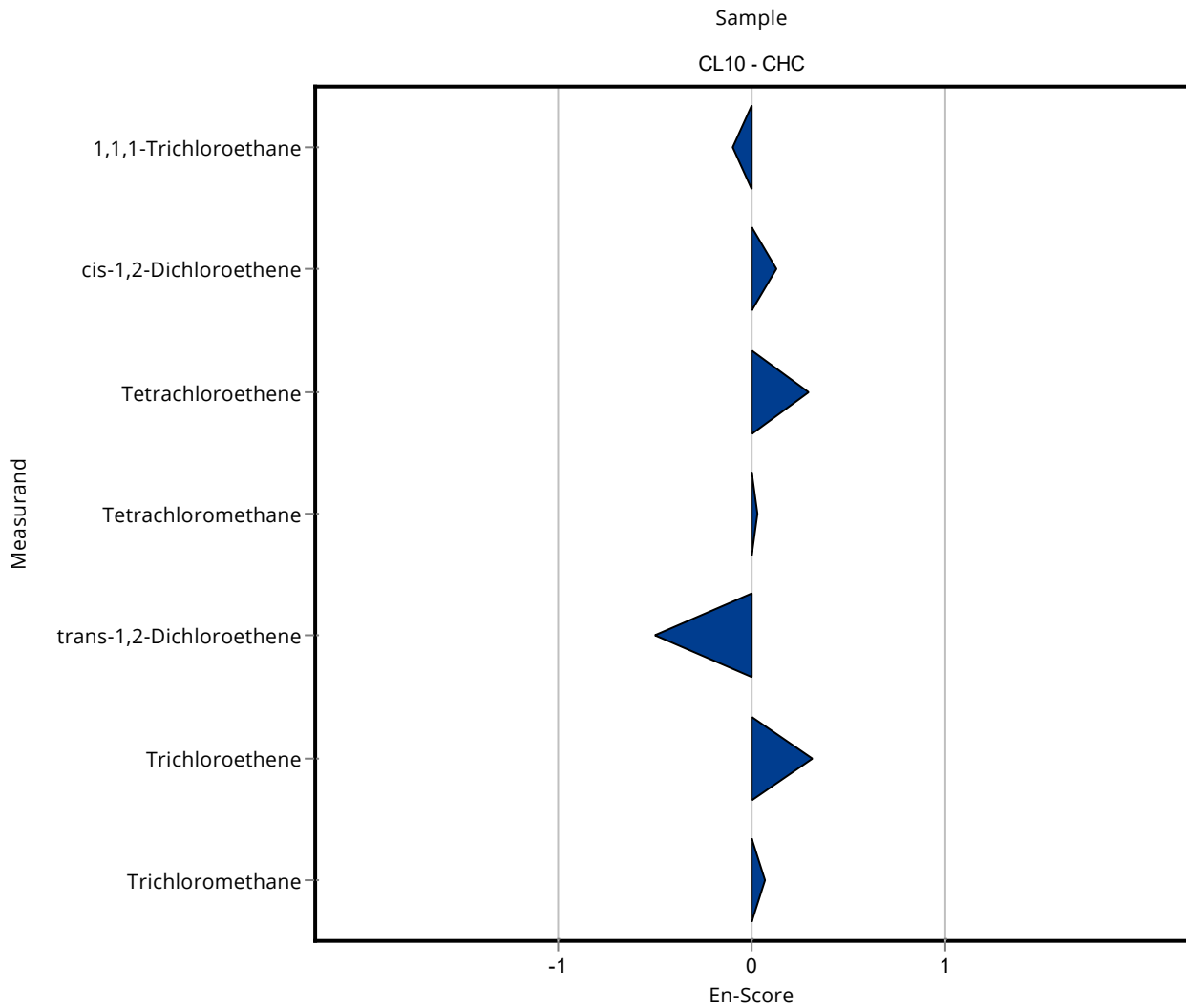
umwelt**bundesamt**
ENVIRONMENT AGENCY AUSTRIA

Sample

CL10 - CHC

Sample: BL11

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
Benzene	µg/tube	5.32 ±	0.4	4.63 ±	0.074	0.799	87	-0.87
Ethylbenzene	µg/tube	5.33 ±	0.579	4.29 ±	0.139	1.17	80.5	-0.89
n-Decane	µg/tube	- ±	-	- ±	-	-	-	-
n-Heptane	µg/tube	7.58 ±	1.19	- ±	-	1.59	-	-
n-Hexane	µg/tube	6.1 ±	0.928	- ±	-	1.16	-	-
n-Nonane	µg/tube	- ±	-	- ±	-	-	-	-
n-Octane	µg/tube	6.07 ±	0.74	- ±	-	0.91	-	-
n-Pentane	µg/tube	6.78 ±	1.52	- ±	-	1.9	-	-
o-Xylene	µg/tube	4.72 ±	0.398	3.67 ±	0.314	0.85	77.7	-1.24
Sum of m-Xylene and p-Xylene	µg/tube	9.43 ±	1.28	8.34 ±	0.421	2.45	88.5	-0.44
Toluene	µg/tube	5.41 ±	0.418	4.9 ±	0.064	0.812	90.5	-0.63

Sample: CL10

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
1,1,1-Trichloroethane	µg/tube	4.71 ±	0.281	4.71 ±	0.078	0.753	100	0.01
cis-1,2-Dichloroethene	µg/tube	2.89 ±	0.494	1.39 ±	0.141	1.07	48.1	-1.40
Tetrachloroethene	µg/tube	3.93 ±	0.234	3.62 ±	0.049	0.826	92.1	-0.38
Tetrachloromethane	µg/tube	5.53 ±	0.505	5.67 ±	0.078	0.995	103	0.14
trans-1,2-Dichloroethene	µg/tube	2.96 ±	0.684	0.885 ±	0.007	1.27	29.9	-1.63
Trichloroethene	µg/tube	3.63 ±	0.424	3.95 ±	0.014	0.907	109	0.36
Trichloromethane	µg/tube	4.14 ±	0.317	4.43 ±	0.064	0.662	107	0.44
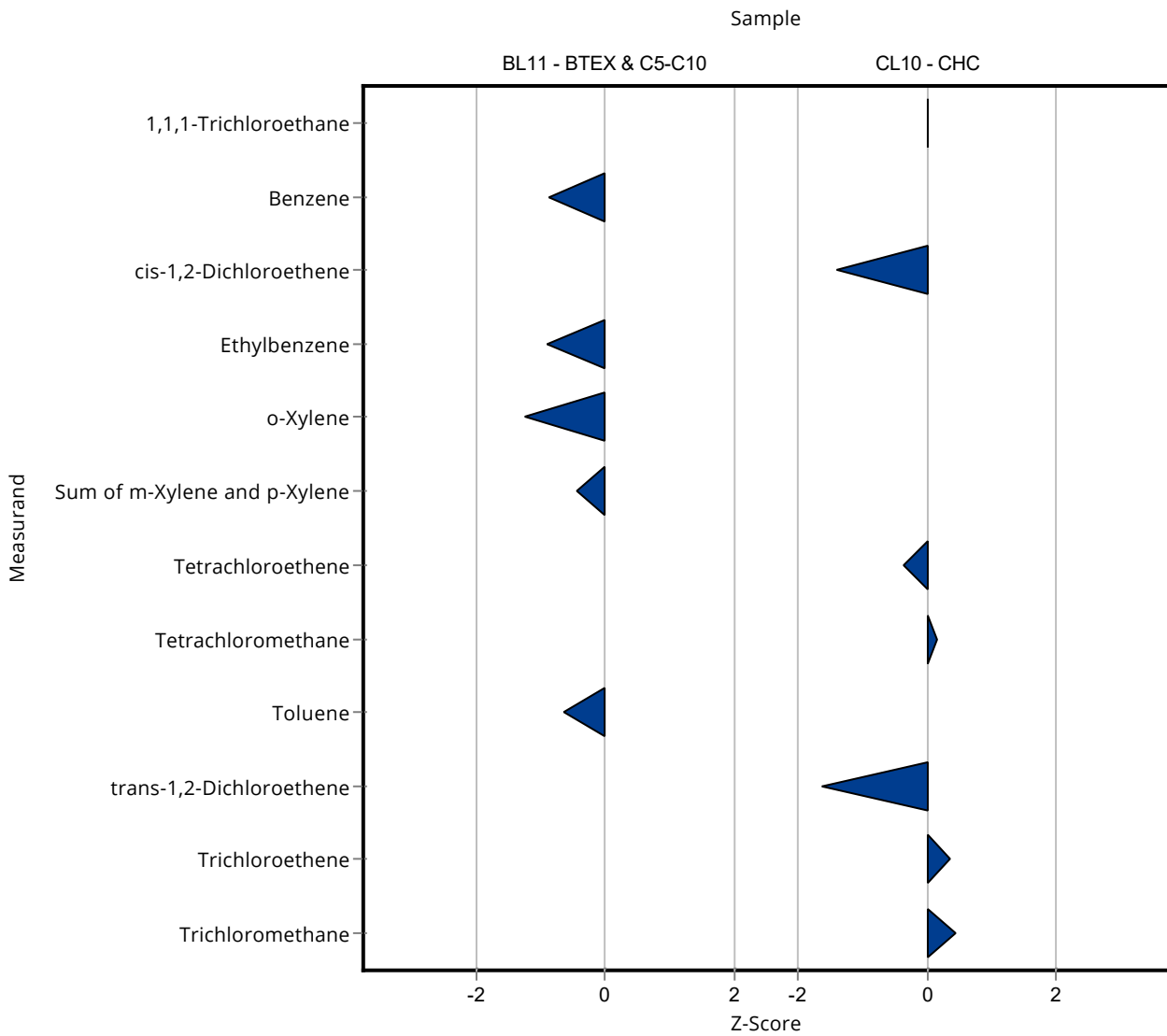
Sample: BL11

Parameter	Unit	Assigned value	± U (k=2)	Result ± U		Criterion	Recovery [%]	En-Score
Benzene	µg/tube	5.32	± 0.4	4.63	± 0.074	0.799	87	-1.63
Ethylbenzene	µg/tube	5.33	± 0.579	4.29	± 0.139	1.17	80.5	-1.62
n-Decane	µg/tube	-	± -	-	± -	-	-	-
n-Heptane	µg/tube	7.58	± 1.19	-	± -	1.59	-	-
n-Hexane	µg/tube	6.1	± 0.928	-	± -	1.16	-	-
n-Nonane	µg/tube	-	± -	-	± -	-	-	-
n-Octane	µg/tube	6.07	± 0.74	-	± -	0.91	-	-
n-Pentane	µg/tube	6.78	± 1.52	-	± -	1.9	-	-
o-Xylene	µg/tube	4.72	± 0.398	3.67	± 0.314	0.85	77.7	-1.42
Sum of m-Xylene and p-Xylene	µg/tube	9.43	± 1.28	8.34	± 0.421	2.45	88.5	-0.71
Toluene	µg/tube	5.41	± 0.418	4.9	± 0.064	0.812	90.5	-1.18

Sample: CL10

Parameter	Unit	Assigned value	± U (k=2)	Result ± U		Criterion	Recovery [%]	En-Score
1,1,1-Trichloroethane	µg/tube	4.71	± 0.281	4.71	± 0.078	0.753	100	0.01
cis-1,2-Dichloroethene	µg/tube	2.89	± 0.494	1.39	± 0.141	1.07	48.1	-2.64
Tetrachloroethene	µg/tube	3.93	± 0.234	3.62	± 0.049	0.826	92.1	-1.23
Tetrachloromethane	µg/tube	5.53	± 0.505	5.67	± 0.078	0.995	103	0.27
trans-1,2-Dichloroethene	µg/tube	2.96	± 0.684	0.885	± 0.007	1.27	29.9	-3.03
Trichloroethene	µg/tube	3.63	± 0.424	3.95	± 0.014	0.907	109	0.76
Trichloromethane	µg/tube	4.14	± 0.317	4.43	± 0.064	0.662	107	0.85
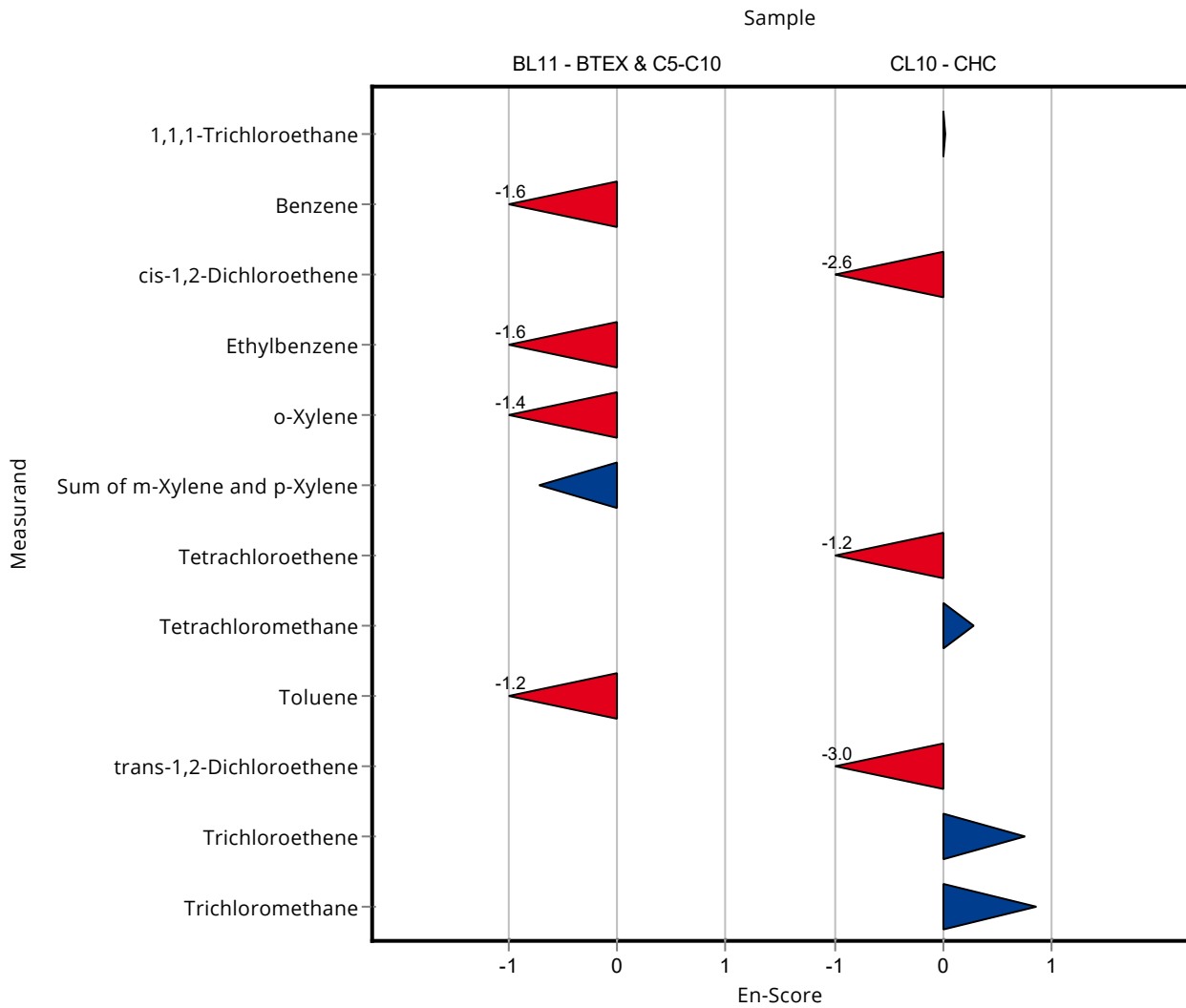
Sample

| BL11 - BTEX & C5-C10 | CL10 - CHC |

Measurand

Measurand	En-Score
1,1,1-Trichloroethane	
Benzene	-1.6
cis-1,2-Dichloroethene	-2.6
Ethylbenzene	-1.6
o-Xylene	-1.4
Sum of m-Xylene and p-Xylene	
Tetrachloroethene	-1.2
Tetrachloromethane	
Toluene	-1.2
trans-1,2-Dichloroethene	-3.0
Trichloroethene	
Trichloromethane	

En-Score

Sample: BL11

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
Benzene	µg/tube	5.32 ± 0.4		- ± -		0.799	-	-
Ethylbenzene	µg/tube	5.33 ± 0.579		10.3 ± 3		1.17	193	4.24
n-Decane	µg/tube	- ± -		<0.5 (LOQ) ± -		-	-	-
n-Heptane	µg/tube	7.58 ± 1.19		9.931 ± 3		1.59	131	1.48
n-Hexane	µg/tube	6.1 ± 0.928		11.39 ± 3		1.16	187	4.57
n-Nonane	µg/tube	- ± -		<0.5 (LOQ) ± -		-	-	-
n-Octane	µg/tube	6.07 ± 0.74		5.261 ± 2		0.91	86.7	-0.89
n-Pentane	µg/tube	6.78 ± 1.52		10.28 ± 3		1.9	152	1.85
o-Xylene	µg/tube	4.72 ± 0.398		9.285 ± 3		0.85	197	5.37
Sum of m-Xylene and p-Xylene	µg/tube	9.43 ± 1.28		19.46 ± 7		2.45	206	4.09
Toluene	µg/tube	5.41 ± 0.418		9.814 ± 3		0.812	181	5.42

Sample: CL10

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
1,1,1-Trichloroethane	µg/tube	4.71 ± 0.281		8.524 ± 3		0.753	181	5.07
cis-1,2-Dichloroethene	µg/tube	2.89 ± 0.494		4.03 ± 1		1.07	139	1.07
Tetrachloroethene	µg/tube	3.93 ± 0.234		7.611 ± 2.5		0.826	194	4.45
Tetrachloromethane	µg/tube	5.53 ± 0.505		8.494 ± 3		0.995	154	2.98
trans-1,2-Dichloroethene	µg/tube	2.96 ± 0.684		7.196 ± 2.5		1.27	243	3.33
Trichloroethene	µg/tube	3.63 ± 0.424		7.672 ± 2.5		0.907	211	4.46
Trichloromethane	µg/tube	4.14 ± 0.317		8.069 ± 3		0.662	195	5.94
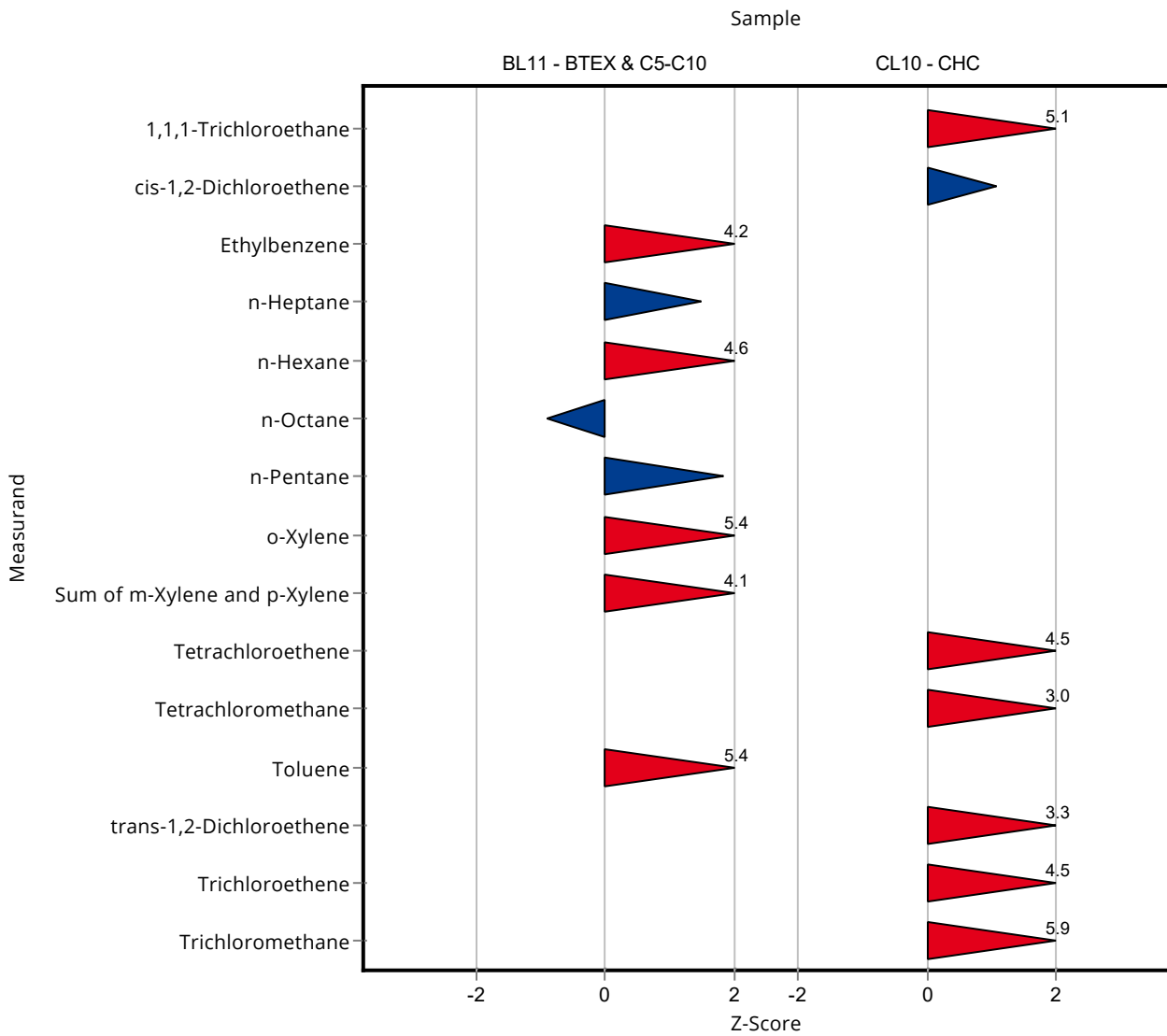
Sample: BL11

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	En-Score
Benzene	µg/tube	5.32 ± 0.4		- ± -		0.799	-	-
Ethylbenzene	µg/tube	5.33 ± 0.579		10.3 ± 3		1.17	193	0.82
n-Decane	µg/tube	- ± -		<0.5 (LOQ) ± -		-	-	-
n-Heptane	µg/tube	7.58 ± 1.19		9.931 ± 3		1.59	131	0.38
n-Hexane	µg/tube	6.1 ± 0.928		11.39 ± 3		1.16	187	0.87
n-Nonane	µg/tube	- ± -		<0.5 (LOQ) ± -		-	-	-
n-Octane	µg/tube	6.07 ± 0.74		5.261 ± 2		0.91	86.7	-0.20
n-Pentane	µg/tube	6.78 ± 1.52		10.28 ± 3		1.9	152	0.57
o-Xylene	µg/tube	4.72 ± 0.398		9.285 ± 3		0.85	197	0.76
Sum of m-Xylene and p-Xylene	µg/tube	9.43 ± 1.28		19.46 ± 7		2.45	206	0.71
Toluene	µg/tube	5.41 ± 0.418		9.814 ± 3		0.812	181	0.73

Sample: CL10

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	En-Score
1,1,1-Trichloroethane	µg/tube	4.71 ± 0.281		8.524 ± 3		0.753	181	0.64
cis-1,2-Dichloroethene	µg/tube	2.89 ± 0.494		4.03 ± 1		1.07	139	0.55
Tetrachloroethene	µg/tube	3.93 ± 0.234		7.611 ± 2.5		0.826	194	0.73
Tetrachloromethane	µg/tube	5.53 ± 0.505		8.494 ± 3		0.995	154	0.49
trans-1,2-Dichloroethene	µg/tube	2.96 ± 0.684		7.196 ± 2.5		1.27	243	0.84
Trichloroethene	µg/tube	3.63 ± 0.424		7.672 ± 2.5		0.907	211	0.81
Trichloromethane	µg/tube	4.14 ± 0.317		8.069 ± 3		0.662	195	0.65
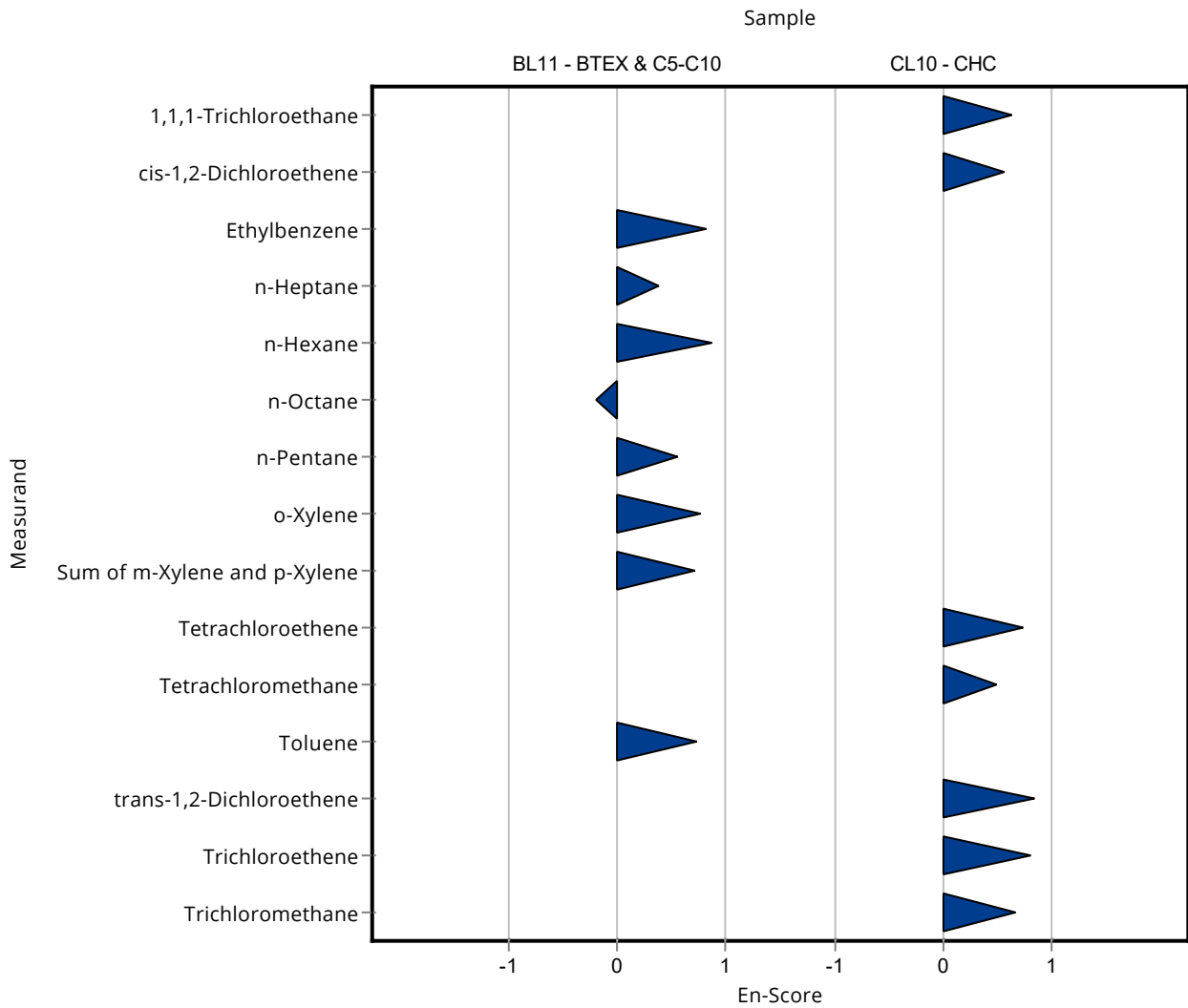
Sample

Sample: BL11

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
Benzene	µg/tube	5.32 ±	0.4	6.72 ±	0.61	0.799	126	1.75
Ethylbenzene	µg/tube	5.33 ±	0.579	8.28 ±	0.85	1.17	155	2.52
n-Decane	µg/tube	- ±	-	10.93 ±	1.08	-	-	-
n-Heptane	µg/tube	7.58 ±	1.19	9.19 ±	0.96	1.59	121	1.01
n-Hexane	µg/tube	6.1 ±	0.928	4.31 ±	0.41	1.16	70.7	-1.54
n-Nonane	µg/tube	- ±	-	13.32 ±	1.25	-	-	-
n-Octane	µg/tube	6.07 ±	0.74	12.83 ±	1.28	0.91	211	7.43
n-Pentane	µg/tube	6.78 ±	1.52	7.19 ±	0.69	1.9	106	0.22
o-Xylene	µg/tube	4.72 ±	0.398	9.26 ±	0.91	0.85	196	5.34
Sum of m-Xylene and p-Xylene	µg/tube	9.43 ±	1.28	18.43 ±	1.56	2.45	195	3.67
Toluene	µg/tube	5.41 ±	0.418	8.39 ±	0.87	0.812	155	3.66

Sample: CL10

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
1,1,1-Trichloroethane	µg/tube	4.71 ±	0.281	5.53 ±	0.51	0.753	118	1.09
cis-1,2-Dichloroethene	µg/tube	2.89 ±	0.494	3.82 ±	0.41	1.07	132	0.87
Tetrachloroethene	µg/tube	3.93 ±	0.234	4.39 ±	0.42	0.826	112	0.55
Tetrachloromethane	µg/tube	5.53 ±	0.505	10.79 ±	1.08	0.995	195	5.29
trans-1,2-Dichloroethene	µg/tube	2.96 ±	0.684	4.16 ±	0.39	1.27	141	0.94
Trichloroethene	µg/tube	3.63 ±	0.424	2.9 ±	0.31	0.907	79.9	-0.80
Trichloromethane	µg/tube	4.14 ±	0.317	5 ±	0.54	0.662	121	1.30
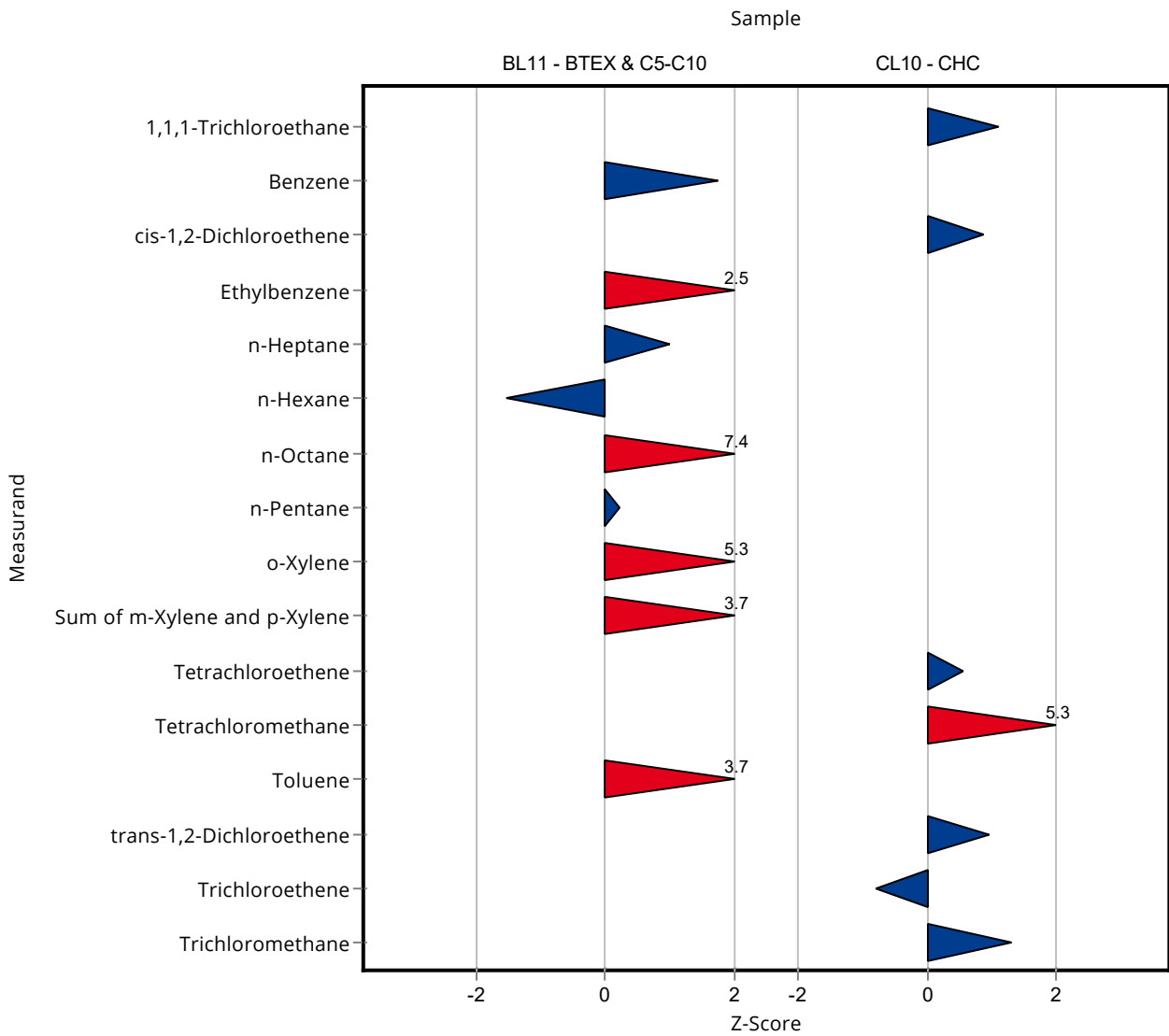
Sample

