

Summary statistics EMEP laboratory intercalibration Round 31

Sulphur dioxide in absorbing solution (A-samples)

Sample	Component	Unit	N	Expected value	Mean value	Median	Standard deviation	RSD (%)
A2	SO2	µg S/ml	17	0.367	0.351	0.367	0.061	17.3
A3	SO2	µg S/ml	17	0.45	0.444	0.45	0.065	14.6
A4	SO2	µg S/ml	17	0.2	0.21	0.2	0.068	32.3
A5	SO2	µg S/ml	17	0.16	0.156	0.161	0.031	19.5

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	12	11.687	12.01	1.143	9.8
B2	SO2	ug S/filter	17	14.03	13.483	13.796	1.493	11.1
B3	SO2	ug S/filter	17	88.17	85.222	86.78	16.009	18.8
B4	SO2	ug S/filter	17	68.13	67.791	68.213	12.587	18.6
B1	HNO3	ug N/filter	18	9.8	9.447	9.746	1.635	17.3
B2	HNO3	ug N/filter	18	11.45	11.263	11.54	1.359	12.1
B3	HNO3	ug N/filter	17	35.99	34.694	35.225	4.915	14.2
B4	HNO3	ug N/filter	17	27.81	27.608	27.575	2.334	8.5

Nitrogen dioxide in absorbing solution (C-samples)

Sample	Component	Unit	N	Expected value	Mean value	Median	Standard deviation	RSD (%)
C1	NO2	ug N/ml	31	0.087	0.085	0.084	0.007	7.8
C2	NO2	ug N/ml	30	0.072	0.073	0.071	0.006	8.5
C3	NO2	ug N/ml	31	0.116	0.113	0.114	0.009	8.3
C4	NO2	ug N/ml	31	0.145	0.143	0.143	0.009	6.5

Ammonia on impregnated filters (J-samples)

Sample	Component	Unit	N	Expected value	Mean value	Median	Standard deviation	RSD (%)
J1	NH3	µg N/filter	19	16	15.773	15.82	1.637	10.4
J2	NH3	µg N/filter	19	15.04	14.865	14.72	1.941	13.1
J5	NH3	µg N/filter	19	40.1	38.658	39.49	4.736	12.3
J6	NH3	µg N/filter	19	34.09	33.282	33.755	3.647	11.0

Precipitation (G-samples)

Sample	Component	Unit	N	Expected value	Mean value	Median	Standard deviation	RSD (%)
G1	SO4	mg S/l	57	0.673	0.667	0.673	0.071	10.7
G2	SO4	mg S/l	57	0.776	0.773	0.78	0.074	9.6
G3	SO4	mg S/l	57	1.319	1.319	1.318	0.087	6.6
G4	SO4	mg S/l	55	1.474	1.487	1.491	0.078	5.2
G1	NH4	mg N/l	58	0.16	0.169	0.164	0.019	11.0
G2	NH4	mg N/l	58	0.214	0.216	0.213	0.021	9.6
G3	NH4	mg N/l	57	0.267	0.276	0.273	0.027	9.9
G4	NH4	mg N/l	58	0.348	0.36	0.353	0.043	11.9
G1	NO3	mg N/l	58	0.274	0.271	0.275	0.025	9.1
G2	NO3	mg N/l	58	0.396	0.393	0.396	0.037	9.5
G3	NO3	mg N/l	58	0.529	0.528	0.531	0.044	8.3
G4	NO3	mg N/l	58	0.612	0.602	0.613	0.093	15.4
G1	Na	mg/l	55	0.208	0.21	0.215	0.02	9.3
G2	Na	mg/l	55	0.329	0.323	0.33	0.026	8.2
G3	Na	mg/l	52	0.476	0.471	0.476	0.029	6.1
G4	Na	mg/l	51	0.465	0.454	0.461	0.025	5.6
G1	Mg	mg/l	52	0.124	0.124	0.126	0.009	7.5
G2	Mg	mg/l	52	0.114	0.114	0.115	0.009	8.0
G3	Mg	mg/l	51	0.155	0.155	0.157	0.011	7.4
G4	Mg	mg/l	51	0.175	0.176	0.178	0.012	7.1
G1	Cl	mg/l	55	0.154	0.154	0.151	0.036	23.1
G2	Cl	mg/l	56	0.232	0.241	0.222	0.125	51.8
G3	Cl	mg/l	56	0.347	0.337	0.334	0.039	11.7
G4	Cl	mg/l	55	0.386	0.379	0.372	0.046	12.2
G1	Ca	mg/l	52	0.102	0.104	0.102	0.019	18.5
G2	Ca	mg/l	51	0.115	0.115	0.114	0.017	14.9
G3	Ca	mg/l	51	0.192	0.188	0.19	0.022	11.9
G4	Ca	mg/l	51	0.217	0.209	0.212	0.023	10.8
G1	K	mg/l	55	0.136	0.133	0.13	0.02	14.7
G2	K	mg/l	51	0.204	0.202	0.2	0.017	8.2
G3	K	mg/l	52	0.306	0.3	0.301	0.022	7.4
G4	K	mg/l	53	0.374	0.368	0.37	0.028	7.7
G1	pH	pH-unit	52	4.57	4.643	4.63	0.083	1.8
G2	pH	pH-unit	55	4.48	4.522	4.52	0.056	1.2
G3	pH	pH-unit	55	4.22	4.259	4.26	0.051	1.2
G4	pH	pH-unit	55	4.18	4.207	4.21	0.058	1.4
G1	Cond.	uS/cm	51	16.79	16.135	16.3	1.145	7.1
G2	Cond.	uS/cm	49	21.08	20.617	20.8	1.06	5.1
G3	Cond.	uS/cm	50	35.23	34.179	34.6	1.671	4.9
G4	Cond.	uS/cm	49	39.53	38.389	38.7	1.678	4.4

