

Summary statistics EMEP laboratory intercalibration Round 41 - 2023

Sulphur dioxide and nitric acid on impregnated filters (B-samples)

Sample	Component	Unit	N	Expected value	Mean value	Median	Standard deviation	RSD (%)
B1	SO2	ug S/filter	19	19.6	19.1	19.36	1.63	8.5
B2	SO2	ug S/filter	19	23.2	22.28	22.80	1.81	8.1
B4	SO2	ug S/filter	19	31.3	30.37	30.66	1.80	5.9
B6	SO2	ug S/filter	19	27.7	26.81	26.90	1.74	6.5
B1	HNO3	ug N/filter	18	16	15.91	15.82	0.75	4.7
B2	HNO3	ug N/filter	18	19	18.92	18.91	0.95	5.0
B4	HNO3	ug N/filter	18	25.5	25.51	25.63	1.13	4.4
B6	HNO3	ug N/filter	18	22.6	22.41	22.44	1.40	6.2

Nitrogen dioxide in absorbing solution (C-samples)

Sample	Component	Unit	N	Expected value	Mean value	Median	Standard deviation	RSD (%)
C1	NO2	ug N/ml	23	0.117	0.115	0.115	0.005	4.1
C2	NO2	ug N/ml	24	0.149	0.148	0.148	0.008	5.1
C3	NO2	ug N/ml	24	0.261	0.259	0.259	0.012	4.8
C4	NO2	ug N/ml	24	0.165	0.165	0.166	0.008	5.1

Ammonia on impregnated filters (J-samples)

Sample	Component	Unit	N	Expected value	Mean value	Median	Standard deviation	RSD (%)
J1	NH3	ug N/filter	16	3.9	4.06	4.061	0.495	12.2
J2	NH3	ug N/filter	16	5.525	5.567	5.698	0.554	10.0
J4	NH3	ug N/filter	17	6.925	6.853	6.95	0.689	10.0
J5	NH3	ug N/filter	17	7.725	7.436	7.475	0.612	8.2

Precipitation (G-samples)

Sample	Component	Unit	N	Expected value	Mean value	Median	Standard deviation	RSD (%)
G1	SO4	ug/l	49	0.314	0.307	0.31	0.021	6.9
G2	SO4	ug/l	50	0.326	0.319	0.324	0.021	6.6
G3	SO4	ug/l	50	0.298	0.294	0.299	0.021	7.0
G4	SO4	ug/l	50	0.26	0.256	0.26	0.017	6.7
G1	NH4	ug/l	49	0.134	0.138	0.136	0.018	13.1
G2	NH4	ug/l	50	0.16	0.162	0.16	0.017	10.5
G3	NH4	ug/l	49	0.147	0.149	0.147	0.019	12.5
G4	NH4	ug/l	47	0.12	0.12	0.12	0.014	12.1
G1	NO3	ug/l	51	0.238	0.227	0.231	0.031	13.8
G2	NO3	ug/l	52	0.342	0.329	0.338	0.046	13.9
G3	NO3	ug/l	52	0.343	0.331	0.34	0.048	14.5
G4	NO3	ug/l	52	0.276	0.265	0.271	0.039	14.6
G1	Na	ug/l	49	0.948	0.919	0.923	0.053	5.7
G2	Na	ug/l	52	0.855	0.835	0.837	0.06	7.2
G3	Na	ug/l	51	0.737	0.718	0.72	0.046	6.4
G4	Na	ug/l	50	0.851	0.825	0.828	0.054	6.5
G1	Mg	ug/l	48	0.114	0.115	0.116	0.012	10.2
G2	Mg	ug/l	49	0.145	0.144	0.143	0.012	8.5
G3	Mg	ug/l	48	0.103	0.105	0.105	0.01	9.4
G4	Mg	ug/l	48	0.083	0.084	0.083	0.01	11.6
G1	Cl	ug/l	49	1.35	1.319	1.307	0.077	5.9
G2	Cl	ug/l	49	1.04	1.015	1.01	0.06	5.9
G3	Cl	ug/l	51	0.888	0.87	0.869	0.045	5.2
G4	Cl	ug/l	52	1.12	1.083	1.088	0.055	5.1
G1	Ca	ug/l	47	0.179	0.174	0.173	0.023	13.3
G2	Ca	ug/l	47	0.14	0.139	0.138	0.017	12.3
G3	Ca	ug/l	47	0.166	0.162	0.162	0.019	11.6
G4	Ca	ug/l	48	0.153	0.151	0.149	0.022	14.4
G1	K	ug/l	50	0.162	0.164	0.162	0.021	12.7
G2	K	ug/l	51	0.195	0.195	0.195	0.025	12.8
G3	K	ug/l	51	0.26	0.257	0.26	0.026	10.1
G4	K	ug/l	48	0.21	0.208	0.21	0.014	6.9
G1	pH	pH-unit	45	5.47	5.492	5.499	0.132	2.4
G2	pH	pH-unit	46	5.46	5.465	5.479	0.113	2.1
G3	pH	pH-unit	44	5.41	5.435	5.45	0.11	2.0
G4	pH	pH-unit	46	5.42	5.428	5.445	0.102	1.9
G1	Cond.	uS/cm	44	11	11.042	11.1	1.511	13.7
G2	Cond.	uS/cm	45	10.9	11.214	11.1	1.381	12.3
G3	Cond.	uS/cm	44	10.3	10.304	10.37	0.517	5.0
G4	Cond.	uS/cm	44	10.1	10.231	10.2	0.65	6.4

