

Proficiency testing for in-house and external measuring stations - results and evaluation

Proficiency testing scheme

Volatile organic compounds (VOC) with thermal desorption

September 2020

Summary of laboratory means

Sample 1

Laboratory	1- Butanol	Z score	1-Methoxy-2-propanole	Z score	4-Methyl-2-pentanone	Z score	Benzene	Z score	Ethylbenzen	Z score
Unit	µg/m³		µg/m³		µg/m³		µg/m³		µg/m³	
2	88.23	-0.14	137.85	-0.02	21.59	-0.11	27.98	-0.32	39.70	-0.13
11	9.50	-5.96 BE	32.30	-5.11 FE	9.10	-3.90 BE	10.40	-4.31 FE	21.95	-3.05 BE
21	89.50	-0.04	137.50	-0.03	22.50	0.17	28.50	-0.20	40.50	0.01
24	116.48	1.95	177.24	1.88	29.14	2.18 E	46.77	3.95 FE	50.90	1.72
30	64.20	-1.91	178.85	1.96	24.10	0.65	38.05	1.97	40.25	-0.04
33	70.45	-1.45	76.05	-3.00 E	27.45	1.67	26.25	-0.71	59.75	3.18 BE
52	108.50	1.36	142.50	0.21	18.05	-1.18	22.80	-1.49	36.90	-0.59
55	89.00	-0.08	147.50	0.45	22.00	0.02	26.00	-0.77	39.50	-0.16
60							31.50	0.48	38.05	-0.40
63	65.00	-1.86	97.70	-1.95	15.40	-1.99	19.05	-2.34 E	30.35	-1.67
68	99.10	0.67	176.25	1.83	24.95	0.91	24.00	-1.22	46.10	0.93
95			141.20	0.14 C	20.61	-0.41 C	22.51	-1.56	37.72	-0.45 C
114	59.69	-2.25 CE	15.80	-5.90 FE	24.63	0.82	39.56	2.31 E	47.22	1.11
117	111.50	1.59	166.50	1.36	26.50	1.38	33.50	0.94	47.50	1.16
127	73.63	-1.22	110.73	-1.33	17.89	-1.23	55.70	5.97 FE	39.29	-0.19
135	97.75	0.57	162.50	1.17	23.70	0.53	26.85	-0.57	44.95	0.74
145	74.80	-1.13 C			24.95	0.91 C	29.95	0.13	44.80	0.71
148	85.35	-0.35	150.00	0.57	19.75	-0.67	25.30	-0.92	41.05	0.10
158	88.33	-0.13	144.13	0.29	20.66	-0.39	24.95	-1.00	39.48	-0.16
169	84.15	-0.44	144.45	0.30	21.60	-0.11	25.05	-0.98	33.90	-1.08
173	85.05	-0.37	130.70	-0.36	22.00	0.02	30.90	0.35	40.30	-0.03
186	70.20	-1.47	118.25	-0.96	21.75	-0.06	39.25	2.24 E	38.50	-0.32
192	80.30	-0.72	133.47	-0.23	20.56	-0.42	27.17	-0.50	39.98	-0.08
193	90.56	0.04	151.78	0.65	25.89	1.20	22.13	-1.65	46.20	0.94
194			42.50	-4.62 FE	12.00	-3.02 E			33.00	-1.23
196	79.48	-0.78	122.24	-0.77	24.59	0.80	28.64	-0.17	38.24	-0.37

Laboratory	1- Butanol	Z score	1-Methoxy-2-propanole	Z score	4-Methyl-2-pentanone	Z score	Benzene	Z score	Ethylbenzen	Z score
198							14.50	-3.37 E		
199	83.35	-0.50	159.70	1.04	23.80	0.56	35.85	1.47	39.80	-0.11
207	88.00	-0.15	140.00	0.09	22.50	0.17	31.50	0.48	39.00	-0.24
208	91.00	0.07	150.00	0.57	21.00	-0.29	26.50	-0.65	38.50	-0.32
213	101.50	0.85	154.50	0.79	27.50	1.69	36.00	1.50	45.50	0.83
215	100.00	0.74	132.00	-0.30	20.50	-0.44	30.00	0.14	38.50	-0.32
218	63.20	-1.99	66.75	-3.45 E	15.55	-1.94	19.75	-2.18 E	30.45	-1.65
230	122.50	2.40 E	151.00	0.62	24.00	0.62	32.00	0.60	45.50	0.83
241	103.00	0.96	150.50	0.59	21.50	-0.14	26.50	-0.65	40.00	-0.08
243							< 253.00		< 253.00	
256	101.05	0.81	131.20	-0.34	22.75	0.24	26.40	-0.68	46.40	0.98
258	121.54	2.33 E	189.40	2.47 E	26.09	1.26	43.91	3.30 E	101.08	9.99 CE
261	94.05	0.29	147.00	0.42	22.50	0.17	25.70	-0.83	41.60	0.19
265	85.00	-0.38	131.00	-0.35	19.00	-0.90	25.00	-0.99	39.00	-0.24
267							44.00	3.32 E	66.50	4.29 BE
283	91.98	0.14	127.17	-0.53	22.71	0.23	27.87	-0.34	37.37	-0.51
290	12.50	-5.74 BE	78.80	-2.87 E	16.60	-1.62	13.55	-3.59 FE	43.90	0.57
503							38.75	2.13 E	45.65	0.85
510	113.05	1.70 C			21.55	-0.12	39.30	2.25 E	34.30	-1.02
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Method	ISO 5725-2		ISO 5725-2		ISO 5725-2		ISO 5725-2		ISO 5725-2	
Assessment	Z <=2.00		Z <=2.00		Z <=2.00		Z <=2.00		Z <=2.00	
No. of laboratories that submitted results	38		38		40		44		44	
Mean	90.07		138.22		21.95		29.37		40.46	
Reproducibility s.d.	15.51		28.38		3.58		7.08		4.71	
Rel. reproducibility s.d.	17.22 %		20.53 %		16.30 %		24.09 %		11.64 %	
Reference value	89.30		141.10		25.20		31.90		38.20	
Target s.d.	13.51		20.73		3.29		4.41		6.07	
Rel. target s.d.	15.00 %		15.00 %		15.00 %		15.00 %		15.00 %	
Lower limit of tolerance	63.05		96.75		15.36		20.56		28.33	

