

## EMEP – 42<sup>nd</sup> intercomparison of analytical methods - 2024

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

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

Sample name	Determinand	Reported value <sup>‡</sup>	Expected value	Mean value	Standard deviation	Z score <sup>*</sup>	EMEP quality norm <sup>‡</sup>
B1	SO <sub>2</sub> <i>µg S/filter</i>	15.96	18	17.105	0.767	-1.494	S
B3		27.76	30.1	29.027	1.365	-0.929	S
B4		28.87	31.3	30.29	1.529	-0.929	S
B5		21.63	23.6	22.973	1.426	-0.942	S
B1	HNO <sub>3</sub> <i>µg N/filter</i>	16.05	17.3	16.813	0.749	-1.019	S
B3		21.36	22.9	22.116	0.712	-1.062	S
B4		25.51	27.2	26.21	1.647	-0.425	S
B5		16.46	18	16.905	1.502	-0.296	S

<sup>‡</sup> 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.

<sup>\*</sup> Z score is unitless

<sup>‡</sup> EMEP quality norm; letters indicate:

S – Satisfactory: Results deviates less than ±20% of the expected value for SO<sub>2</sub> and HNO<sub>3</sub>

Q – Questionable: Results deviates between ±20-40% of the expected value for SO<sub>2</sub> and HNO<sub>3</sub>

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO<sub>2</sub> and for HNO<sub>3</sub>

B – Blank: No value reported

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

## EMEP – 42<sup>nd</sup> intercomparison of analytical methods - 2024

### 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 <sup>‡</sup>	Expected value	Mean value	Standard deviation	Z score <sup>*</sup>	EMEP quality norm <sup>‡</sup>
B1	SO <sub>2</sub>	17.145	18	17.105	0.767	0.051	S
B3		#	30.1	29.027	1.365		
B4	µg S/filter	31.227	31.3	30.29	1.529	0.613	S
B5		23.692	23.6	22.973	1.426	0.504	S
B1	HNO <sub>3</sub>	16.089	17.3	16.813	0.749	-0.967	S
B3		22.732	22.9	22.116	0.712	0.864	S
B4	µg N/filter	27.142	27.2	26.21	1.647	0.566	S
B5		16.705	18	16.905	1.502	-0.133	S

<sup>‡</sup> 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.

<sup>\*</sup> Z score is unitless

<sup>‡</sup> EMEP quality norm; letters indicate:

S – Satisfactory: Results deviates less than ±20% of the expected value for SO<sub>2</sub> and HNO<sub>3</sub>

Q – Questionable: Results deviates between ±20-40% of the expected value for SO<sub>2</sub> and HNO<sub>3</sub>

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO<sub>2</sub> and for HNO<sub>3</sub>

B – Blank: No value reported

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# Missing analyte on filter

## EMEP – 42<sup>nd</sup> intercomparison of analytical methods - 2024

### 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 <sub>2</sub>	17.06	18	17.105	0.767	-0.059	S
B3		29.03	30.1	29.027	1.365	0.002	S
B4	µg S/filter	30.42	31.3	30.29	1.529	0.085	S
B5		23.52	23.6	22.973	1.426	0.384	S
B1	HNO <sub>3</sub>	16.57	17.3	16.813	0.749	-0.324	S
B3		22.11	22.9	22.116	0.712	-0.009	S
B4	µg N/filter	27.02	27.2	26.21	1.647	0.492	S
B5		18.2	18	16.905	1.502	0.862	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 SO<sub>2</sub> and HNO<sub>3</sub>

Q – Questionable: Results deviates between ±20-40% of the expected value for SO<sub>2</sub> and HNO<sub>3</sub>

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO<sub>2</sub> and for HNO<sub>3</sub>

B – Blank: No value reported

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## EMEP – 42<sup>nd</sup> intercomparison of analytical methods - 2024

### 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 <sub>2</sub>	17.535	18	17.105	0.767	0.561	S
B3		30.035	30.1	29.027	1.365	0.738	S
B4	µg S/filter	31.335	31.3	30.29	1.529	0.684	S
B5		23.635	23.6	22.973	1.426	0.464	S
B1	HNO <sub>3</sub>	16.462	17.3	16.813	0.749	-0.468	S
B3		21.762	22.9	22.116	0.712	-0.497	S
B4	µg N/filter	26.062	27.2	26.21	1.647	-0.09	S
B5		16.863	18	16.905	1.502	-0.028	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 SO<sub>2</sub> and HNO<sub>3</sub>