BL11 - BTEX & C5-C10 | CL10 - CHC

Measurand / Z-Score

- 1,1,1-Trichloroethane
- Benzene
- cis-1,2-Dichloroethene
- Ethylbenzene — 2.5
- n-Heptane
- n-Hexane
- n-Octane — 7.4
- n-Pentane
- o-Xylene — 5.3
- Sum of m-Xylene and p-Xylene — 3.7
- Tetrachloroethene
- Tetrachloromethane — 5.3
- Toluene — 3.7
- trans-1,2-Dichloroethene
- Trichloroethene
- Trichloromethane

Sample: BL11

Parameter	Unit	Assigned value	± U (k=2)	Result	± U	Criterion	Recovery [%]	En-Score
Benzene	µg/tube	5.32	± 0.4	6.72	± 0.61	0.799	126	1.09
Ethylbenzene	µg/tube	5.33	± 0.579	8.28	± 0.85	1.17	155	1.64
n-Decane	µg/tube	-	± -	10.93	± 1.08	-	-	-
n-Heptane	µg/tube	7.58	± 1.19	9.19	± 0.96	1.59	121	0.71
n-Hexane	µg/tube	6.1	± 0.928	4.31	± 0.41	1.16	70.7	-1.44
n-Nonane	µg/tube	-	± -	13.32	± 1.25	-	-	-
n-Octane	µg/tube	6.07	± 0.74	12.83	± 1.28	0.91	211	2.54
n-Pentane	µg/tube	6.78	± 1.52	7.19	± 0.69	1.9	106	0.20
o-Xylene	µg/tube	4.72	± 0.398	9.26	± 0.91	0.85	196	2.44
Sum of m-Xylene and p-Xylene	µg/tube	9.43	± 1.28	18.43	± 1.56	2.45	195	2.67
Toluene	µg/tube	5.41	± 0.418	8.39	± 0.87	0.812	155	1.66

Sample: CL10

Parameter	Unit	Assigned value	± U (k=2)	Result	± U	Criterion	Recovery [%]	En-Score
1,1,1-Trichloroethane	µg/tube	4.71	± 0.281	5.53	± 0.51	0.753	118	0.78
cis-1,2-Dichloroethene	µg/tube	2.89	± 0.494	3.82	± 0.41	1.07	132	0.97
Tetrachloroethene	µg/tube	3.93	± 0.234	4.39	± 0.42	0.826	112	0.52
Tetrachloromethane	µg/tube	5.53	± 0.505	10.79	± 1.08	0.995	195	2.37
trans-1,2-Dichloroethene	µg/tube	2.96	± 0.684	4.16	± 0.39	1.27	141	1.16
Trichloroethene	µg/tube	3.63	± 0.424	2.9	± 0.31	0.907	79.9	-0.97
Trichloromethane	µg/tube	4.14	± 0.317	5	± 0.54	0.662	121	0.77
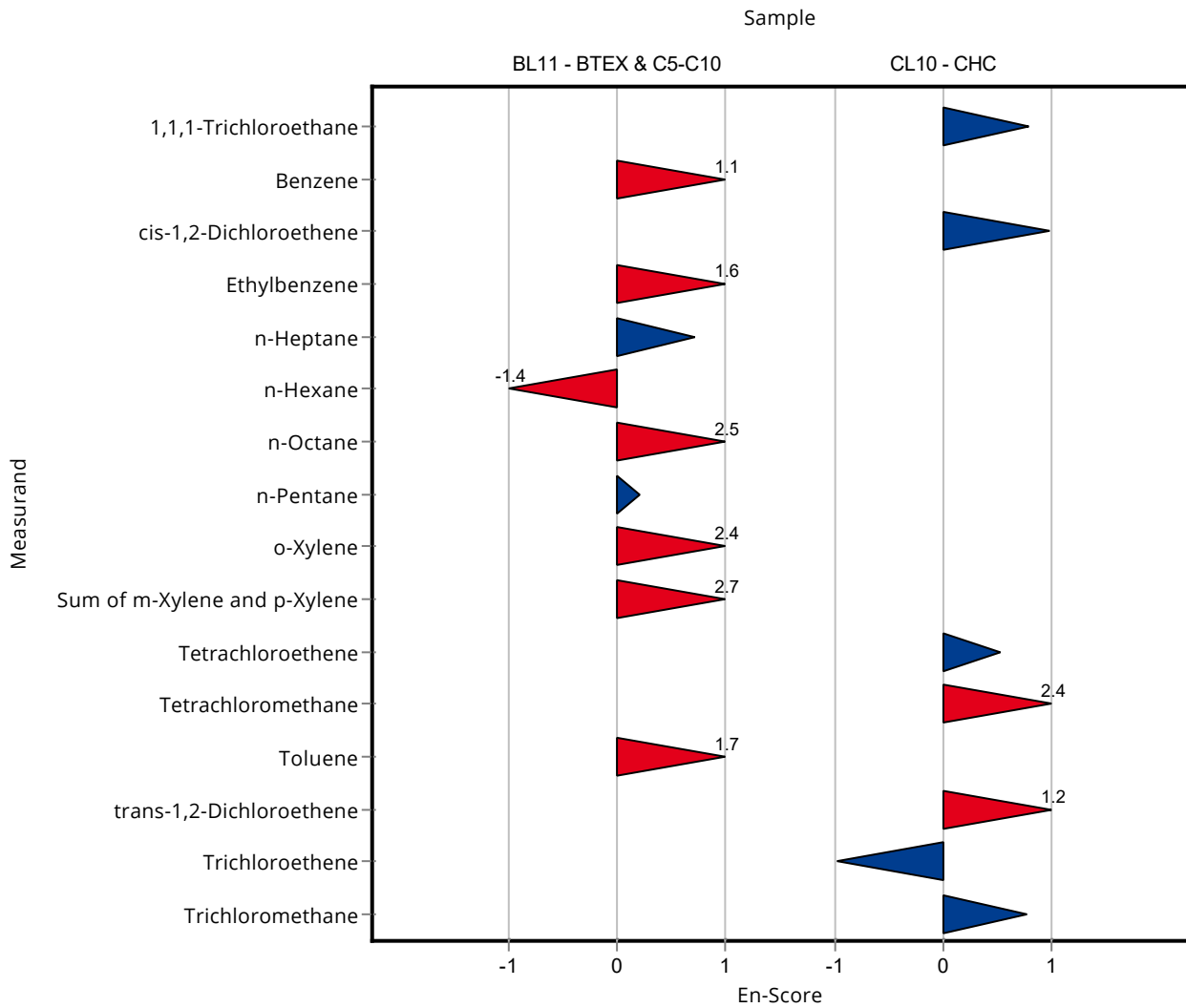
Sample: BL11

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
Benzene	µg/tube	5.32 ± 0.4		4.509 ± 0.9		0.799	84.7	-1.02
Ethylbenzene	µg/tube	5.33 ± 0.579		4.138 ± 0.83		1.17	77.7	-1.02
n-Decane	µg/tube	- ± -		1.409 ± 0.28		-	-	-
n-Heptane	µg/tube	7.58 ± 1.19		5.694 ± 1.14		1.59	75.1	-1.18
n-Hexane	µg/tube	6.1 ± 0.928		5.787 ± 1.16		1.16	94.9	-0.27
n-Nonane	µg/tube	- ± -		3.28 ± 0.66		-	-	-
n-Octane	µg/tube	6.07 ± 0.74		4.794 ± 0.96		0.91	79	-1.40
n-Pentane	µg/tube	6.78 ± 1.52		5.125 ± 1.02		1.9	75.6	-0.87
o-Xylene	µg/tube	4.72 ± 0.398		3.571 ± 0.71		0.85	75.6	-1.35
Sum of m-Xylene and p-Xylene	µg/tube	9.43 ± 1.28		7.44 ± 1.49		2.45	78.9	-0.81
Toluene	µg/tube	5.41 ± 0.418		4.716 ± 0.94		0.812	87.1	-0.86

Sample: CL10

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
1,1,1-Trichloroethane	µg/tube	4.71 ± 0.281		4.326 ± 0.87		0.753	91.9	-0.50
cis-1,2-Dichloroethene	µg/tube	2.89 ± 0.494		3.132 ± 0.63		1.07	108	0.23
Tetrachloroethene	µg/tube	3.93 ± 0.234		4.055 ± 0.81		0.826	103	0.15
Tetrachloromethane	µg/tube	5.53 ± 0.505		5.04 ± 1.01		0.995	91.2	-0.49
trans-1,2-Dichloroethene	µg/tube	2.96 ± 0.684		2.805 ± 0.56		1.27	94.8	-0.12
Trichloroethene	µg/tube	3.63 ± 0.424		3.994 ± 0.8		0.907	110	0.40
Trichloromethane	µg/tube	4.14 ± 0.317		3.877 ± 0.78		0.662	93.7	-0.39
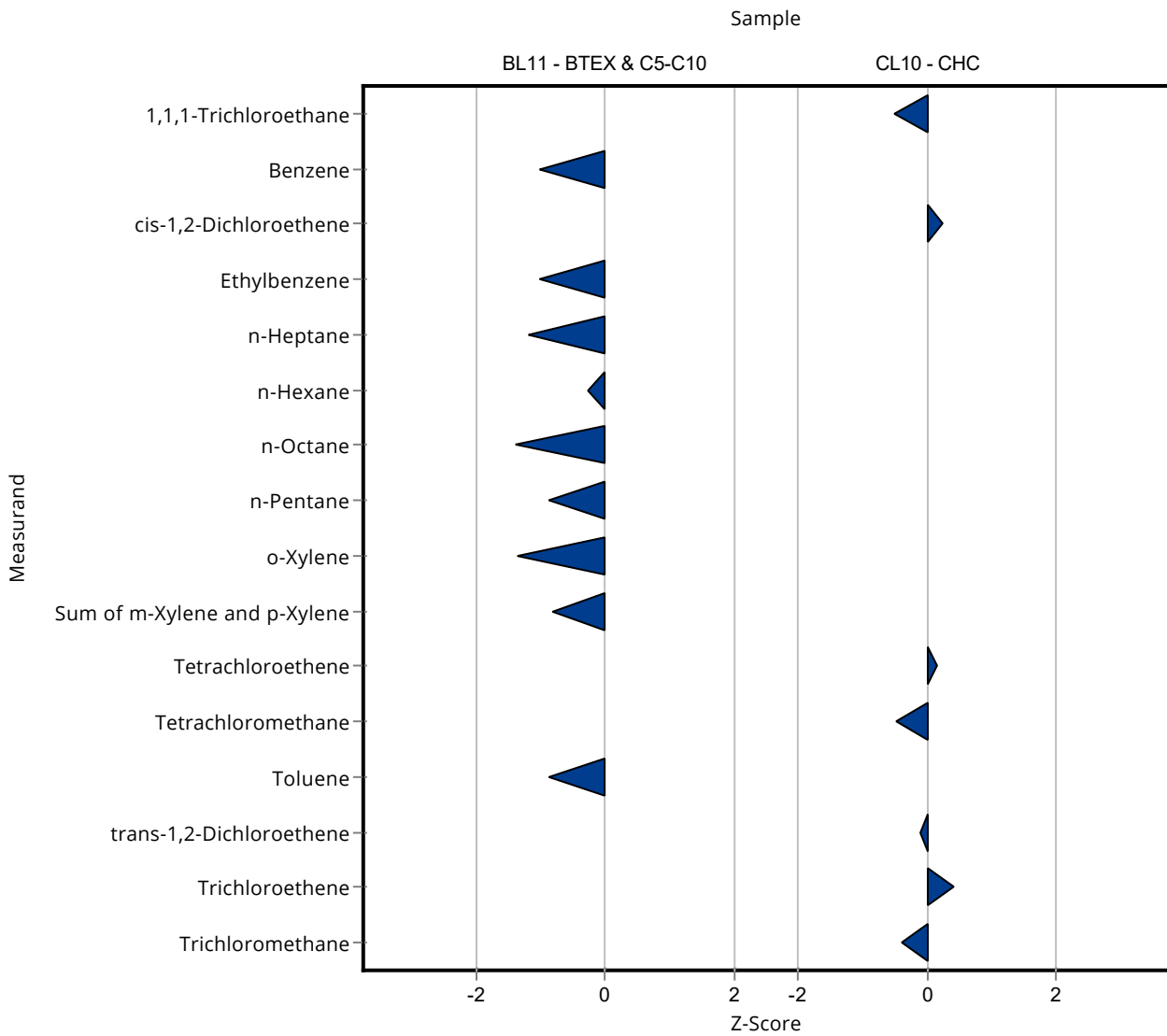
Sample

BL11 - BTEX & C5-C10   CL10 - CHC

Z-Score

Summary of results CHC and BTEX & C5-C10 - CBL09 - En-Score

Labcode: LC0006

Sample: BL11

Parameter	Unit	Assigned value	± U (k=2)	Result	± U	Criterion	Recovery [%]	En-Score
Benzene	µg/tube	5.32	± 0.4	4.509	± 0.9	0.799	84.7	-0.44
Ethylbenzene	µg/tube	5.33	± 0.579	4.138	± 0.83	1.17	77.7	-0.68
n-Decane	µg/tube	-	± -	1.409	± 0.28	-	-	-
n-Heptane	µg/tube	7.58	± 1.19	5.694	± 1.14	1.59	75.1	-0.73
n-Hexane	µg/tube	6.1	± 0.928	5.787	± 1.16	1.16	94.9	-0.12
n-Nonane	µg/tube	-	± -	3.28	± 0.66	-	-	-
n-Octane	µg/tube	6.07	± 0.74	4.794	± 0.96	0.91	79	-0.62
n-Pentane	µg/tube	6.78	± 1.52	5.125	± 1.02	1.9	75.6	-0.65
o-Xylene	µg/tube	4.72	± 0.398	3.571	± 0.71	0.85	75.6	-0.78
Sum of m-Xylene and p-Xylene	µg/tube	9.43	± 1.28	7.44	± 1.49	2.45	78.9	-0.61
Toluene	µg/tube	5.41	± 0.418	4.716	± 0.94	0.812	87.1	-0.36

Sample: CL10

Parameter	Unit	Assigned value	± U (k=2)	Result	± U	Criterion	Recovery [%]	En-Score
1,1,1-Trichloroethane	µg/tube	4.71	± 0.281	4.326	± 0.87	0.753	91.9	-0.22
cis-1,2-Dichloroethene	µg/tube	2.89	± 0.494	3.132	± 0.63	1.07	108	0.18
Tetrachloroethene	µg/tube	3.93	± 0.234	4.055	± 0.81	0.826	103	0.07
Tetrachloromethane	µg/tube	5.53	± 0.505	5.04	± 1.01	0.995	91.2	-0.23
trans-1,2-Dichloroethene	µg/tube	2.96	± 0.684	2.805	± 0.56	1.27	94.8	-0.12
Trichloroethene	µg/tube	3.63	± 0.424	3.994	± 0.8	0.907	110	0.22
Trichloromethane	µg/tube	4.14	± 0.317	3.877	± 0.78	0.662	93.7	-0.16
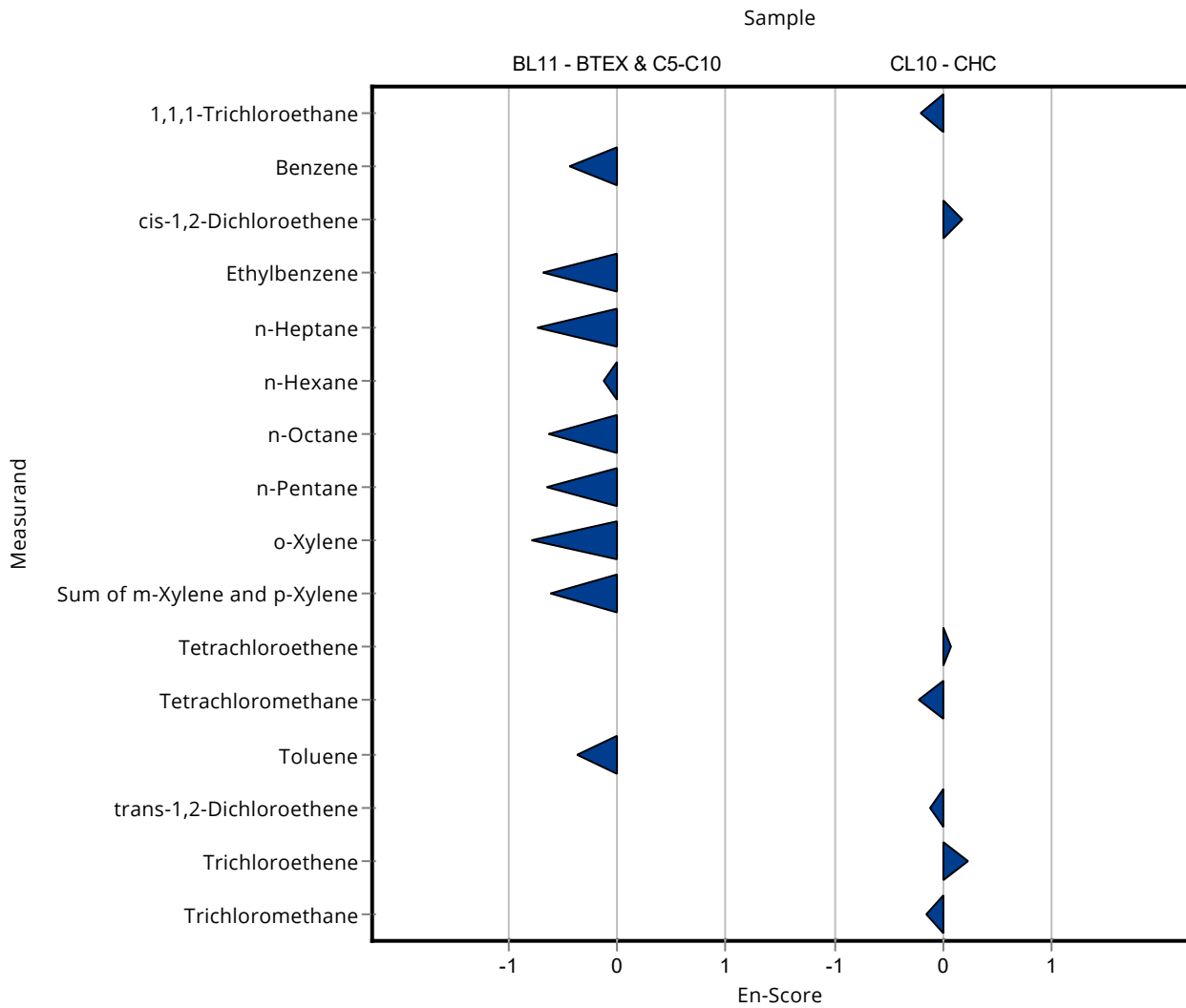
Sample: BL11

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
Benzene	µg/tube	5.32 ±	0.4	4.18 ±	1.33	0.799	78.5	-1.43
Ethylbenzene	µg/tube	5.33 ±	0.579	6.23 ±	3.23	1.17	117	0.77
n-Decane	µg/tube	- ±	-	- ±	-	-	-	-
n-Heptane	µg/tube	7.58 ±	1.19	- ±	-	1.59	-	-
n-Hexane	µg/tube	6.1 ±	0.928	- ±	-	1.16	-	-
n-Nonane	µg/tube	- ±	-	- ±	-	-	-	-
n-Octane	µg/tube	6.07 ±	0.74	- ±	-	0.91	-	-
n-Pentane	µg/tube	6.78 ±	1.52	- ±	-	1.9	-	-
o-Xylene	µg/tube	4.72 ±	0.398	4.73 ±	2.45	0.85	100	0.01
Sum of m-Xylene and p-Xylene	µg/tube	9.43 ±	1.28	11.37 ±	5.91	2.45	121	0.79
Toluene	µg/tube	5.41 ±	0.418	5.37 ±	1.72	0.812	99.2	-0.06

Sample: CL10

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
1,1,1-Trichloroethane	µg/tube	4.71 ±	0.281	5.29 ±	2.38	0.753	112	0.78
cis-1,2-Dichloroethene	µg/tube	2.89 ±	0.494	0.75 ±	0.33	1.07	26	-2.00
Tetrachloroethene	µg/tube	3.93 ±	0.234	3.95 ±	1.78	0.826	100	0.02
Tetrachloromethane	µg/tube	5.53 ±	0.505	6.81 ±	3.06	0.995	123	1.29
trans-1,2-Dichloroethene	µg/tube	2.96 ±	0.684	- ±	-	1.27	-	-
Trichloroethene	µg/tube	3.63 ±	0.424	1.81 ±	0.58	0.907	49.9	-2.00
Trichloromethane	µg/tube	4.14 ±	0.317	4.3 ±	1.93	0.662	104	0.24
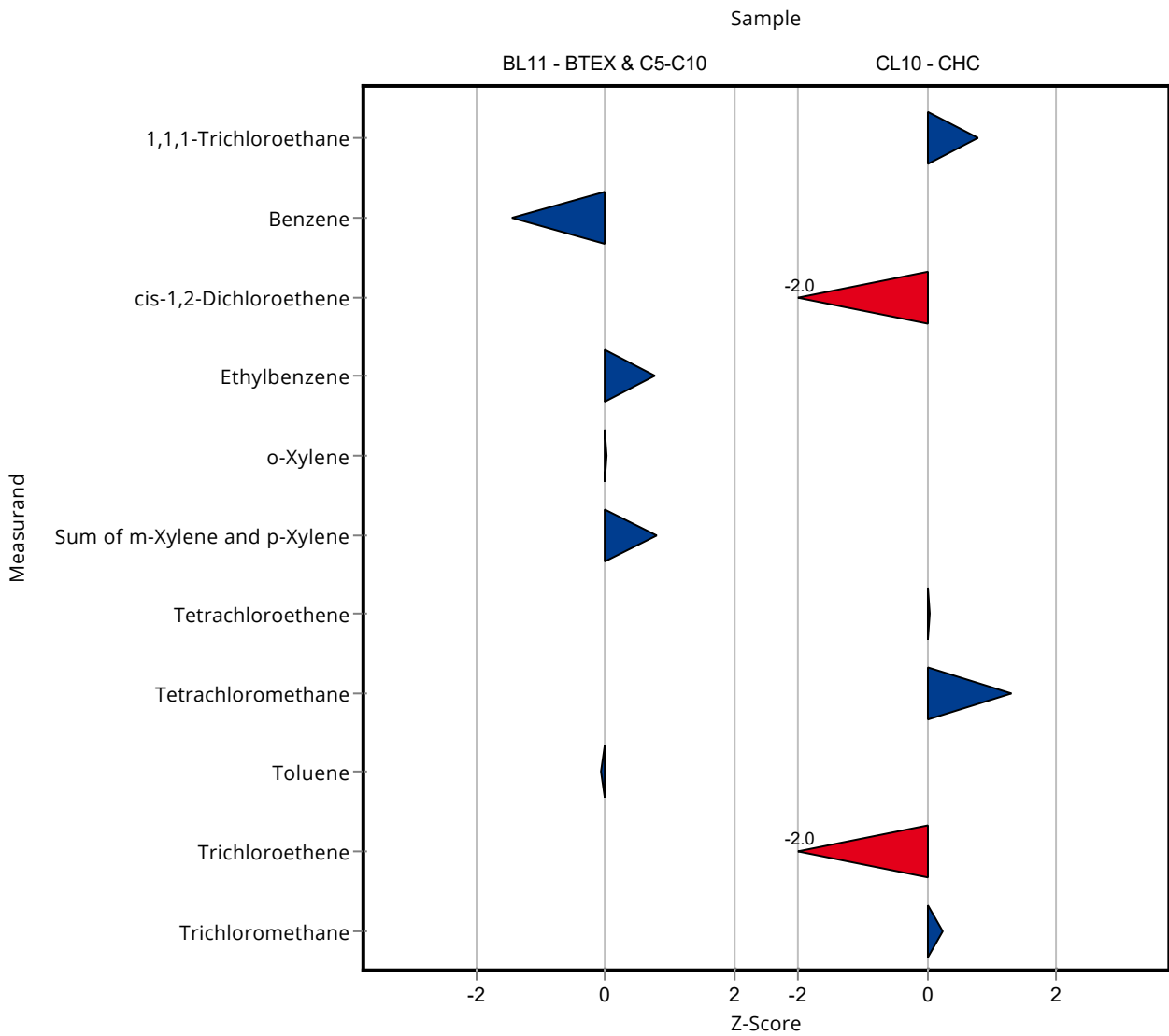
Sample: BL11

Parameter	Unit	Assigned value	± U (k=2)	Result ± U		Criterion	Recovery [%]	En-Score
Benzene	µg/tube	5.32	± 0.4	4.18	± 1.33	0.799	78.5	-0.43
Ethylbenzene	µg/tube	5.33	± 0.579	6.23	± 3.23	1.17	117	0.14
n-Decane	µg/tube	-	± -	-	± -	-	-	-
n-Heptane	µg/tube	7.58	± 1.19	-	± -	1.59	-	-
n-Hexane	µg/tube	6.1	± 0.928	-	± -	1.16	-	-
n-Nonane	µg/tube	-	± -	-	± -	-	-	-
n-Octane	µg/tube	6.07	± 0.74	-	± -	0.91	-	-
n-Pentane	µg/tube	6.78	± 1.52	-	± -	1.9	-	-
o-Xylene	µg/tube	4.72	± 0.398	4.73	± 2.45	0.85	100	0.00
Sum of m-Xylene and p-Xylene	µg/tube	9.43	± 1.28	11.37	± 5.91	2.45	121	0.16
Toluene	µg/tube	5.41	± 0.418	5.37	± 1.72	0.812	99.2	-0.01

Sample: CL10

Parameter	Unit	Assigned value	± U (k=2)	Result ± U		Criterion	Recovery [%]	En-Score
1,1,1-Trichloroethane	µg/tube	4.71	± 0.281	5.29	± 2.38	0.753	112	0.12
cis-1,2-Dichloroethene	µg/tube	2.89	± 0.494	0.75	± 0.33	1.07	26	-2.60
Tetrachloroethene	µg/tube	3.93	± 0.234	3.95	± 1.78	0.826	100	0.00
Tetrachloromethane	µg/tube	5.53	± 0.505	6.81	± 3.06	0.995	123	0.21
trans-1,2-Dichloroethene	µg/tube	2.96	± 0.684	-	± -	1.27	-	-
Trichloroethene	µg/tube	3.63	± 0.424	1.81	± 0.58	0.907	49.9	-1.47
Trichloromethane	µg/tube	4.14	± 0.317	4.3	± 1.93	0.662	104	0.04
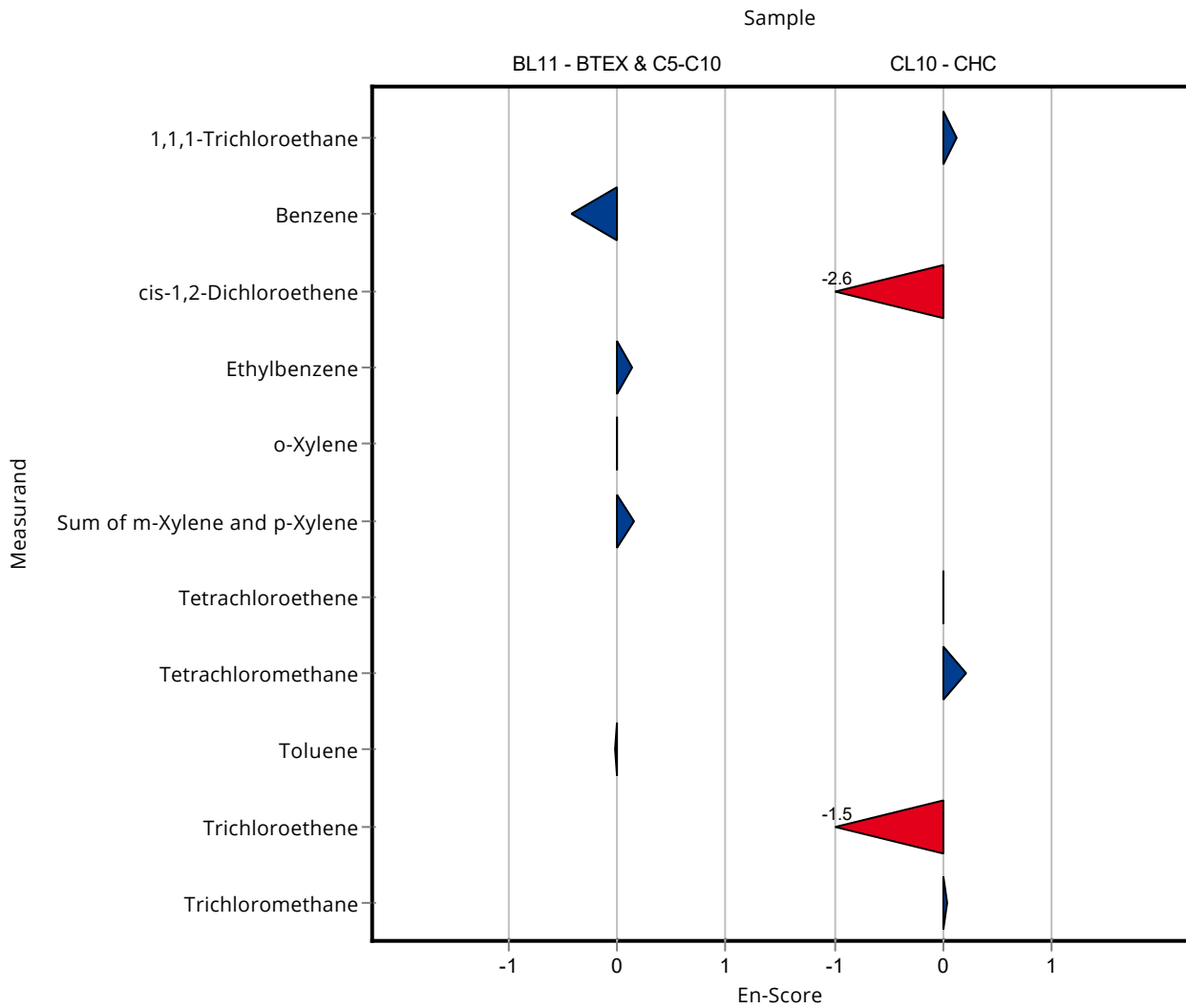
Sample: BL11