Laboratory	1- Butanol	Z score	1-Methoxy-2-propanole	Z score	4-Methyl-2-pentanone	Z score	Benzene	Z score	Ethylbenzen	Z score
Upper limit of tolerance	117.09		179.68		28.53		38.19		52.60	
Type B outliers	2				1				3	
Type C outliers	3		1		2				2	
Type F outliers			3				4			
No. of laboratories after elimination of outliers type A-D and F (without laboratories that only gave states but no measured values)	33		34		37		39		38	

Explanation of outlier types

A: Single outlier Grubbs

B: Differing laboratory mean Grubbs

C: Excessive laboratory s.d. Cochran

D: Excluded manually

E: mean outside tolerance limits

F: |Z-Score|>3.5

Laboratory	n-Butyl acetate	Z score	n-Heptane	Z score	p-Xylene	Z score	Toluene	Z score
Unit	µg/m ³		µg/m ³		µg/m ³		µg/m ³	
2	81.28	0.15	48.80	-0.32	54.78	-0.02	70.00	0.15
11	22.80	-4.75 FE	37.75	-1.75	36.65	-2.22 E	29.15	-3.83 FE
21	83.00	0.30	54.50	0.42	50.00	-0.60	68.00	-0.05
24	95.79	1.37	70.27	2.48 E	65.44	1.27	78.91	1.02
30	82.00	0.21	57.10	0.76	56.00	0.13	76.85	0.82
33	99.45	1.67	53.35	0.28	78.00	2.80 E	57.65	-1.05
52	78.70	-0.07	40.85	-1.35	47.75	-0.87	62.00	-0.63
55	83.00	0.30	49.50	-0.23	56.00	0.13	68.00	-0.05
60	68.40	-0.93	50.65	-0.08	51.40	-0.43	67.90	-0.06
63	56.75	-1.91	38.25	-1.69	38.55	-1.99	48.45	-1.95
68	89.25	0.82	53.40	0.28	69.35	1.75	75.10	0.65

Laboratory	n-Butyl acetate	Z score	n-Heptane	Z score	p-Xylene	Z score	Toluene	Z score
95	70.64	-0.74 C	40.38	-1.41	49.39	-0.67 C	61.94	-0.64
114	29.19	-4.22 FE	68.39	2.23 E	75.14	2.45 E	101.59	3.22 E
117	97.00	1.47	61.00	1.27	66.50	1.40	78.00	0.93
127	85.25	0.48	365.50	40.89 BE	57.26	0.28	111.06	4.15 FE
135	94.95	1.30	49.55	-0.22	61.15	0.75	71.15	0.26
145					62.15	0.88	74.70	0.61
148	82.10	0.22	45.15	-0.79	55.80	0.10	69.85	0.13
158	80.64	0.10	47.65	-0.47	54.54	-0.05	67.25	-0.12
169	77.30	-0.18	45.05	-0.80	45.50	-1.15	61.15	-0.71
173	81.80	0.19	61.20	1.30	52.60	-0.28	68.05	-0.04
186	49.15	-2.54 E	57.10	0.76	45.90	-1.10	73.00	0.44
192	73.88	-0.47	56.45	0.68	55.45	0.06	68.49	0.00
193	87.72	0.69	48.34	-0.38	64.05	1.11		
194	38.00	-3.48 E	37.00	-1.85	45.00	-1.21	58.00	-1.02
196	83.42	0.33	47.95	-0.43	48.68	-0.76	59.84	-0.84
198					37.21	-2.15 E	44.49	-2.33 E
199	78.35	-0.09	52.35	0.15	56.10	0.14	72.55	0.40
207	81.50	0.17	48.50	-0.36	51.50	-0.42	66.50	-0.19
208	78.50	-0.08	45.50	-0.75	48.50	-0.78	63.50	-0.48
213	97.50	1.51	80.00	3.74 FE	62.50	0.92	79.00	1.03
215	75.50	-0.33	50.50	-0.10	52.00	-0.36	66.50	-0.19
218	53.45	-2.18 E	47.95	-0.43	41.10	-1.68	47.65	-2.03 E
230	94.00	1.22	79.00	3.61 E	66.50	1.40	85.00	1.61
241	84.00	0.38	52.00	0.10	55.50	0.07	73.00	0.44
243	143.50	5.37 CE			< 253.00		< 253.00	
256	90.20	0.90	53.35	0.28	57.55	0.32	67.25	-0.12
258	95.01	1.30	72.07	2.71 E	117.52	7.59 BE	79.90	1.11
261	85.15	0.48	47.85	-0.44	55.85	0.11	66.70	-0.17
265	75.00	-0.38	44.00	-0.94	49.00	-0.72	61.00	-0.73
267	213.50	11.24 CE	94.00	5.56 BE	90.50	4.32 BE	113.50	4.39 FE
283	74.68	-0.40	47.23	-0.52	52.36	-0.31	63.01	-0.53
290	55.60	-2.00 E	44.55	-0.87	59.90	0.60	73.15	0.46

