

EMEP – 41st intercomparison of analytical methods - 2023

Laboratory 4, Aarhus University, Department of Environmental Science
(Denmark)

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

Sample name	Determinand	Reported value [‡]	Expected value	Mean value	Standard deviation	Z score [*]	EMEP quality norm [‡]
B1	SO ₂ <i>µg S/filter</i>	20.565	19.6	19.083	1.626	0.912	S
B2		20.925	23.2	22.278	1.805	-0.75	S
B4		28.055	31.3	30.372	1.802	-1.286	S
B6		25.145	27.7	26.812	1.738	-0.96	S
B1	HNO ₃ <i>µg N/filter</i>	15.04	16	15.909	0.748	-1.162	S
B2		17.21	19	18.92	0.952	-1.797	S
B4		23.2	25.5	25.512	1.13	-2.046	S
B6		20.76	22.6	22.408	1.396	-1.181	S

[‡] Reported values are blank corrected. Corrections are done by subtracting the average blank value when a value was reported or 1/2MDL when MDL was reported.

^{*} Z score is unitless

[‡] EMEP quality norm; letters indicate:

S – Satisfactory: Results deviates less than ±20% of the expected value for SO₂ and HNO₃

Q – Questionable: Results deviates between ±20-40% of the expected value for SO₂ and HNO₃

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO₂ and for HNO₃

Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect: <https://projects.nilu.no/ccc/intercomparison/>

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Laboratory 5, Finnish Meteorological Institute, Atmospheric Composition, Air Quality (Finland)

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

Sample name	Determinand	Reported value [‡]	Expected value	Mean value	Standard deviation	Z score [*]	EMEP quality norm [‡]
B1	SO ₂ <i>µg S/filter</i>	20.736	19.6	19.083	1.626	1.017	S
B2		23.328	23.2	22.278	1.805	0.582	S
B4		31.258	31.3	30.372	1.802	0.491	S
B6		27.638	27.7	26.812	1.738	0.475	S
B1	HNO ₃ <i>µg N/filter</i>	16.237	16	15.909	0.748	0.438	S
B2		19.34	19	18.92	0.952	0.441	S
B4		25.714	25.5	25.512	1.13	0.179	S
B6		22.694	22.6	22.408	1.396	0.205	S

[‡] Reported values are blank corrected. Corrections are done by subtracting the average blank value when a value was reported or 1/2MDL when MDL was reported.

^{*} Z score is unitless

[‡] EMEP quality norm; letters indicate:

S – Satisfactory: Results deviates less than ±20% of the expected value for SO₂ and HNO₃

Q – Questionable: Results deviates between ±20-40% of the expected value for SO₂ and HNO₃

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO₂ and for HNO₃

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Laboratory 6, SGS France - EHS (France)

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

Sample name	Determinand	Reported value [¥]	Expected value	Mean value	Standard deviation	Z score [*]	EMEP quality norm [⌘]
B1	SO ₂ <i>µg S/filter</i>	17.093	19.6	19.083	1.626	-1.224	S
B2		20.023	23.2	22.278	1.805	-1.25	S
B4		27.332	31.3	30.372	1.802	-1.687	S
B6		24.363	27.7	26.812	1.738	-1.41	S
B1	HNO ₃ <i>µg N/filter</i>	16.35	16	15.909	0.748	0.589	S
B2		20.32	19	18.92	0.952	1.47	S
B4		27.49	25.5	25.512	1.13	1.751	S
B6		24.14	22.6	22.408	1.396	1.241	S

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* Z score is unitless

⌘ EMEP quality norm; letters indicate:

S – Satisfactory: Results deviates less than ±20% of the expected value for SO₂ and HNO₃

Q – Questionable: Results deviates between ±20-40% of the expected value for SO₂ and HNO₃

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO₂ and for HNO₃

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Laboratory 8, Umweltbundesamt, Langen (Germany)