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
Benzene	µg/tube	5.32 ± 0.4		5.29 ± 0.36		0.799	99.4	-0.04
Ethylbenzene	µg/tube	5.33 ± 0.579		5.72 ± 0.4		1.17	107	0.33
n-Decane	µg/tube	- ± -		3.18 ± 1.05		-	-	-
n-Heptane	µg/tube	7.58 ± 1.19		6.31 ± 1.73		1.59	83.3	-0.80
n-Hexane	µg/tube	6.1 ± 0.928		6 ± 0.8		1.16	98.4	-0.08
n-Nonane	µg/tube	- ± -		5.03 ± 1.53		-	-	-
n-Octane	µg/tube	6.07 ± 0.74		6.16 ± 1.67		0.91	102	0.10
n-Pentane	µg/tube	6.78 ± 1.52		5.49 ± 1.44		1.9	81	-0.68
o-Xylene	µg/tube	4.72 ± 0.398		5.21 ± 0.47		0.85	110	0.57
Sum of m-Xylene and p-Xylene	µg/tube	9.43 ± 1.28		10.6 ± 0.76		2.45	112	0.48
Toluene	µg/tube	5.41 ± 0.418		5.68 ± 0.35		0.812	105	0.33

Sample: CL10

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
1,1,1-Trichloroethane	µg/tube	4.71 ± 0.281		4.65 ± 0.87		0.753	98.8	-0.07
cis-1,2-Dichloroethene	µg/tube	2.89 ± 0.494		2.64 ± 0.74		1.07	91.4	-0.23
Tetrachloroethene	µg/tube	3.93 ± 0.234		4.07 ± 0.76		0.826	103	0.17
Tetrachloromethane	µg/tube	5.53 ± 0.505		5.46 ± 1.03		0.995	98.8	-0.07
trans-1,2-Dichloroethene	µg/tube	2.96 ± 0.684		1.88 ± 0.87		1.27	63.5	-0.85
Trichloroethene	µg/tube	3.63 ± 0.424		4.17 ± 0.75		0.907	115	0.60
Trichloromethane	µg/tube	4.14 ± 0.317		4.01 ± 0.85		0.662	96.9	-0.19
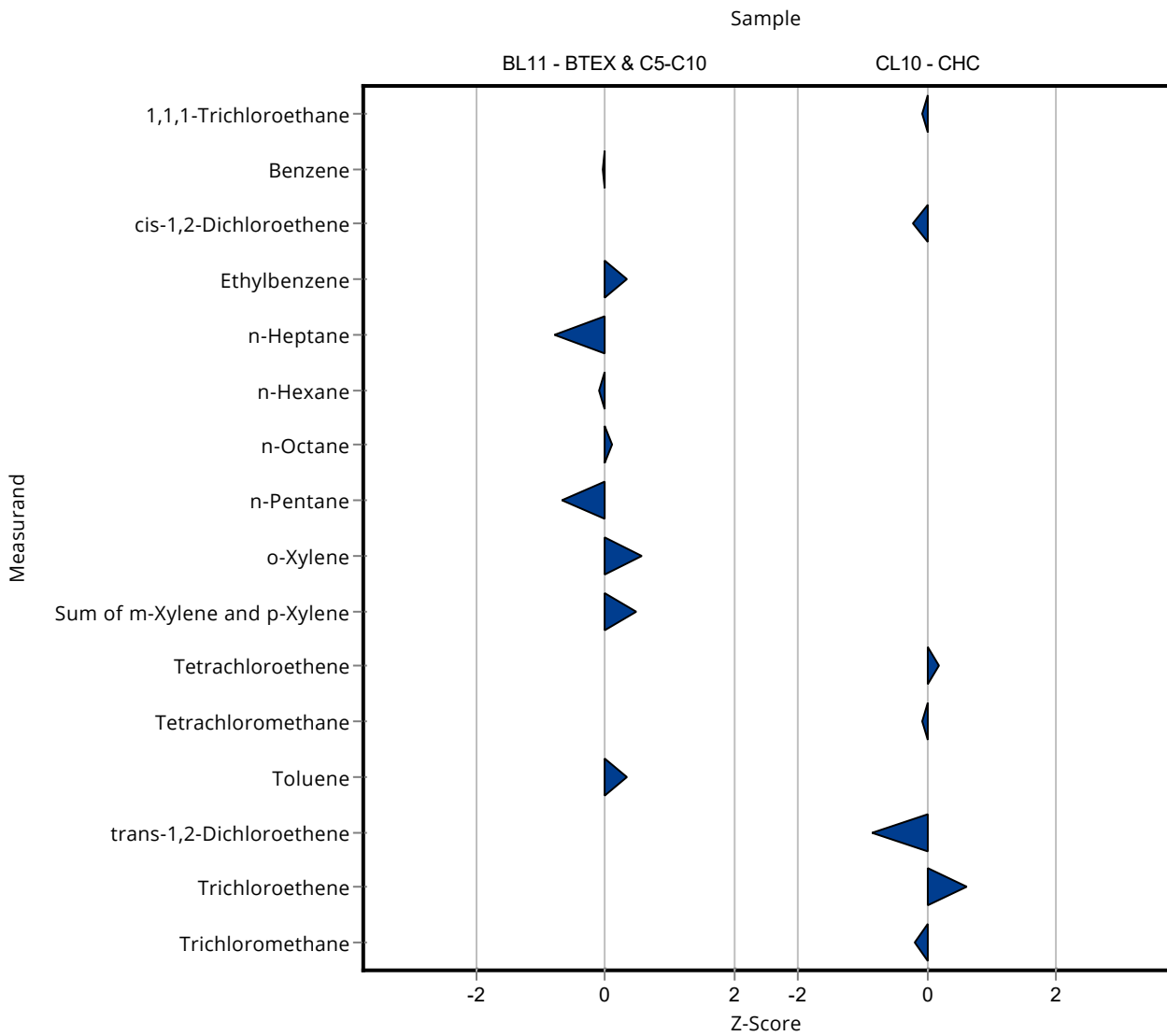
Sample

| BL11 - BTEX & C5-C10 | CL10 - CHC |

Measurand

1,1,1-Trichloroethane
Benzene
cis-1,2-Dichloroethene
Ethylbenzene
n-Heptane
n-Hexane
n-Octane
n-Pentane
o-Xylene
Sum of m-Xylene and p-Xylene
Tetrachloroethene
Tetrachloromethane
Toluene
trans-1,2-Dichloroethene
Trichloroethene
Trichloromethane

Z-Score

Sample: BL11

Parameter	Unit	Assigned value	± U (k=2)	Result	± U	Criterion	Recovery [%]	En-Score
Benzene	µg/tube	5.32	± 0.4	5.29	± 0.36	0.799	99.4	-0.04
Ethylbenzene	µg/tube	5.33	± 0.579	5.72	± 0.4	1.17	107	0.40
n-Decane	µg/tube	-	± -	3.18	± 1.05	-	-	-
n-Heptane	µg/tube	7.58	± 1.19	6.31	± 1.73	1.59	83.3	-0.35
n-Hexane	µg/tube	6.1	± 0.928	6	± 0.8	1.16	98.4	-0.05
n-Nonane	µg/tube	-	± -	5.03	± 1.53	-	-	-
n-Octane	µg/tube	6.07	± 0.74	6.16	± 1.67	0.91	102	0.03
n-Pentane	µg/tube	6.78	± 1.52	5.49	± 1.44	1.9	81	-0.40
o-Xylene	µg/tube	4.72	± 0.398	5.21	± 0.47	0.85	110	0.48
Sum of m-Xylene and p-Xylene	µg/tube	9.43	± 1.28	10.6	± 0.76	2.45	112	0.59
Toluene	µg/tube	5.41	± 0.418	5.68	± 0.35	0.812	105	0.33

Sample: CL10

Parameter	Unit	Assigned value	± U (k=2)	Result	± U	Criterion	Recovery [%]	En-Score
1,1,1-Trichloroethane	µg/tube	4.71	± 0.281	4.65	± 0.87	0.753	98.8	-0.03
cis-1,2-Dichloroethene	µg/tube	2.89	± 0.494	2.64	± 0.74	1.07	91.4	-0.16
Tetrachloroethene	µg/tube	3.93	± 0.234	4.07	± 0.76	0.826	103	0.09
Tetrachloromethane	µg/tube	5.53	± 0.505	5.46	± 1.03	0.995	98.8	-0.03
trans-1,2-Dichloroethene	µg/tube	2.96	± 0.684	1.88	± 0.87	1.27	63.5	-0.58
Trichloroethene	µg/tube	3.63	± 0.424	4.17	± 0.75	0.907	115	0.35
Trichloromethane	µg/tube	4.14	± 0.317	4.01	± 0.85	0.662	96.9	-0.07
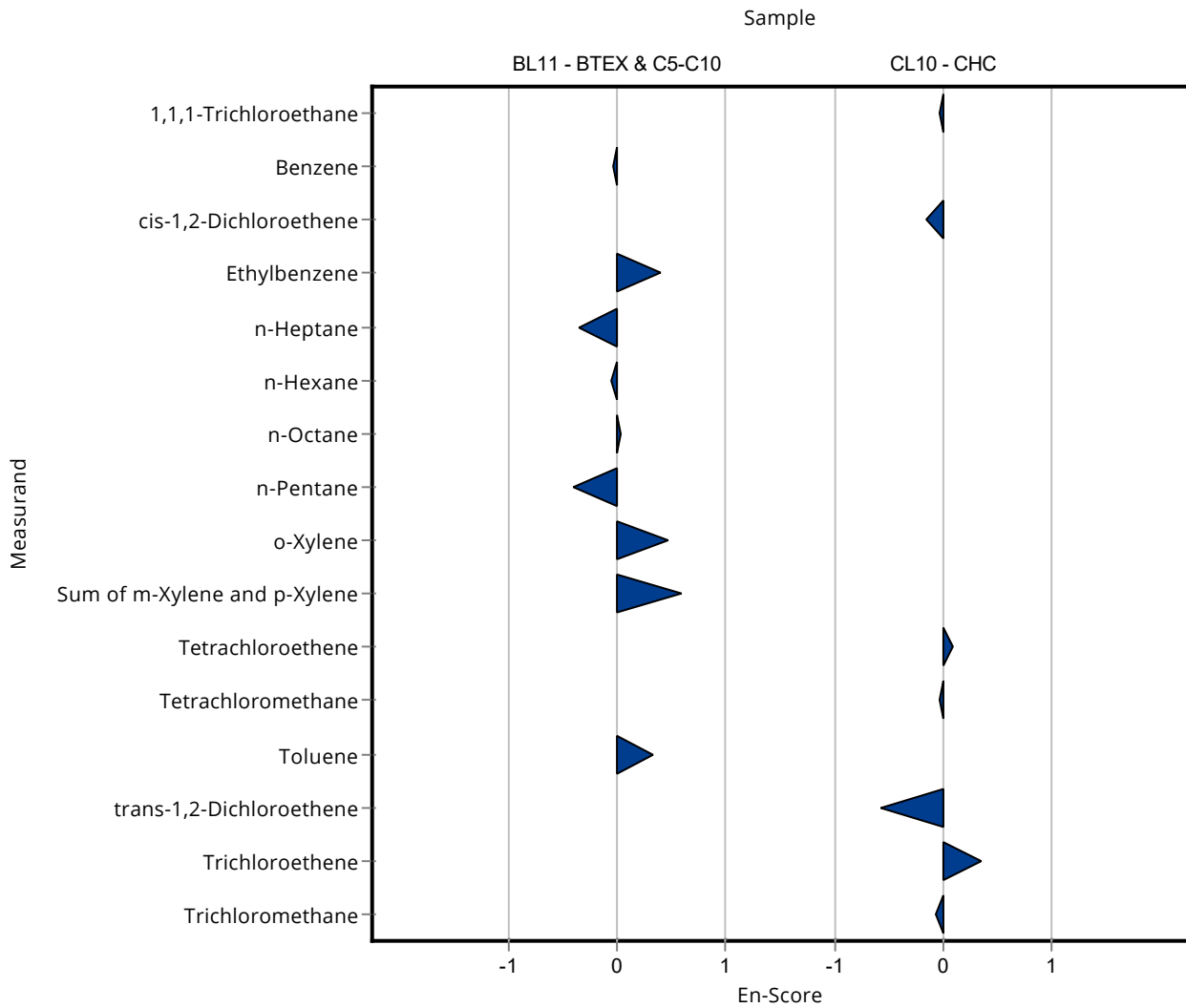
Sample: BL11

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
Benzene	µg/tube	5.32 ± 0.4		7.47 ± 1.49		0.799	140	2.69
Ethylbenzene	µg/tube	5.33 ± 0.579		5.45 ± 1.09		1.17	102	0.10
n-Decane	µg/tube	- ± -		- ± -		-	-	-
n-Heptane	µg/tube	7.58 ± 1.19		- ± -		1.59	-	-
n-Hexane	µg/tube	6.1 ± 0.928		- ± -		1.16	-	-
n-Nonane	µg/tube	- ± -		- ± -		-	-	-
n-Octane	µg/tube	6.07 ± 0.74		- ± -		0.91	-	-
n-Pentane	µg/tube	6.78 ± 1.52		- ± -		1.9	-	-
o-Xylene	µg/tube	4.72 ± 0.398		4.91 ± 0.98		0.85	104	0.22
Sum of m-Xylene and p-Xylene	µg/tube	9.43 ± 1.28		10 ± 2		2.45	106	0.23
Toluene	µg/tube	5.41 ± 0.418		7.09 ± 1.42		0.812	131	2.06

Sample: CL10

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
1,1,1-Trichloroethane	µg/tube	4.71 ± 0.281		4.31 ± 0.86		0.753	91.6	-0.53
cis-1,2-Dichloroethene	µg/tube	2.89 ± 0.494		3.61 ± 0.72		1.07	125	0.67
Tetrachloroethene	µg/tube	3.93 ± 0.234		3.48 ± 0.7		0.826	88.5	-0.55
Tetrachloromethane	µg/tube	5.53 ± 0.505		3.14 ± 0.63		0.995	56.8	-2.40
trans-1,2-Dichloroethene	µg/tube	2.96 ± 0.684		4.57 ± 0.91		1.27	154	1.27
Trichloroethene	µg/tube	3.63 ± 0.424		2.79 ± 0.56		0.907	76.9	-0.92
Trichloromethane	µg/tube	4.14 ± 0.317		3.42 ± 0.68		0.662	82.7	-1.08
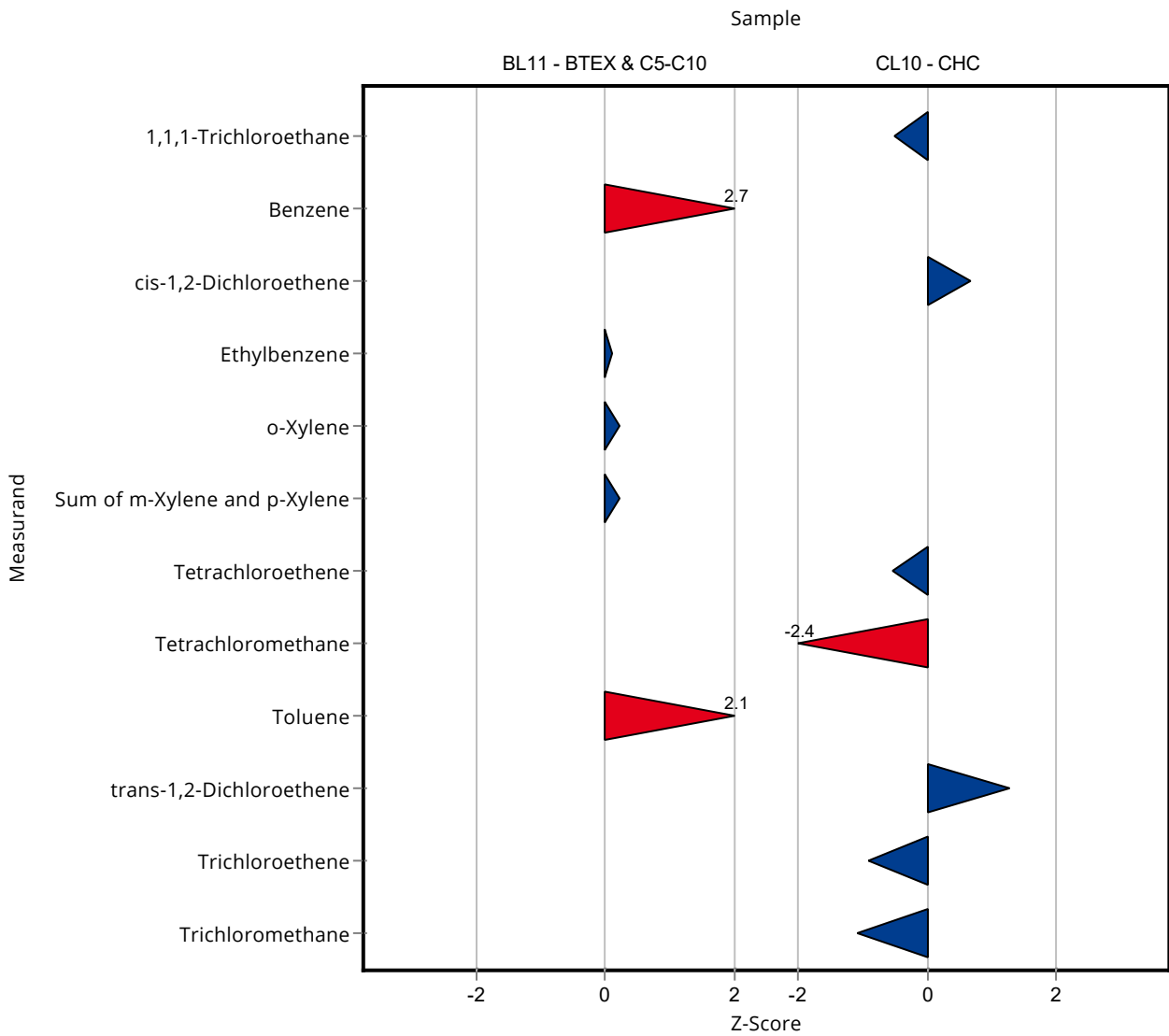
Sample: BL11

Parameter	Unit	Assigned value	± U (k=2)	Result	± U	Criterion	Recovery [%]	En-Score
Benzene	µg/tube	5.32	± 0.4	7.47	± 1.49	0.799	140	0.71
Ethylbenzene	µg/tube	5.33	± 0.579	5.45	± 1.09	1.17	102	0.05
n-Decane	µg/tube	-	± -	-	± -	-	-	-
n-Heptane	µg/tube	7.58	± 1.19	-	± -	1.59	-	-
n-Hexane	µg/tube	6.1	± 0.928	-	± -	1.16	-	-
n-Nonane	µg/tube	-	± -	-	± -	-	-	-
n-Octane	µg/tube	6.07	± 0.74	-	± -	0.91	-	-
n-Pentane	µg/tube	6.78	± 1.52	-	± -	1.9	-	-
o-Xylene	µg/tube	4.72	± 0.398	4.91	± 0.98	0.85	104	0.09
Sum of m-Xylene and p-Xylene	µg/tube	9.43	± 1.28	10	± 2	2.45	106	0.14
Toluene	µg/tube	5.41	± 0.418	7.09	± 1.42	0.812	131	0.58

Sample: CL10

Parameter	Unit	Assigned value	± U (k=2)	Result	± U	Criterion	Recovery [%]	En-Score
1,1,1-Trichloroethane	µg/tube	4.71	± 0.281	4.31	± 0.86	0.753	91.6	-0.23
cis-1,2-Dichloroethene	µg/tube	2.89	± 0.494	3.61	± 0.72	1.07	125	0.47
Tetrachloroethene	µg/tube	3.93	± 0.234	3.48	± 0.7	0.826	88.5	-0.32
Tetrachloromethane	µg/tube	5.53	± 0.505	3.14	± 0.63	0.995	56.8	-1.76
trans-1,2-Dichloroethene	µg/tube	2.96	± 0.684	4.57	± 0.91	1.27	154	0.83
Trichloroethene	µg/tube	3.63	± 0.424	2.79	± 0.56	0.907	76.9	-0.70
Trichloromethane	µg/tube	4.14	± 0.317	3.42	± 0.68	0.662	82.7	-0.51
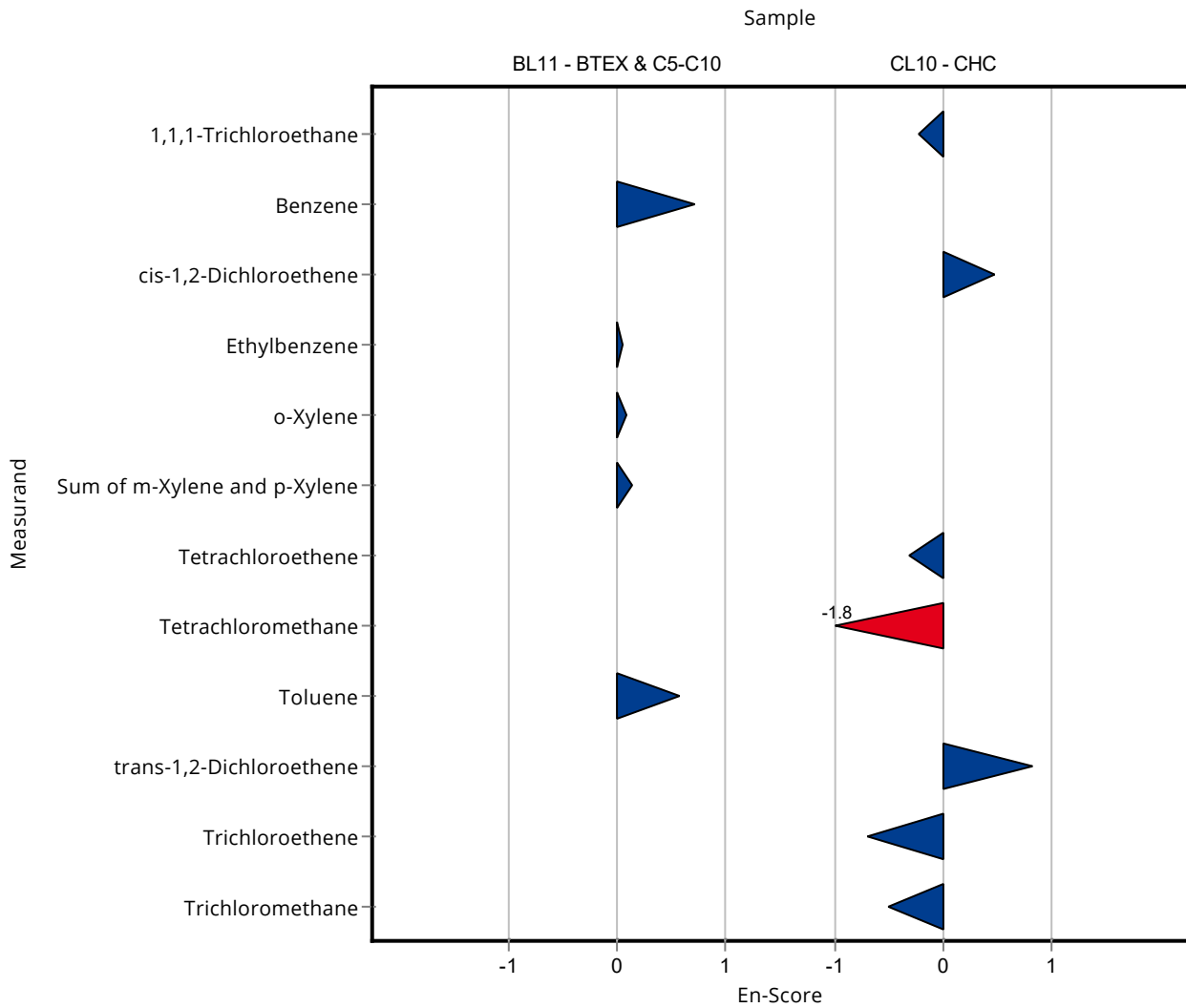
Sample

Sample: BL11

Parameter	Unit	Assigned value ± U (k=2)			Result ± U			Criterion	Recovery [%]	z-Score
Benzene	µg/tube	5.32	±	0.4	5.48	±	0.084	0.799	103	0.20
Ethylbenzene	µg/tube	5.33	±	0.579	-	±	-	1.17	-	-
n-Decane	µg/tube	-	±	-	-	±	-	-	-	-
n-Heptane	µg/tube	7.58	±	1.19	-	±	-	1.59	-	-
n-Hexane	µg/tube	6.1	±	0.928	-	±	-	1.16	-	-
n-Nonane	µg/tube	-	±	-	-	±	-	-	-	-
n-Octane	µg/tube	6.07	±	0.74	-	±	-	0.91	-	-
n-Pentane	µg/tube	6.78	±	1.52	-	±	-	1.9	-	-
o-Xylene	µg/tube	4.72	±	0.398	-	±	-	0.85	-	-
Sum of m-Xylene and p-Xylene	µg/tube	9.43	±	1.28	-	±	-	2.45	-	-
Toluene	µg/tube	5.41	±	0.418	-	±	-	0.812	-	-

Sample

BL11 - BTEX & C5-C10

Sample: BL11

Parameter	Unit	Assigned value	± U (k=2)	Result ± U		Criterion	Recovery [%]	En-Score
Benzene	µg/tube	5.32	± 0.4	5.48	± 0.084	0.799	103	0.36
Ethylbenzene	µg/tube	5.33	± 0.579	-	± -	1.17	-	-
n-Decane	µg/tube	-	± -	-	± -	-	-	-
n-Heptane	µg/tube	7.58	± 1.19	-	± -	1.59	-	-
n-Hexane	µg/tube	6.1	± 0.928	-	± -	1.16	-	-
n-Nonane	µg/tube	-	± -	-	± -	-	-	-
n-Octane	µg/tube	6.07	± 0.74	-	± -	0.91	-	-
n-Pentane	µg/tube	6.78	± 1.52	-	± -	1.9	-	-
o-Xylene	µg/tube	4.72	± 0.398	-	± -	0.85	-	-
Sum of m-Xylene and p-Xylene	µg/tube	9.43	± 1.28	-	± -	2.45	-	-
Toluene	µg/tube	5.41	± 0.418	-	± -	0.812	-	-

Sample

BL11 - BTEX & C5-C10

Sample: BL11

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
Benzene	µg/tube	5.32 ±	0.4	4.61 ±	0.01	0.799	86.6	-0.89
Ethylbenzene	µg/tube	5.33 ±	0.579	4.69 ±	0.06	1.17	88	-0.54
n-Decane	µg/tube	- ±	-	- ±	-	-	-	-
n-Heptane	µg/tube	7.58 ±	1.19	- ±	-	1.59	-	-
n-Hexane	µg/tube	6.1 ±	0.928	- ±	-	1.16	-	-
n-Nonane	µg/tube	- ±	-	- ±	-	-	-	-
n-Octane	µg/tube	6.07 ±	0.74	- ±	-	0.91	-	-
n-Pentane	µg/tube	6.78 ±	1.52	- ±	-	1.9	-	-
o-Xylene	µg/tube	4.72 ±	0.398	4.24 ±	0.07	0.85	89.8	-0.57
Sum of m-Xylene and p-Xylene	µg/tube	9.43 ±	1.28	4.49 ±	0.02	2.45	47.6	-2.01
Toluene	µg/tube	5.41 ±	0.418	4.78 ±	0.06	0.812	88.3	-0.78
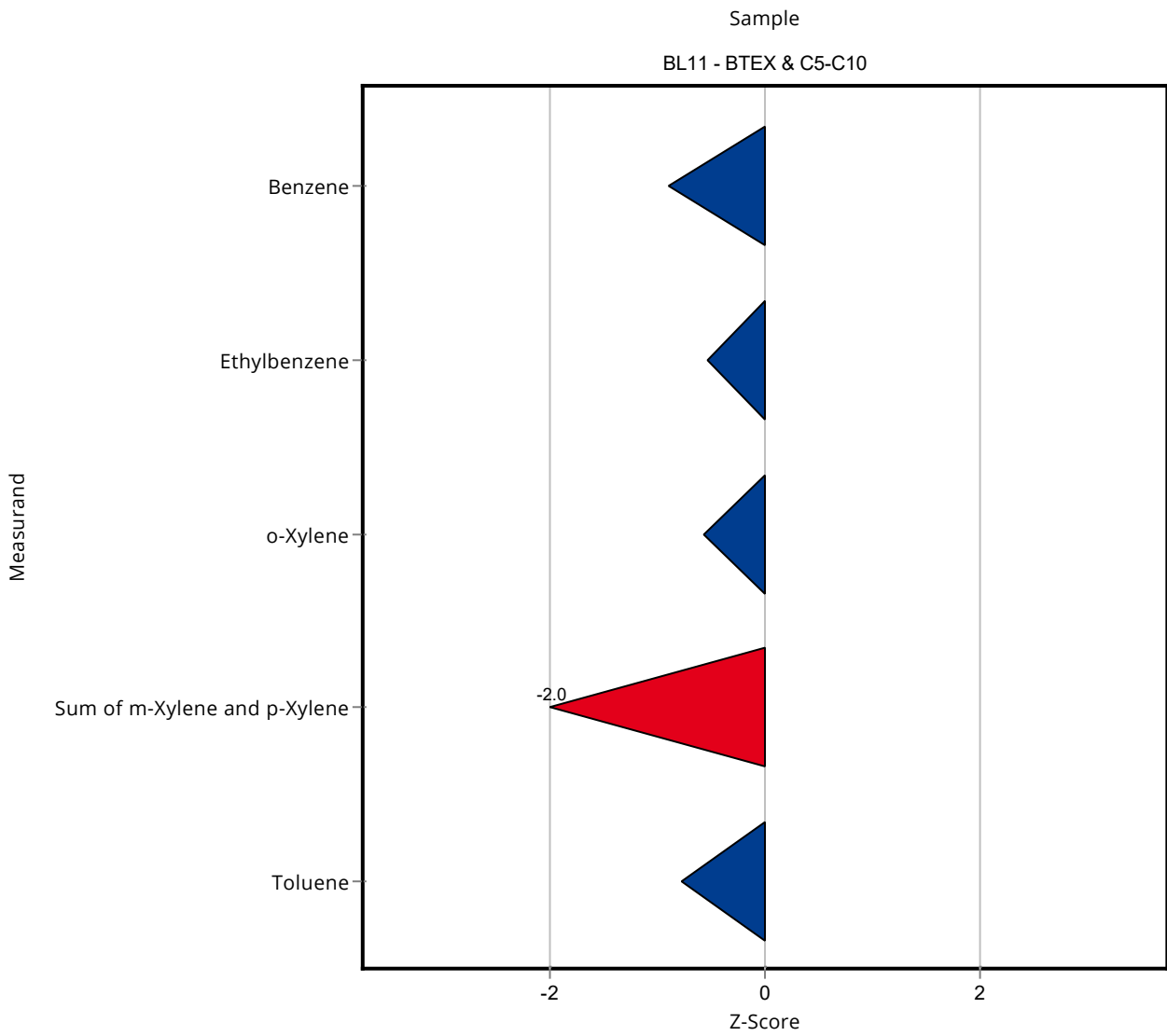
Sample

