



## EMEP – 40<sup>th</sup> intercomparison of analytical methods - 2022

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 ‡
B2	SO <sub>2</sub>	19.9	24.0	22.9	1.72	-1.71	S
B3		16.5	20.0	19.7	1.76	-1.80	S
B5	µg S/filter	27.9	32.1	31.2	2.16	-1.52	S
B6		30.2	34.1	33.4	2.39	-1.33	S
B2	HNO <sub>3</sub>	17.9	19.6	18.6	0.71	-1.02	S
B3		15.5	16.4	16.0	0.79	-0.62	S
B5	µg N/filter	24.9	26.2	25.7	1.31	-0.64	S
B6		26.6	27.8	27.2	1.34	-0.43	S

† Reported values are blank corrected. Corrections are done by subtracting the 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>

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

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## EMEP – 40<sup>th</sup> intercomparison of analytical methods - 2022

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>
B2	SO <sub>2</sub>	24.2	24.0	22.9	1.72	0.78	S
B3		20.9	20.0	19.7	1.76	0.70	S
B5		32.9	32.1	31.2	2.16	0.80	S
B6	<i>µg S/filter</i>	34.6	34.1	33.4	2.39	0.51	S
B2	HNO <sub>3</sub>	19.2	19.6	18.6	0.71	0.81	S
B3		16.7	16.4	16.0	0.79	0.90	S
B5		26.2	26.2	25.7	1.31	0.36	S
B6	<i>µg N/filter</i>	27.9	27.8	27.2	1.34	0.54	S

¥ Reported values are blank corrected. Corrections are done by subtracting the 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 – 40<sup>th</sup> intercomparison of analytical methods - 2022

Laboratory 6, SGS France - EHS (France)

### 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>
B2	SO <sub>2</sub>	24.2	24.0	22.9	1.72	0.78	S
B3		20.8	20.0	19.7	1.76	0.64	S
B5		32.1	32.1	31.2	2.16	0.43	S
B6	<i>µg S/filter</i>	34.0	34.1	33.4	2.39	0.26	S
B2	HNO <sub>3</sub>	18.2	19.6	18.6	0.71	-0.60	S
B3		15.5	16.4	16.0	0.79	-0.62	S
B5		25.1	26.2	25.7	1.31	-0.48	S
B6	<i>µg N/filter</i>	26.4	27.8	27.2	1.34	-0.58	S

¥ Reported values are blank corrected. Corrections are done by subtracting the 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 – 40<sup>th</sup> intercomparison of analytical methods - 2022

Laboratory 8, Umweltbundesamt, Langen (Germany)

### 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>
B2	SO <sub>2</sub>	23.8	24.0	22.9	1.72	0.55	S
B3		19.8	20.0	19.7	1.76	0.07	S
B5	µg S/filter	32.3	32.1	31.2	2.16	0.52	S
B6		34.2	34.1	33.4	2.39	0.34	S
B2	HNO <sub>3</sub>	18.6	19.6	18.6	0.71	-0.03	S
B3		16.3	16.4	16.0	0.79	0.40	S
B5	µg N/filter	25.5	26.2	25.7	1.31	-0.18	S
B6		27.0	27.8	27.2	1.34	-0.13	S

<sup>‡</sup> Reported values are blank corrected. Corrections are done by subtracting the 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 – 40<sup>th</sup> intercomparison of analytical methods - 2022

Laboratory 10, Air Quality Reference Centre (Hungary)

### 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>
B2	SO <sub>2</sub>	23.4	24.0	22.9	1.72	0.32	S
B3		22.7	20.0	19.7	1.76	1.72	S
B5	µg S/filter	37.1	32.1	31.2	2.16	2.75	S
B6		37.4	34.1	33.4	2.39	1.68	S
B2	HNO <sub>3</sub>	17.5	19.6	18.6	0.71	-1.58	S
B3		14.6	16.4	16.0	0.79	-1.76	S
B5	µg N/filter	22.4	26.2	25.7	1.31	-2.55	S
B6		23.4	27.8	27.2	1.34	-2.82	S