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

Sample name	Determinand	Reported value [¥]	Expected value	Mean value	Standard deviation	Z score [*]	EMEP quality norm [⌘]
B1	SO ₂ <i>µg S/filter</i>	18.735	19.6	19.083	1.626	-0.214	S
B2		23.235	23.2	22.278	1.805	0.53	S
B4		30.935	31.3	30.372	1.802	0.312	S
B6		27.235	27.7	26.812	1.738	0.243	S
B1	HNO ₃ <i>µg N/filter</i>	15.59	16	15.909	0.748	-0.427	S
B2		18.59	19	18.92	0.952	-0.347	S
B4		24.99	25.5	25.512	1.13	-0.462	S
B6		20.69	22.6	22.408	1.396	-1.231	S

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* Z score is unitless

⌘ EMEP quality norm; letters indicate:

S – Satisfactory: Results deviates less than ±20% of the expected value for SO₂ and HNO₃

Q – Questionable: Results deviates between ±20-40% of the expected value for SO₂ and HNO₃

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO₂ and for HNO₃

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EMEP – 41st intercomparison of analytical methods - 2023

Laboratory 10, Air Quality Reference Centre (Hungary)

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

Sample name	Determinand	Reported value [¥]	Expected value	Mean value	Standard deviation	Z score [*]	EMEP quality norm [⌘]
B1	SO ₂ <i>µg S/filter</i>	16.91	19.6	19.083	1.626	-1.336	S
B2		18.12	23.2	22.278	1.805	-2.304	Q
B4		23.83	31.3	30.372	1.802	-3.63	Q
B6		19.97	27.7	26.812	1.738	-3.938	Q
B1	HNO ₃ <i>µg N/filter</i>	12.925	16	15.909	0.748	-3.988	S
B2		15.345	19	18.92	0.952	-3.756	S
B4		20.045	25.5	25.512	1.13	-4.839	Q
B6		16.755	22.6	22.408	1.396	-4.05	Q

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* Z score is unitless

⌘ EMEP quality norm; letters indicate:

S – Satisfactory: Results deviates less than ±20% of the expected value for SO₂ and HNO₃

Q – Questionable: Results deviates between ±20-40% of the expected value for SO₂ and HNO₃

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO₂ and for HNO₃

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EMEP – 41st intercomparison of analytical methods - 2023

Laboratory 15, NILU (Norway)

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

Sample name	Determinand	Reported value [¥]	Expected value	Mean value	Standard deviation	Z score [*]	EMEP quality norm [⌘]
B1	SO ₂ <i>µg S/filter</i>	19.6	19.6	19.083	1.626	0.318	S
B2		23.6	23.2	22.278	1.805	0.732	S
B4		31.6	31.3	30.372	1.802	0.681	S
B6		28	27.7	26.812	1.738	0.684	S
B1	HNO ₃ <i>µg N/filter</i>	16.3	16	15.909	0.748	0.522	S
B2		19.2	19	18.92	0.952	0.294	S
B4		25.7	25.5	25.512	1.13	0.167	S
B6		22.5	22.6	22.408	1.396	0.066	S

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⌘ EMEP quality norm; letters indicate:

S – Satisfactory: Results deviates less than ±20% of the expected value for SO₂ and HNO₃

Q – Questionable: Results deviates between ±20-40% of the expected value for SO₂ and HNO₃

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO₂ and for HNO₃

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Laboratory 16, Institute of Meteorology and Water Management, Warsaw (Poland)

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

Sample name	Determinand	Reported value [‡]	Expected value	Mean value	Standard deviation	Z score [*]	EMEP quality norm [‡]
B1	SO ₂ <i>µg S/filter</i>	18.68	19.6	19.083	1.626	-0.248	S
B2		22.97	23.2	22.278	1.805	0.383	S
B4		30.66	31.3	30.372	1.802	0.16	S
B6		26.67	27.7	26.812	1.738	-0.082	S
B1	HNO ₃ <i>µg N/filter</i>	17.17	16	15.909	0.748	1.685	S
B2		19.67	19	18.92	0.952	0.787	S
B4		26.14	25.5	25.512	1.13	0.556	S
B6		22.63	22.6	22.408	1.396	0.159	S

[‡] Reported values are blank corrected. Corrections are done by subtracting the average blank value when a value was reported or 1/2MDL when MDL was reported.