Q – Questionable: Results deviates between ±20-40% of the expected value for SO<sub>2</sub> and HNO<sub>3</sub>

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO<sub>2</sub> and for HNO<sub>3</sub>

B – Blank: No value reported

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## EMEP – 42<sup>nd</sup> intercomparison of analytical methods - 2024

### 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 <sub>2</sub>	16.739	18	17.105	0.767	-0.477	S
B3		29.082	30.1	29.027	1.365	0.04	S
B4	µg S/filter	30.933	31.3	30.29	1.529	0.421	S
B5		23.093	23.6	22.973	1.426	0.085	S
B1	HNO <sub>3</sub>	15.924	17.3	16.813	0.749	-1.187	S
B3		21.426	22.9	22.116	0.712	-0.969	S
B4	µg N/filter	26.637	27.2	26.21	1.647	0.259	S
B5		16.721	18	16.905	1.502	-0.122	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 SO<sub>2</sub> and HNO<sub>3</sub>

Q – Questionable: Results deviates between ±20-40% of the expected value for SO<sub>2</sub> and HNO<sub>3</sub>

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO<sub>2</sub> and for HNO<sub>3</sub>

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## EMEP – 42<sup>nd</sup> intercomparison of analytical methods - 2024

### 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 <sub>2</sub> <i>µg S/filter</i>	18.1	18	17.105	0.767	1.298	S
B3		29.9	30.1	29.027	1.365	0.639	S
B4		31.4	31.3	30.29	1.529	0.726	S
B5		23.8	23.6	22.973	1.426	0.58	S
B1	HNO <sub>3</sub> <i>µg N/filter</i>	17.2	17.3	16.813	0.749	0.517	S
B3		22.6	22.9	22.116	0.712	0.679	S
B4		27.6	27.2	26.21	1.647	0.844	S
B5		18.1	18	16.905	1.502	0.796	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.

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‡ EMEP quality norm; letters indicate:

S – Satisfactory: Results deviates less than ±20% of the expected value for SO<sub>2</sub> and HNO<sub>3</sub>

Q – Questionable: Results deviates between ±20-40% of the expected value for SO<sub>2</sub> and HNO<sub>3</sub>

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO<sub>2</sub> and for HNO<sub>3</sub>

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## EMEP – 42<sup>nd</sup> intercomparison of analytical methods - 2024

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 <sup>‡</sup>	Expected value	Mean value	Standard deviation	Z score <sup>*</sup>	EMEP quality norm <sup>‡</sup>
B1	SO <sub>2</sub> <i>µg S/filter</i>	17.21	18	17.105	0.767	0.137	S
B3		28.84	30.1	29.027	1.365	-0.137	S
B4		30.64	31.3	30.29	1.529	0.229	S
B5		23.64	23.6	22.973	1.426	0.468	S
B1	HNO <sub>3</sub> <i>µg N/filter</i>	16.68	17.3	16.813	0.749	-0.177	S
B3		22.17	22.9	22.116	0.712	0.075	S
B4		25.69	27.2	26.21	1.647	-0.316	S
B5		17.62	18	16.905	1.502	0.476	S

<sup>‡</sup> 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.

<sup>\*</sup> Z score is unitless

<sup>‡</sup> EMEP quality norm; letters indicate:

S – Satisfactory: Results deviates less than ±20% of the expected value for SO<sub>2</sub> and HNO<sub>3</sub>

Q – Questionable: Results deviates between ±20-40% of the expected value for SO<sub>2</sub> and HNO<sub>3</sub>

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO<sub>2</sub> and for HNO<sub>3</sub>

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## EMEP – 42<sup>nd</sup> intercomparison of analytical methods - 2024

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

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

Sample name	Determinand	Reported value <sup>‡</sup>	Expected value	Mean value	Standard deviation	Z score <sup>*</sup>	EMEP quality norm <sup>‡</sup>
B1	SO <sub>2</sub> <i>µg S/filter</i>	17.55	18	17.105	0.767	0.58	S
B3		29.25	30.1	29.027	1.365	0.163	S
B4		30.25	31.3	30.29	1.529	-0.026	S
B5		23.15	23.6	22.973	1.426	0.124	S
B1	HNO <sub>3</sub> <i>µg N/filter</i>	16.55	17.3	16.813	0.749	-0.351	S
B3		21.65	22.9	22.116	0.712	-0.654	S
B4		25.55	27.2	26.21	1.647	-0.401	S
B5		17.25	18	16.905	1.502	0.23	S

<sup>‡</sup> 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.