Laboratory	n-Butyl acetate	Z score	n-Heptane	Z score	p-Xylene	Z score	Toluene	Z score
503	63.95	-1.30 C	48.30	-0.38	61.65	0.81	81.30	1.25
510					53.90	-0.13	63.75	-0.46
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Method	ISO 5725-2		ISO 5725-2		ISO 5725-2		ISO 5725-2	
Assessment	Z <=2.00		Z <=2.00		Z <=2.00		Z <=2.00	
No. of laboratories that submitted results	42		41		45		44	
Mean	79.48		51.23		54.94		68.47	
Reproducibility s.d.	14.32		9.42		9.39		10.70	
Rel. reproducibility s.d.	18.02 %		18.38 %		17.10 %		15.63 %	
Reference value	73.60		49.10		52.60		65.60	
Target s.d.	11.92		7.69		8.24		10.27	
Rel. target s.d.	15.00 %		15.00 %		15.00 %		15.00 %	
Lower limit of tolerance	55.64		35.86		38.46		47.93	
Upper limit of tolerance	103.33		66.60		71.42		89.01	
Type B outliers			2		2			
Type C outliers	4				1			
Type F outliers	2		1				3	
No. of laboratories after elimination of outliers type A-D and F (without laboratories that only gave states but no measured values)	36		38		41		40	

Summary of laboratory means

Sample 2

Laboratory	1- Butanol	Z score	1-Methoxy-2-propanole	Z score	4-Methyl-2-pentanone	Z score	Benzene	Z score	Ethylbenzen	Z score
Unit	µg/m ³		µg/m ³		µg/m ³		µg/m ³		µg/m ³	
2	41.73	-0.45	52.14	0.03	55.71	-0.14	75.57	-0.66	103.09	0.26
11	1.55	-6.44 BE	18.30	-4.32 CE	43.00	-1.63	90.85	0.55 C	89.70	-0.64
21	42.00	-0.40	53.50	0.20	60.00	0.36	77.00	-0.55	94.50	-0.32
24	57.86	1.96	67.09	1.95	71.50	1.70	117.91	2.70 E	120.72	1.44
30	219.35	26.04 CE	66.70	1.90 C	64.45	0.88	115.45	2.50 E	102.55	0.22
33	21.85	-3.41 E	24.80	-3.48 E	62.95	0.70	69.30	-1.16	131.50	2.17 E
52	50.30	0.83	49.05	-0.37	46.30	-1.25	70.90	-1.03	90.45	-0.59
55	44.50	-0.03	56.50	0.59	56.00	-0.11	75.00	-0.71	98.00	-0.08
60							86.05	0.17	101.40	0.14
63	31.85	-1.92	38.30	-1.75	41.40	-1.82	57.25	-2.12 E	79.45	-1.33
68	46.05	0.20	66.95	1.93	62.90	0.70	80.40	-0.28	107.70	0.57
95			51.25	-0.09	47.85	-1.06	66.44	-1.39	84.03	-1.02
114	66.05	3.18 E	16.13	-4.60 CE	81.58	2.88 E	98.84	1.18	119.20	1.34
117	54.50	1.46	65.00	1.68	72.50	1.82	104.00	1.59	122.50	1.56
127	35.68	-1.35	43.64	-1.06	54.34	-0.30	157.50	5.84 BE	100.63	0.09
135	48.20	0.52	65.35	1.72	63.80	0.80	79.70	-0.34	108.00	0.59
145	42.60	-0.31			70.20	1.55	95.05	0.88	132.95	2.26 CE
148	43.10	-0.24	58.65	0.86	53.15	-0.44	76.70	-0.57	103.00	0.25
158	44.92	0.03	57.27	0.69	56.90	0.00	77.51	-0.51	101.54	0.15
169	46.95	0.33	58.00	0.78	60.80	0.45	87.10	0.25	100.80	0.10
173	41.70	-0.45	45.70	-0.80	55.65	-0.15	81.50	-0.19	101.30	0.14
186	31.15	-2.02 E	40.80	-1.43	55.95	-0.12	100.25	1.30	98.35	-0.06
192	39.04	-0.85	48.22	-0.48	56.11	-0.10	81.48	-0.19	102.10	0.19
193	53.59	1.32	63.01	1.42	63.50	0.77	67.87	-1.28	102.81	0.24
194			16.00	-4.61 BE	33.00	-2.80 E			84.00	-1.02
196	44.48	-0.04	52.88	0.12	59.28	0.27	70.89	-1.04	94.26	-0.34