^{*} Z score is unitless

[‡] EMEP quality norm; letters indicate:

S – Satisfactory: Results deviates less than ±20% of the expected value for SO₂ and HNO₃

Q – Questionable: Results deviates between ±20-40% of the expected value for SO₂ and HNO₃

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO₂ and for HNO₃

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Laboratory 20, Swedish Environmental Research Institute IVL, Gothenburg (Sweden)

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

Sample name	Determinand	Reported value [‡]	Expected value	Mean value	Standard deviation	Z score [*]	EMEP quality norm [‡]
B1	SO ₂ <i>µg S/filter</i>	19.45	19.6	19.083	1.626	0.226	S
B2		22.85	23.2	22.278	1.805	0.317	S
B4		30.95	31.3	30.372	1.802	0.321	S
B6		27.55	27.7	26.812	1.738	0.425	S
B1	HNO ₃ <i>µg N/filter</i>	15.75	16	15.909	0.748	-0.213	S
B2		18.35	19	18.92	0.952	-0.599	S
B4		24.35	25.5	25.512	1.13	-1.028	S
B6		22.05	22.6	22.408	1.396	-0.256	S

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^{*} Z score is unitless

[‡] EMEP quality norm; letters indicate:

S – Satisfactory: Results deviates less than ±20% of the expected value for SO₂ and HNO₃

Q – Questionable: Results deviates between ±20-40% of the expected value for SO₂ and HNO₃

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO₂ and for HNO₃

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EMEP – 41st intercomparison of analytical methods - 2023

Laboratory 22, Institute of Global Climate and Ecology (Russian Federation)

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

Sample name	Determinand	Reported value [¥]	Expected value	Mean value	Standard deviation	Z score [*]	EMEP quality norm [⌘]
B1	SO ₂ <i>µg S/filter</i>	16.35	19.6	19.083	1.626	-1.68	S
B2		20.15	23.2	22.278	1.805	-1.179	S
B4		27.55	31.3	30.372	1.802	-1.566	S
B6		23.95	27.7	26.812	1.738	-1.647	S
B1	HNO ₃ <i>µg N/filter</i>	16.25	16	15.909	0.748	0.455	S
B2		17.65	19	18.92	0.952	-1.335	S
B4		24.25	25.5	25.512	1.13	-1.117	S
B6		25.25	22.6	22.408	1.396	2.037	S

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* Z score is unitless

⌘ EMEP quality norm; letters indicate:

S – Satisfactory: Results deviates less than ±20% of the expected value for SO₂ and HNO₃

Q – Questionable: Results deviates between ±20-40% of the expected value for SO₂ and HNO₃

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO₂ and for HNO₃

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EMEP – 41st intercomparison of analytical methods - 2023

Laboratory 31, Slovak Hydrometeorological Institute (Slovakia)

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

Sample name	Determinand	Reported value [¥]	Expected value	Mean value	Standard deviation	Z score [*]	EMEP quality norm [⌘]
B1	SO ₂ <i>µg S/filter</i>	22.043	19.6	19.083	1.626	1.821	S
B2		22.021	23.2	22.278	1.805	-0.142	S
B4		29.604	31.3	30.372	1.802	-0.426	S
B6		26.252	27.7	26.812	1.738	-0.322	S
B1	HNO ₃ <i>µg N/filter</i>	14.929	16	15.909	0.748	-1.31	S
B2		17.624	19	18.92	0.952	-1.362	S
B4		24.151	25.5	25.512	1.13	-1.204	S
B6		20.987	22.6	22.408	1.396	-1.018	S

¥ Reported values are blank corrected. Corrections are done by subtracting the average blank value when a value was reported or 1/2MDL when MDL was reported.

* Z score is unitless

⌘ EMEP quality norm; letters indicate:

S – Satisfactory: Results deviates less than ±20% of the expected value for SO₂ and HNO₃

Q – Questionable: Results deviates between ±20-40% of the expected value for SO₂ and HNO₃

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO₂ and for HNO₃

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EMEP – 41st intercomparison of analytical methods - 2023

Laboratory 32, Center for Physical Sciences and Technology (Lithuania)

