

## EMEP – 39<sup>th</sup> intercomparison of analytical methods - 2021

Laboratory 10, Air Quality Reference Centre (Hungary)

### Nitrogen dioxide in absorbing solution (C-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score *	EMEP quality norm <sup>†</sup>
C1	NO <sub>2</sub> <i>µg N/ml</i>	0.088	0.094	0.093	0.005	-0.948	S
C2		0.074	0.076	0.076	0.006	-0.365	S
C3		0.085	0.089	0.089	0.007	-0.643	S
C4		0.103	0.103	0.102	0.008	0.066	S

\* Z score is unitless

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

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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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nilu-tromso@nilu.no  
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## EMEP – 39<sup>th</sup> intercomparison of analytical methods - 2021

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

### Nitrogen dioxide in absorbing solution (C-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score *	EMEP quality norm <sup>†</sup>
C1	NO <sub>2</sub>  µg N/ml	0.105	0.094	0.093	0.005	2.459	Q
C2		0.087	0.076	0.076	0.006	1.71	Q
C3		0.099	0.089	0.089	0.007	1.377	Q
C4		0.114	0.103	0.102	0.008	1.476	Q

\* Z score is unitless

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## EMEP – 39<sup>th</sup> intercomparison of analytical methods - 2021

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

### Nitrogen dioxide in absorbing solution (C-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score *	EMEP quality norm <sup>‡</sup>
C1	NO <sub>2</sub>  µg N/ml	0.093	0.094	0.093	0.005	0.054	S
C2		0.078	0.076	0.076	0.006	0.273	S
C3		0.09	0.089	0.089	0.007	0.078	S
C4		0.102	0.103	0.102	0.008	-0.062	S

\* Z score is unitless

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

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## EMEP – 39<sup>th</sup> intercomparison of analytical methods - 2021

Laboratory 19, Centro Nacional de Sanidad Ambiental (Spain)

### Nitrogen dioxide in absorbing solution (C-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score *	EMEP quality norm <sup>†</sup>
C1	NO <sub>2</sub> <i>µg N/ml</i>	0.088	0.094	0.093	0.005	-0.948	S
C2		0.073	0.076	0.076	0.006	-0.525	S
C3		0.084	0.089	0.089	0.007	-0.787	S
C4		0.098	0.103	0.102	0.008	-0.574	S

\* Z score is unitless

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## EMEP – 39<sup>th</sup> intercomparison of analytical methods - 2021

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

### Nitrogen dioxide in absorbing solution (C-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score *	EMEP quality norm <sup>†</sup>
C1	NO <sub>2</sub> <i>µg N/ml</i>	0.092	0.094	0.093	0.005	-0.147	S
C2		0.075	0.076	0.076	0.006	-0.205	S
C3		0.088	0.089	0.089	0.007	-0.21	S
C4		0.101	0.103	0.102	0.008	-0.19	S

\* Z score is unitless

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## EMEP – 39<sup>th</sup> intercomparison of analytical methods - 2021

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

### Nitrogen dioxide in absorbing solution (C-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score *	EMEP quality norm <sup>‡</sup>
C1	NO <sub>2</sub> <i>µg N/ml</i>	0.081	0.094	0.093	0.005	-2.351	Q
C2		0.023	0.076	0.076	0.006	-8.505	U
C3		0.059	0.089	0.089	0.007	-4.395	U
C4		0.047	0.103	0.102	0.008	-7.108	U

\* Z score is unitless

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## EMEP – 39<sup>th</sup> intercomparison of analytical methods - 2021

Laboratory 23, Ricardo-AEA Limited (United Kingdom)

### Nitrogen dioxide in absorbing solution (C-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score *	EMEP quality norm <sup>†</sup>
C1	NO <sub>2</sub>  µg N/ml	0.095	0.094	0.093	0.005	0.475	S
C2		0.078	0.076	0.076	0.006	0.21	S
C3		0.09	0.089	0.089	0.007	0.151	S
C4		0.105	0.103	0.102	0.008	0.335	S

\* Z score is unitless

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Laboratory 31, Slovak Hydrometeorological Institute (Slovakia)

### Nitrogen dioxide in absorbing solution (C-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score *	EMEP quality norm <sup>†</sup>
C1	NO <sub>2</sub>  µg N/ml	0.099	0.094	0.093	0.005	1.256	S
C2		0.082	0.076	0.076	0.006	0.912	S
C3		0.096	0.089	0.089	0.007	0.944	S
C4		0.111	0.103	0.102	0.008	1.091	S