<sup>\*</sup> Z score is unitless

<sup>‡</sup> EMEP quality norm; letters indicate:

S – Satisfactory: Results deviates less than ±20% of the expected value for SO<sub>2</sub> and HNO<sub>3</sub>

Q – Questionable: Results deviates between ±20-40% of the expected value for SO<sub>2</sub> and HNO<sub>3</sub>

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO<sub>2</sub> and for HNO<sub>3</sub>

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## EMEP – 42<sup>nd</sup> intercomparison of analytical methods - 2024

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 <sup>¥</sup>	Expected value	Mean value	Standard deviation	Z score <sup>*</sup>	EMEP quality norm <sup>⌘</sup>
B1	SO <sub>2</sub> <i>µg S/filter</i>	14.924	18	17.105	0.767	-2.846	S
B3		25.049	30.1	29.027	1.365	-2.915	S
B4		26.343	31.3	30.29	1.529	-2.582	S
B5		18.87	23.6	22.973	1.426	-2.877	Q
B1	HNO <sub>3</sub> <i>µg N/filter</i>	20.674	17.3	16.813	0.749	5.158	S
B3		27.491	22.9	22.116	0.712	7.545	Q
B4		32.9	27.2	26.21	1.647	4.062	Q
B5		22.421	18	16.905	1.502	3.672	Q

¥ 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 SO<sub>2</sub> and HNO<sub>3</sub>

Q – Questionable: Results deviates between ±20-40% of the expected value for SO<sub>2</sub> and HNO<sub>3</sub>

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO<sub>2</sub> and for HNO<sub>3</sub>

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## EMEP – 42<sup>nd</sup> intercomparison of analytical methods - 2024

### 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 <sub>2</sub>	17.456	18	17.105	0.767	0.458	S
B3		28.797	30.1	29.027	1.365	-0.168	S
B4	µg S/filter	30.149	31.3	30.29	1.529	-0.092	S
B5		22.747	23.6	22.973	1.426	-0.158	S
B1	HNO <sub>3</sub>	17.603	17.3	16.813	0.749	1.056	S
B3		22.429	22.9	22.116	0.712	0.439	S
B4	µg N/filter	26.762	27.2	26.21	1.647	0.335	S
B5		17.816	18	16.905	1.502	0.607	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 SO<sub>2</sub> and HNO<sub>3</sub>

Q – Questionable: Results deviates between ±20-40% of the expected value for SO<sub>2</sub> and HNO<sub>3</sub>

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO<sub>2</sub> and for HNO<sub>3</sub>

B – Blank: No value reported

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## EMEP – 42<sup>nd</sup> intercomparison of analytical methods - 2024

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

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

Sample name	Determinand	Reported value <sup>¥</sup>	Expected value	Mean value	Standard deviation	Z score <sup>*</sup>	EMEP quality norm <sup>⌘</sup>
B1	SO <sub>2</sub> <i>µg S/filter</i>	17.38	18	17.105	0.767	0.358	S
B3		29.37	30.1	29.027	1.365	0.251	S
B4		28.92	31.3	30.29	1.529	-0.896	S
B5		22.66	23.6	22.973	1.426	-0.219	S
B1	HNO <sub>3</sub> <i>µg N/filter</i>	17.02	17.3	16.813	0.749	0.277	S
B3		22.59	22.9	22.116	0.712	0.665	S
B4		27.15	27.2	26.21	1.647	0.571	S
B5		15.86	18	16.905	1.502	-0.695	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 SO<sub>2</sub> and HNO<sub>3</sub>

Q – Questionable: Results deviates between ±20-40% of the expected value for SO<sub>2</sub> and HNO<sub>3</sub>

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO<sub>2</sub> and for HNO<sub>3</sub>

B – Blank: No value reported

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## EMEP – 42<sup>nd</sup> intercomparison of analytical methods - 2024