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

Sample name	Determinand	Reported value [¥]	Expected value	Mean value	Standard deviation	Z score [*]	EMEP quality norm [⌘]
B1	SO ₂ <i>µg S/filter</i>	19.56	19.6	19.083	1.626	0.294	S
B2		22.8	23.2	22.278	1.805	0.289	S
B4		30.41	31.3	30.372	1.802	0.021	S
B6		25.92	27.7	26.812	1.738	-0.514	S
B1	HNO ₃ <i>µg N/filter</i>	15.68	16	15.909	0.748	-0.306	S
B2		18.28	19	18.92	0.952	-0.673	S
B4		25.62	25.5	25.512	1.13	0.096	S
B6		21.19	22.6	22.408	1.396	-0.873	S

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⌘ EMEP quality norm; letters indicate:

S – Satisfactory: Results deviates less than ±20% of the expected value for SO₂ and HNO₃

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U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO₂ and for HNO₃

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EMEP – 41st intercomparison of analytical methods - 2023

Laboratory 33, Latvian Environment, Geology and Meteorology Centre (Latvia)

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

Sample name	Determinand	Reported value [¥]	Expected value	Mean value	Standard deviation	Z score [*]	EMEP quality norm [⌘]
B1	SO ₂ <i>µg S/filter</i>	19.358	19.6	19.083	1.626	0.169	S
B2		23.521	23.2	22.278	1.805	0.689	S
B4		31.28	31.3	30.372	1.802	0.504	S
B6		27.704	27.7	26.812	1.738	0.513	S
B1	HNO ₃ <i>µg N/filter</i>	15.817	16	15.909	0.748	-0.123	S
B2		18.925	19	18.92	0.952	0.005	S
B4		25.464	25.5	25.512	1.13	-0.042	S
B6		23.199	22.6	22.408	1.396	0.567	S

¥ Reported values are blank corrected. Corrections are done by subtracting the average blank value when a value was reported or 1/2MDL when MDL was reported.

* Z score is unitless

⌘ EMEP quality norm; letters indicate:

S – Satisfactory: Results deviates less than ±20% of the expected value for SO₂ and HNO₃

Q – Questionable: Results deviates between ±20-40% of the expected value for SO₂ and HNO₃

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO₂ and for HNO₃

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EMEP – 41st intercomparison of analytical methods - 2023

Laboratory 34, Ministry of Environment and Urbanisation (Turkey)

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

Sample name	Determinand	Reported value [¥]	Expected value	Mean value	Standard deviation	Z score [*]	EMEP quality norm [⌘]
B1	SO ₂	17.116	19.6	19.083	1.626	-1.209	S
B2		19.687	23.2	22.278	1.805	-1.436	S
B4	<i>µg S/filter</i>	27.002	31.3	30.372	1.802	-1.87	S
B6		23.578	27.7	26.812	1.738	-1.861	S
B1	HNO ₃	15.975	16	15.909	0.748	0.088	S
B2		18.995	19	18.92	0.952	0.078	S
B4	<i>µg N/filter</i>	26.104	25.5	25.512	1.13	0.524	S
B6		22.398	22.6	22.408	1.396	-0.007	S

¥ Reported values are blank corrected. Corrections are done by subtracting the average blank value when a value was reported or 1/2MDL when MDL was reported.

* Z score is unitless

⌘ EMEP quality norm; letters indicate:

S – Satisfactory: Results deviates less than ±20% of the expected value for SO₂ and HNO₃

Q – Questionable: Results deviates between ±20-40% of the expected value for SO₂ and HNO₃

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO₂ and for HNO₃

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EMEP – 41st intercomparison of analytical methods - 2023

Laboratory 35, Meteorological and Hydrological Service of Croatia (Croatia)

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

Sample name	Determinand	Reported value [¥]	Expected value	Mean value	Standard deviation	Z score [*]	EMEP quality norm [⌘]
B1	SO ₂ <i>µg S/filter</i>	19.955	19.6	19.083	1.626	0.536	S
B2		23.355	23.2	22.278	1.805	0.597	S
B4		31.625	31.3	30.372	1.802	0.695	S
B6		28.095	27.7	26.812	1.738	0.738	S
B1	HNO ₃ <i>µg N/filter</i>	15.715	16	15.909	0.748	-0.26	S
B2		19.025	19	18.92	0.952	0.11	S
B4		25.985	25.5	25.512	1.13	0.419	S
B6		22.995	22.6	22.408	1.396	0.421	S

¥ Reported values are blank corrected. Corrections are done by subtracting the average blank value when a value was reported or 1/2MDL when MDL was reported.