¥ Reported values are blank corrected. Corrections are done by subtracting the 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 – 40<sup>th</sup> intercomparison of analytical methods - 2022

Laboratory 15, Norwegian Institute for Air Research NILU (Norway)

### 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>
B2	SO <sub>2</sub>	22.8	24.0	22.9	1.72	-0.03	S
B3		19.3	20.0	19.7	1.76	-0.21	S
B5	µg S/filter	31.2	32.1	31.2	2.16	0.01	S
B6		33.3	34.1	33.4	2.39	-0.04	S
B2	HNO <sub>3</sub>	18.6	19.6	18.6	0.71	-0.03	S
B3		15.8	16.4	16.0	0.79	-0.24	S
B5	µg N/filter	25.4	26.2	25.7	1.31	-0.25	S
B6		26.8	27.8	27.2	1.34	-0.28	S

<sup>‡</sup> Reported values are blank corrected. Corrections are done by subtracting the 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 – 40<sup>th</sup> intercomparison of analytical methods - 2022

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 ‡
B2	SO <sub>2</sub>	23.0	24.0	22.9	1.72	0.09	S
B3		20.0	20.0	19.7	1.76	0.18	S
B5		31.5	32.1	31.2	2.16	0.15	S
B6	µg S/filter	33.0	34.1	33.4	2.39	-0.16	S
B2	HNO <sub>3</sub>	20.6	19.6	18.6	0.71	2.78	S
B3		18.0	16.4	16.0	0.79	2.56	S
B5		28.1	26.2	25.7	1.31	1.82	S
B6	µg N/filter	29.2	27.8	27.2	1.34	1.51	S

† Reported values are blank corrected. Corrections are done by subtracting the 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 – 40<sup>th</sup> intercomparison of analytical methods - 2022

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>
B2	SO <sub>2</sub> <i>µg S/filter</i>	22.7	24.0	22.9	1.72	-0.09	S
B3		20.3	20.0	19.7	1.76	0.35	S
B5		31.5	32.1	31.2	2.16	0.15	S
B6		33.1	34.1	33.4	2.39	-0.12	S
B2	HNO <sub>3</sub> <i>µg N/filter</i>	17.7	19.6	18.6	0.71	-1.30	S
B3		16.0	16.4	16.0	0.79	0.02	S
B5		24.7	26.2	25.7	1.31	-0.79	S
B6		25.7	27.8	27.2	1.34	-1.10	S

<sup>‡</sup> Reported values are blank corrected. Corrections are done by subtracting the 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 – 40<sup>th</sup> intercomparison of analytical methods - 2022

Laboratory 31, Slovak Hydrometeorological Institute (Slovakia)

### 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>
B2	SO <sub>2</sub>	22.7	24.0	22.9	1.72	-0.09	S
B3		19.4	20.0	19.7	1.76	-0.16	S
B5		30.8	32.1	31.2	2.16	-0.18	S
B6	<i>µg S/filter</i>	32.3	34.1	33.4	2.39	-0.45	S
B2	HNO <sub>3</sub>	19.2	19.6	18.6	0.71	0.81	S
B3		16.5	16.4	16.0	0.79	0.65	S
B5		26.5	26.2	25.7	1.31	0.59	S
B6	<i>µg N/filter</i>	28.1	27.8	27.2	1.34	0.69	S

<sup>‡</sup> Reported values are blank corrected. Corrections are done by subtracting the 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 – 40<sup>th</sup> intercomparison of analytical methods - 2022