BL11 - BTEX & C5-C10

Sample: BL11

Parameter	Unit	Assigned value	± U (k=2)	Result	± U	Criterion	Recovery [%]	En-Score
Benzene	µg/tube	5.32	± 0.4	4.61	± 0.01	0.799	86.6	-1.78
Ethylbenzene	µg/tube	5.33	± 0.579	4.69	± 0.06	1.17	88	-1.08
n-Decane	µg/tube	-	± -	-	± -	-	-	-
n-Heptane	µg/tube	7.58	± 1.19	-	± -	1.59	-	-
n-Hexane	µg/tube	6.1	± 0.928	-	± -	1.16	-	-
n-Nonane	µg/tube	-	± -	-	± -	-	-	-
n-Octane	µg/tube	6.07	± 0.74	-	± -	0.91	-	-
n-Pentane	µg/tube	6.78	± 1.52	-	± -	1.9	-	-
o-Xylene	µg/tube	4.72	± 0.398	4.24	± 0.07	0.85	89.8	-1.14
Sum of m-Xylene and p-Xylene	µg/tube	9.43	± 1.28	4.49	± 0.02	2.45	47.6	-3.85
Toluene	µg/tube	5.41	± 0.418	4.78	± 0.06	0.812	88.3	-1.46
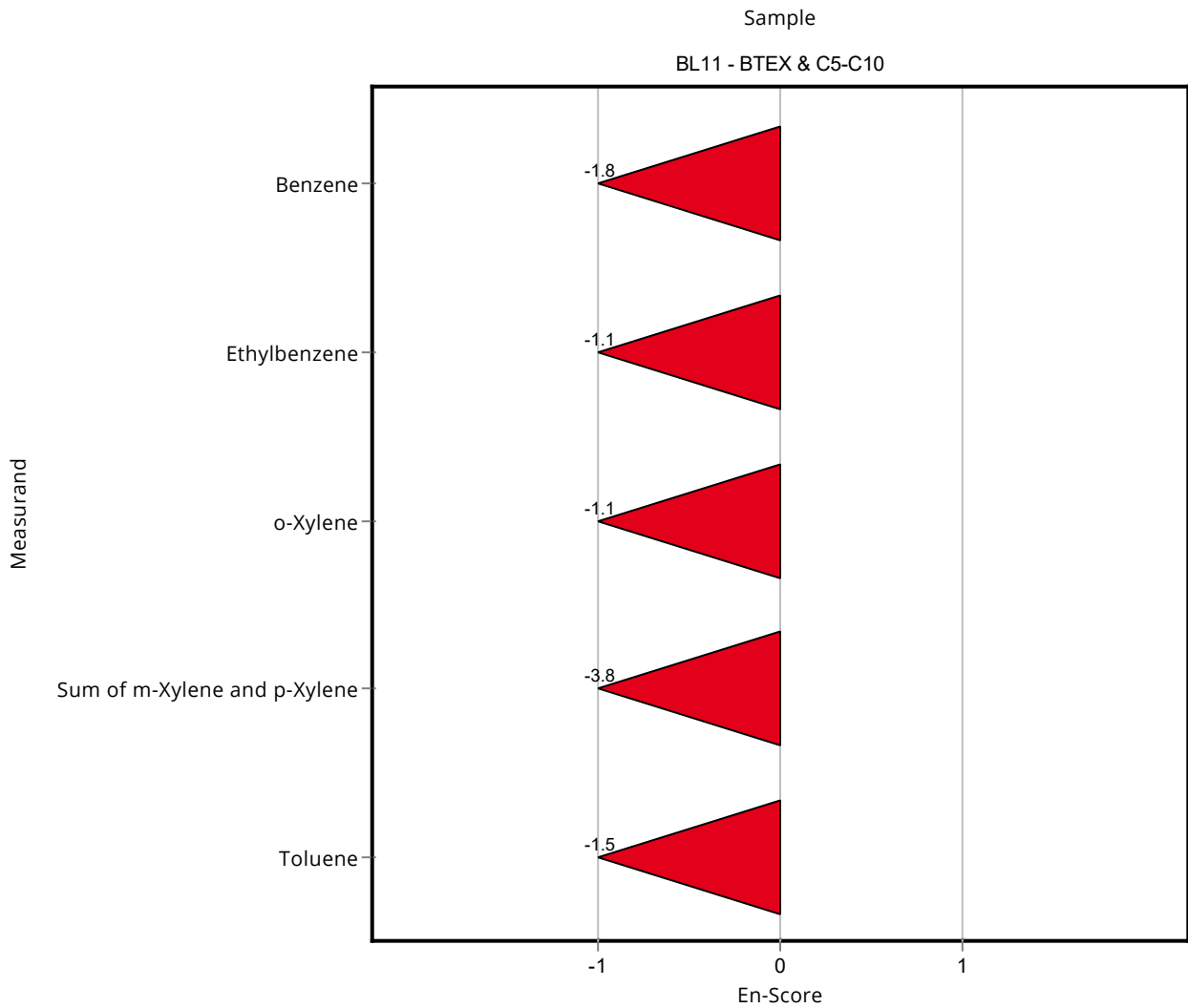
Sample

BL11 - BTEX & C5-C10

Sample: BL11

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
Benzene	µg/tube	5.32 ±	0.4	5.98 ±	1.196	0.799	112	0.82
Ethylbenzene	µg/tube	5.33 ±	0.579	5.8 ±	1	1.17	109	0.40
n-Decane	µg/tube	- ±	-	- ±	-	-	-	-
n-Heptane	µg/tube	7.58 ±	1.19	- ±	-	1.59	-	-
n-Hexane	µg/tube	6.1 ±	0.928	- ±	-	1.16	-	-
n-Nonane	µg/tube	- ±	-	- ±	-	-	-	-
n-Octane	µg/tube	6.07 ±	0.74	- ±	-	0.91	-	-
n-Pentane	µg/tube	6.78 ±	1.52	- ±	-	1.9	-	-
o-Xylene	µg/tube	4.72 ±	0.398	5.52 ±	1.104	0.85	117	0.94
Sum of m-Xylene and p-Xylene	µg/tube	9.43 ±	1.28	11.9 ±	2.38	2.45	126	1.01
Toluene	µg/tube	5.41 ±	0.418	5.82 ±	1	0.812	107	0.50

Sample: CL10

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
1,1,1-Trichloroethane	µg/tube	4.71 ±	0.281	5.28 ±	1.056	0.753	112	0.76
cis-1,2-Dichloroethene	µg/tube	2.89 ±	0.494	3.95 ±	0.79	1.07	137	0.99
Tetrachloroethene	µg/tube	3.93 ±	0.234	4.27 ±	0.854	0.826	109	0.41
Tetrachloromethane	µg/tube	5.53 ±	0.505	6.15 ±	1.23	0.995	111	0.63
trans-1,2-Dichloroethene	µg/tube	2.96 ±	0.684	4.5 ±	0.9	1.27	152	1.21
Trichloroethene	µg/tube	3.63 ±	0.424	4.77 ±	0.954	0.907	131	1.26
Trichloromethane	µg/tube	4.14 ±	0.317	5.07 ±	1.014	0.662	123	1.41
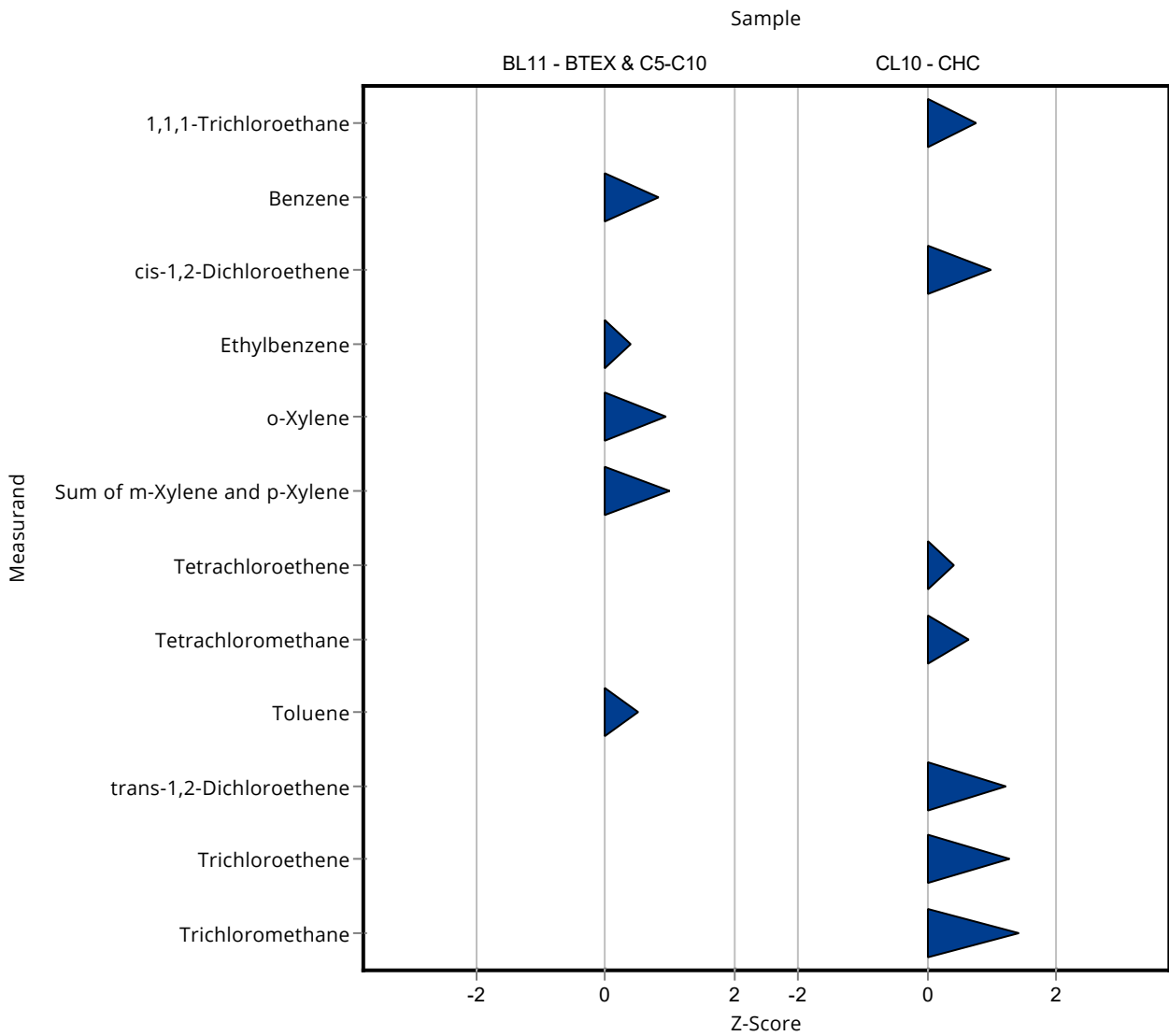
Sample: BL11

Parameter	Unit	Assigned value	± U (k=2)	Result	± U	Criterion	Recovery [%]	En-Score
Benzene	µg/tube	5.32	± 0.4	5.98	± 1.196	0.799	112	0.27
Ethylbenzene	µg/tube	5.33	± 0.579	5.8	± 1	1.17	109	0.23
n-Decane	µg/tube	-	± -	-	± -	-	-	-
n-Heptane	µg/tube	7.58	± 1.19	-	± -	1.59	-	-
n-Hexane	µg/tube	6.1	± 0.928	-	± -	1.16	-	-
n-Nonane	µg/tube	-	± -	-	± -	-	-	-
n-Octane	µg/tube	6.07	± 0.74	-	± -	0.91	-	-
n-Pentane	µg/tube	6.78	± 1.52	-	± -	1.9	-	-
o-Xylene	µg/tube	4.72	± 0.398	5.52	± 1.104	0.85	117	0.36
Sum of m-Xylene and p-Xylene	µg/tube	9.43	± 1.28	11.9	± 2.38	2.45	126	0.50
Toluene	µg/tube	5.41	± 0.418	5.82	± 1	0.812	107	0.20

Sample: CL10

Parameter	Unit	Assigned value	± U (k=2)	Result	± U	Criterion	Recovery [%]	En-Score
1,1,1-Trichloroethane	µg/tube	4.71	± 0.281	5.28	± 1.056	0.753	112	0.27
cis-1,2-Dichloroethene	µg/tube	2.89	± 0.494	3.95	± 0.79	1.07	137	0.64
Tetrachloroethene	µg/tube	3.93	± 0.234	4.27	± 0.854	0.826	109	0.20
Tetrachloromethane	µg/tube	5.53	± 0.505	6.15	± 1.23	0.995	111	0.25
trans-1,2-Dichloroethene	µg/tube	2.96	± 0.684	4.5	± 0.9	1.27	152	0.80
Trichloroethene	µg/tube	3.63	± 0.424	4.77	± 0.954	0.907	131	0.58
Trichloromethane	µg/tube	4.14	± 0.317	5.07	± 1.014	0.662	123	0.45
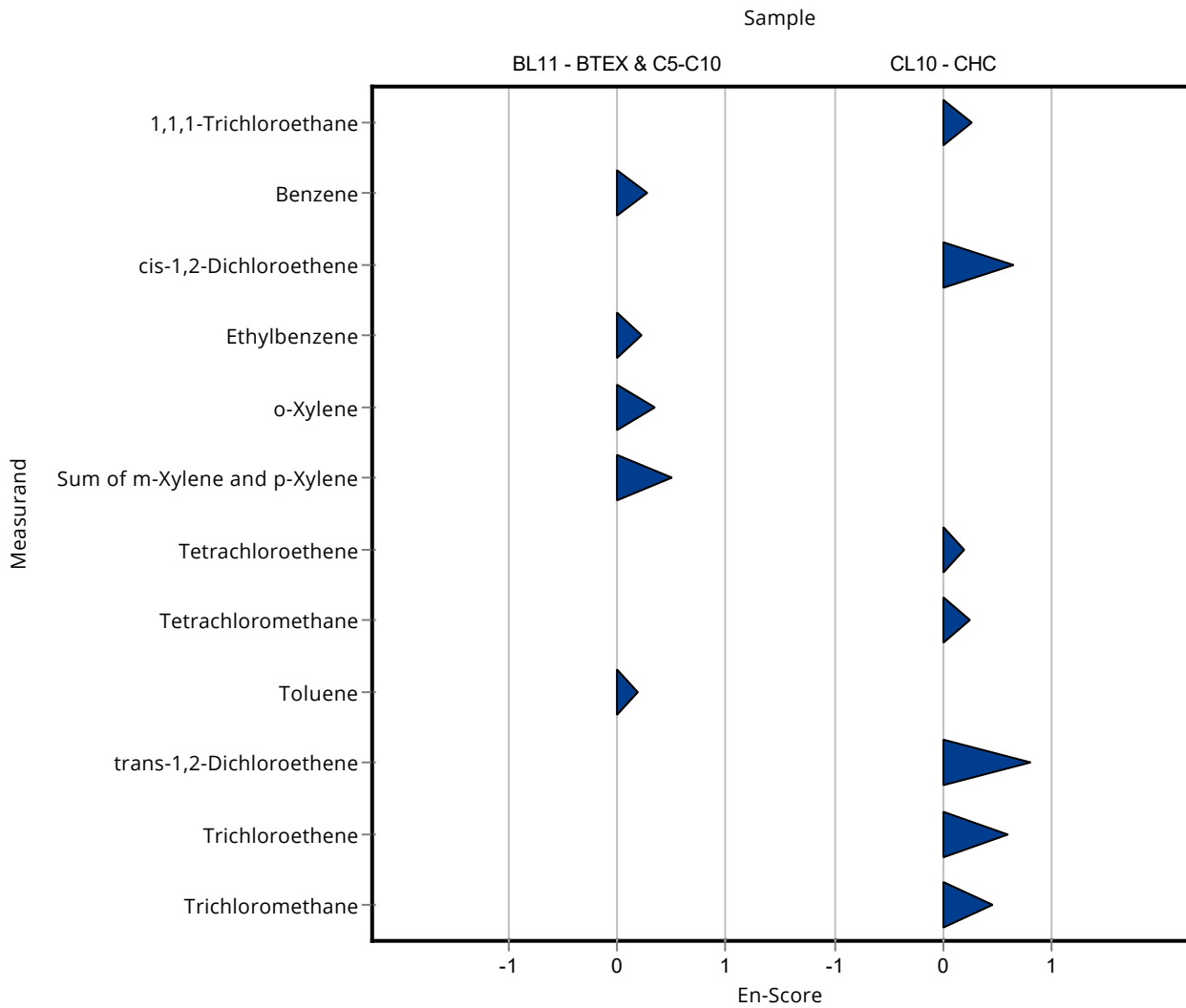
Sample: CL10

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
1,1,1-Trichloroethane	µg/tube	4.71 ±	0.281	5.54 ±	0.831	0.753	118	1.11
cis-1,2-Dichloroethene	µg/tube	2.89 ±	0.494	4.19 ±	0.629	1.07	145	1.22
Tetrachloroethene	µg/tube	3.93 ±	0.234	4.56 ±	0.834	0.826	116	0.76
Tetrachloromethane	µg/tube	5.53 ±	0.505	7.09 ±	1.06	0.995	128	1.57
trans-1,2-Dichloroethene	µg/tube	2.96 ±	0.684	4.61 ±	0.692	1.27	156	1.30
Trichloroethene	µg/tube	3.63 ±	0.424	4.22 ±	0.633	0.907	116	0.65
Trichloromethane	µg/tube	4.14 ±	0.317	5.5 ±	0.825	0.662	133	2.06
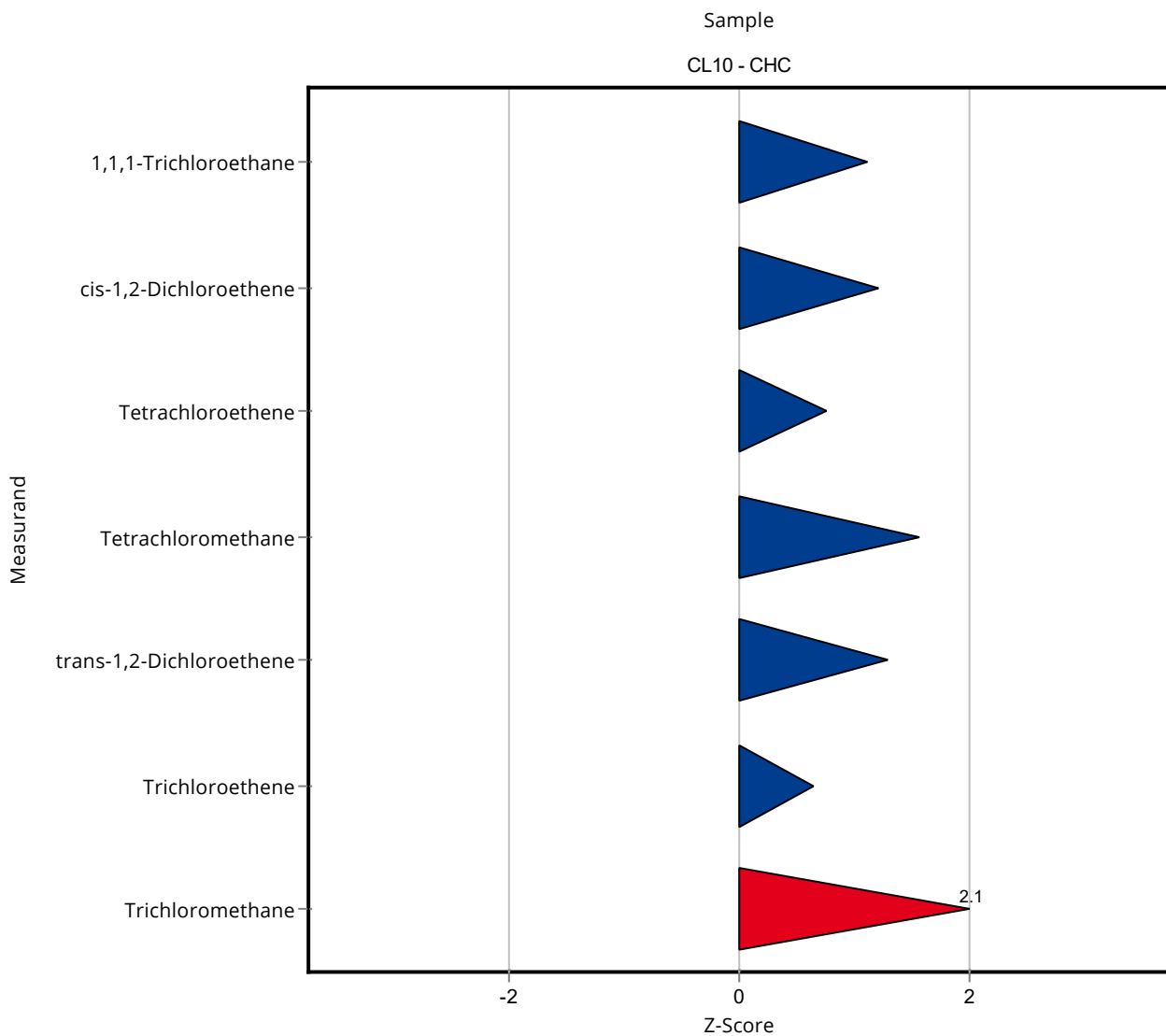
Sample

CL10 - CHC

Sample: CL10

Parameter	Unit	Assigned value	± U (k=2)	Result ± U		Criterion	Recovery [%]	En-Score
1,1,1-Trichloroethane	µg/tube	4.71 ± 0.281		5.54 ±	0.831	0.753	118	0.49
cis-1,2-Dichloroethene	µg/tube	2.89 ± 0.494		4.19 ±	0.629	1.07	145	0.96
Tetrachloroethene	µg/tube	3.93 ± 0.234		4.56 ±	0.834	0.826	116	0.37
Tetrachloromethane	µg/tube	5.53 ± 0.505		7.09 ±	1.06	0.995	128	0.72
trans-1,2-Dichloroethene	µg/tube	2.96 ± 0.684		4.61 ±	0.692	1.27	156	1.07
Trichloroethene	µg/tube	3.63 ± 0.424		4.22 ±	0.633	0.907	116	0.44
Trichloromethane	µg/tube	4.14 ± 0.317		5.5 ±	0.825	0.662	133	0.81
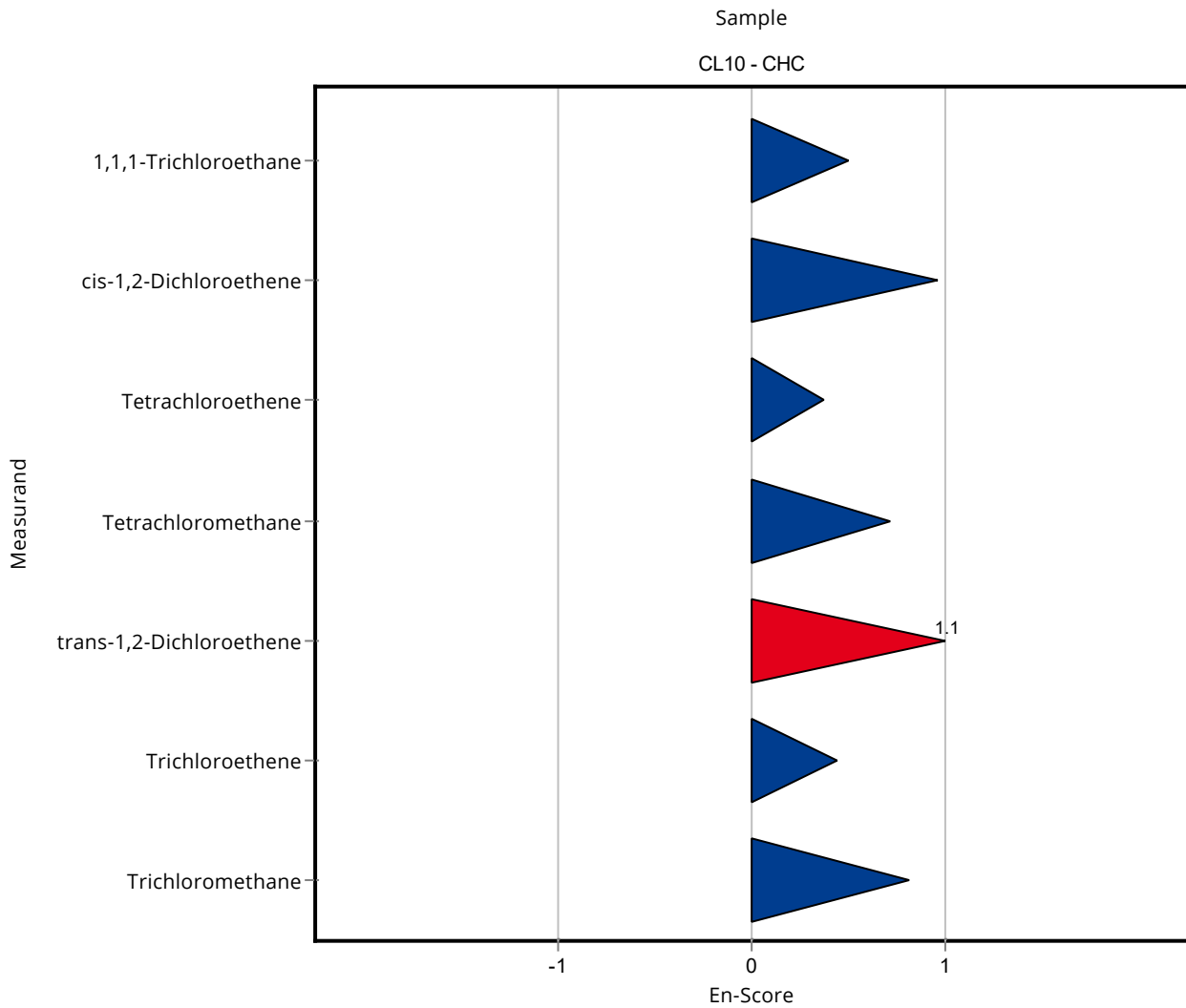
Sample

CL10 - CHC

Sample: BL11

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
Benzene	µg/tube	5.32 ±	0.4	5.391 ±	0.75	0.799	101	0.08
Ethylbenzene	µg/tube	5.33 ±	0.579	5.612 ±	0.73	1.17	105	0.24
n-Decane	µg/tube	- ±	-	2.548 ±	0.28	-	-	-
n-Heptane	µg/tube	7.58 ±	1.19	6.458 ±	0.77	1.59	85.2	-0.70
n-Hexane	µg/tube	6.1 ±	0.928	5.993 ±	0.59	1.16	98.3	-0.09
n-Nonane	µg/tube	- ±	-	5.003 ±	0.55	-	-	-
n-Octane	µg/tube	6.07 ±	0.74	6.646 ±	0.86	0.91	110	0.63
n-Pentane	µg/tube	6.78 ±	1.52	6.117 ±	0.67	1.9	90.3	-0.35
o-Xylene	µg/tube	4.72 ±	0.398	5.31 ±	0.53	0.85	112	0.69
Sum of m-Xylene and p-Xylene	µg/tube	9.43 ±	1.28	10.775 ±	1.72	2.45	114	0.55
Toluene	µg/tube	5.41 ±	0.418	5.818 ±	0.87	0.812	107	0.50

Sample: CL10

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
1,1,1-Trichloroethane	µg/tube	4.71 ±	0.281	5.097 ±	0.61	0.753	108	0.52
cis-1,2-Dichloroethene	µg/tube	2.89 ±	0.494	2.569 ±	0.26	1.07	88.9	-0.30
Tetrachloroethene	µg/tube	3.93 ±	0.234	4.429 ±	1.42	0.826	113	0.60
Tetrachloromethane	µg/tube	5.53 ±	0.505	6.792 ±	0.74	0.995	123	1.27
trans-1,2-Dichloroethene	µg/tube	2.96 ±	0.684	1.897 ±	0.15	1.27	64.1	-0.84
Trichloroethene	µg/tube	3.63 ±	0.424	4.399 ±	0.48	0.907	121	0.85
Trichloromethane	µg/tube	4.14 ±	0.317	4.241 ±	0.34	0.662	102	0.16
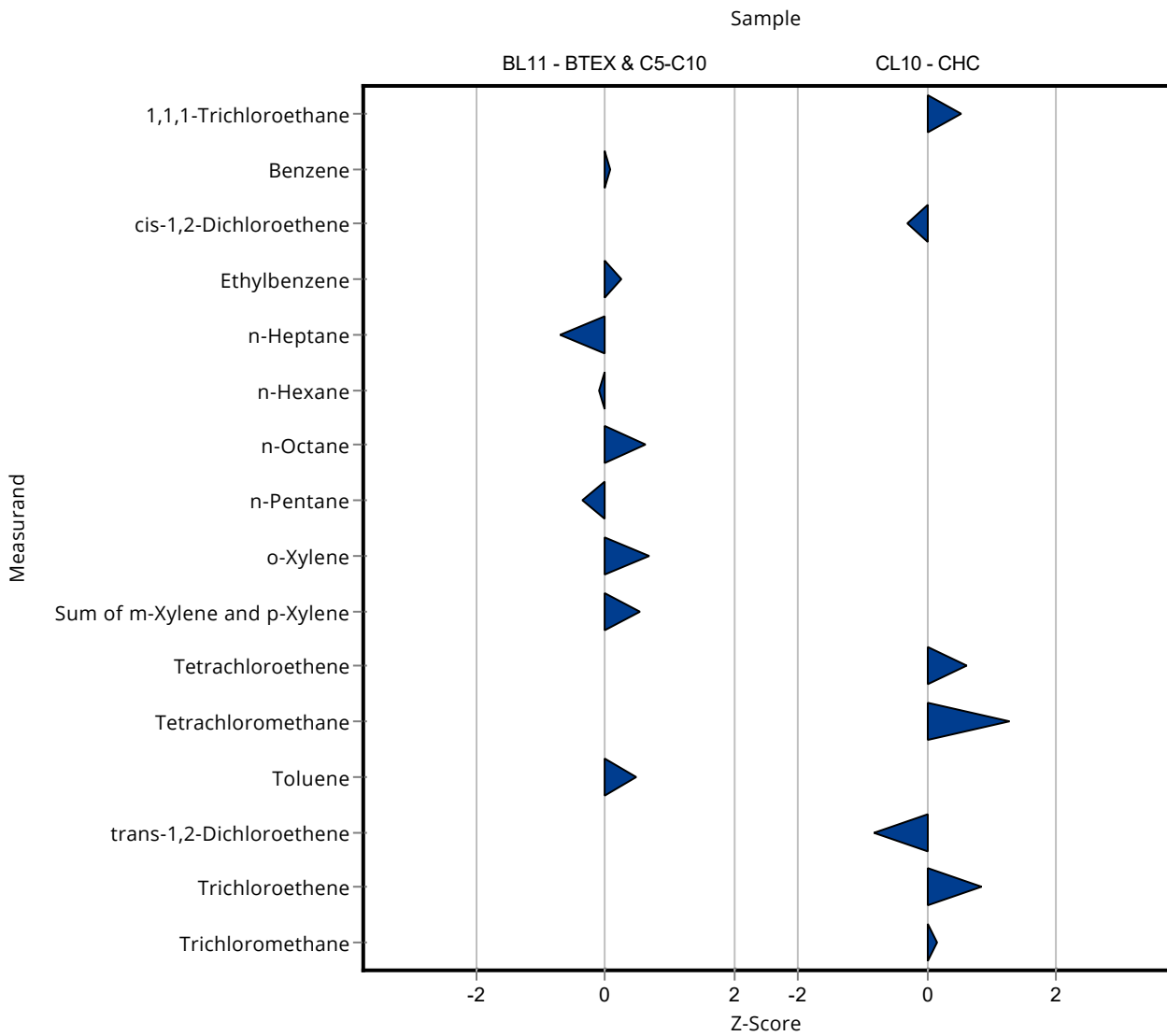
Sample: BL11

