

Summary statistics EMEP laboratory intercalibration Round 39 - 2021

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	17	22	21.2	21.49	3.25	15.3
B2	SO2	ug S/filter	16	26.9	25.94	26.03	2.16	8.3
B4	SO2	ug S/filter	16	12.8	12.79	12.74	0.91	7.1
B5	SO2	ug S/filter	17	19.6	19.06	19.45	1.93	10.1
B1	HNO3	ug N/filter	16	18	17.92	17.55	1.31	7.3
B2	HNO3	ug N/filter	16	21.9	21.64	21.29	1.72	8.0
B4	HNO3	ug N/filter	16	10.5	10.13	10.19	0.63	6.3
B5	HNO3	ug N/filter	16	16	15.93	15.80	1.02	6.4

Nitrogen dioxide in absorbing solution (C-samples)

Sample	Component	Unit	N	Expected value	Mean value	Median	Standard deviation	RSD (%)
C1	NO2	ug N/ml	22	0.094	0.093	0.093	0.005	5.4
C2	NO2	ug N/ml	23	0.076	0.076	0.076	0.006	8.2
C3	NO2	ug N/ml	23	0.089	0.089	0.089	0.007	7.7
C4	NO2	ug N/ml	23	0.103	0.102	0.102	0.008	7.6

Ammonia on impregnated filters (J-samples)

Sample	Component	Unit	N	Expected value	Mean value	Median	Standard deviation	RSD (%)
J2	NH3	ug N/filter	16	22.9	21.882	21.653	1.414	6.5
J3	NH3	ug N/filter	16	24.1	23.37	23.14	1.537	6.6
J5	NH3	ug N/filter	16	28.5	28.246	27.728	1.805	6.4
J6	NH3	ug N/filter	16	25.7	25.459	25.33	1.229	4.8

Precipitation (G-samples)

Sample	Component	Unit	N	Expected value	Mean value	Median	Standard deviation	RSD (%)
G1	SO4	mg S/l	43	0.201	0.199	0.199	0.016	8.1
G2	SO4	mg S/l	43	0.244	0.241	0.243	0.013	5.3
G3	SO4	mg S/l	44	0.567	0.584	0.585	0.033	5.7
G4	SO4	mg S/l	44	0.688	0.672	0.679	0.039	5.8
G1	NH4	mg N/l	43	0.08	0.081	0.08	0.012	14.8
G2	NH4	mg N/l	44	0.227	0.226	0.226	0.016	7.1
G3	NH4	mg N/l	43	0.294	0.302	0.302	0.021	6.8
G4	NH4	mg N/l	43	0.454	0.463	0.463	0.028	6.0
G1	NO3	mg N/l	43	0.249	0.245	0.246	0.008	3.2
G2	NO3	mg N/l	45	0.366	0.36	0.36	0.012	3.4
G3	NO3	mg N/l	46	0.496	0.492	0.492	0.017	3.5
G4	NO3	mg N/l	47	0.738	0.73	0.73	0.027	3.7
G1	Na	mg/l	44	0.32	0.318	0.314	0.028	8.7
G2	Na	mg/l	41	0.317	0.313	0.313	0.015	4.7
G3	Na	mg/l	44	0.948	0.941	0.934	0.045	4.7
G4	Na	mg/l	44	1.05	1.039	1.039	0.041	3.9
G1	Mg	mg/l	43	0.077	0.077	0.077	0.006	8.2
G2	Mg	mg/l	43	0.088	0.087	0.087	0.006	7.0
G3	Mg	mg/l	45	0.237	0.24	0.24	0.014	5.7
G4	Mg	mg/l	45	0.279	0.277	0.28	0.014	5.1
G1	Cl	mg/l	45	0.328	0.324	0.324	0.027	8.4
G2	Cl	mg/l	45	0.367	0.367	0.363	0.035	9.5
G3	Cl	mg/l	47	1.35	1.333	1.326	0.064	4.8
G4	Cl	mg/l	47	1.43	1.399	1.399	0.078	5.6
G1	Ca	mg/l	42	0.109	0.106	0.108	0.012	11.1
G2	Ca	mg/l	44	0.14	0.136	0.138	0.013	9.7
G3	Ca	mg/l	42	0.294	0.308	0.309	0.018	5.7
G4	Ca	mg/l	43	0.37	0.359	0.361	0.024	6.7
G1	K	mg/l	42	0.289	0.28	0.281	0.022	8.0
G2	K	mg/l	42	0.255	0.247	0.248	0.016	6.3
G3	K	mg/l	44	0.441	0.439	0.438	0.023	5.3
G4	K	mg/l	42	0.577	0.573	0.577	0.031	5.5
G1	pH	pH-unit	41	5.55	5.523	5.52	0.178	3.2
G2	pH	pH-unit	42	5.52	5.523	5.49	0.174	3.1
G3	pH	pH-unit	43	5.48	5.487	5.46	0.148	2.7
G4	pH	pH-unit	43	5.46	5.468	5.455	0.129	2.4
G1	Cond.	μS/cm	40	6.73	6.767	6.73	1.348	19.9
G2	Cond.	μS/cm	39	8.4	8.392	8.4	1.375	16.4
G3	Cond.	μS/cm	43	16.02	16.092	16.02	1.087	6.8
G4	Cond.	μS/cm	42	19.5	19.352	19.5	1.052	5.4