Heavy metals in precipitation (H-samples)

Sample	Component	Unit	N	Expected value	Mean value	Median	Standard deviation	RSD (%)
H1	Arsenic	µg/l	36	0.301	0.314	0.309	0.028	9.0
H2	Arsenic	µg/l	31	0.17	0.18	0.175	0.027	15.0
H3	Arsenic	µg/l	28	0.084	0.09	0.087	0.02	22.3
H4	Arsenic	µg/l	28	0.085	0.092	0.085	0.02	21.9
H1	Cadmium	µg/l	36	0.034	0.038	0.035	0.022	58.8
H2	Cadmium	µg/l	34	0.02	0.024	0.021	0.013	54.5
H3	Cadmium	µg/l	30	0.011	0.014	0.011	0.008	54.6
H4	Cadmium	µg/l	30	0.01	0.014	0.011	0.01	75.2
H1	Chromium	µg/l	36	0.387	0.382	0.38	0.059	15.3
H2	Chromium	µg/l	32	0.238	0.243	0.234	0.029	11.8
H3	Chromium	µg/l	27	0.07	0.08	0.074	0.034	42.5
H4	Chromium	µg/l	28	0.085	0.101	0.086	0.052	51.1
H1	Copper	µg/l	38	0.43	0.453	0.438	0.16	35.2
H2	Copper	µg/l	37	0.408	0.502	0.403	0.414	82.5
H3	Copper	µg/l	32	0.154	0.211	0.159	0.161	76.5
H4	Copper	µg/l	31	0.128	0.196	0.138	0.208	106.1
H1	Lead	µg/l	37	0.688	0.67	0.677	0.077	11.4
H2	Lead	µg/l	36	0.442	0.444	0.44	0.076	17.1
H3	Lead	µg/l	36	0.35	0.358	0.35	0.053	14.9
H4	Lead	µg/l	37	0.391	0.396	0.389	0.052	13.1
H1	Nickel	µg/l	34	0.258	0.277	0.263	0.079	28.6
H2	Nickel	µg/l	32	0.17	0.186	0.173	0.072	38.4
H3	Nickel	µg/l	31	0.126	0.134	0.126	0.072	53.7
H4	Nickel	µg/l	30	0.159	0.166	0.159	0.057	34.3
H1	Zinc	µg/l	35	2.15	2.158	2.193	0.598	27.7
H2	Zinc	µg/l	33	2.04	2.374	2.18	0.542	22.8
H3	Zinc	µg/l	35	1.68	1.824	1.8	0.577	31.6
H4	Zinc	µg/l	33	1.87	1.962	1.889	0.466	23.8