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 <sub>2</sub> <i>µg S/filter</i>	16.953	18	17.105	0.767	-0.199	S
B3		30.148	30.1	29.027	1.365	0.821	S
B4		31.328	31.3	30.29	1.529	0.679	S
B5		23.317	23.6	22.973	1.426	0.242	S
B1	HNO <sub>3</sub> <i>µg N/filter</i>	11.165	17.3	16.813	0.749	-7.544	Q
B3		17.015	22.9	22.116	0.712	-7.161	Q
B4		21.295	27.2	26.21	1.647	-2.984	Q
B5		12.125	18	16.905	1.502	-3.182	Q

† 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 SO<sub>2</sub> and HNO<sub>3</sub>

Q – Questionable: Results deviates between ±20-40% of the expected value for SO<sub>2</sub> and HNO<sub>3</sub>

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO<sub>2</sub> and for HNO<sub>3</sub>

B – Blank: No value reported

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## EMEP – 42<sup>nd</sup> intercomparison of analytical methods - 2024

### Laboratory 34, Ministry of Environment and Urbanisation (Turkey)

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

Sample name	Determinand	Reported value <sup>¥</sup>	Expected value	Mean value	Standard deviation	Z score <sup>*</sup>	EMEP quality norm <sup>¤</sup>
B1	SO <sub>2</sub>	17.593	18	17.105	0.767	0.636	S
B3		28.16	30.1	29.027	1.365	-0.636	S
B4	µg S/filter	28.026	31.3	30.29	1.529	-1.481	S
B5		21.871	23.6	22.973	1.426	-0.773	S
B1	HNO <sub>3</sub>	15.567	17.3	16.813	0.749	-1.664	S
B3		20.586	22.9	22.116	0.712	-2.148	S
B4	µg N/filter	24.729	27.2	26.21	1.647	-0.899	S
B5		14.943	18	16.905	1.502	-1.306	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 SO<sub>2</sub> and HNO<sub>3</sub>

Q – Questionable: Results deviates between ±20-40% of the expected value for SO<sub>2</sub> and HNO<sub>3</sub>

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO<sub>2</sub> and for HNO<sub>3</sub>

B – Blank: No value reported

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## EMEP – 42<sup>nd</sup> intercomparison of analytical methods - 2024

### 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 <sub>2</sub>	18.014	18	17.105	0.767	1.185	S
B3		29.945	30.1	29.027	1.365	0.672	S
B4	µg S/filter	31.298	31.3	30.29	1.529	0.659	S
B5		23.935	23.6	22.973	1.426	0.675	S
B1	HNO <sub>3</sub>	17.516	17.3	16.813	0.749	0.939	S
B3		22.952	22.9	22.116	0.712	1.173	S
B4	µg N/filter	27.873	27.2	26.21	1.647	1.01	S
B5		18.282	18	16.905	1.502	0.917	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 SO<sub>2</sub> and HNO<sub>3</sub>

Q – Questionable: Results deviates between ±20-40% of the expected value for SO<sub>2</sub> and HNO<sub>3</sub>

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO<sub>2</sub> and for HNO<sub>3</sub>

B – Blank: No value reported

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## EMEP – 42<sup>nd</sup> intercomparison of analytical methods - 2024

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 <sub>2</sub>	19.945	18	17.105	0.767	3.704	S
B3		31.685	30.1	29.027	1.365	1.947	S
B4	µg S/filter	33.315	31.3	30.29	1.529	1.979	S
B5		25.945	23.6	22.973	1.426	2.085	S
B1	HNO <sub>3</sub>	18.135	17.3	16.813	0.749	1.766	S
B3		23.545	22.9	22.116	0.712	2.006	S
B4	µg N/filter	28.565	27.2	26.21	1.647	1.43	S
B5		19.505	18	16.905	1.502	1.731	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 SO<sub>2</sub> and HNO<sub>3</sub>

Q – Questionable: Results deviates between ±20-40% of the expected value for SO<sub>2</sub> and HNO<sub>3</sub>

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO<sub>2</sub> and for HNO<sub>3</sub>

B – Blank: No value reported

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## EMEP – 42<sup>nd</sup> intercomparison of analytical methods - 2024