Heavy metals in precipitation (H-samples)

Sample	Component	Unit	N	Expected value	Mean value	Median	Standard deviation	RSD (%)
H1	As	ug/l	33	9	8.801	8.94	0.757	8.6
H2	As	ug/l	33	8.5	8.303	8.48	0.77	9.3
H3	As	ug/l	25	0.9	0.869	0.88	0.108	12.4
H4	As	ug/l	28	1.1	1.042	1.08	0.182	17.5
H1	Cd	ug/l	37	0.7	0.683	0.7	0.058	8.4
H2	Cd	ug/l	37	0.5	0.498	0.5	0.049	9.8
H3	Cd	ug/l	29	0.06	0.058	0.06	0.013	22.5
H4	Cd	ug/l	29	0.06	0.057	0.06	0.014	24.9
H1	Cr	ug/l	40	6.5	6.583	6.285	2.824	42.9
H2	Cr	ug/l	40	7.5	7.191	7.274	1.144	15.9
H3	Cr	ug/l	33	0.8	0.78	0.792	0.169	21.6
H4	Cr	ug/l	33	0.7	0.696	0.692	0.219	31.5
H1	Cu	ug/l	34	12	11.652	11.765	0.877	7.5
H2	Cu	ug/l	37	9	8.653	8.7	0.937	10.8
H3	Cu	ug/l	30	0.9	0.943	0.9	0.333	35.3
H4	Cu	ug/l	31	1	0.985	1	0.286	29.1
H1	Pb	ug/l	38	19	18.598	18.6	1.561	8.4
H2	Pb	ug/l	38	22	21.745	21.65	1.466	6.7
H3	Pb	ug/l	31	1	0.944	0.98	0.235	24.9
H4	Pb	ug/l	33	1.5	1.428	1.5	0.493	34.5
H1	Ni	ug/l	36	6	5.926	5.91	0.721	12.2
H2	Ni	ug/l	36	7.5	7.343	7.34	0.76	10.4
H3	Ni	ug/l	30	1.2	1.079	1.15	0.272	25.2
H4	Ni	ug/l	28	0.9	0.862	0.862	0.155	18.0
H1	Zn	ug/l	39	110	111.29	110	7.435	6.7
H2	Zn	ug/l	40	105	105.73	105	8.562	8.1
H3	Zn	ug/l	36	9.5	10.004	9.8	3.407	34.1
H4	Zn	ug/l	33	7	7.503	7.51	1.144	15.2