Parameter	Unit	Assigned value	±	U (k=2)	Result	±	U	Criterion	Recovery [%]	En-Score
Benzene	µg/tube	5.32	±	0.4	5.391	±	0.75	0.799	101	0.04
Ethylbenzene	µg/tube	5.33	±	0.579	5.612	±	0.73	1.17	105	0.18
n-Decane	µg/tube	-	±	-	2.548	±	0.28	-	-	-
n-Heptane	µg/tube	7.58	±	1.19	6.458	±	0.77	1.59	85.2	-0.58
n-Hexane	µg/tube	6.1	±	0.928	5.993	±	0.59	1.16	98.3	-0.07
n-Nonane	µg/tube	-	±	-	5.003	±	0.55	-	-	-
n-Octane	µg/tube	6.07	±	0.74	6.646	±	0.86	0.91	110	0.31
n-Pentane	µg/tube	6.78	±	1.52	6.117	±	0.67	1.9	90.3	-0.33
o-Xylene	µg/tube	4.72	±	0.398	5.31	±	0.53	0.85	112	0.52
Sum of m-Xylene and p-Xylene	µg/tube	9.43	±	1.28	10.775	±	1.72	2.45	114	0.37
Toluene	µg/tube	5.41	±	0.418	5.818	±	0.87	0.812	107	0.23

Sample: CL10

Parameter	Unit	Assigned value	±	U (k=2)	Result	±	U	Criterion	Recovery [%]	En-Score
1,1,1-Trichloroethane	µg/tube	4.71	±	0.281	5.097	±	0.61	0.753	108	0.31
cis-1,2-Dichloroethene	µg/tube	2.89	±	0.494	2.569	±	0.26	1.07	88.9	-0.45
Tetrachloroethene	µg/tube	3.93	±	0.234	4.429	±	1.42	0.826	113	0.17
Tetrachloromethane	µg/tube	5.53	±	0.505	6.792	±	0.74	0.995	123	0.81
trans-1,2-Dichloroethene	µg/tube	2.96	±	0.684	1.897	±	0.15	1.27	64.1	-1.42
Trichloroethene	µg/tube	3.63	±	0.424	4.399	±	0.48	0.907	121	0.73
Trichloromethane	µg/tube	4.14	±	0.317	4.241	±	0.34	0.662	102	0.14
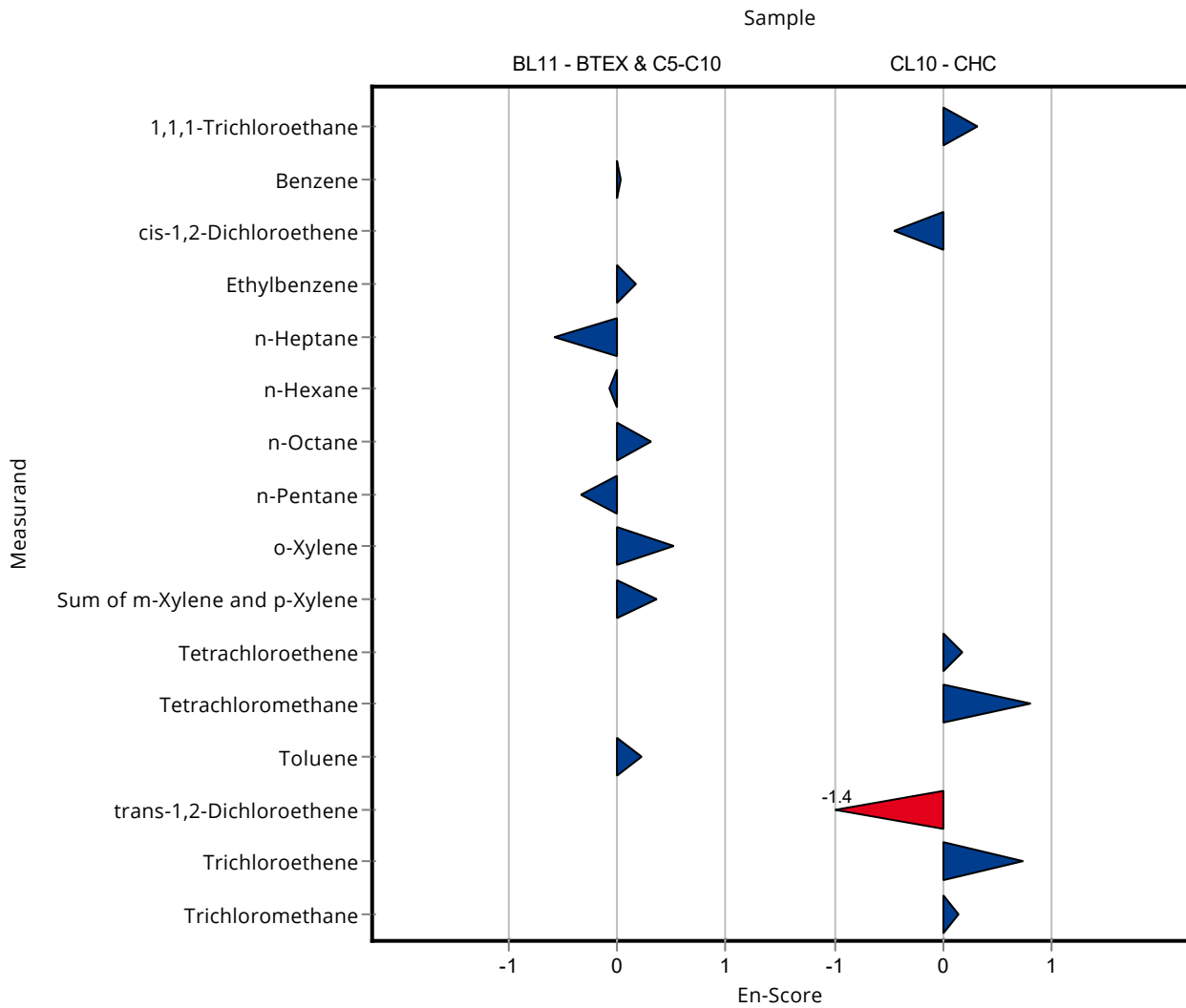
Sample: BL11

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
Benzene	µg/tube	5.32 ±	0.4	5.78 ±	0.87	0.799	109	0.57
Ethylbenzene	µg/tube	5.33 ±	0.579	5.1 ±	0.76	1.17	95.7	-0.19
n-Decane	µg/tube	- ±	-	3.75 ±	0.56	-	-	-
n-Heptane	µg/tube	7.58 ±	1.19	8.06 ±	1.21	1.59	106	0.30
n-Hexane	µg/tube	6.1 ±	0.928	6.75 ±	1.01	1.16	111	0.56
n-Nonane	µg/tube	- ±	-	5.95 ±	0.89	-	-	-
n-Octane	µg/tube	6.07 ±	0.74	6.28 ±	0.94	0.91	103	0.23
n-Pentane	µg/tube	6.78 ±	1.52	- ±	-	1.9	-	-
o-Xylene	µg/tube	4.72 ±	0.398	4.82 ±	0.72	0.85	102	0.12
Sum of m-Xylene and p-Xylene	µg/tube	9.43 ±	1.28	5.54 ±	0.83	2.45	58.8	-1.59
Toluene	µg/tube	5.41 ±	0.418	5.67 ±	0.85	0.812	105	0.31

Sample: CL10

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
1,1,1-Trichloroethane	µg/tube	4.71 ±	0.281	5.53 ±	0.83	0.753	118	1.09
cis-1,2-Dichloroethene	µg/tube	2.89 ±	0.494	- ±	-	1.07	-	-
Tetrachloroethene	µg/tube	3.93 ±	0.234	4.33 ±	0.65	0.826	110	0.48
Tetrachloromethane	µg/tube	5.53 ±	0.505	- ±	-	0.995	-	-
trans-1,2-Dichloroethene	µg/tube	2.96 ±	0.684	- ±	-	1.27	-	-
Trichloroethene	µg/tube	3.63 ±	0.424	4.46 ±	0.67	0.907	123	0.92
Trichloromethane	µg/tube	4.14 ±	0.317	- ±	-	0.662	-	-
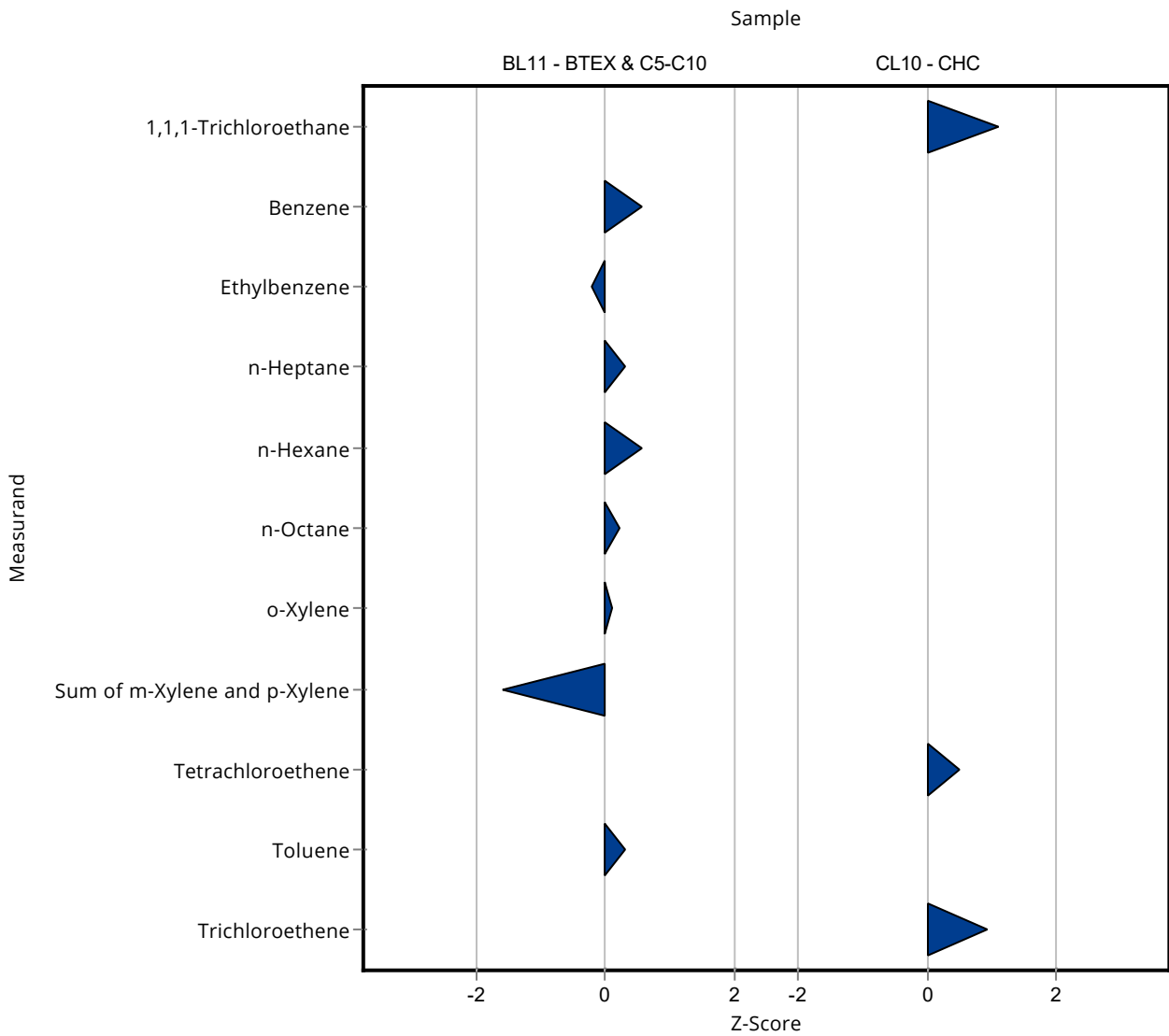
Sample

CBL09_Ausgabe/Edition 1_09.11.2023

Sample: BL11

Parameter	Unit	Assigned value	± U (k=2)	Result ± U		Criterion	Recovery [%]	En-Score
Benzene	µg/tube	5.32	± 0.4	5.78	± 0.87	0.799	109	0.26
Ethylbenzene	µg/tube	5.33	± 0.579	5.1	± 0.76	1.17	95.7	-0.14
n-Decane	µg/tube	-	± -	3.75	± 0.56	-	-	-
n-Heptane	µg/tube	7.58	± 1.19	8.06	± 1.21	1.59	106	0.18
n-Hexane	µg/tube	6.1	± 0.928	6.75	± 1.01	1.16	111	0.29
n-Nonane	µg/tube	-	± -	5.95	± 0.89	-	-	-
n-Octane	µg/tube	6.07	± 0.74	6.28	± 0.94	0.91	103	0.10
n-Pentane	µg/tube	6.78	± 1.52	-	± -	1.9	-	-
o-Xylene	µg/tube	4.72	± 0.398	4.82	± 0.72	0.85	102	0.07
Sum of m-Xylene and p-Xylene	µg/tube	9.43	± 1.28	5.54	± 0.83	2.45	58.8	-1.85
Toluene	µg/tube	5.41	± 0.418	5.67	± 0.85	0.812	105	0.15

Sample: CL10

Parameter	Unit	Assigned value	± U (k=2)	Result ± U		Criterion	Recovery [%]	En-Score
1,1,1-Trichloroethane	µg/tube	4.71	± 0.281	5.53	± 0.83	0.753	118	0.49
cis-1,2-Dichloroethene	µg/tube	2.89	± 0.494	-	± -	1.07	-	-
Tetrachloroethene	µg/tube	3.93	± 0.234	4.33	± 0.65	0.826	110	0.30
Tetrachloromethane	µg/tube	5.53	± 0.505	-	± -	0.995	-	-
trans-1,2-Dichloroethene	µg/tube	2.96	± 0.684	-	± -	1.27	-	-
Trichloroethene	µg/tube	3.63	± 0.424	4.46	± 0.67	0.907	123	0.59
Trichloromethane	µg/tube	4.14	± 0.317	-	± -	0.662	-	-
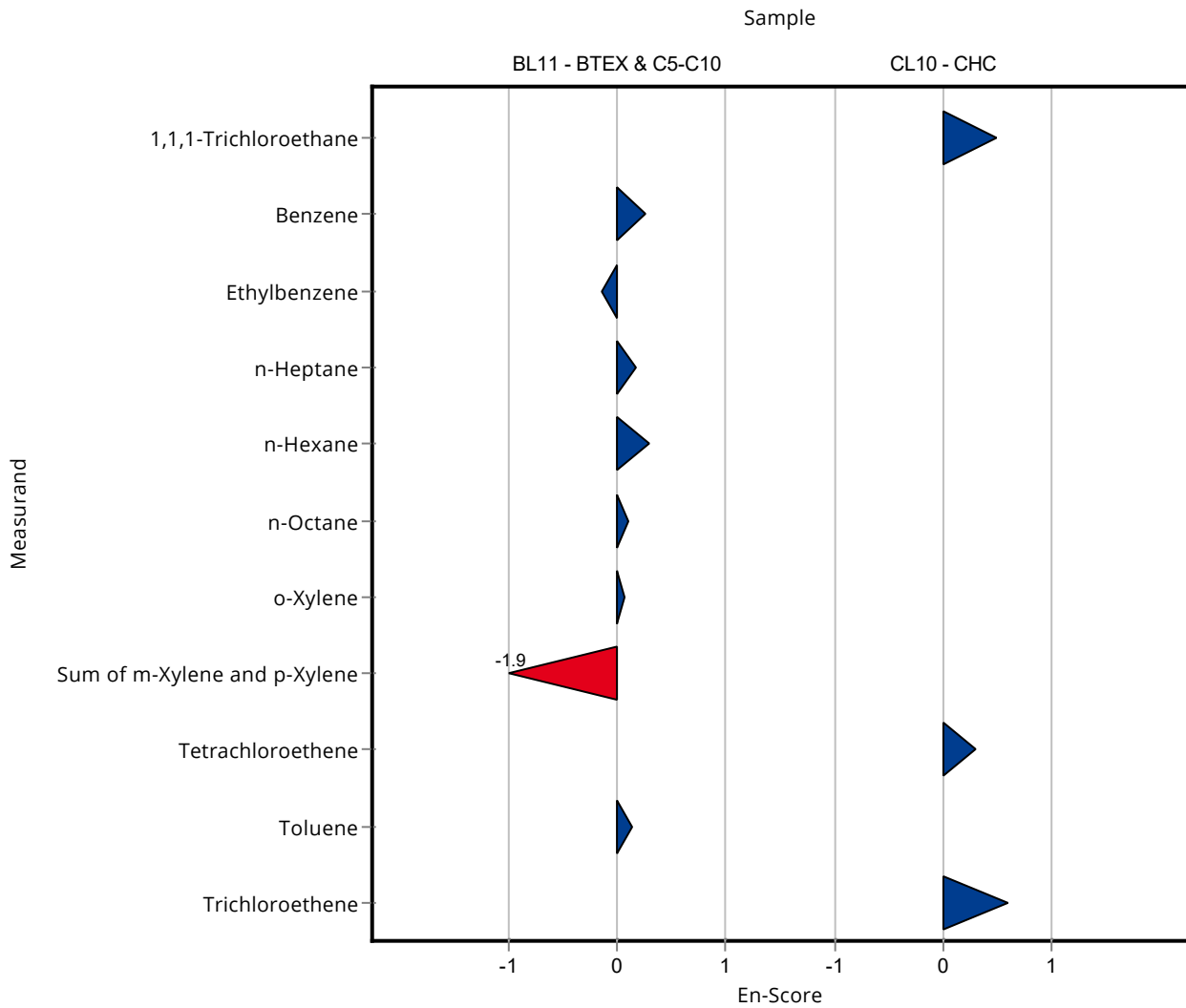
Sample

BL11 - BTEX & C5-C10   CL10 - CHC

Sample: BL11

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
Benzene	µg/tube	5.32 ±	0.4	1.95 ±	0.2	0.799	36.6	-4.22
Ethylbenzene	µg/tube	5.33 ±	0.579	2.1 ±	0.21	1.17	39.4	-2.75
n-Decane	µg/tube	- ±	-	- ±	-	-	-	-
n-Heptane	µg/tube	7.58 ±	1.19	- ±	-	1.59	-	-
n-Hexane	µg/tube	6.1 ±	0.928	- ±	-	1.16	-	-
n-Nonane	µg/tube	- ±	-	- ±	-	-	-	-
n-Octane	µg/tube	6.07 ±	0.74	- ±	-	0.91	-	-
n-Pentane	µg/tube	6.78 ±	1.52	- ±	-	1.9	-	-
o-Xylene	µg/tube	4.72 ±	0.398	1.16 ±	0.12	0.85	24.6	-4.19
Sum of m-Xylene and p-Xylene	µg/tube	9.43 ±	1.28	3.36 ±	0.34	2.45	35.6	-2.48
Toluene	µg/tube	5.41 ±	0.418	1.97 ±	0.2	0.812	36.4	-4.24

Sample: CL10

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
1,1,1-Trichloroethane	µg/tube	4.71 ±	0.281	4.39 ±	0.44	0.753	93.3	-0.42
cis-1,2-Dichloroethene	µg/tube	2.89 ±	0.494	- ±	-	1.07	-	-
Tetrachloroethene	µg/tube	3.93 ±	0.234	3.9 ±	0.39	0.826	99.2	-0.04
Tetrachloromethane	µg/tube	5.53 ±	0.505	5.46 ±	0.55	0.995	98.8	-0.07
trans-1,2-Dichloroethene	µg/tube	2.96 ±	0.684	- ±	-	1.27	-	-
Trichloroethene	µg/tube	3.63 ±	0.424	3.55 ±	0.36	0.907	97.9	-0.09
Trichloromethane	µg/tube	4.14 ±	0.317	3.82 ±	0.38	0.662	92.3	-0.48
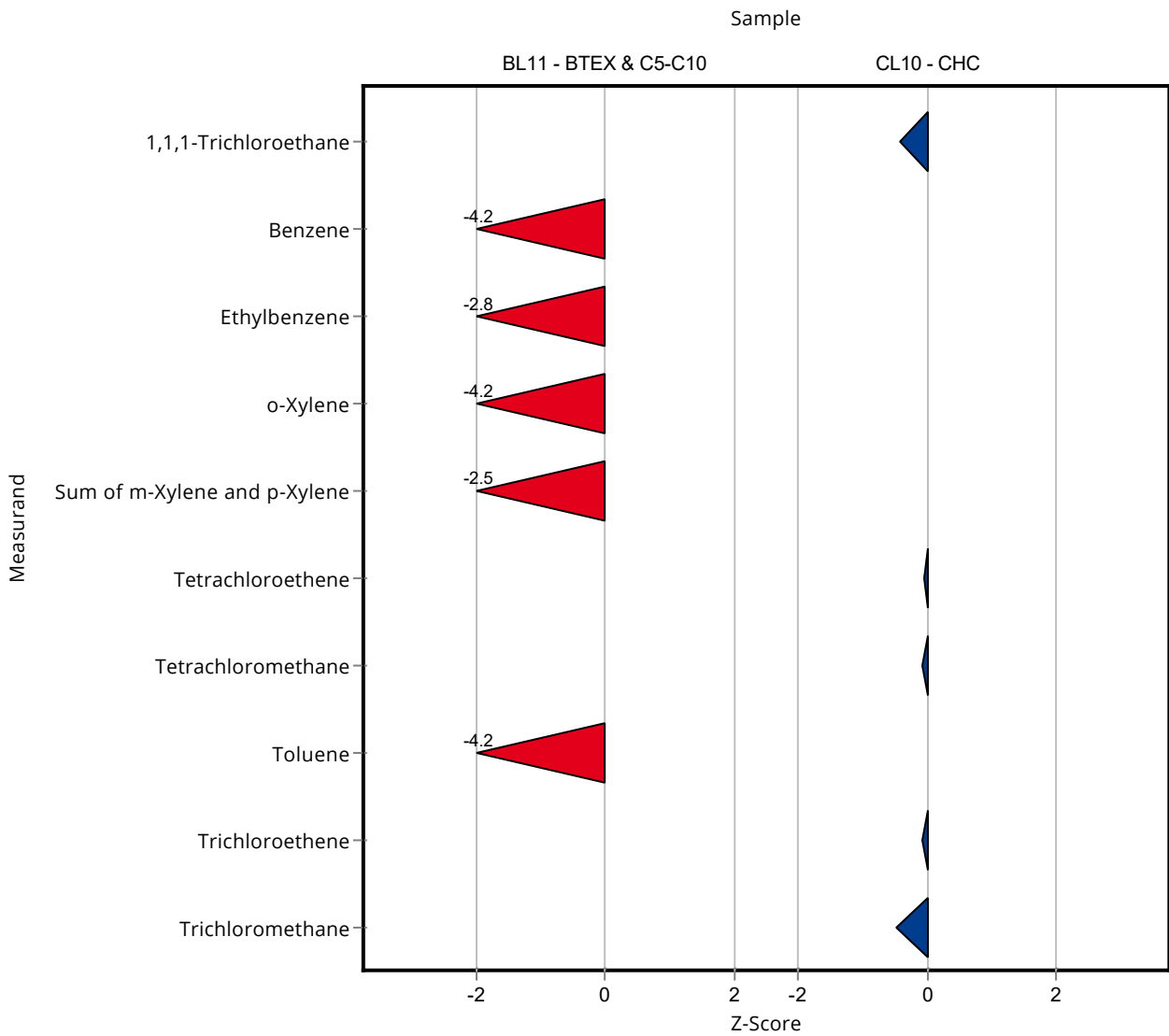
Sample

BL11 - BTEX & C5-C10   CL10 - CHC

Measurand		
1,1,1-Trichloroethane		
Benzene	-4.2	
Ethylbenzene	-2.8	
o-Xylene	-4.2	
Sum of m-Xylene and p-Xylene	-2.5	
Tetrachloroethene		
Tetrachloromethane		
Toluene	-4.2	
Trichloroethene		
Trichloromethane		

Z-Score

Sample: BL11

Parameter	Unit	Assigned value	± U (k=2)	Result	± U	Criterion	Recovery [%]	En-Score
Benzene	µg/tube	5.32	± 0.4	1.95	± 0.2	0.799	36.6	-5.96
Ethylbenzene	µg/tube	5.33	± 0.579	2.1	± 0.21	1.17	39.4	-4.51
n-Decane	µg/tube	-	± -	-	± -	-	-	-
n-Heptane	µg/tube	7.58	± 1.19	-	± -	1.59	-	-
n-Hexane	µg/tube	6.1	± 0.928	-	± -	1.16	-	-
n-Nonane	µg/tube	-	± -	-	± -	-	-	-
n-Octane	µg/tube	6.07	± 0.74	-	± -	0.91	-	-
n-Pentane	µg/tube	6.78	± 1.52	-	± -	1.9	-	-
o-Xylene	µg/tube	4.72	± 0.398	1.16	± 0.12	0.85	24.6	-7.67
Sum of m-Xylene and p-Xylene	µg/tube	9.43	± 1.28	3.36	± 0.34	2.45	35.6	-4.18
Toluene	µg/tube	5.41	± 0.418	1.97	± 0.2	0.812	36.4	-5.96

Sample: CL10

Parameter	Unit	Assigned value	± U (k=2)	Result	± U	Criterion	Recovery [%]	En-Score
1,1,1-Trichloroethane	µg/tube	4.71	± 0.281	4.39	± 0.44	0.753	93.3	-0.34
cis-1,2-Dichloroethene	µg/tube	2.89	± 0.494	-	± -	1.07	-	-
Tetrachloroethene	µg/tube	3.93	± 0.234	3.9	± 0.39	0.826	99.2	-0.04
Tetrachloromethane	µg/tube	5.53	± 0.505	5.46	± 0.55	0.995	98.8	-0.05
trans-1,2-Dichloroethene	µg/tube	2.96	± 0.684	-	± -	1.27	-	-
Trichloroethene	µg/tube	3.63	± 0.424	3.55	± 0.36	0.907	97.9	-0.09
Trichloromethane	µg/tube	4.14	± 0.317	3.82	± 0.38	0.662	92.3	-0.39
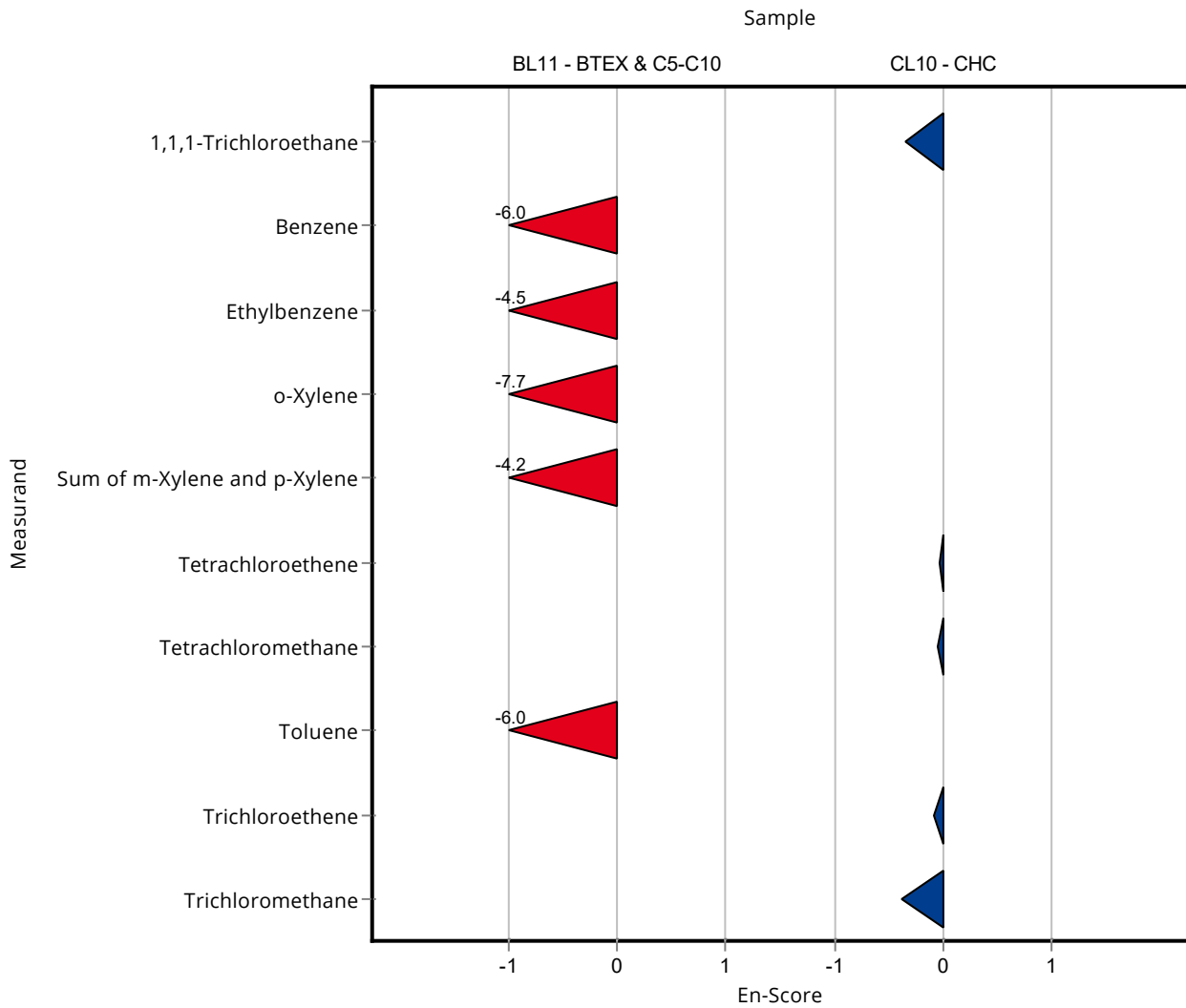
Sample: CL10