Laboratory	1- Butanol	Z score	1-Methoxy-2-propanole	Z score	4-Methyl-2-pentanone	Z score	Benzene	Z score	Ethylbenzen	Z score
198							44.19	-3.16 E		
199	40.50	-0.63	61.85	1.27	65.50	1.00	107.65	1.88	100.40	0.08
207	43.00	-0.26	52.50	0.07	61.50	0.53	95.50	0.92	103.50	0.29
208	43.50	-0.18	55.00	0.40	55.50	-0.17	77.50	-0.51	97.00	-0.15
213	53.00	1.24	63.00	1.42	66.00	1.06	109.00	1.99	107.00	0.52
215	51.50	1.01	57.50	0.72	56.50	-0.05	92.50	0.68	99.50	0.02
218	45.05	0.05	42.55	-1.20	42.60	-1.68	59.00	-1.98	75.10	-1.62
230	52.00	1.09	51.00	-0.12	58.50	0.18	86.50	0.20	102.00	0.18
241	38.00	-1.00	43.00	-1.15	46.00	-1.28	77.00	-0.55	76.50	-1.53
256	51.35	0.99 C	41.85	-1.29	58.50	0.18	74.25	-0.77	104.65	0.36
258	55.38	1.59	65.84	1.79 C	66.08	1.07	101.73	1.41 C	253.20	10.34 BE
261	46.30	0.24	63.55	1.49	60.85	0.46	75.75	-0.65	104.05	0.32
265	39.00	-0.85	52.00	0.01	52.00	-0.58	75.00	-0.71	100.00	0.05
267							112.50	2.27 E	166.50	4.52 BE
283	46.87	0.32	53.91	0.25	60.02	0.36	75.95	-0.63	82.21	-1.14
290	6.85	-5.65 BE	30.80	-2.71 E	40.20	-1.96	33.95	-3.97 FE	106.85	0.51
503							110.30	2.09 E	114.55	1.03
510	45.90	0.18			48.30	-1.01	113.50	2.35 E	70.05	-1.96
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Method	ISO 5725-2		ISO 5725-2		ISO 5725-2		ISO 5725-2		ISO 5725-2	
Assessment	Z <=2.00		Z <=2.00		Z <=2.00		Z <=2.00		Z <=2.00	
No. of laboratories that submitted results	38		38		40		43		43	
Mean	44.71		51.92		56.94		83.93		99.25	
Reproducibility s.d.	8.48		10.28		9.81		17.27		12.95	
Rel. reproducibility s.d.	18.96 %		19.79 %		17.24 %		20.58 %		13.05 %	
Reference value	42.10		56.70		56.70		90.70		95.80	
Target s.d.	6.71		7.79		8.54		12.59		14.89	
Rel. target s.d.	15.00 %		15.00 %		15.00 %		15.00 %		15.00 %	
Lower limit of tolerance	31.30		36.35		39.86		58.75		69.47	
Upper limit of tolerance	58.13		67.50		74.02		109.11		129.02	

Laboratory	1- Butanol	Z score	1-Methoxy-2-propanole	Z score	4-Methyl-2-pentanone	Z score	Benzene	Z score	Ethylbenzen	Z score
Type B outliers	2		1				1		2	
Type C outliers	2		4				2		1	
Type F outliers							1			
No. of laboratories after elimination of outliers type A-D and F (without laboratories that only gave states but no measured values)	34		33		40		39		40	
Explanation of outlier types										
A: Single outlier	Grubbs									
B: Differing laboratory mean	Grubbs									
C: Excessive laboratory s.d.	Cochran									
D: Excluded manually										
E: mean outside tolerance limits										
F: Z-Score >3.5										