* Z score is unitless

⌘ EMEP quality norm; letters indicate:

S – Satisfactory: Results deviates less than ±20% of the expected value for SO₂ and HNO₃

Q – Questionable: Results deviates between ±20-40% of the expected value for SO₂ and HNO₃

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO₂ and for HNO₃

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EMEP – 41st intercomparison of analytical methods - 2023

Laboratory 38, Estonian Environmental Research Centre, Tallinn (Estonia)

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

Sample name	Determinand	Reported value [¥]	Expected value	Mean value	Standard deviation	Z score [*]	EMEP quality norm [⌘]
B1	SO ₂ <i>µg S/filter</i>	21.262	19.6	19.083	1.626	1.34	S
B2		25.203	23.2	22.278	1.805	1.62	S
B4		32.593	31.3	30.372	1.802	1.232	S
B6		27.852	27.7	26.812	1.738	0.599	S
B1	HNO ₃ <i>µg N/filter</i>	15.825	16	15.909	0.748	-0.113	S
B2		18.835	19	18.92	0.952	-0.09	S
B4		25.245	25.5	25.512	1.13	-0.236	S
B6		21.405	22.6	22.408	1.396	-0.719	S

¥ Reported values are blank corrected. Corrections are done by subtracting the average blank value when a value was reported or 1/2MDL when MDL was reported.

* Z score is unitless

⌘ EMEP quality norm; letters indicate:

S – Satisfactory: Results deviates less than ±20% of the expected value for SO₂ and HNO₃

Q – Questionable: Results deviates between ±20-40% of the expected value for SO₂ and HNO₃

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO₂ and for HNO₃

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EMEP – 41st intercomparison of analytical methods - 2023

Laboratory 39, Central Environmental Analysis Laboratory - CentLab (Poland)

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

Sample name	Determinand	Reported value [¥]	Expected value	Mean value	Standard deviation	Z score [*]	EMEP quality norm [⌘]
B1	SO ₂ <i>µg S/filter</i>	19.355	19.6	19.083	1.626	0.167	S
B2		21.945	23.2	22.278	1.805	-0.185	S
B4		32.095	31.3	30.372	1.802	0.956	S
B6		26.095	27.7	26.812	1.738	-0.413	S
B1	HNO ₃ <i>µg N/filter</i>	15.41	16	15.909	0.748	-0.667	S
B2		18.57	19	18.92	0.952	-0.368	S
B4		25.45	25.5	25.512	1.13	-0.055	S
B6		21.79	22.6	22.408	1.396	-0.443	S

¥ Reported values are blank corrected. Corrections are done by subtracting the average blank value when a value was reported or 1/2MDL when MDL was reported.

* Z score is unitless

⌘ EMEP quality norm; letters indicate:

S – Satisfactory: Results deviates less than ±20% of the expected value for SO₂ and HNO₃

Q – Questionable: Results deviates between ±20-40% of the expected value for SO₂ and HNO₃

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO₂ and for HNO₃

Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect: <https://projects.nilu.no/ccc/intercomparison/>

EMEP – 41st intercomparison of analytical methods - 2023

Laboratory 158, Asia Center for Air Pollution Research (ACAP) (Japan)

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

Sample name	Determinand	Reported value [¥]	Expected value	Mean value	Standard deviation	Z score [*]	EMEP quality norm [⌘]
B1	SO ₂ <i>µg S/filter</i>	20.15	19.6	19.083	1.626	0.656	S
B2		24.86	23.2	22.278	1.805	1.431	S
B4		33.57	31.3	30.372	1.802	1.774	S
B6		30.15	27.7	26.812	1.738	1.921	S
B1	HNO ₃ <i>µg N/filter</i>	17.677	16	15.909	0.748	2.363	S
B2		20.828	19	18.92	0.952	2.003	S
B4		27.997	25.5	25.512	1.13	2.2	S
B6		25.247	22.6	22.408	1.396	2.035	S

¥ Reported values are blank corrected. Corrections are done by subtracting the average blank value when a value was reported or 1/2MDL when MDL was reported.