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
1,1,1-Trichloroethane	µg/tube	4.71 ±	0.281	4.074 ±	0.306	0.753	86.6	-0.84
cis-1,2-Dichloroethene	µg/tube	2.89 ±	0.494	1.743 ±	0.131	1.07	60.3	-1.07
Tetrachloroethene	µg/tube	3.93 ±	0.234	3.687 ±	0.276	0.826	93.8	-0.30
Tetrachloromethane	µg/tube	5.53 ±	0.505	5.931 ±	0.445	0.995	107	0.41
trans-1,2-Dichloroethene	µg/tube	2.96 ±	0.684	0.844 ±	0.063	1.27	28.5	-1.66
Trichloroethene	µg/tube	3.63 ±	0.424	3.73 ±	0.28	0.907	103	0.11
Trichloromethane	µg/tube	4.14 ±	0.317	3.794 ±	0.285	0.662	91.7	-0.52
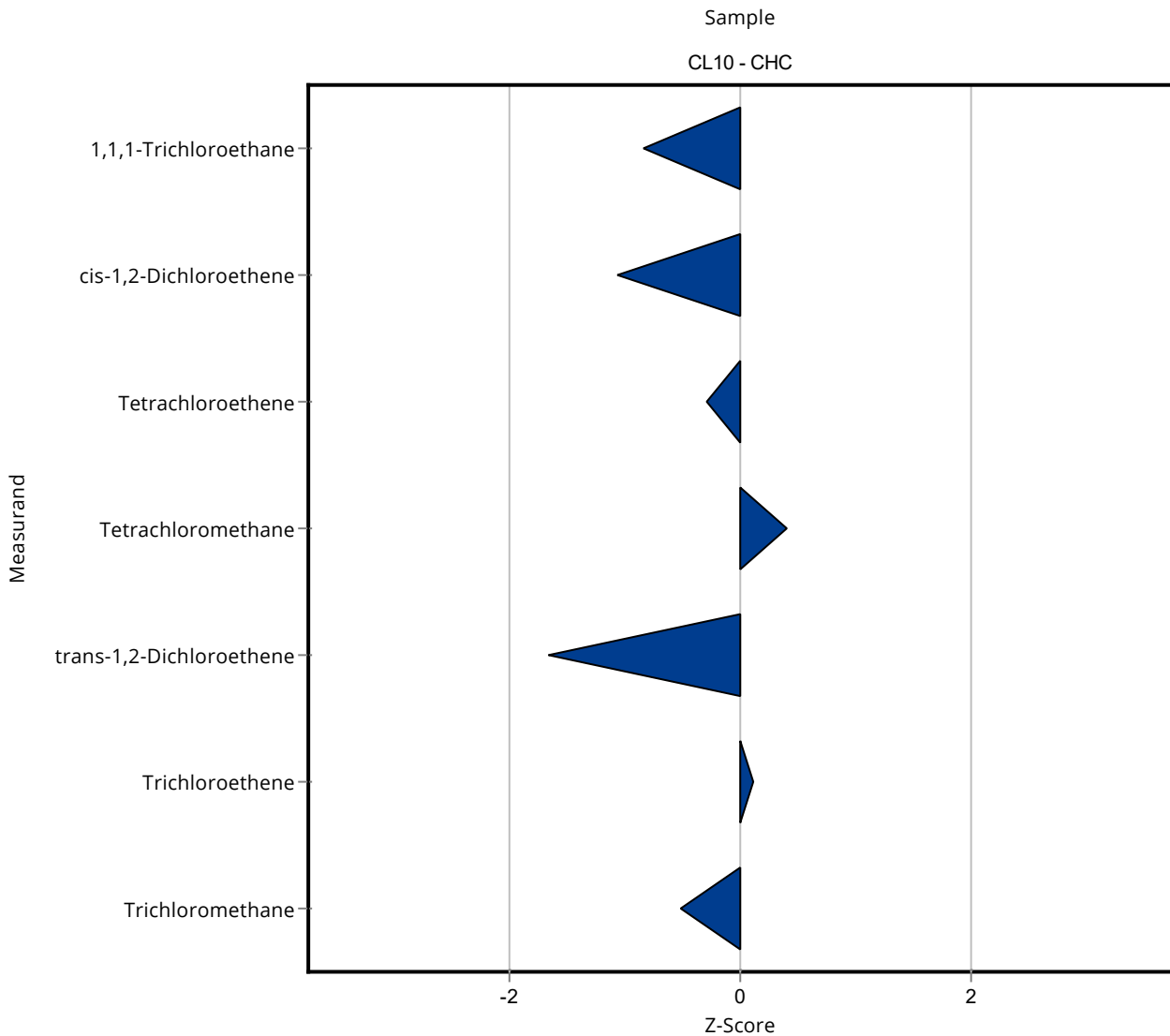
Sample

CL10 - CHC

Sample: CL10

Parameter	Unit	Assigned value	± U (k=2)	Result ± U		Criterion	Recovery [%]	En-Score
1,1,1-Trichloroethane	µg/tube	4.71	± 0.281	4.074	± 0.306	0.753	86.6	-0.94
cis-1,2-Dichloroethene	µg/tube	2.89	± 0.494	1.743	± 0.131	1.07	60.3	-2.05
Tetrachloroethene	µg/tube	3.93	± 0.234	3.687	± 0.276	0.826	93.8	-0.41
Tetrachloromethane	µg/tube	5.53	± 0.505	5.931	± 0.445	0.995	107	0.40
trans-1,2-Dichloroethene	µg/tube	2.96	± 0.684	0.844	± 0.063	1.27	28.5	-3.04
Trichloroethene	µg/tube	3.63	± 0.424	3.73	± 0.28	0.907	103	0.15
Trichloromethane	µg/tube	4.14	± 0.317	3.794	± 0.285	0.662	91.7	-0.53
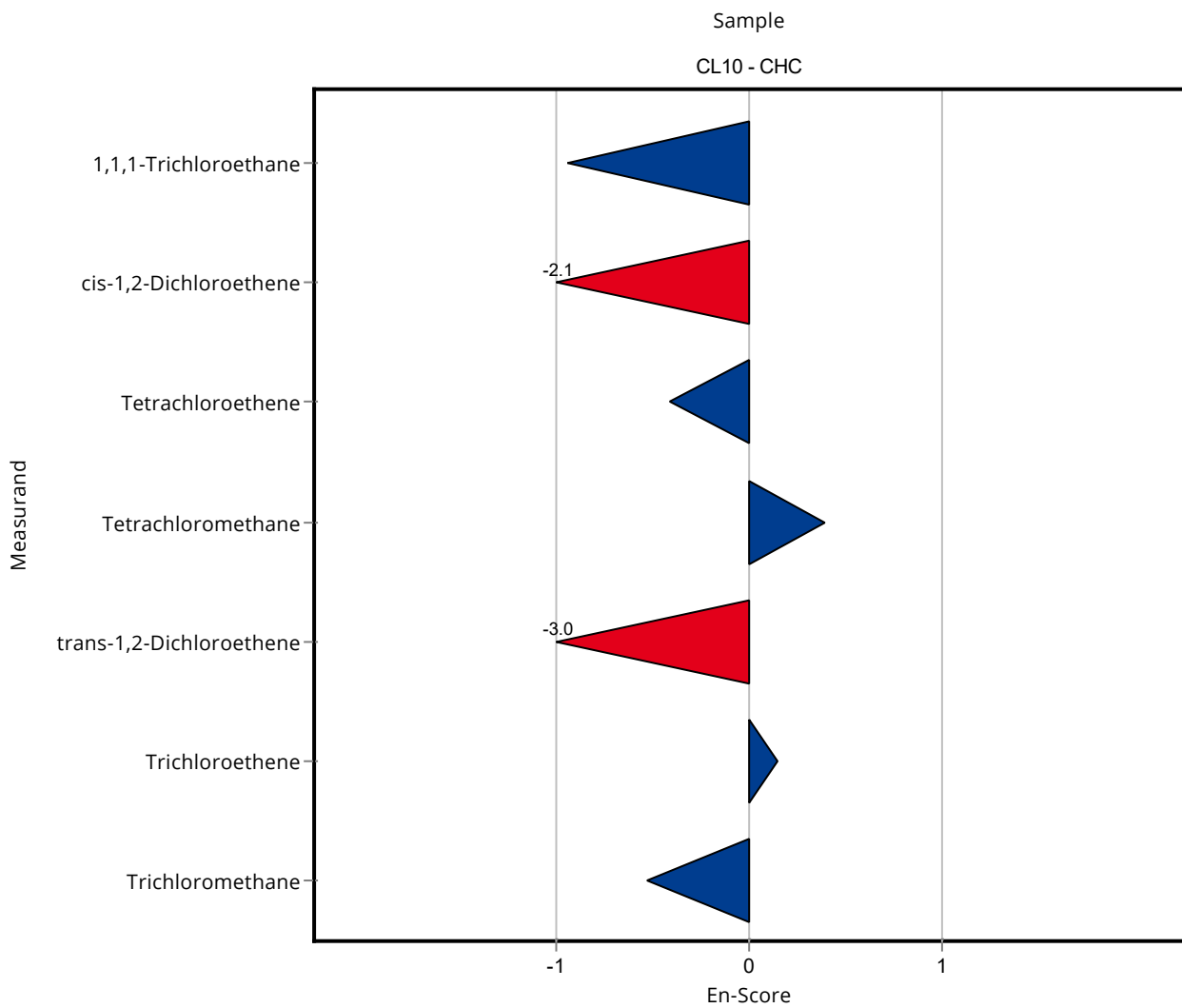
Sample

CL10 - CHC

Sample: BL11

Parameter	Unit	Assigned value ± U (k=2)			Result ± U			Criterion	Recovery [%]	z-Score
Benzene	µg/tube	5.32	±	0.4	4.93	±	0.74	0.799	92.6	-0.49
Ethylbenzene	µg/tube	5.33	±	0.579	3.93	±	0.42	1.17	73.8	-1.19
n-Decane	µg/tube	-	±	-	-	±	-	-	-	-
n-Heptane	µg/tube	7.58	±	1.19	-	±	-	1.59	-	-
n-Hexane	µg/tube	6.1	±	0.928	-	±	-	1.16	-	-
n-Nonane	µg/tube	-	±	-	-	±	-	-	-	-
n-Octane	µg/tube	6.07	±	0.74	-	±	-	0.91	-	-
n-Pentane	µg/tube	6.78	±	1.52	-	±	-	1.9	-	-
o-Xylene	µg/tube	4.72	±	0.398	2.96	±	0.36	0.85	62.7	-2.07
Sum of m-Xylene and p-Xylene	µg/tube	9.43	±	1.28	5.71	±	0.66	2.45	60.6	-1.52
Toluene	µg/tube	5.41	±	0.418	4.34	±	0.41	0.812	80.1	-1.32
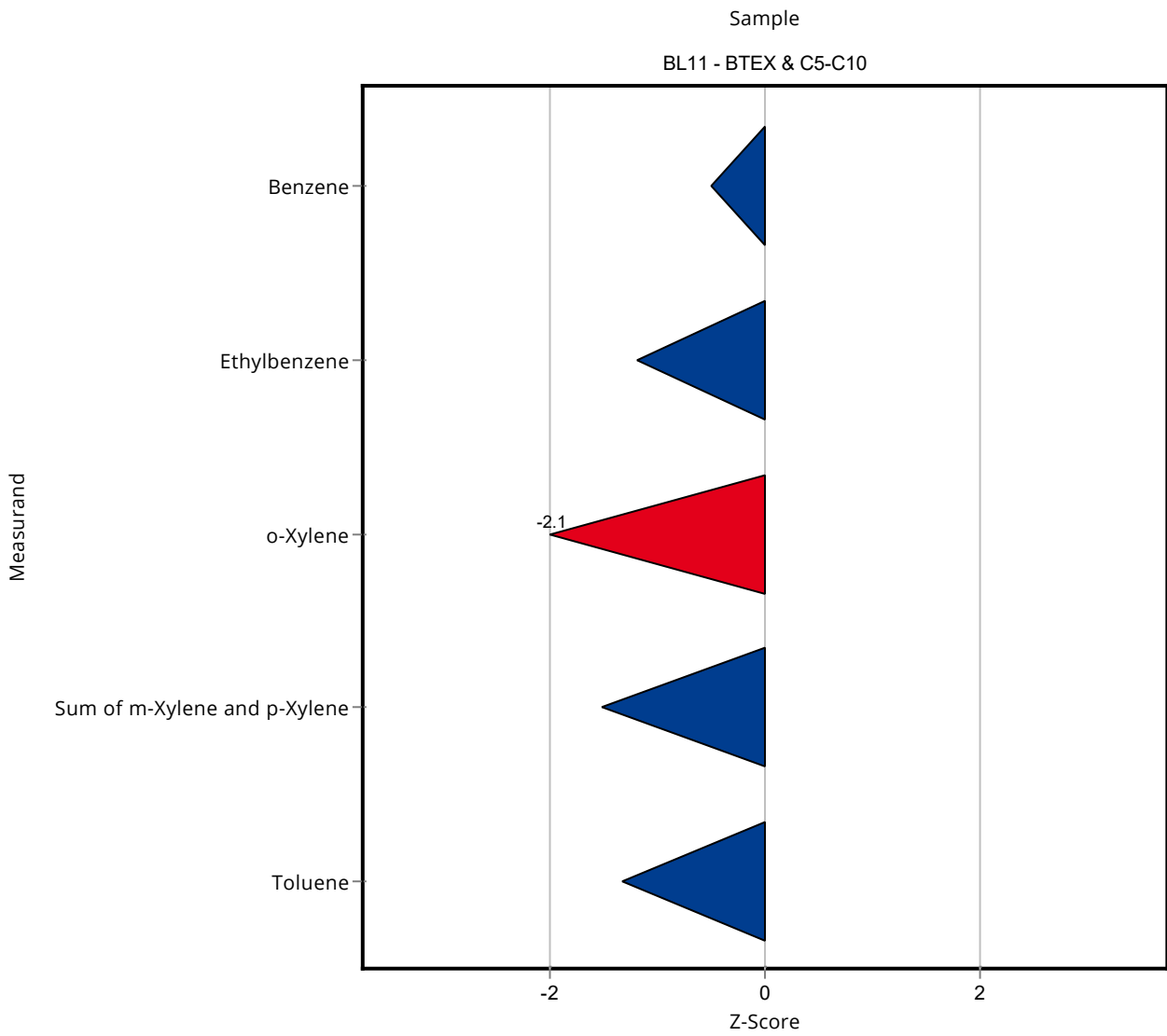
Sample

BL11 - BTEX & C5-C10

Sample: BL11

Parameter	Unit	Assigned value	± U (k=2)	Result ± U		Criterion	Recovery [%]	En-Score
Benzene	µg/tube	5.32 ± 0.4		4.93 ±	0.74	0.799	92.6	-0.26
Ethylbenzene	µg/tube	5.33 ± 0.579		3.93 ±	0.42	1.17	73.8	-1.37
n-Decane	µg/tube	- ± -		- ±	-	-	-	-
n-Heptane	µg/tube	7.58 ± 1.19		- ±	-	1.59	-	-
n-Hexane	µg/tube	6.1 ± 0.928		- ±	-	1.16	-	-
n-Nonane	µg/tube	- ± -		- ±	-	-	-	-
n-Octane	µg/tube	6.07 ± 0.74		- ±	-	0.91	-	-
n-Pentane	µg/tube	6.78 ± 1.52		- ±	-	1.9	-	-
o-Xylene	µg/tube	4.72 ± 0.398		2.96 ±	0.36	0.85	62.7	-2.14
Sum of m-Xylene and p-Xylene	µg/tube	9.43 ± 1.28		5.71 ±	0.66	2.45	60.6	-2.02
Toluene	µg/tube	5.41 ± 0.418		4.34 ±	0.41	0.812	80.1	-1.17
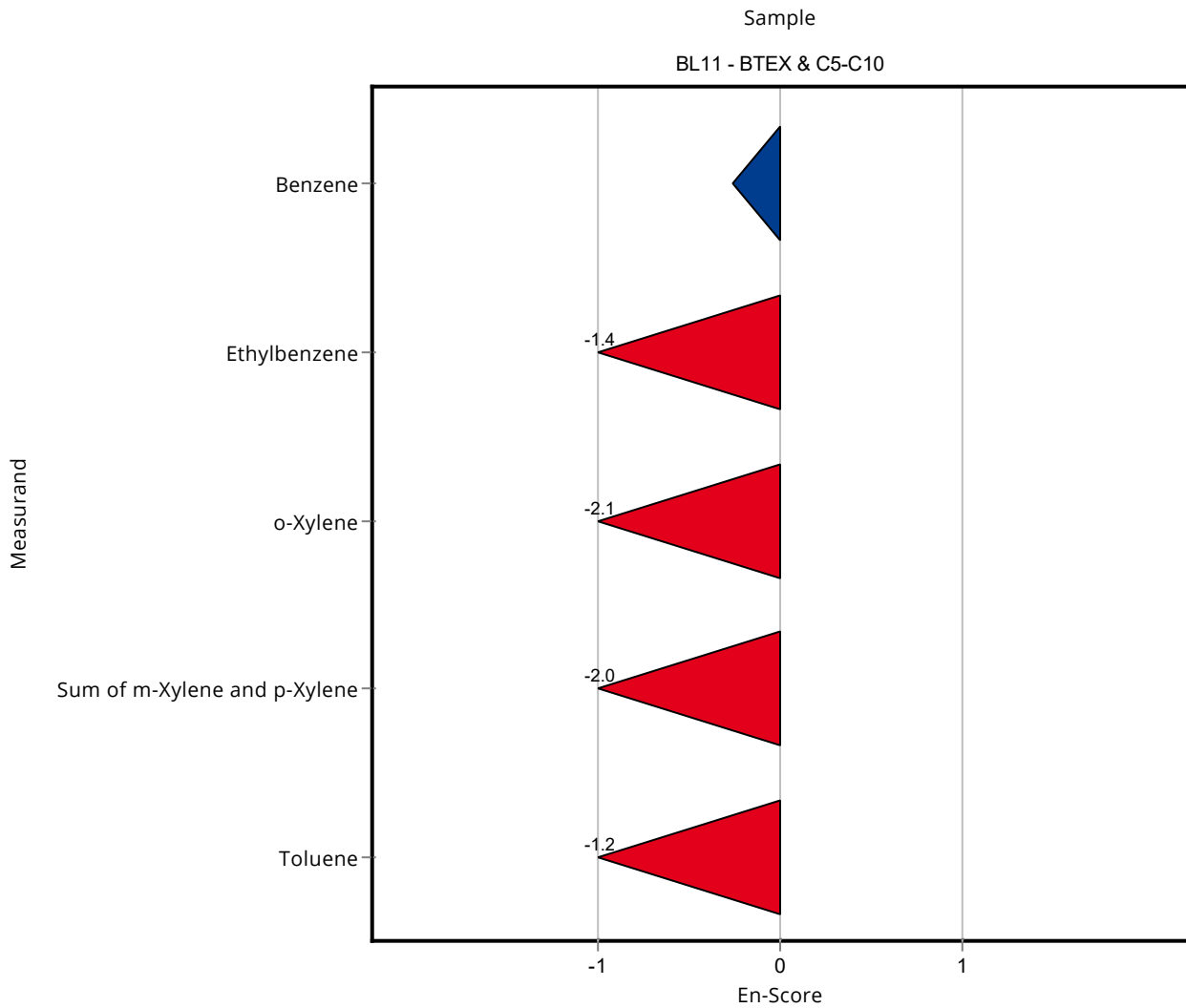
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Sample

BL11 - BTEX & C5-C10

Sample: BL11

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
Benzene	µg/tube	5.32 ± 0.4		5.716 ± 0.497		0.799	107	0.49
Ethylbenzene	µg/tube	5.33 ± 0.579		6.011 ± 0.673		1.17	113	0.58
n-Decane	µg/tube	- ± -		- ± -		-	-	-
n-Heptane	µg/tube	7.58 ± 1.19		- ± -		1.59	-	-
n-Hexane	µg/tube	6.1 ± 0.928		- ± -		1.16	-	-
n-Nonane	µg/tube	- ± -		- ± -		-	-	-
n-Octane	µg/tube	6.07 ± 0.74		- ± -		0.91	-	-
n-Pentane	µg/tube	6.78 ± 1.52		- ± -		1.9	-	-
o-Xylene	µg/tube	4.72 ± 0.398		5.392 ± 0.609		0.85	114	0.79
Sum of m-Xylene and p-Xylene	µg/tube	9.43 ± 1.28		11.522 ± 1.21		2.45	122	0.85
Toluene	µg/tube	5.41 ± 0.418		6.162 ± 0.585		0.812	114	0.92
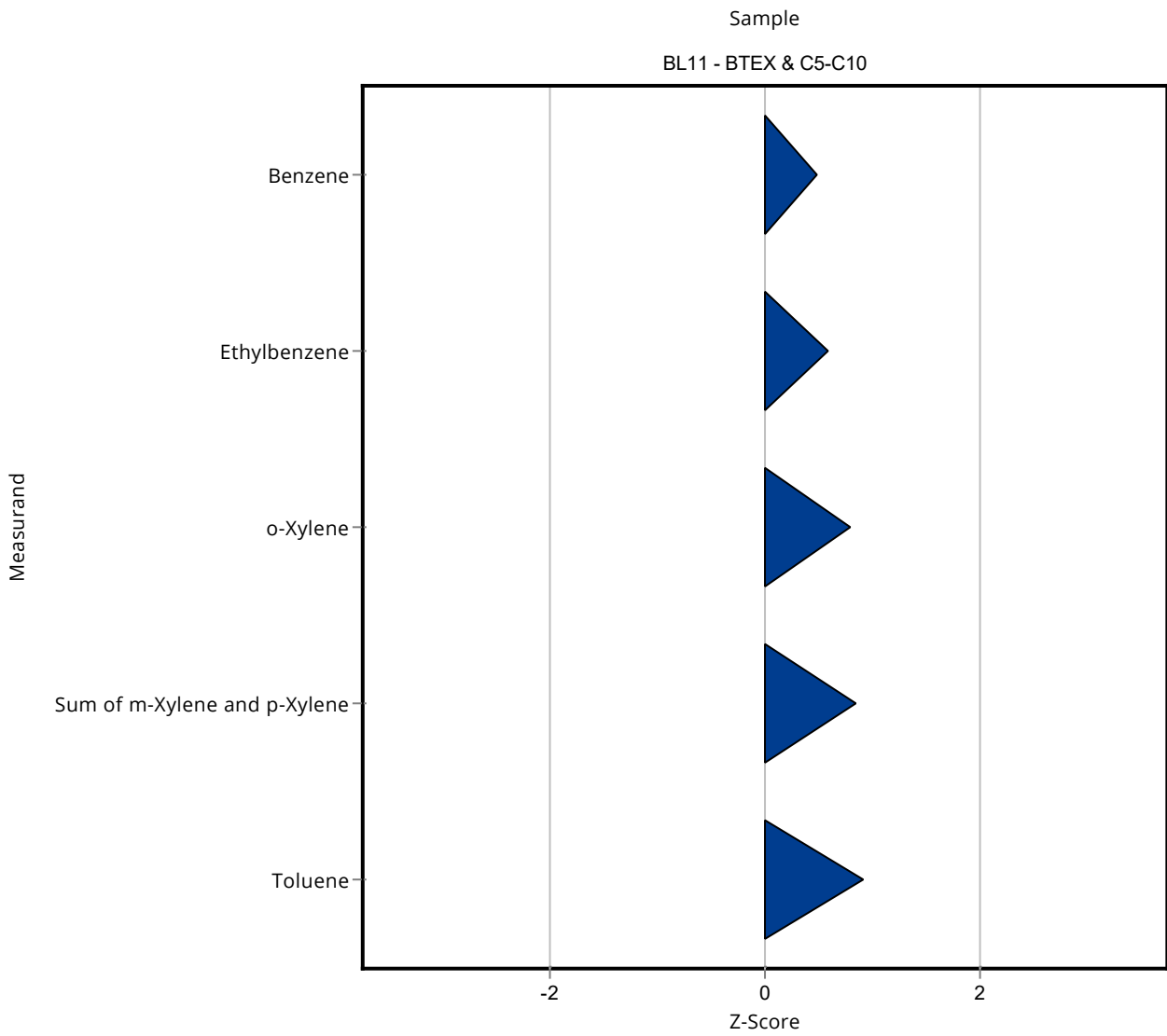
Sample

BL11 - BTEX & C5-C10

Sample: BL11

Parameter	Unit	Assigned value	± U (k=2)	Result ± U		Criterion	Recovery [%]	En-Score
Benzene	µg/tube	5.32	± 0.4	5.716 ±	0.497	0.799	107	0.37
Ethylbenzene	µg/tube	5.33	± 0.579	6.011 ±	0.673	1.17	113	0.47
n-Decane	µg/tube	-	± -	- ±	-	-	-	-
n-Heptane	µg/tube	7.58	± 1.19	- ±	-	1.59	-	-
n-Hexane	µg/tube	6.1	± 0.928	- ±	-	1.16	-	-
n-Nonane	µg/tube	-	± -	- ±	-	-	-	-
n-Octane	µg/tube	6.07	± 0.74	- ±	-	0.91	-	-
n-Pentane	µg/tube	6.78	± 1.52	- ±	-	1.9	-	-
o-Xylene	µg/tube	4.72	± 0.398	5.392 ±	0.609	0.85	114	0.52
Sum of m-Xylene and p-Xylene	µg/tube	9.43	± 1.28	11.522 ±	1.21	2.45	122	0.76
Toluene	µg/tube	5.41	± 0.418	6.162 ±	0.585	0.812	114	0.60
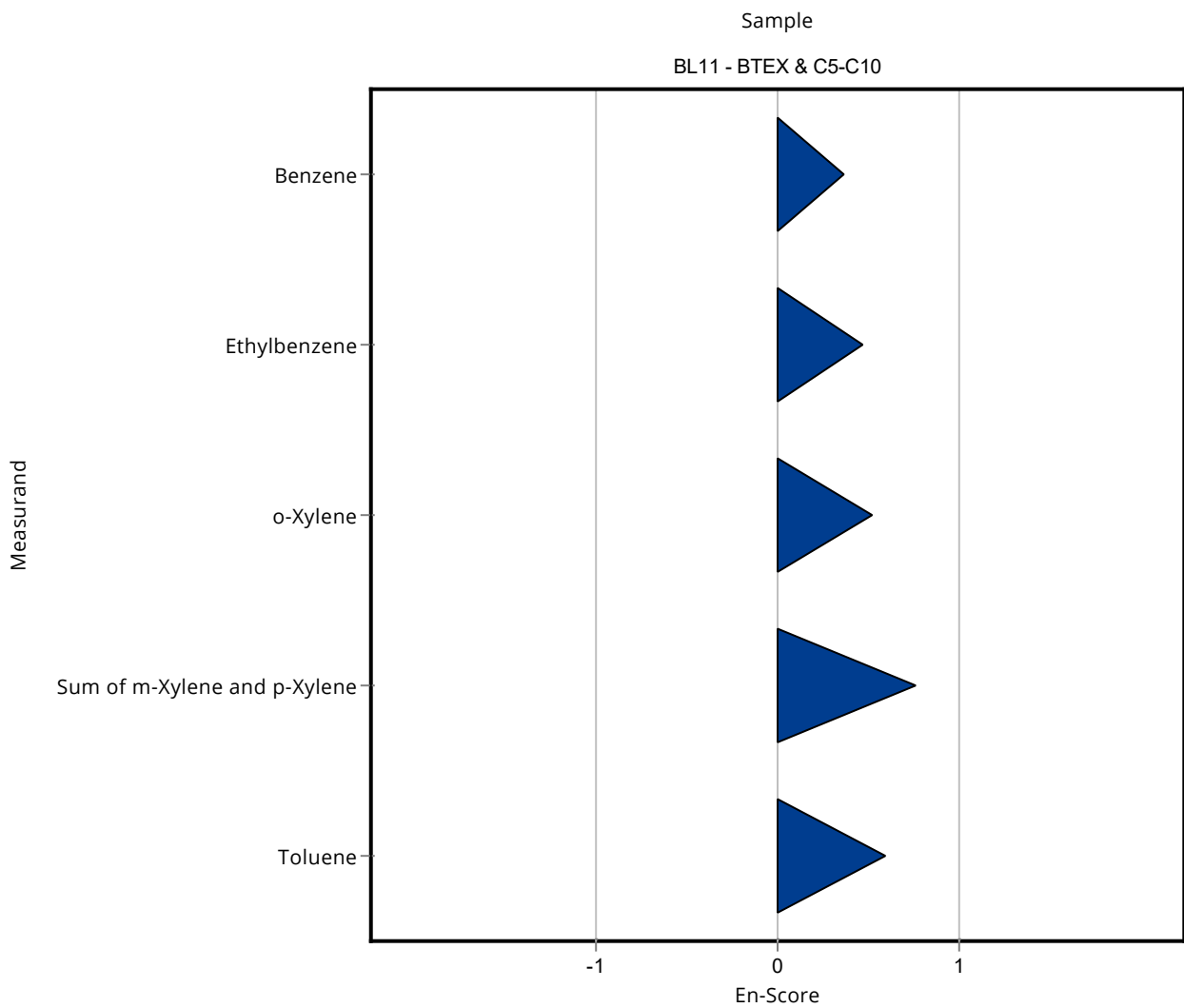
Sample

BL11 - BTEX & C5-C10

Sample: BL11

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
Benzene	µg/tube	5.32 ± 0.4		5.888 ± 0.453		0.799	111	0.71
Ethylbenzene	µg/tube	5.33 ± 0.579		6.189 ± 0.668		1.17	116	0.73
n-Decane	µg/tube	- ± -		4.19 ± 1.181		-	-	-
n-Heptane	µg/tube	7.58 ± 1.19		7.41 ± 0.682		1.59	97.8	-0.11
n-Hexane	µg/tube	6.1 ± 0.928		7.746 ± 0.462		1.16	127	1.42
n-Nonane	µg/tube	- ± -		6.312 ± 1.207		-	-	-
n-Octane	µg/tube	6.07 ± 0.74		7.271 ± 0.716		0.91	120	1.32
n-Pentane	µg/tube	6.78 ± 1.52		6.464 ± 0.685		1.9	95.4	-0.17
o-Xylene	µg/tube	4.72 ± 0.398		5.376 ± 0.868		0.85	114	0.77
Sum of m-Xylene and p-Xylene	µg/tube	9.43 ± 1.28		11.758 ± 1.482		2.45	125	0.95
Toluene	µg/tube	5.41 ± 0.418		6.2 ± 0.397		0.812	114	0.97

Sample: CL10

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
1,1,1-Trichloroethane	µg/tube	4.71 ± 0.281		5.106 ± 0.94		0.753	109	0.53
cis-1,2-Dichloroethene	µg/tube	2.89 ± 0.494		3.821 ± 0.722		1.07	132	0.87
Tetrachloroethene	µg/tube	3.93 ± 0.234		3.935 ± 1.066		0.826	100	0.00
Tetrachloromethane	µg/tube	5.53 ± 0.505		6.005 ± 1.285		0.995	109	0.48
trans-1,2-Dichloroethene	µg/tube	2.96 ± 0.684		3.902 ± 0.823		1.27	132	0.74
Trichloroethene	µg/tube	3.63 ± 0.424		4.473 ± 0.693		0.907	123	0.93
Trichloromethane	µg/tube	4.14 ± 0.317		4.507 ± 0.87		0.662	109	0.56
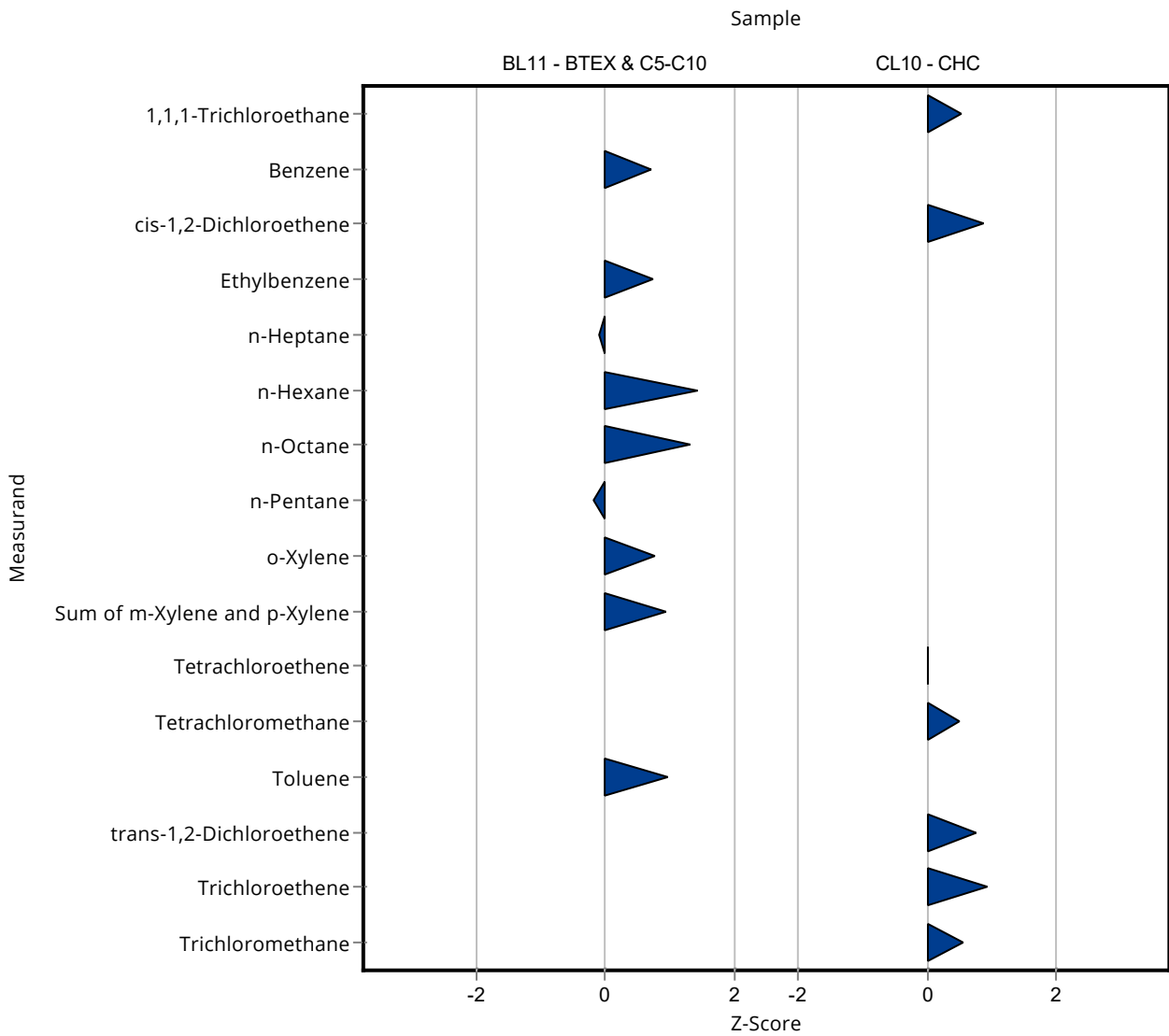
Sample