Laboratory	n-Butyl acetate	Z score	n-Heptane	Z score	p-Xylene	Z score	Toluene	Z score
Unit	µg/m ³		µg/m ³		µg/m ³		µg/m ³	
2	135.21	0.28	64.74	-0.33	87.97	0.19	19.95	0.14
11	79.10	-2.60 CE	71.55	0.34 C	102.15	1.29	12.55	-2.38 E
21	129.50	-0.01	71.50	0.34	73.50	-0.94	15.50	-1.37
24	157.22	1.41	89.01	2.05 E	101.14	1.22	23.46	1.34
30	140.20	0.53	77.65	0.94	87.70	0.17	21.60	0.71
33	169.00	2.01 E	75.00	0.68	118.00	2.53 E	25.40	2.01 E
52	127.50	-0.12	54.15	-1.36	74.35	-0.87	13.05	-2.21 E
55	141.00	0.58	64.50	-0.35	86.50	0.08	21.00	0.50
60	119.60	-0.52	71.80	0.36	85.60	0.00	20.25	0.25
63	99.85	-1.54	51.45	-1.63	62.40	-1.80	14.20	-1.82
68	145.80	0.82	69.60	0.15	102.40	1.31	21.05	0.52
95	116.44	-0.69	52.45	-1.53	70.63	-1.16	22.52	1.02

Laboratory	n-Butyl acetate	Z score	n-Heptane	Z score	p-Xylene	Z score	Toluene	Z score
114	83.22	-2.39 CE	91.06	2.25 E	117.54	2.49 E	56.48	12.62 CE
117	168.00	1.96	87.00	1.85	108.00	1.75	18.50	-0.35
127	143.38	0.70	398.80	32.39 BE	88.84	0.26	34.44	5.09 BE
135	157.00	1.40	67.10	-0.10	95.35	0.76	21.50	0.68
145					117.90	2.52 CE	27.60	2.76 E
148	135.50	0.29	61.85	-0.61	88.05	0.20	20.30	0.27
158	139.47	0.50	65.48	-0.25	87.22	0.13	19.38	-0.05
169	146.70	0.87	67.40	-0.07	81.65	-0.30	19.90	0.13
173	135.30	0.28	86.25	1.78	86.70	0.09	21.50	0.68
186	81.00	-2.51 E	76.10	0.79 C	72.60	-1.01	22.20	0.91
192	127.58	-0.11	76.81	0.86	87.06	0.12	21.13	0.55
193	137.66	0.40	58.76	-0.91	89.13	0.28		
194	65.00	-3.33 E	51.00	-1.67	71.00	-1.13	17.00	-0.86
196	142.65	0.66	64.61	-0.34	80.17	-0.42	21.34	0.62
198					60.48	-1.95	13.33	-2.11 E
199	131.05	0.06	71.90	0.37	88.70	0.25	22.05	0.86
207	142.50	0.65	65.50	-0.25	85.00	-0.04	20.50	0.33
208	130.00	0.01	58.50	-0.94	79.50	-0.47	13.00	-2.23 E
213	158.00	1.45	88.00	1.95	95.00	0.74	25.00	1.87
215	132.00	0.11	69.50	0.14	83.00	-0.20	19.00	-0.18
218	91.95	-1.94	65.55	-0.25	64.90	-1.61	15.85	-1.25
230	141.50	0.60	96.50	2.78 E	86.50	0.08	23.50	1.36
241	99.50	-1.56	52.50	-1.53	70.50	-1.17	17.00	-0.86
256	147.25	0.90	70.55	0.24	89.35	0.30	16.75	-0.95
258	172.68	2.20 E	81.37	1.30 C	189.22	8.08 BE	15.69	-1.31
261	131.60	0.09	65.80	-0.22	89.65	0.32	14.40	-1.75
265	128.00	-0.09	60.00	-0.79	81.00	-0.35	18.00	-0.52
267	352.00	11.41 BE	123.00	5.38 BE	141.50	4.36 BE	24.00	1.53
283	115.44	-0.74	62.29	-0.57	77.66	-0.61	19.88	0.12
290	89.90	-2.05 E	56.05	-1.18	90.65	0.40	22.30	0.95
503	87.05	-2.20 E	65.25	-0.28	97.25	0.91	23.95	1.51
510					72.50	-1.02	19.30	-0.08