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>
B2	SO <sub>2</sub> <i>µg S/filter</i>	23.2	24.0	22.9	1.72	0.20	S
B3		19.7	20.0	19.7	1.76	0.01	S
B5		30.6	32.1	31.2	2.16	-0.27	S
B6		33.1	34.1	33.4	2.39	-0.12	S
B2	HNO <sub>3</sub> <i>µg N/filter</i>	18.3	19.6	18.6	0.71	-0.46	S
B3		15.1	16.4	16.0	0.79	-1.13	S
B5		25.1	26.2	25.7	1.31	-0.48	S
B6		26.3	27.8	27.2	1.34	-0.65	S

¥ Reported values are blank corrected. Corrections are done by subtracting the 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 – 40<sup>th</sup> intercomparison of analytical methods - 2022

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

### 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>
B2	SO <sub>2</sub>	22.5	24.0	22.9	1.72	-0.20	S
B3		18.4	20.0	19.7	1.76	-0.73	S
B5		29.7	32.1	31.2	2.16	-0.69	S
B6	<i>µg S/filter</i>	32.7	34.1	33.4	2.39	-0.29	S
B2	HNO <sub>3</sub>	18.6	19.6	18.6	0.71	-0.03	S
B3		16.0	16.4	16.0	0.79	0.02	S
B5		25.5	26.2	25.7	1.31	-0.18	S
B6	<i>µg N/filter</i>	27.5	27.8	27.2	1.34	0.24	S

<sup>‡</sup> Reported values are blank corrected. Corrections are done by subtracting the 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 – 40<sup>th</sup> intercomparison of analytical methods - 2022

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>
B2	SO <sub>2</sub> <i>µg S/filter</i>	19.4	24.0	22.9	1.72	-2.00	S
B3		16.2	20.0	19.7	1.76	-1.98	S
B5		27.2	32.1	31.2	2.16	-1.85	S
B6		28.3	34.1	33.4	2.39	-2.12	S
B2	HNO <sub>3</sub> <i>µg N/filter</i>	17.9	19.6	18.6	0.71	-1.02	S
B3		15.3	16.4	16.0	0.79	-0.87	S
B5		25.4	26.2	25.7	1.31	-0.25	S
B6		27.4	27.8	27.2	1.34	0.17	S

¥ Reported values are blank corrected. Corrections are done by subtracting the 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 – 40<sup>th</sup> intercomparison of analytical methods - 2022

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

### 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>
B2	SO <sub>2</sub>	24.5	24.0	22.9	1.72	0.96	S
B3		20.5	20.0	19.7	1.76	0.47	S
B5	µg S/filter	32.2	32.1	31.2	2.16	0.47	S
B6		34.5	34.1	33.4	2.39	0.47	S
B2	HNO <sub>3</sub>	19.8	19.6	18.6	0.71	1.65	S
B3		17.1	16.4	16.0	0.79	1.41	S
B5	µg N/filter	27.1	26.2	25.7	1.31	1.05	S
B6		28.8	27.8	27.2	1.34	1.21	S

<sup>‡</sup> Reported values are blank corrected. Corrections are done by subtracting the 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 – 40<sup>th</sup> intercomparison of analytical methods - 2022

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

### 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>
B2	SO <sub>2</sub> <i>µg S/filter</i>	28.6	24.0	22.9	1.72	3.34	S
B3		24.9	20.0	19.7	1.76	2.97	Q
B5		39.2	32.1	31.2	2.16	3.72	Q
B6		39.2	34.1	33.4	2.39	2.43	S
B2	HNO <sub>3</sub> <i>µg N/filter</i>	19.6	19.6	18.6	0.71	1.37	S
B3		17.0	16.4	16.0	0.79	1.29	S
B5		28.5	26.2	25.7	1.31	2.12	S
B6		29.3	27.8	27.2	1.34	1.58	S

<sup>‡</sup> Reported values are blank corrected. Corrections are done by subtracting the 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 – 40<sup>th</sup> intercomparison of analytical methods - 2022