BL11 - BTEX & C5-C10   CL10 - CHC

Z-Score

Sample: BL11

Parameter	Unit	Assigned value	± U (k=2)	Result	± U	Criterion	Recovery [%]	En-Score
Benzene	µg/tube	5.32	± 0.4	5.888	± 0.453	0.799	111	0.57
Ethylbenzene	µg/tube	5.33	± 0.579	6.189	± 0.668	1.17	116	0.59
n-Decane	µg/tube	-	± -	4.19	± 1.181	-	-	-
n-Heptane	µg/tube	7.58	± 1.19	7.41	± 0.682	1.59	97.8	-0.09
n-Hexane	µg/tube	6.1	± 0.928	7.746	± 0.462	1.16	127	1.26
n-Nonane	µg/tube	-	± -	6.312	± 1.207	-	-	-
n-Octane	µg/tube	6.07	± 0.74	7.271	± 0.716	0.91	120	0.75
n-Pentane	µg/tube	6.78	± 1.52	6.464	± 0.685	1.9	95.4	-0.15
o-Xylene	µg/tube	4.72	± 0.398	5.376	± 0.868	0.85	114	0.37
Sum of m-Xylene and p-Xylene	µg/tube	9.43	± 1.28	11.758	± 1.482	2.45	125	0.72
Toluene	µg/tube	5.41	± 0.418	6.2	± 0.397	0.812	114	0.88

Sample: CL10

Parameter	Unit	Assigned value	± U (k=2)	Result	± U	Criterion	Recovery [%]	En-Score
1,1,1-Trichloroethane	µg/tube	4.71	± 0.281	5.106	± 0.94	0.753	109	0.21
cis-1,2-Dichloroethene	µg/tube	2.89	± 0.494	3.821	± 0.722	1.07	132	0.61
Tetrachloroethene	µg/tube	3.93	± 0.234	3.935	± 1.066	0.826	100	0.00
Tetrachloromethane	µg/tube	5.53	± 0.505	6.005	± 1.285	0.995	109	0.18
trans-1,2-Dichloroethene	µg/tube	2.96	± 0.684	3.902	± 0.823	1.27	132	0.53
Trichloroethene	µg/tube	3.63	± 0.424	4.473	± 0.693	0.907	123	0.58
Trichloromethane	µg/tube	4.14	± 0.317	4.507	± 0.87	0.662	109	0.21
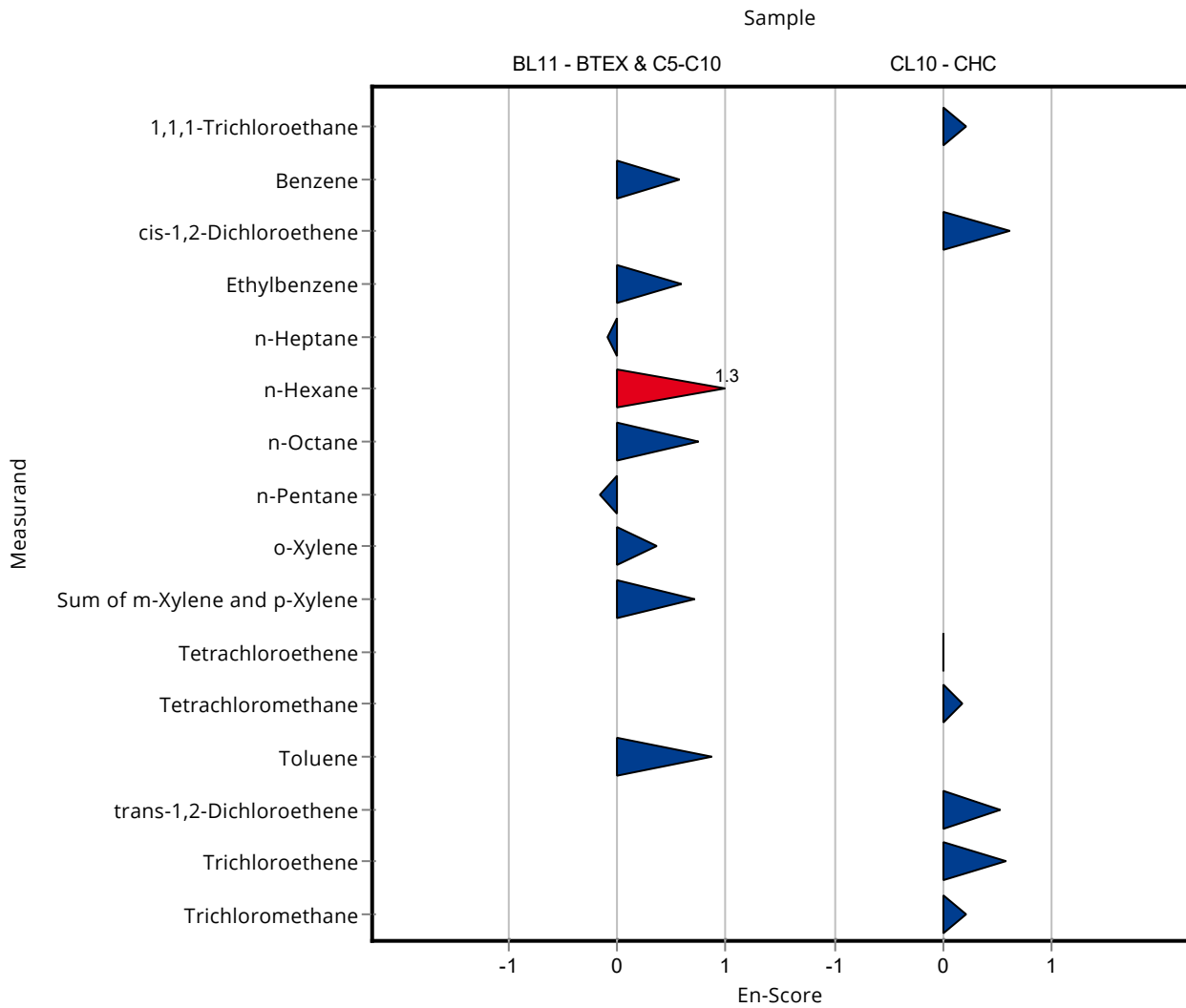
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Sample

Sample: BL11

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
Benzene	µg/tube	5.32 ±	0.4	4.953 ±	0.248	0.799	93	-0.46
Ethylbenzene	µg/tube	5.33 ±	0.579	5.625 ±	0.281	1.17	106	0.25
n-Decane	µg/tube	- ±	-	- ±	-	-	-	-
n-Heptane	µg/tube	7.58 ±	1.19	- ±	-	1.59	-	-
n-Hexane	µg/tube	6.1 ±	0.928	- ±	-	1.16	-	-
n-Nonane	µg/tube	- ±	-	- ±	-	-	-	-
n-Octane	µg/tube	6.07 ±	0.74	- ±	-	0.91	-	-
n-Pentane	µg/tube	6.78 ±	1.52	- ±	-	1.9	-	-
o-Xylene	µg/tube	4.72 ±	0.398	5.153 ±	0.258	0.85	109	0.51
Sum of m-Xylene and p-Xylene	µg/tube	9.43 ±	1.28	11.013 ±	0.551	2.45	117	0.65
Toluene	µg/tube	5.41 ±	0.418	5.602 ±	0.28	0.812	103	0.23

Sample: CL10

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
1,1,1-Trichloroethane	µg/tube	4.71 ±	0.281	3.808 ±	0.19	0.753	80.9	-1.19
cis-1,2-Dichloroethene	µg/tube	2.89 ±	0.494	2.77 ±	0.139	1.07	95.9	-0.11
Tetrachloroethene	µg/tube	3.93 ±	0.234	3.09 ±	0.155	0.826	78.6	-1.02
Tetrachloromethane	µg/tube	5.53 ±	0.505	4.58 ±	0.229	0.995	82.9	-0.95
trans-1,2-Dichloroethene	µg/tube	2.96 ±	0.684	2.764 ±	0.138	1.27	93.4	-0.15
Trichloroethene	µg/tube	3.63 ±	0.424	3.511 ±	0.176	0.907	96.8	-0.13
Trichloromethane	µg/tube	4.14 ±	0.317	3.372 ±	0.169	0.662	81.5	-1.16
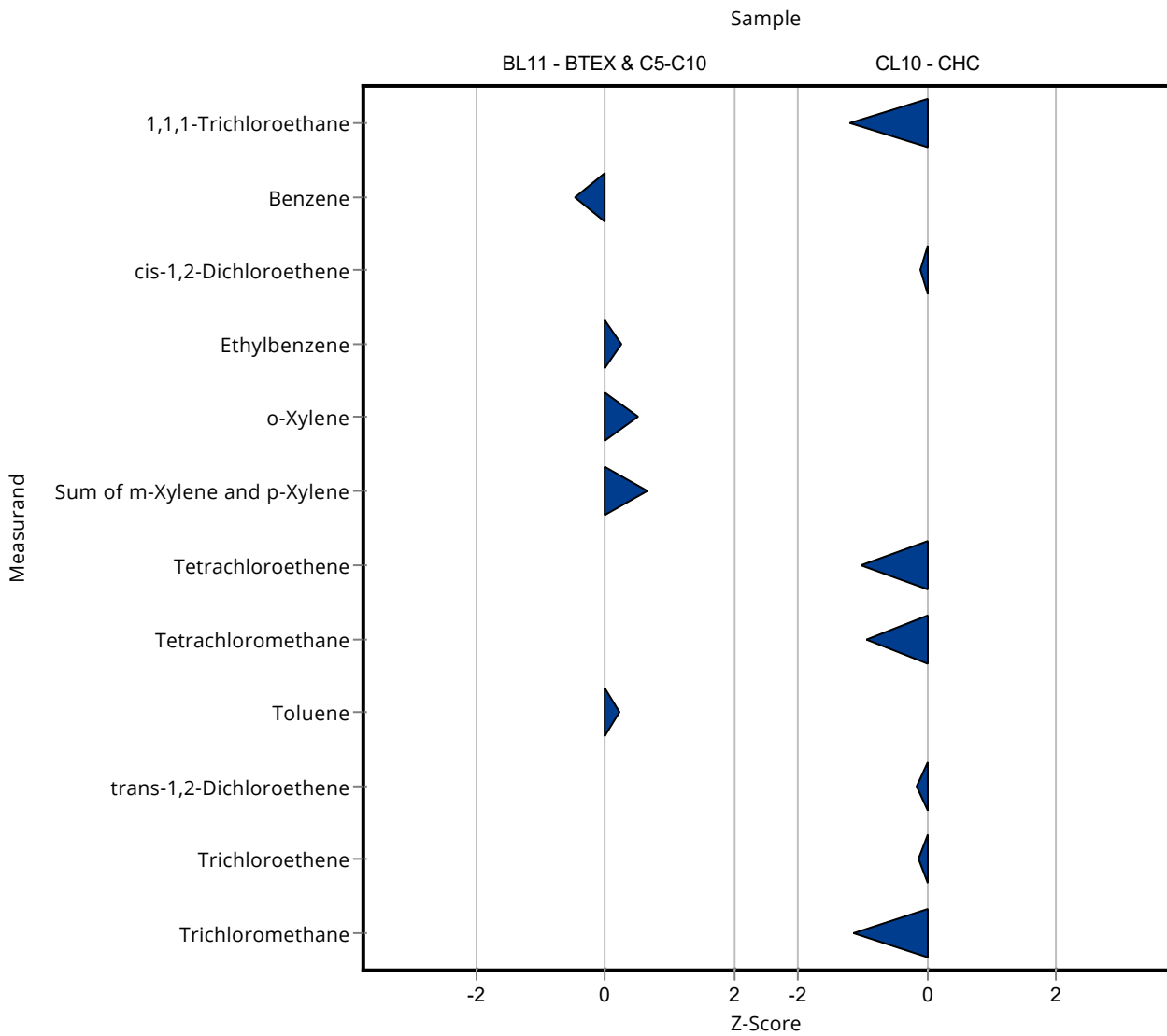
Sample: BL11

Parameter	Unit	Assigned value	± U (k=2)	Result ± U		Criterion	Recovery [%]	En-Score
Benzene	µg/tube	5.32	± 0.4	4.953	± 0.248	0.799	93	-0.58
Ethylbenzene	µg/tube	5.33	± 0.579	5.625	± 0.281	1.17	106	0.37
n-Decane	µg/tube	-	± -	-	± -	-	-	-
n-Heptane	µg/tube	7.58	± 1.19	-	± -	1.59	-	-
n-Hexane	µg/tube	6.1	± 0.928	-	± -	1.16	-	-
n-Nonane	µg/tube	-	± -	-	± -	-	-	-
n-Octane	µg/tube	6.07	± 0.74	-	± -	0.91	-	-
n-Pentane	µg/tube	6.78	± 1.52	-	± -	1.9	-	-
o-Xylene	µg/tube	4.72	± 0.398	5.153	± 0.258	0.85	109	0.66
Sum of m-Xylene and p-Xylene	µg/tube	9.43	± 1.28	11.013	± 0.551	2.45	117	0.94
Toluene	µg/tube	5.41	± 0.418	5.602	± 0.28	0.812	103	0.27

Sample: CL10

Parameter	Unit	Assigned value	± U (k=2)	Result ± U		Criterion	Recovery [%]	En-Score
1,1,1-Trichloroethane	µg/tube	4.71	± 0.281	3.808	± 0.19	0.753	80.9	-1.90
cis-1,2-Dichloroethene	µg/tube	2.89	± 0.494	2.77	± 0.139	1.07	95.9	-0.21
Tetrachloroethene	µg/tube	3.93	± 0.234	3.09	± 0.155	0.826	78.6	-2.17
Tetrachloromethane	µg/tube	5.53	± 0.505	4.58	± 0.229	0.995	82.9	-1.39
trans-1,2-Dichloroethene	µg/tube	2.96	± 0.684	2.764	± 0.138	1.27	93.4	-0.27
Trichloroethene	µg/tube	3.63	± 0.424	3.511	± 0.176	0.907	96.8	-0.21
Trichloromethane	µg/tube	4.14	± 0.317	3.372	± 0.169	0.662	81.5	-1.65
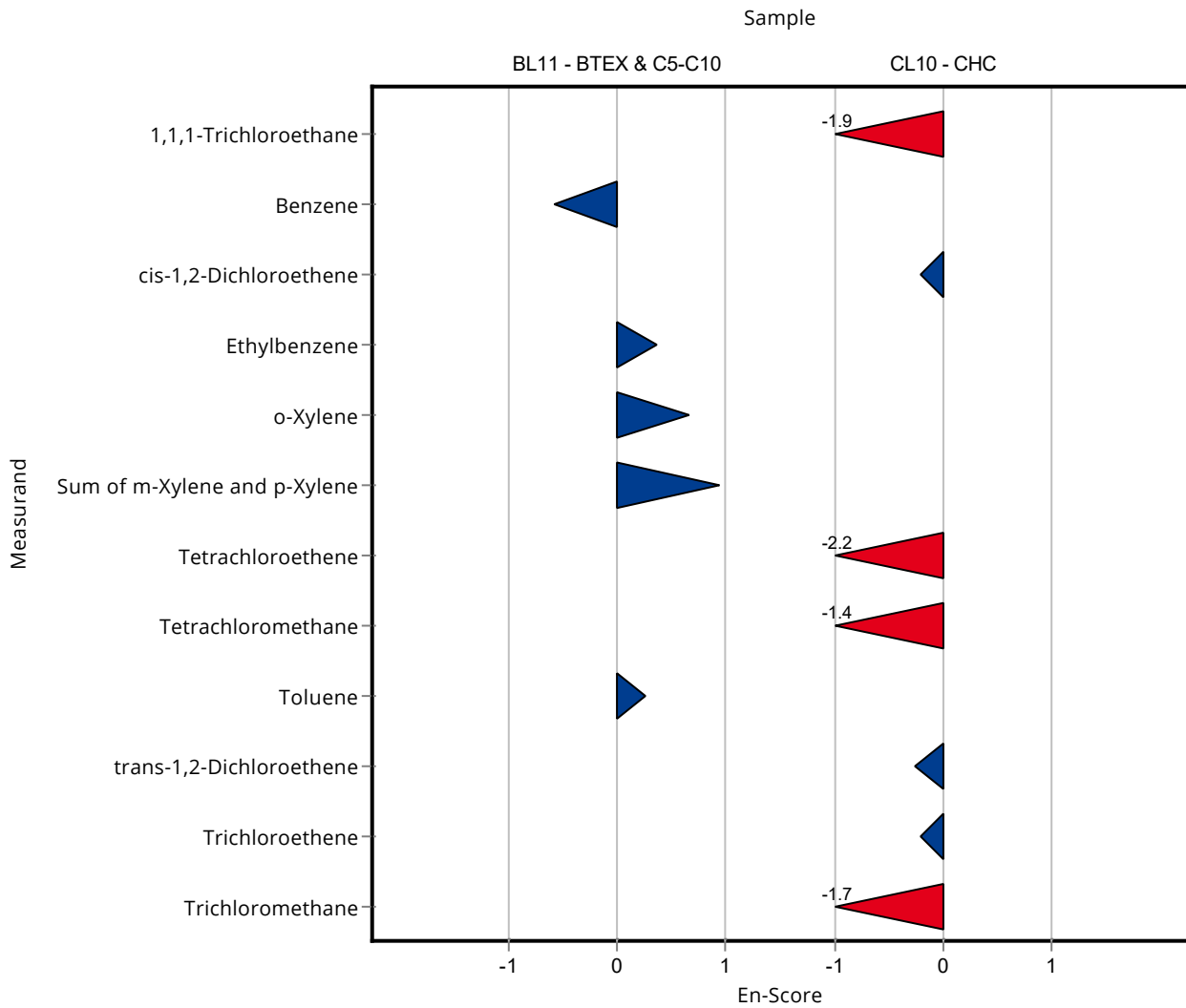
Sample

| BL11 - BTEX & C5-C10 | CL10 - CHC |

Sample: BL11

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
Benzene	µg/tube	5.32 ±	0.4	5.49 ±	0.412	0.799	103	0.21
Ethylbenzene	µg/tube	5.33 ±	0.579	5.26 ±	0.395	1.17	98.7	-0.06
n-Decane	µg/tube	- ±	-	- ±	-	-	-	-
n-Heptane	µg/tube	7.58 ±	1.19	- ±	-	1.59	-	-
n-Hexane	µg/tube	6.1 ±	0.928	- ±	-	1.16	-	-
n-Nonane	µg/tube	- ±	-	- ±	-	-	-	-
n-Octane	µg/tube	6.07 ±	0.74	- ±	-	0.91	-	-
n-Pentane	µg/tube	6.78 ±	1.52	- ±	-	1.9	-	-
o-Xylene	µg/tube	4.72 ±	0.398	4.8 ±	0.36	0.85	102	0.09
Sum of m-Xylene and p-Xylene	µg/tube	9.43 ±	1.28	10.3 ±	0.773	2.45	109	0.36
Toluene	µg/tube	5.41 ±	0.418	5.28 ±	0.396	0.812	97.5	-0.17

Sample: CL10

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
1,1,1-Trichloroethane	µg/tube	4.71 ±	0.281	4.58 ±	0.344	0.753	97.3	-0.17
cis-1,2-Dichloroethene	µg/tube	2.89 ±	0.494	3.43 ±	0.257	1.07	119	0.51
Tetrachloroethene	µg/tube	3.93 ±	0.234	4 ±	0.3	0.826	102	0.08
Tetrachloromethane	µg/tube	5.53 ±	0.505	5.35 ±	0.401	0.995	96.8	-0.18
trans-1,2-Dichloroethene	µg/tube	2.96 ±	0.684	3.53 ±	0.265	1.27	119	0.45
Trichloroethene	µg/tube	3.63 ±	0.424	4.22 ±	0.316	0.907	116	0.65
Trichloromethane	µg/tube	4.14 ±	0.317	4.28 ±	0.321	0.662	103	0.21
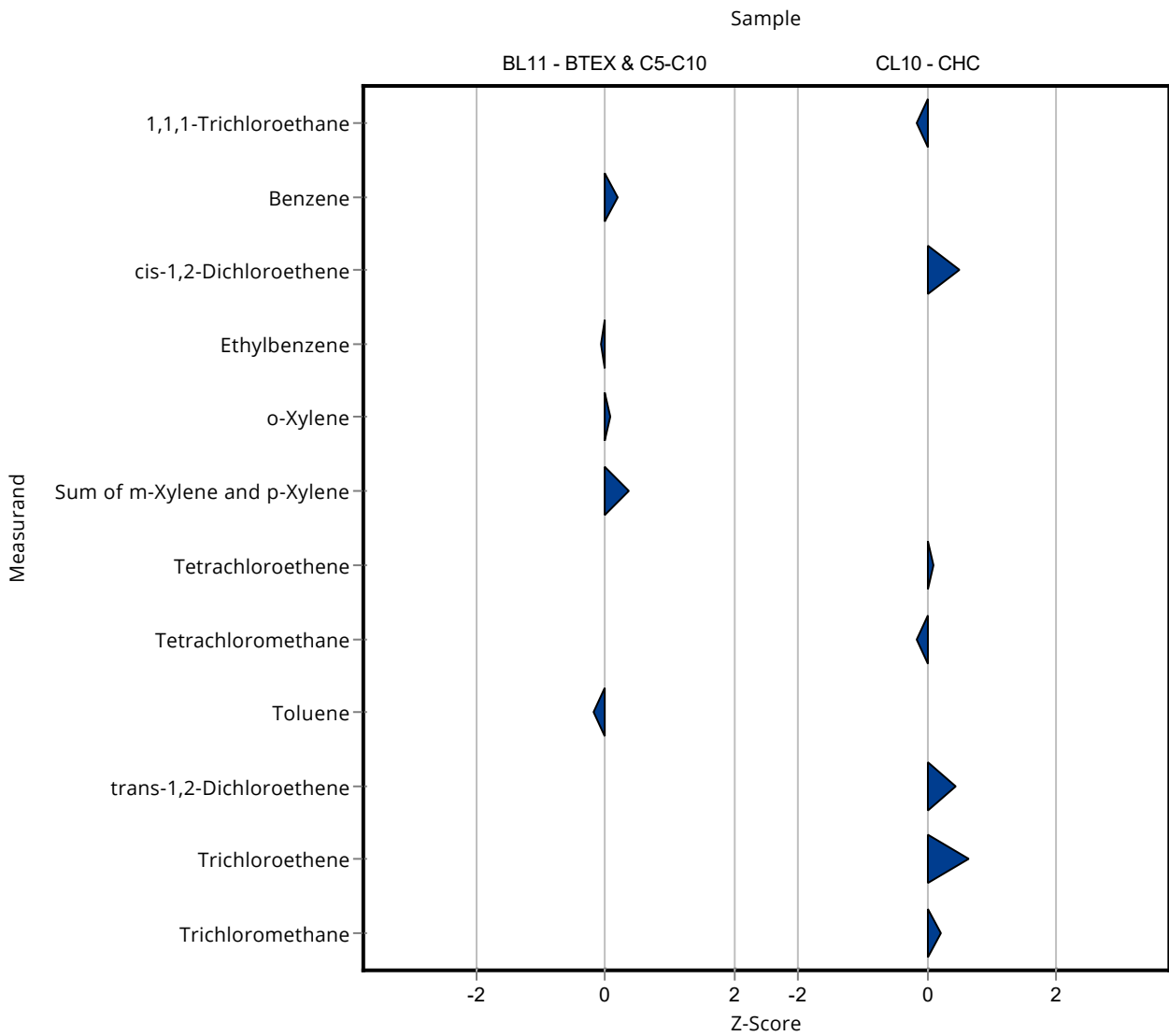
Sample

Sample: BL11

Parameter	Unit	Assigned value	± U (k=2)	Result	± U	Criterion	Recovery [%]	En-Score
Benzene	µg/tube	5.32	± 0.4	5.49	± 0.412	0.799	103	0.18
Ethylbenzene	µg/tube	5.33	± 0.579	5.26	± 0.395	1.17	98.7	-0.07
n-Decane	µg/tube	-	± -	-	± -	-	-	-
n-Heptane	µg/tube	7.58	± 1.19	-	± -	1.59	-	-
n-Hexane	µg/tube	6.1	± 0.928	-	± -	1.16	-	-
n-Nonane	µg/tube	-	± -	-	± -	-	-	-
n-Octane	µg/tube	6.07	± 0.74	-	± -	0.91	-	-
n-Pentane	µg/tube	6.78	± 1.52	-	± -	1.9	-	-
o-Xylene	µg/tube	4.72	± 0.398	4.8	± 0.36	0.85	102	0.09
Sum of m-Xylene and p-Xylene	µg/tube	9.43	± 1.28	10.3	± 0.773	2.45	109	0.43
Toluene	µg/tube	5.41	± 0.418	5.28	± 0.396	0.812	97.5	-0.15

Sample: CL10

Parameter	Unit	Assigned value	± U (k=2)	Result	± U	Criterion	Recovery [%]	En-Score
1,1,1-Trichloroethane	µg/tube	4.71	± 0.281	4.58	± 0.344	0.753	97.3	-0.17
cis-1,2-Dichloroethene	µg/tube	2.89	± 0.494	3.43	± 0.257	1.07	119	0.76
Tetrachloroethene	µg/tube	3.93	± 0.234	4	± 0.3	0.826	102	0.10
Tetrachloromethane	µg/tube	5.53	± 0.505	5.35	± 0.401	0.995	96.8	-0.19
trans-1,2-Dichloroethene	µg/tube	2.96	± 0.684	3.53	± 0.265	1.27	119	0.66
Trichloroethene	µg/tube	3.63	± 0.424	4.22	± 0.316	0.907	116	0.78
Trichloromethane	µg/tube	4.14	± 0.317	4.28	± 0.321	0.662	103	0.20
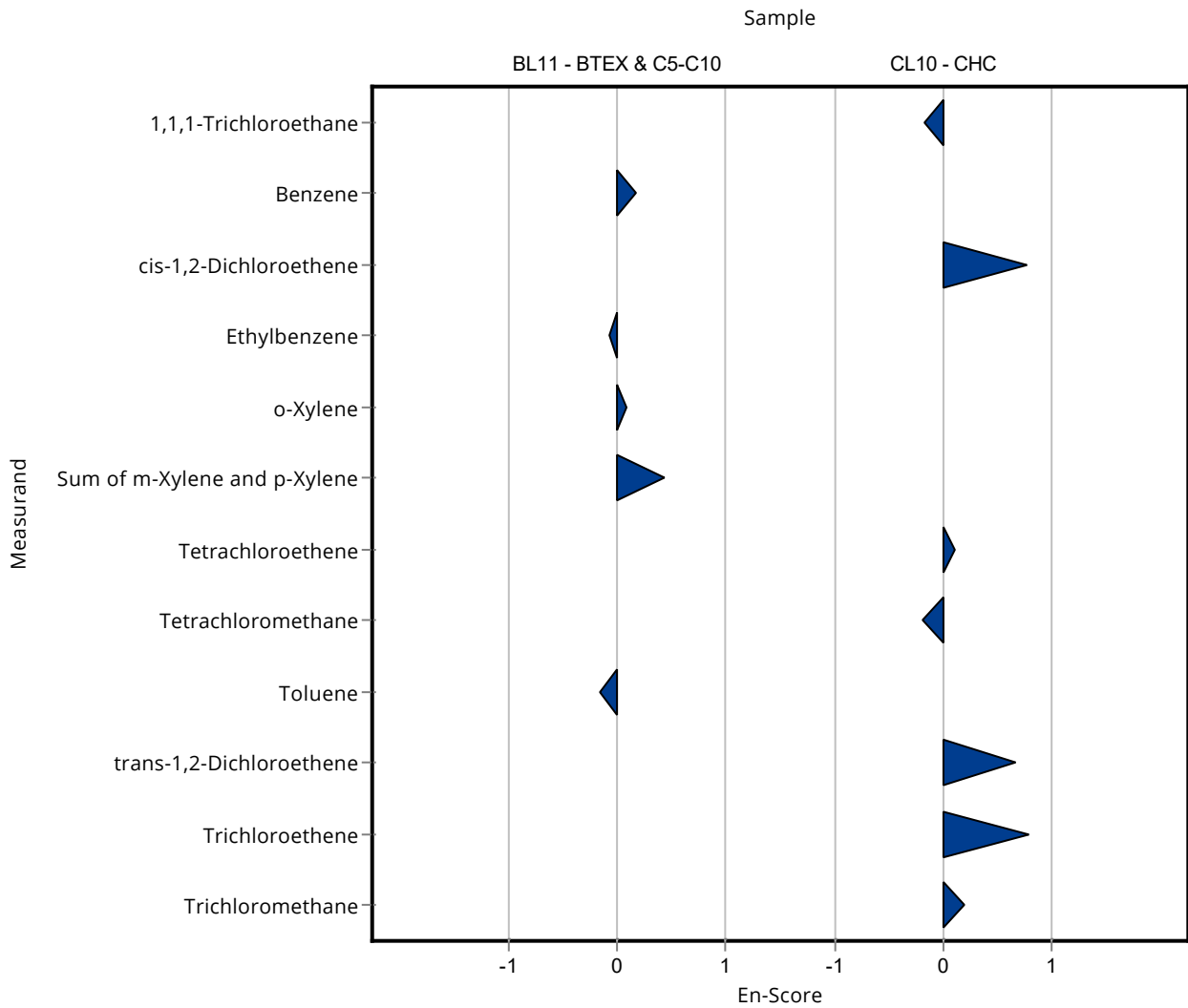
Sample: BL11