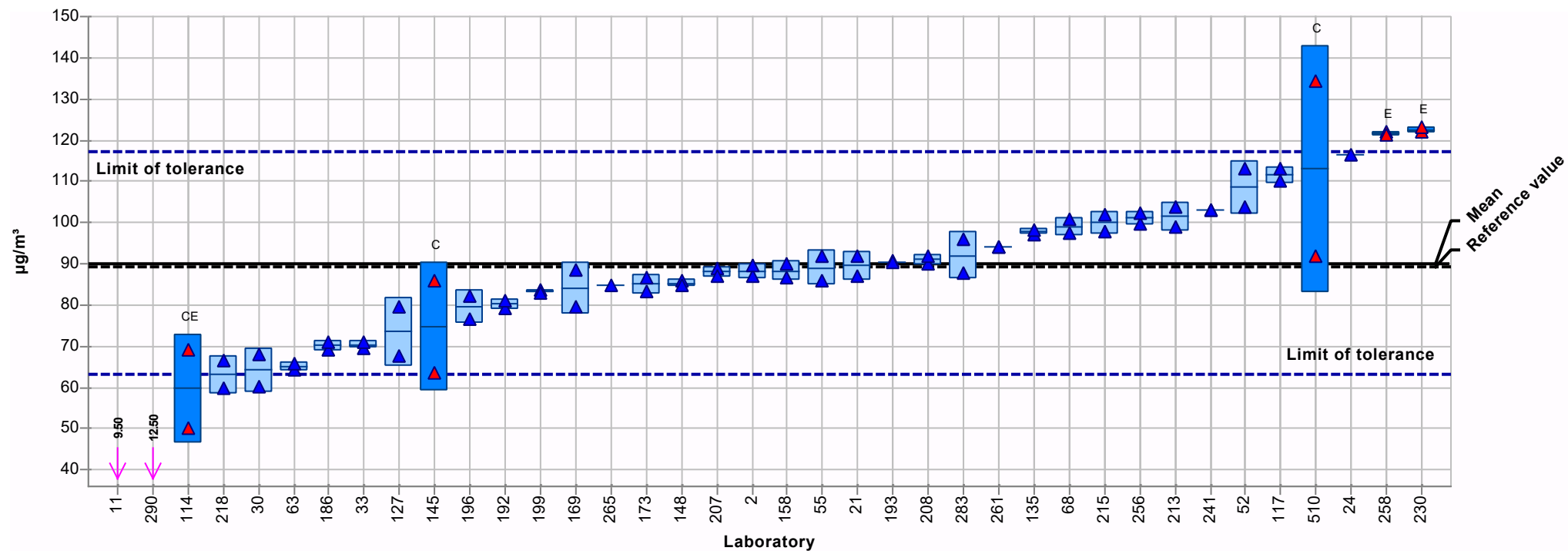
Laboratory	n-Butyl acetate	Z score	n-Heptane	Z score	p-Xylene	Z score	Toluene	Z score
-	-	---	-	---	-	---	-	---
Method	ISO 5725-2		ISO 5725-2		ISO 5725-2		ISO 5725-2	
Assessment	$ Z \leq 2.00$		$ Z \leq 2.00$		$ Z \leq 2.00$		$ Z \leq 2.00$	
No. of laboratories that submitted results	41		41		44		43	
Mean	129.79		68.07		85.54		19.52	
Reproducibility s.d.	25.01		11.63		13.27		3.81	
Rel. reproducibility s.d.	19.27 %		17.09 %		15.51 %		19.53 %	
Reference value	124.70		65.60		82.10		18.60	
Target s.d.	19.47		10.21		12.83		2.93	
Rel. target s.d.	15.00 %		15.00 %		15.00 %		15.00 %	
Lower limit of tolerance	90.85		47.65		59.88		13.67	
Upper limit of tolerance	168.73		88.50		111.20		25.38	
Type B outliers	1		2		2		1	
Type C outliers	2		3		1		1	
No. of laboratories after elimination of outliers type A-D and F (without laboratories that only gave states but no measured values)	38		36		41		41	

Summary results

Measurand: 1- Butanol
Sample: 1
Method: ISO 5725-2
Rel. target s.d.: 15.00% (Limited)

Mean: 90.07 $\mu\text{g}/\text{m}^3$
Reproducibility s.d.: 15.51 $\mu\text{g}/\text{m}^3$
Rel. reproducibility s.d.: 17.22%
Reference value: 89.30 $\mu\text{g}/\text{m}^3$
Range of tolerance: 63.05 - 117.09 $\mu\text{g}/\text{m}^3$ ($|Z\text{-Score}| \leq 2.00$)