Heavy metals in precipitation (H-samples)

Sample	Component	Unit	N	Expected value	Mean value	Median	Standard deviation	RSD (%)
H1	Arsenic	µg/l	27	0.336	0.343	0.34	0.026	7.6
H2	Arsenic	µg/l	26	0.156	0.162	0.152	0.034	21.3
H3	Arsenic	µg/l	27	0.324	0.323	0.33	0.029	8.9
H4	Arsenic	µg/l	28	0.336	0.355	0.349	0.039	11.1
H1	Cadmium	µg/l	28	0.034	0.035	0.035	0.007	20.1
H2	Cadmium	µg/l	25	0.02	0.019	0.019	0.004	23.5
H3	Cadmium	µg/l	25	0.022	0.023	0.023	0.004	17.5
H4	Cadmium	µg/l	27	0.036	0.039	0.039	0.004	9.1
H1	Chromium	µg/l	23	0.264	0.273	0.269	0.017	6.2
H2	Chromium	µg/l	24	0.195	0.188	0.188	0.018	9.4
H3	Chromium	µg/l	23	0.288	0.288	0.29	0.016	5.7
H4	Chromium	µg/l	26	0.36	0.363	0.36	0.022	6.0
H1	Copper	µg/l	30	0.576	0.566	0.571	0.066	11.7
H2	Copper	µg/l	31	0.585	0.544	0.544	0.081	14.9
H3	Copper	µg/l	28	0.324	0.298	0.32	0.09	30.1
H4	Copper	µg/l	29	0.495	0.487	0.5	0.053	10.9
H1	Lead	µg/l	30	0.576	0.56	0.571	0.05	9.0
H2	Lead	µg/l	29	0.351	0.32	0.322	0.03	9.4
H3	Lead	µg/l	30	0.36	0.346	0.362	0.062	17.8
H4	Lead	µg/l	30	0.72	0.731	0.742	0.064	8.7
H1	Nickel	µg/l	25	0.288	0.283	0.289	0.04	14.3
H2	Nickel	µg/l	24	0.273	0.26	0.262	0.027	10.3
H3	Nickel	µg/l	29	0.432	0.424	0.43	0.056	13.1
H4	Nickel	µg/l	26	0.36	0.353	0.357	0.032	9.1
H1	Zinc	µg/l	30	2.88	3.104	3.04	0.544	17.5
H2	Zinc	µg/l	29	2.73	2.593	2.57	0.432	16.7
H3	Zinc	µg/l	31	3.42	3.594	3.5	0.552	15.4
H4	Zinc	µg/l	30	3.83	4.005	3.925	0.465	11.6