Parameter	Unit	Assigned value	±	U (k=2)	Result	±	U	Criterion	Recovery [%]	z-Score
Benzene	µg/tube	5.32	±	0.4	5.15	±	0.46	0.799	96.7	-0.22
Ethylbenzene	µg/tube	5.33	±	0.579	-	±	-	1.17	-	-
n-Decane	µg/tube	-	±	-	-	±	-	-	-	-
n-Heptane	µg/tube	7.58	±	1.19	-	±	-	1.59	-	-
n-Hexane	µg/tube	6.1	±	0.928	-	±	-	1.16	-	-
n-Nonane	µg/tube	-	±	-	-	±	-	-	-	-
n-Octane	µg/tube	6.07	±	0.74	-	±	-	0.91	-	-
n-Pentane	µg/tube	6.78	±	1.52	-	±	-	1.9	-	-
o-Xylene	µg/tube	4.72	±	0.398	-	±	-	0.85	-	-
Sum of m-Xylene and p-Xylene	µg/tube	9.43	±	1.28	-	±	-	2.45	-	-
Toluene	µg/tube	5.41	±	0.418	-	±	-	0.812	-	-

Sample

BL11 - BTEX & C5-C10

Sample: BL11

Parameter	Unit	Assigned value	± U (k=2)	Result ± U		Criterion	Recovery [%]	En-Score
Benzene	µg/tube	5.32	± 0.4	5.15	± 0.46	0.799	96.7	-0.17
Ethylbenzene	µg/tube	5.33	± 0.579	-	± -	1.17	-	-
n-Decane	µg/tube	-	± -	-	± -	-	-	-
n-Heptane	µg/tube	7.58	± 1.19	-	± -	1.59	-	-
n-Hexane	µg/tube	6.1	± 0.928	-	± -	1.16	-	-
n-Nonane	µg/tube	-	± -	-	± -	-	-	-
n-Octane	µg/tube	6.07	± 0.74	-	± -	0.91	-	-
n-Pentane	µg/tube	6.78	± 1.52	-	± -	1.9	-	-
o-Xylene	µg/tube	4.72	± 0.398	-	± -	0.85	-	-
Sum of m-Xylene and p-Xylene	µg/tube	9.43	± 1.28	-	± -	2.45	-	-
Toluene	µg/tube	5.41	± 0.418	-	± -	0.812	-	-

Sample

BL11 - BTEX & C5-C10

Sample: BL11

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
Benzene	µg/tube	5.32 ± 0.4		5.31 ± 1.59		0.799	99.7	-0.02
Ethylbenzene	µg/tube	5.33 ± 0.579		5.49 ± 1.65		1.17	103	0.14
n-Decane	µg/tube	- ± -		- ± -		-	-	-
n-Heptane	µg/tube	7.58 ± 1.19		- ± -		1.59	-	-
n-Hexane	µg/tube	6.1 ± 0.928		- ± -		1.16	-	-
n-Nonane	µg/tube	- ± -		- ± -		-	-	-
n-Octane	µg/tube	6.07 ± 0.74		- ± -		0.91	-	-
n-Pentane	µg/tube	6.78 ± 1.52		- ± -		1.9	-	-
o-Xylene	µg/tube	4.72 ± 0.398		5.17 ± 1.55		0.85	109	0.53
Sum of m-Xylene and p-Xylene	µg/tube	9.43 ± 1.28		10.65 ± 3.2		2.45	113	0.50
Toluene	µg/tube	5.41 ± 0.418		5.69 ± 1.71		0.812	105	0.34
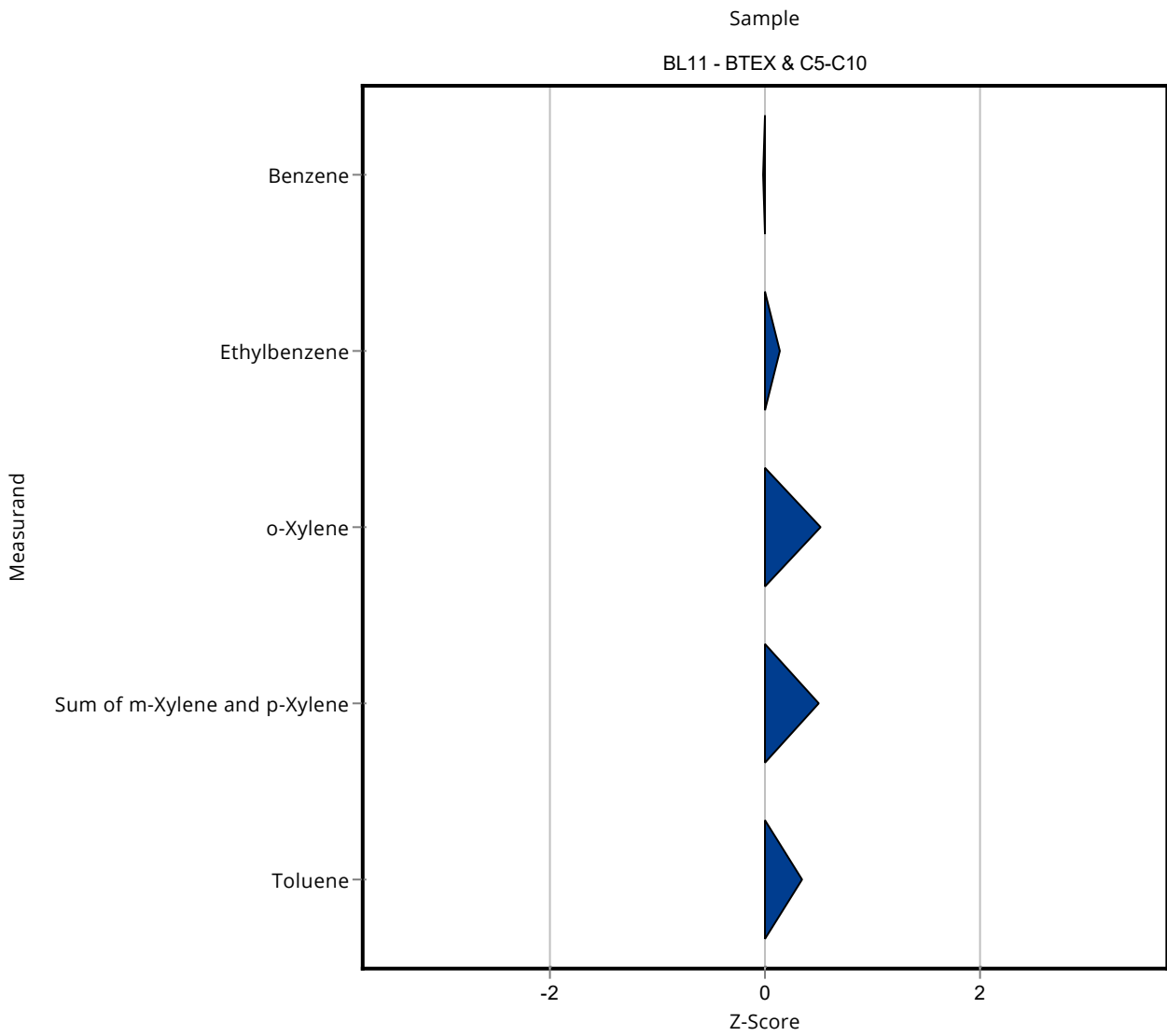
Sample

BL11 - BTEX & C5-C10

Sample: BL11

Parameter	Unit	Assigned value	± U (k=2)	Result ± U		Criterion	Recovery [%]	En-Score
Benzene	µg/tube	5.32 ± 0.4		5.31 ± 1.59		0.799	99.7	0.00
Ethylbenzene	µg/tube	5.33 ± 0.579		5.49 ± 1.65		1.17	103	0.05
n-Decane	µg/tube	- ± -		- ± -		-	-	-
n-Heptane	µg/tube	7.58 ± 1.19		- ± -		1.59	-	-
n-Hexane	µg/tube	6.1 ± 0.928		- ± -		1.16	-	-
n-Nonane	µg/tube	- ± -		- ± -		-	-	-
n-Octane	µg/tube	6.07 ± 0.74		- ± -		0.91	-	-
n-Pentane	µg/tube	6.78 ± 1.52		- ± -		1.9	-	-
o-Xylene	µg/tube	4.72 ± 0.398		5.17 ± 1.55		0.85	109	0.14
Sum of m-Xylene and p-Xylene	µg/tube	9.43 ± 1.28		10.65 ± 3.2		2.45	113	0.19
Toluene	µg/tube	5.41 ± 0.418		5.69 ± 1.71		0.812	105	0.08
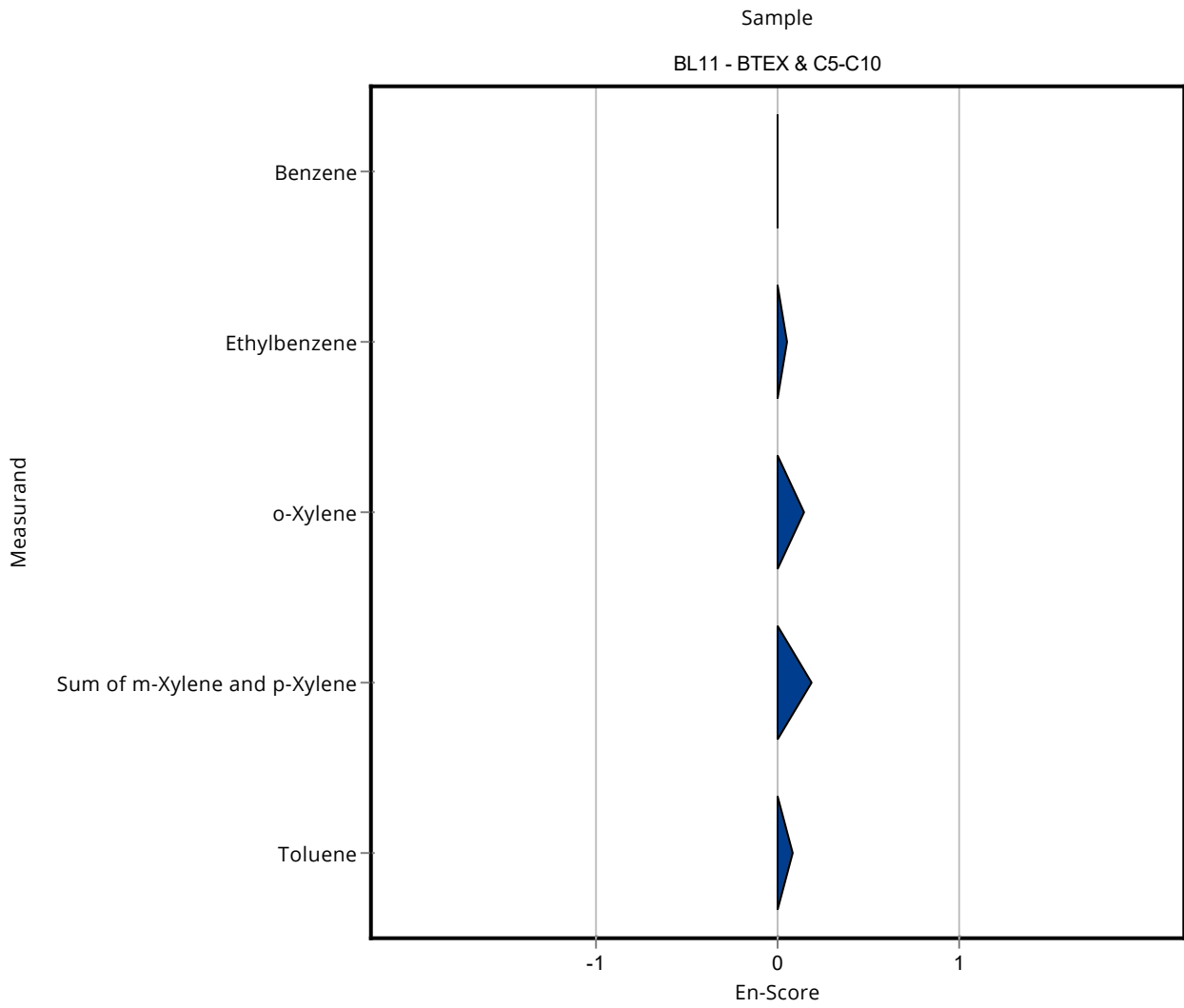
Sample

BL11 - BTEX & C5-C10

Sample: CL10

Parameter	Unit	Assigned value ± U (k=2)		Result ± U		Criterion	Recovery [%]	z-Score
1,1,1-Trichloroethane	µg/tube	4.71 ±	0.281	4.281 ±	0.22	0.753	91	-0.56
cis-1,2-Dichloroethene	µg/tube	2.89 ±	0.494	1.71 ±	0.1	1.07	59.2	-1.10
Tetrachloroethene	µg/tube	3.93 ±	0.234	2.771 ±	0.39	0.826	70.5	-1.41
Tetrachloromethane	µg/tube	5.53 ±	0.505	5.191 ±	0.29	0.995	93.9	-0.34
trans-1,2-Dichloroethene	µg/tube	2.96 ±	0.684	1.06 ±	0.02	1.27	35.8	-1.49
Trichloroethene	µg/tube	3.63 ±	0.424	1.849 ±	0.1	0.907	51	-1.96
Trichloromethane	µg/tube	4.14 ±	0.317	3.455 ±	0.19	0.662	83.5	-1.03
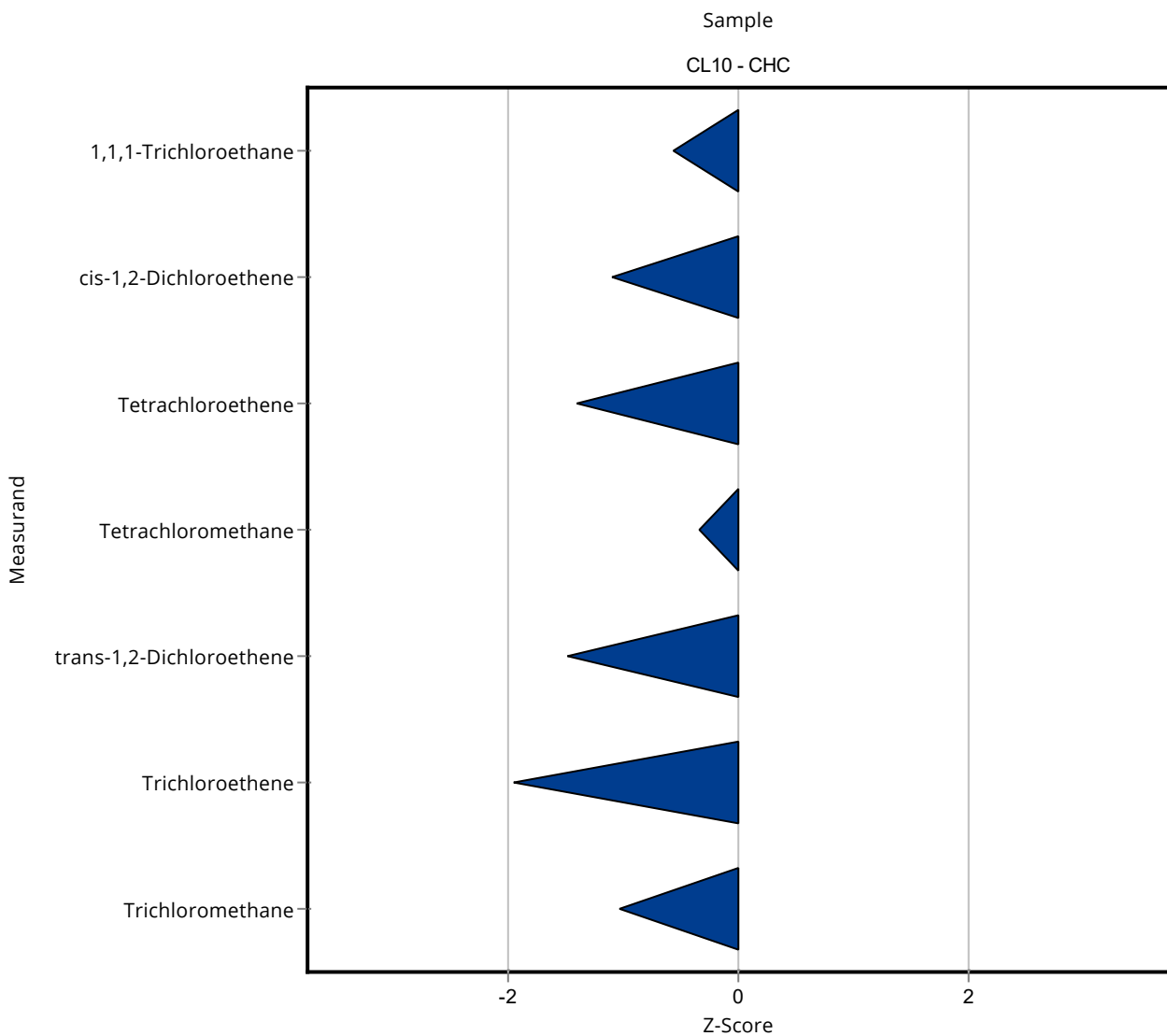
Sample

CL10 - CHC

Sample: CL10

Parameter	Unit	Assigned value	± U (k=2)	Result ± U		Criterion	Recovery [%]	En-Score
1,1,1-Trichloroethane	µg/tube	4.71	± 0.281	4.281	± 0.22	0.753	91	-0.81
cis-1,2-Dichloroethene	µg/tube	2.89	± 0.494	1.71	± 0.1	1.07	59.2	-2.21
Tetrachloroethene	µg/tube	3.93	± 0.234	2.771	± 0.39	0.826	70.5	-1.43
Tetrachloromethane	µg/tube	5.53	± 0.505	5.191	± 0.29	0.995	93.9	-0.44
trans-1,2-Dichloroethene	µg/tube	2.96	± 0.684	1.06	± 0.02	1.27	35.8	-2.77
Trichloroethene	µg/tube	3.63	± 0.424	1.849	± 0.1	0.907	51	-3.79
Trichloromethane	µg/tube	4.14	± 0.317	3.455	± 0.19	0.662	83.5	-1.38

Sample

CL10 - CHC
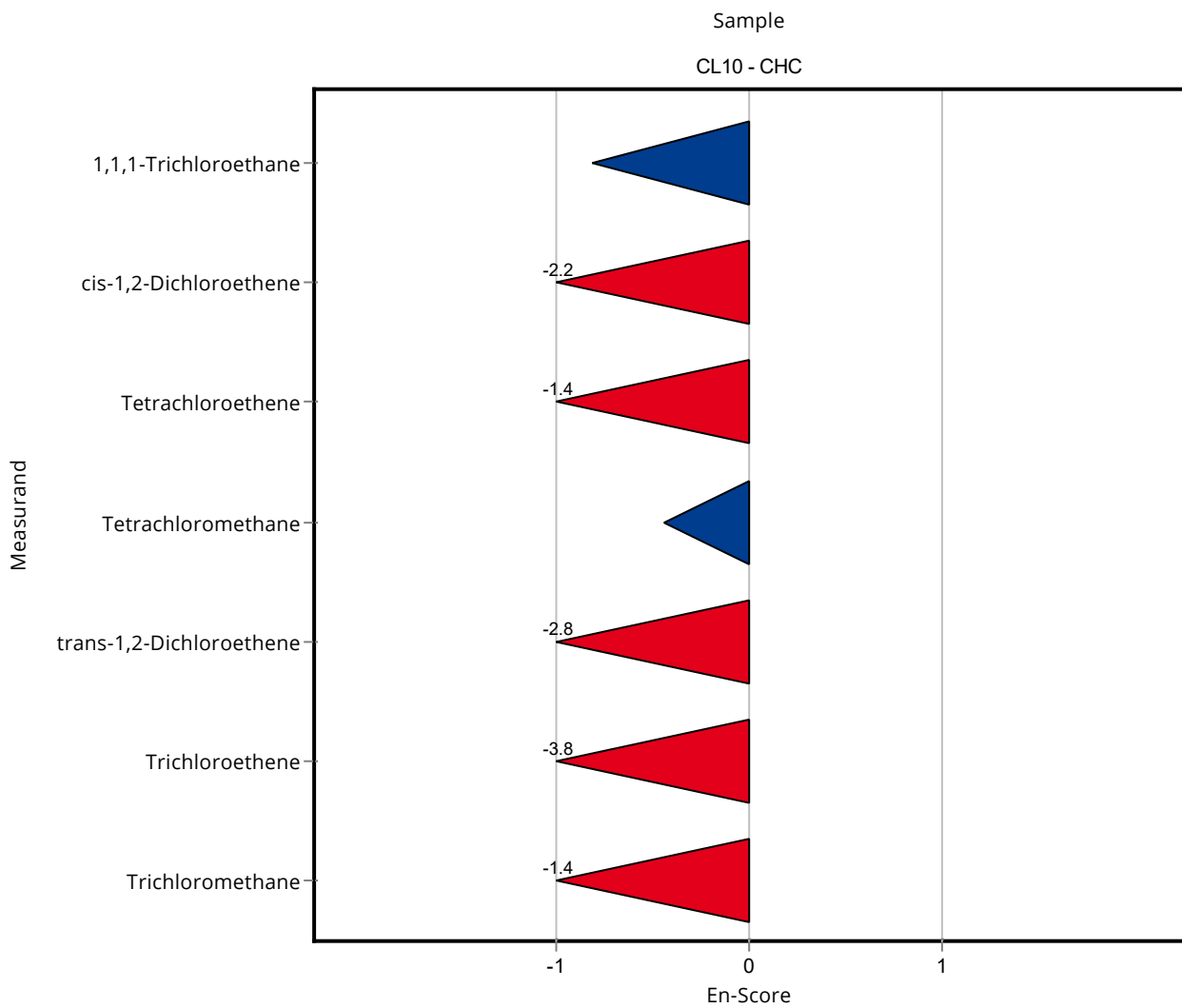
E9. Methodenübersicht / Overview of methods

LabCode	Sample	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Tetrachloroethene	Tetrachloromethane
LC0001	CL10	DIN 38407-43 (HS-GC-MS);	DIN 38407-43 (HS-GC-MS);	DIN 38407-43 (HS-GC-MS);	DIN 38407-43 (HS-GC-MS);
LC0002	CL10	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);
LC0003	CL10	VDI 2100-2 (GC); VarD	VDI 2100-2 (GC); VarD	VDI 2100-2 (GC); VarD	VDI 2100-2 (GC); VarD
LC0004	CL10	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);
LC0005	CL10	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);
LC0006	CL10	VDI 3865-3 (HS-GC-MS);	VDI 3865-3 (HS-GC-MS);	VDI 3865-3 (HS-GC-MS);	VDI 3865-3 (HS-GC-MS);
LC0007	CL10	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);
LC0008	CL10	VDI 3865-3 (GC-MS);	VDI 3865-3 (GC-MS);	VDI 3865-3 (GC-MS);	VDI 3865-3 (GC-MS);
LC0009	CL10	ON M 5700-2 (GC);	ON M 5700-2 (GC);	ON M 5700-2 (GC);	ON M 5700-2 (GC);
LC0012	CL10	HS-GC-MS;	HS-GC-MS;	GC-MS;	GC-MS;
LC0013	CL10	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);
LC0014	CL10	VDI 3865-3 (HS-GC-MS);	VDI 3865-3 (HS-GC-MS);	VDI 3865-3 (HS-GC-MS);	VDI 3865-3 (HS-GC-MS);
LC0015	CL10			EN 14662-2 (GC);	
LC0016	CL10			VDI 2100-2 (HS-GC-MS);	VDI 2100-2 (HS-GC-MS);
LC0017	CL10	VDI 3865-3 (GC-ECD); desorption with benzyl alcohol	VDI 3865-3 (GC-ECD); desorption with benzyl alcohol	VDI 3865-3 (GC-ECD); desorption with benzyl alcohol	VDI 3865-3 (GC-ECD); desorption with benzyl alcohol
LC0020	CL10	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);
LC0021	CL10	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);
LC0022	CL10	VDI 3865-3 (GC-MS);	VDI 3865-3 (GC-MS);	VDI 3865-3 (GC-MS);	VDI 3865-3 (GC-MS);
LC0025	CL10	VDI 3865-3 (GC-ECD/FID);	VDI 3865-3 (GC-ECD/FID);	VDI 3865-3 (GC-ECD/FID);	VDI 3865-3 (GC-ECD/FID);

LabCode	Sample	1,1,1-Trichloroethane	Trichloroethene	Trichloromethane
LC0001	CL10	DIN 38407-43 (HS-GC-MS);	DIN 38407-43 (HS-GC-MS);	DIN 38407-43 (HS-GC-MS);
LC0002	CL10	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);
LC0003	CL10	VDI 2100-2 (GC); VarD	VDI 2100-2 (GC); VarD	VDI 2100-2 (GC); VarD
LC0004	CL10	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);
LC0005	CL10	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);
LC0006	CL10	VDI 3865-3 (HS-GC-MS);	VDI 3865-3 (HS-GC-MS);	VDI 3865-3 (HS-GC-MS);
LC0007	CL10	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);
LC0008	CL10	VDI 3865-3 (GC-MS);	VDI 3865-3 (GC-MS);	VDI 3865-3 (GC-MS);
LC0009	CL10	ON M 5700-2 (GC);	ON M 5700-2 (GC);	ON M 5700-2 (GC);
LC0012	CL10	GC-MS;	GC-MS;	GC-MS;
LC0013	CL10	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);
LC0014	CL10	VDI 3865-3 (HS-GC-MS);	VDI 3865-3 (HS-GC-MS);	VDI 3865-3 (HS-GC-MS);
LC0015	CL10	EN 14662-2 (GC);	EN 14662-2 (GC);	
LC0016	CL10	VDI 2100-2 (HS-GC-MS);	VDI 2100-2 (HS-GC-MS);	VDI 2100-2 (HS-GC-MS);
LC0017	CL10	VDI 3865-3 (GC-ECD); desorption with benzyl alcohol	VDI 3865-3 (GC-ECD); desorption with benzyl alcohol	VDI 3865-3 (GC-ECD); desorption with benzyl alcohol
LC0020	CL10	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);
LC0021	CL10	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);
LC0022	CL10	VDI 3865-3 (GC-MS);	VDI 3865-3 (GC-MS);	VDI 3865-3 (GC-MS);
LC0025	CL10	VDI 3865-3 (GC-ECD/FID);	VDI 3865-3 (GC-ECD/FID);	VDI 3865-3 (GC-ECD/FID);

LabCode	Sample	Benzene	Toluene	Ethylbenzene	o-Xylene	Sum of m-Xylene and p-Xylene
LC0001	BL11	DIN 38407-43 (HS-GC-MS);	DIN 38407-43 (HS-GC-MS);	DIN 38407-43 (HS-GC-MS);	DIN 38407-43 (HS-GC-MS);	DIN 38407-43 (HS-GC-MS);
LC0003	BL11	VDI 2100-2 (GC); VarD	VDI 2100-2 (GC); VarD	VDI 2100-2 (GC); VarD	VDI 2100-2 (GC); VarD	VDI 2100-2 (GC); VarD
LC0004	BL11	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);
LC0005	BL11	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);
LC0006	BL11	VDI 3865-3 (HS-GC-MS);	VDI 3865-3 (HS-GC-MS);	VDI 3865-3 (HS-GC-MS);	VDI 3865-3 (HS-GC-MS);	VDI 3865-3 (HS-GC-MS);
LC0007	BL11	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);
LC0008	BL11	VDI 3865-3 (GC-MS);	VDI 3865-3 (GC-MS);	VDI 3865-3 (GC-MS);	VDI 3865-3 (GC-MS);	VDI 3865-3 (GC-MS);
LC0009	BL11	ON M 5700-2 (GC);	ON M 5700-2 (GC);	ON M 5700-2 (GC);	ON M 5700-2 (GC);	ON M 5700-2 (GC);
LC0010	BL11	EN 14662-2 (GC);				
LC0011	BL11	EN 14662-2 (GC);	EN 14662-2 (GC);	EN 14662-2 (GC);	EN 14662-2 (GC);	EN 14662-2 (GC);
LC0012	BL11	GC-MS;	GC-MS;	GC-MS;	GC-MS;	GC-MS;
LC0014	BL11	VDI 3865-3 (HS-GC-MS);	VDI 3865-3 (HS-GC-MS);	VDI 3865-3 (HS-GC-MS);	VDI 3865-3 (HS-GC-MS);	VDI 3865-3 (HS-GC-MS);
LC0015	BL11	EN 14662-2 (GC);	EN 14662-2 (GC);	EN 14662-2 (GC);	EN 14662-2 (GC);	EN 14662-2 (GC);
LC0016	BL11	VDI 2100-2 (HS-GC-MS);	VDI 2100-2 (HS-GC-MS);	VDI 2100-2 (HS-GC-MS);	VDI 2100-2 (HS-GC-MS);	VDI 2100-2 (HS-GC-MS);
LC0018	BL11	EN 14662-5 (GC-MS);	EN 14662-5 (GC-MS);	EN 14662-5 (GC-MS);	EN 14662-5 (GC-MS);	EN 14662-5 (GC-MS);
LC0019	BL11	EN 14662-2 (GC-FID);	EN 14662-2 (GC-FID);	EN 14662-2 (GC-FID);	EN 14662-2 (GC-FID);	EN 14662-2 (GC-FID);
LC0020	BL11	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);
LC0021	BL11	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);
LC0022	BL11	VDI 3865-3 (GC-MS);	VDI 3865-3 (GC-MS);	VDI 3865-3 (GC-MS);	VDI 3865-3 (GC-MS);	VDI 3865-3 (GC-MS);
LC0023	BL11	EN 14662-2 (GC);				
LC0024	BL11	EN 14662-5 (GC); (own prodedure based on standard)	EN 14662-5 (GC); (own prodedure based on standard)	EN 14662-5 (GC); (own prodedure based on standard)	EN 14662-5 (GC); (own prodedure based on standard)	EN 14662-5 (GC); (own prodedure based on standard)

LabCode	Sample	n-Decane	n-Heptane	n-Hexane	n-Nonane	n-Octane	n-Pentane
LC0001	BL11						
LC0003	BL11						
LC0004	BL11	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);
LC0005	BL11	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);
LC0006	BL11	VDI 3865-3 (HS-GC-MS);	VDI 3865-3 (HS-GC-MS);	VDI 3865-3 (HS-GC-MS);	VDI 3865-3 (HS-GC-MS);	VDI 3865-3 (HS-GC-MS);	VDI 3865-3 (HS-GC-MS);
LC0007	BL11						
LC0008	BL11	VDI 3865-3 (GC-MS);	VDI 3865-3 (GC-MS);	VDI 3865-3 (GC-MS);	VDI 3865-3 (GC-MS);	VDI 3865-3 (GC-MS);	VDI 3865-3 (GC-MS);
LC0009	BL11						
LC0010	BL11						
LC0011	BL11						
LC0012	BL11						
LC0014	BL11	VDI 3865-3 (HS-GC-MS);	VDI 3865-3 (HS-GC-MS);	VDI 3865-3 (HS-GC-MS);	VDI 3865-3 (HS-GC-MS);	VDI 3865-3 (HS-GC-MS);	VDI 3865-3 (HS-GC-MS);
LC0015	BL11	EN 14662-2 (GC);	EN 14662-2 (GC);	EN 14662-2 (GC);	EN 14662-2 (GC);	EN 14662-2 (GC);	
LC0016	BL11						
LC0018	BL11						
LC0019	BL11						
LC0020	BL11	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);	VDI 3865-3 (GC);
LC0021	BL11						
LC0022	BL11						
LC0023	BL11						
LC0024	BL11						