Number of laboratories in calculation + outliers: 38



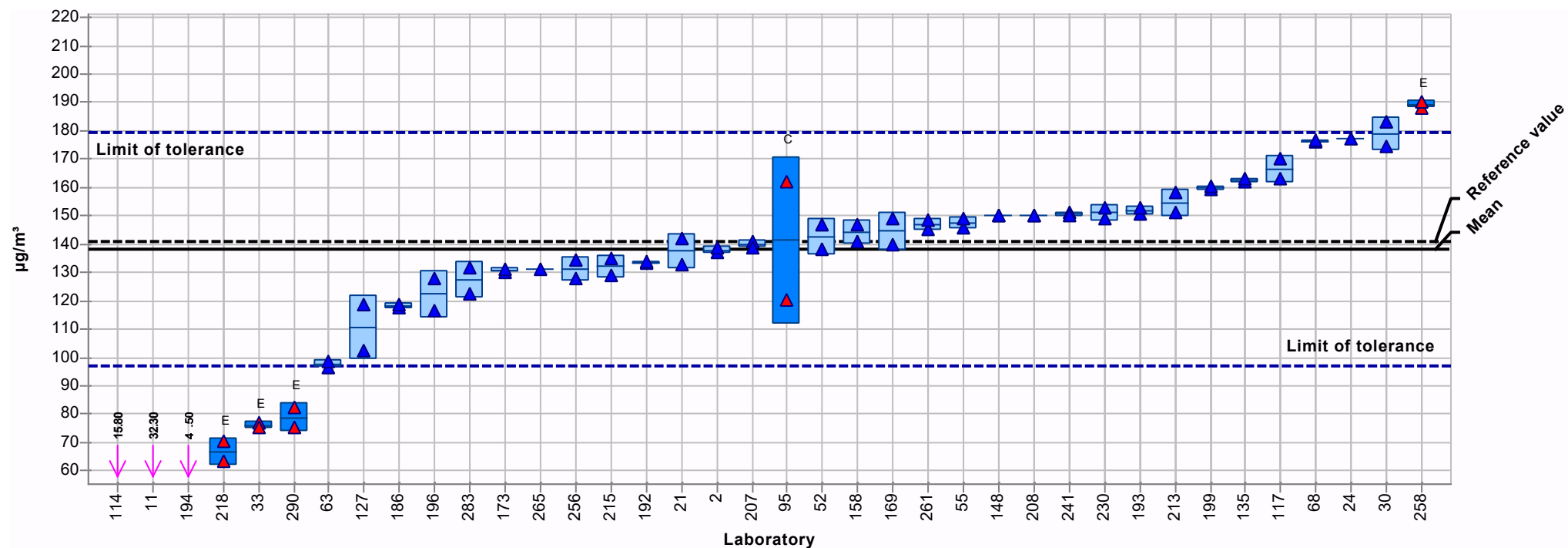
Summary results

Measurand: 1-Methoxy-2-propanole
Sample: 1
Method: ISO 5725-2
Rel. target s.d.: 15.00% (Limited)

Mean: 138.22 $\mu\text{g}/\text{m}^3$
Reproducibility s.d.: 28.38 $\mu\text{g}/\text{m}^3$
Rel. reproducibility s.d.: 20.53%
Reference value: 141.10 $\mu\text{g}/\text{m}^3$

Number of laboratories in calculation + outliers: 35

Range of tolerance: 96.75 - 179.68 $\mu\text{g}/\text{m}^3$ ($|Z\text{-Score}| \leq 2.00$)

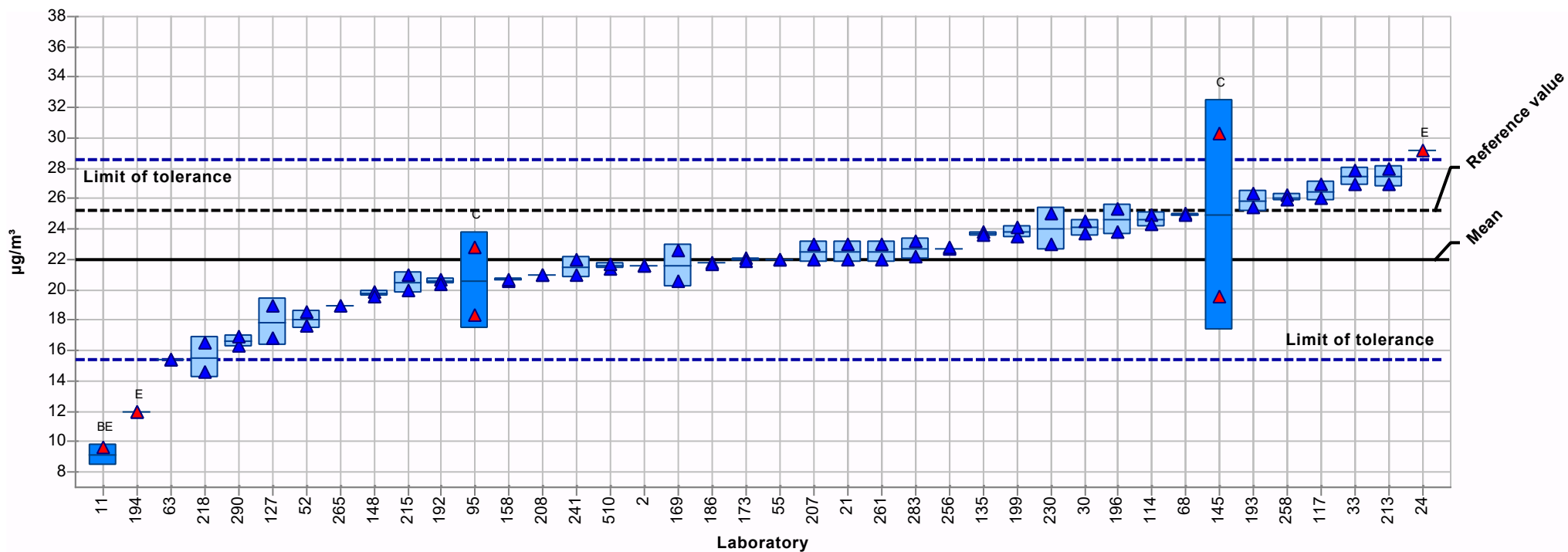


Summary results

Measurand: 4-Methyl-2-pentanone
Sample: 1
Method: ISO 5725-2
Rel. target s.d.: 15.00% (Limited)