### 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 <sub>2</sub>	17.535	18	17.105	0.767	0.561	S
B3		29.165	30.1	29.027	1.365	0.101	S
B4	µg S/filter	30.345	31.3	30.29	1.529	0.036	S
B5		23.775	23.6	22.973	1.426	0.563	S
B1	HNO <sub>3</sub>	17.077	17.3	16.813	0.749	0.353	S
B3		22.157	22.9	22.116	0.712	0.057	S
B4	µg N/filter	26.687	27.2	26.21	1.647	0.29	S
B5		17.687	18	16.905	1.502	0.521	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 SO<sub>2</sub> and HNO<sub>3</sub>

Q – Questionable: Results deviates between ±20-40% of the expected value for SO<sub>2</sub> and HNO<sub>3</sub>

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO<sub>2</sub> and for HNO<sub>3</sub>

B – Blank: No value reported

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## EMEP – 42<sup>nd</sup> intercomparison of analytical methods - 2024

### 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 <sub>2</sub> <i>µg S/filter</i>	17.115	18	17.105	0.767	0.013	S
B3		28.82	30.1	29.027	1.365	-0.152	S
B4		29.993	31.3	30.29	1.529	-0.194	S
B5		22.38	23.6	22.973	1.426	-0.416	S
B1	HNO <sub>3</sub> <i>µg N/filter</i>	16.53	17.3	16.813	0.749	-0.378	S
B3		21.67	22.9	22.116	0.712	-0.626	S
B4		24.69	27.2	26.21	1.647	-0.923	S
B5		16.85	18	16.905	1.502	-0.036	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 SO<sub>2</sub> and HNO<sub>3</sub>

Q – Questionable: Results deviates between ±20-40% of the expected value for SO<sub>2</sub> and HNO<sub>3</sub>

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO<sub>2</sub> and for HNO<sub>3</sub>

B – Blank: No value reported

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## EMEP – 42<sup>nd</sup> intercomparison of analytical methods - 2024

Laboratory 178, Limnological Institute Russian Academy of Sciences (Russian Federation)

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

Sample name	Determinand	Reported value <sup>‡</sup>	Expected value	Mean value	Standard deviation	Z score <sup>*</sup>	EMEP quality norm <sup>‡</sup>
B1	SO <sub>2</sub> <i>µg S/filter</i>	16.52	18	17.105	0.767	-0.763	S
B3		28.43	30.1	29.027	1.365	-0.438	S
B4		30.43	31.3	30.29	1.529	0.091	S
B5		21.85	23.6	22.973	1.426	-0.788	S
B1	HNO <sub>3</sub> <i>µg N/filter</i>	18.03	17.3	16.813	0.749	1.626	S
B3		22.12	22.9	22.116	0.712	0.005	S
B4		26.61	27.2	26.21	1.647	0.243	S
B5		15.49	18	16.905	1.502	-0.942	S

<sup>‡</sup> 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.

<sup>\*</sup> Z score is unitless

<sup>‡</sup> EMEP quality norm; letters indicate:

S – Satisfactory: Results deviates less than ±20% of the expected value for SO<sub>2</sub> and HNO<sub>3</sub>

Q – Questionable: Results deviates between ±20-40% of the expected value for SO<sub>2</sub> and HNO<sub>3</sub>

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO<sub>2</sub> and for HNO<sub>3</sub>

B – Blank: No value reported

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## EMEP – 42<sup>nd</sup> intercomparison of analytical methods - 2024

Laboratory 200, FUB AG (Switzerland)

### 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 <sub>2</sub>	12.865	18	17.105	0.767	-5.53	Q
B3		19.955	30.1	29.027	1.365	-6.647	Q
B4	µg S/filter	22.445	31.3	30.29	1.529	-5.132	Q
B5		16.985	23.6	22.973	1.426	-4.2	Q
B1	HNO <sub>3</sub>	12.485	17.3	16.813	0.749	-5.781	Q
B3		16.165	22.9	22.116	0.712	-8.354	Q
B4	µg N/filter	18.965	27.2	26.21	1.647	-4.399	Q
B5		13.025	18	16.905	1.502	-2.582	Q

† 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 SO<sub>2</sub> and HNO<sub>3</sub>

Q – Questionable: Results deviates between ±20-40% of the expected value for SO<sub>2</sub> and HNO<sub>3</sub>

U – Unsatisfactory: Results deviates more than ±40% of the expected value for SO<sub>2</sub> and for HNO<sub>3</sub>

B – Blank: No value reported

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