* Z score is unitless

⌘ EMEP quality norm; letters indicate:

S – Satisfactory: Results deviates less than ±20% of the expected value for SO₂ and HNO₃

Q – Questionable: Results deviates between ±20-40% of the expected value for SO₂ and HNO₃

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO₂ and for HNO₃

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EMEP – 41st intercomparison of analytical methods - 2023

Laboratory 178, Laboratory of Hydrochemistry and Atmospheric Chemistry and
EANET Monitoring Laboratory (Russian Federation)

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

Sample name	Determinand	Reported value [‡]	Expected value	Mean value	Standard deviation	Z score [*]	EMEP quality norm [‡]
B1	SO ₂ <i>µg S/filter</i>	16.598	19.6	19.083	1.626	-1.528	S
B2		22.017	23.2	22.278	1.805	-0.145	S
B4		30.188	31.3	30.372	1.802	-0.103	S
B6		26.738	27.7	26.812	1.738	-0.043	S
B1	HNO ₃ <i>µg N/filter</i>	14.505	16	15.909	0.748	-1.877	S
B2		20.255	19	18.92	0.952	1.402	S
B4		25.635	25.5	25.512	1.13	0.109	S
B6		20.935	22.6	22.408	1.396	-1.055	S

[‡] Reported values are blank corrected. Corrections are done by subtracting the average blank value when a value was reported or 1/2MDL when MDL was reported.

^{*} Z score is unitless

[‡] EMEP quality norm; letters indicate:

S – Satisfactory: Results deviates less than ±20% of the expected value for SO₂ and HNO₃

Q – Questionable: Results deviates between ±20-40% of the expected value for SO₂ and HNO₃

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO₂ and for HNO₃

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EMEP – 41st intercomparison of analytical methods - 2023

Laboratory 201, Public Health Institute "Timok" (Republic of Serbia)

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

Sample name	Determinand	Reported value †	Expected value	Mean value	Standard deviation	Z score *	EMEP quality norm ‡
B1	SO ₂ <i>µg S/filter</i>	1.3	19.6	19.083	1.626	-10.935	U
B2		14.2	23.2	22.278	1.805	-4.476	Q
B4		29.8	31.3	30.372	1.802	-0.318	S
B6		29.6	27.7	26.812	1.738	1.604	S
B1	HNO ₃ <i>µg N/filter</i>	-999	16	15.909	0.748		B
B2		-999	19	18.92	0.952		B
B4		-999	25.5	25.512	1.13		B
B6		-999	22.6	22.408	1.396		B

† Reported values are blank corrected. Corrections are done by subtracting the average blank value when a value was reported or 1/2MDL when MDL was reported.

* Z score is unitless

‡ EMEP quality norm; letters indicate:

S – Satisfactory: Results deviates less than ±20% of the expected value for SO₂ and HNO₃

Q – Questionable: Results deviates between ±20-40% of the expected value for SO₂ and HNO₃

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO₂ and for HNO₃

Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect: <https://projects.nilu.no/ccc/intercomparison/>

EMEP – 41st intercomparison of analytical methods - 2023

Laboratory 208, VINCA - Vinca Institute of Nuclear Sciences (Republic of Serbia)

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

Sample name	Determinand	Reported value †	Expected value	Mean value	Standard deviation	Z score *	EMEP quality norm ‡
B1	SO ₂	19.055	19.6	19.083	1.626	-0.017	S
B2		22.678	23.2	22.278	1.805	0.221	S
B4	µg S/filter	30.567	31.3	30.372	1.802	0.108	S
B6		26.898	27.7	26.812	1.738	0.05	S
B1	HNO ₃	16.145	16	15.909	0.748	0.316	S
B2		18.901	19	18.92	0.952	-0.021	S
B4	µg N/filter	25.728	25.5	25.512	1.13	0.191	S
B6		22.478	22.6	22.408	1.396	0.051	S

† Reported values are blank corrected. Corrections are done by subtracting the average blank value when a value was reported or 1/2MDL when MDL was reported.

* Z score is unitless

‡ EMEP quality norm; letters indicate:

S – Satisfactory: Results deviates less than ±20% of the expected value for SO₂ and HNO₃

Q – Questionable: Results deviates between ±20-40% of the expected value for SO₂ and HNO₃

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO₂ and for HNO₃

Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect: <https://projects.nilu.no/ccc/intercomparison/>