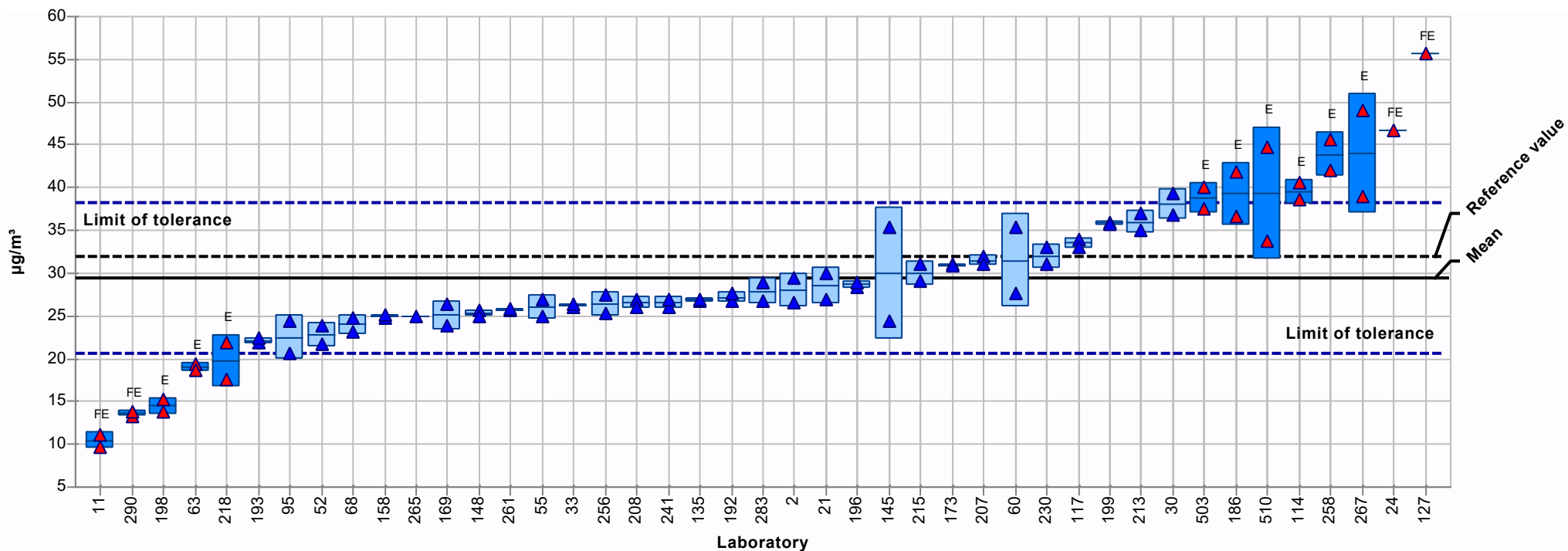
Mean: 21.95 $\mu\text{g}/\text{m}^3$
Reproducibility s.d.: 3.58 $\mu\text{g}/\text{m}^3$
Rel. reproducibility s.d.: 16.30%
Reference value: 25.20 $\mu\text{g}/\text{m}^3$
Range of tolerance: 15.36 - 28.53 $\mu\text{g}/\text{m}^3$ ($|Z\text{-Score}| \leq 2.00$)

Number of laboratories in calculation + outliers: 40



Summary results

Measurand:	Benzene	Mean:	29.37 µg/m³
Sample:	1	Reproducibility s.d.:	7.08 µg/m³
Method:	ISO 5725-2	Rel. reproducibility s.d.:	24.09%
Rel. target s.d.:	15.00% (Limited)	Reference value:	31.90 µg/m³
Number of laboratories in calculation:	39	Range of tolerance:	20.56 - 38.19 µg/m³ (Z-Score ≤ 2.00)



VOC 2020

Participant	Recovery rate	Date of analysis
173	Nein, da Kalibrierung übers Gesamtverfahren	14.9.2020
186	No	10/09/2020
192	no	9 September 2020
193	Nein	07.09.2020
194	1	08.09.2020
196	N/A	September-25th-2020
198	no	25/09/2020
199	nein	14.09.2020
207		08.09.2020
208	no	11.9.2020
213	nein	09.10.2020 / 12.10.2020
215	nein	10.09.20
218	Nein	18.09.2020
230	nein	ab 07.09.-15.09.2020
241	Nein	2.10.2020
243	nein	08.09.2020
256	Nein	07.09.2020
258	No	September 11, 2020
261	nein	18.09.2020
265	nein	07,08 Spetember
267	Nein	18/09/2020
283	nein	14./15.09.2020
290	Nein	07.10.2020
503	No	10/09/2020
510	nicht bestimmt	08.09.2020