Laboratory 39, Central Environmental Analysis Laboratory - CentLab (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>
B2	SO <sub>2</sub>	23.9	24.0	22.9	1.72	0.61	S
B3		19.1	20.0	19.7	1.76	-0.33	S
B5	µg S/filter	32.1	32.1	31.2	2.16	0.43	S
B6		34.3	34.1	33.4	2.39	0.38	S
B2	HNO <sub>3</sub>	18.9	19.6	18.6	0.71	0.39	S
B3		15.1	16.4	16.0	0.79	-1.13	S
B5	µg N/filter	25.9	26.2	25.7	1.31	0.13	S
B6		27.9	27.8	27.2	1.34	0.54	S

<sup>‡</sup> Reported values are blank corrected. Corrections are done by subtracting the 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 – 40<sup>th</sup> intercomparison of analytical methods - 2022

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 ‡
B2	SO <sub>2</sub>	22.5	24.0	22.9	1.72	-0.20	S
B3		18.8	20.0	19.7	1.76	-0.50	S
B5	µg S/filter	30.0	32.1	31.2	2.16	-0.55	S
B6		31.8	34.1	33.4	2.39	-0.66	S
B2	HNO <sub>3</sub>	18.6	19.6	18.6	0.71	-0.03	S
B3		15.9	16.4	16.0	0.79	-0.11	S
B5	µg N/filter	25.2	26.2	25.7	1.31	-0.41	S
B6		26.5	27.8	27.2	1.34	-0.50	S

† Reported values are blank corrected. Corrections are done by subtracting the 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 – 40<sup>th</sup> intercomparison of analytical methods - 2022

Laboratory 200, FUB AG (Switzerland)

### 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>
B2	SO <sub>2</sub>	22.4	24.0	22.9	1.72	-0.26	S
B3		19.1	20.0	19.7	1.76	-0.33	S
B5	µg S/filter	31.0	32.1	31.2	2.16	-0.09	S
B6		33.0	34.1	33.4	2.39	-0.16	S
B2	HNO <sub>3</sub>	18.2	19.6	18.6	0.71	-0.60	S
B3		15.9	16.4	16.0	0.79	-0.11	S
B5	µg N/filter	25.4	26.2	25.7	1.31	-0.25	S
B6		26.7	27.8	27.2	1.34	-0.36	S

<sup>‡</sup> Reported values are blank corrected. Corrections are done by subtracting the 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 – 40<sup>th</sup> intercomparison of analytical methods - 2022

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

### 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>
B2	SO <sub>2</sub>	19.9	24.0	22.9	1.72	-1.71	S
B3		13.8	20.0	19.7	1.76	-3.34	Q
B5	µg S/filter	19.0	32.1	31.2	2.16	-5.65	U
B6		12.1	34.1	33.4	2.39	-8.89	U
B2	HNO <sub>3</sub>	-999	19.6	18.6	0.71		B
B3		-999	16.4	16.0	0.79		B
B5	µg N/filter	-999	26.2	25.7	1.31		B
B6		-999	27.8	27.2	1.34		B

¥ Reported values are blank corrected. Corrections are done by subtracting the 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 – 40<sup>th</sup> intercomparison of analytical methods - 2022

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 <sup>¥</sup>	Expected value	Mean value	Standard deviation	Z score <sup>*</sup>	EMEP quality norm <sup>¤</sup>
B2	SO <sub>2</sub>	26.3	24.0	22.9	1.72	2.00	S
B3		23.0	20.0	19.7	1.76	1.89	S
B5	µg S/filter	30.0	32.1	31.2	2.16	-0.55	S
B6		31.9	34.1	33.4	2.39	-0.62	S
B2	HNO <sub>3</sub>	19.8	19.6	18.6	0.71	1.65	S
B3		17.5	16.4	16.0	0.79	1.92	S
B5	µg N/filter	22.9	26.2	25.7	1.31	-2.17	S
B6		23.9	27.8	27.2	1.34	-2.44	S

¥ Reported values are blank corrected. Corrections are done by subtracting the 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>

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

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