\* Z score is unitless

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

### Nitrogen dioxide in absorbing solution (C-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score *	EMEP quality norm <sup>†</sup>
C1	NO <sub>2</sub> <i>µg N/ml</i>	0.095	0.094	0.093	0.005	0.455	S
C2		0.076	0.076	0.076	0.006	-0.046	S
C3		0.091	0.089	0.089	0.007	0.223	S
C4		0.103	0.103	0.102	0.008	0.066	S

\* Z score is unitless

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

### Nitrogen dioxide in absorbing solution (C-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score *	EMEP quality norm <sup>†</sup>
C1	NO <sub>2</sub> <i>µg N/ml</i>	0.114	0.094	0.093	0.005	4.262	U
C2		0.095	0.076	0.076	0.006	2.987	U
C3		0.106	0.089	0.089	0.007	2.387	Q
C4		0.124	0.103	0.102	0.008	2.757	U

\* Z score is unitless

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## EMEP – 39<sup>th</sup> intercomparison of analytical methods - 2021

Laboratory 34, Ministry of Environment and Urbanisation (Turkey)

### Nitrogen dioxide in absorbing solution (C-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score *	EMEP quality norm <sup>†</sup>
C1	NO <sub>2</sub> µg N/ml	0.07	0.094	0.093	0.005	-4.556	U
C2		0.06	0.076	0.076	0.006	-2.599	U
C3		0.07	0.089	0.089	0.007	-2.808	U
C4		0.08	0.103	0.102	0.008	-2.88	U

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Laboratory 42, Environment Reference Laboratory, Environment Agency (Moldova)

### Nitrogen dioxide in absorbing solution (C-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score *	EMEP quality norm <sup>‡</sup>
C1	NO <sub>2</sub>  µg N/ml	0.094	0.094	0.093	0.005	0.254	S
C2		0.076	0.076	0.076	0.006	-0.046	S
C3		0.089	0.089	0.089	0.007	-0.066	S
C4		0.102	0.103	0.102	0.008	-0.062	S

\* Z score is unitless

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Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

**e-mail:** nilu@nilu.no  
nilu-tromso@nilu.no  
**Internet:** [www.nilu.no](http://www.nilu.no)  
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## EMEP – 39<sup>th</sup> intercomparison of analytical methods - 2021

Laboratory 110, Thüringer Landesanstalt für Landwirtschaft und Ländlichen Raum (TLLLR) (Germany)

### Nitrogen dioxide in absorbing solution (C-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score *	EMEP quality norm <sup>†</sup>
C1	NO <sub>2</sub> µg N/ml	0.096	0.094	0.093	0.005	0.655	S
C2		0.079	0.076	0.076	0.006	0.433	S
C3		0.092	0.089	0.089	0.007	0.367	S
C4		0.107	0.103	0.102	0.008	0.579	S

\* Z score is unitless

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

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NO-9296 TROMSØ, Norway  
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## EMEP – 39<sup>th</sup> intercomparison of analytical methods - 2021

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

### Nitrogen dioxide in absorbing solution (C-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score *	EMEP quality norm <sup>†</sup>
C1	NO <sub>2</sub>  µg N/ml	0.09	0.094	0.093	0.005	-0.547	S
C2		0.074	0.076	0.076	0.006	-0.365	S
C3		0.085	0.089	0.089	0.007	-0.643	S
C4		0.096	0.103	0.102	0.008	-0.831	S

\* Z score is unitless

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

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## EMEP – 39<sup>th</sup> intercomparison of analytical methods - 2021

Laboratory 183, Public health institute Uzice (Republic of Serbia)

### Nitrogen dioxide in absorbing solution (C-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score *	EMEP quality norm <sup>†</sup>
C1	NO <sub>2</sub>  µg N/ml	0.09	0.094	0.093	0.005	-0.547	S
C2		0.074	0.076	0.076	0.006	-0.365	S
C3		0.093	0.089	0.089	0.007	0.511	S
C4		0.101	0.103	0.102	0.008	-0.19	S

\* Z score is unitless

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

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Framsenteret / The Fram Centre  
NO-9296 TROMSØ, Norway  
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76  
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

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nilu-tromso@nilu.no  
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## EMEP – 39<sup>th</sup> intercomparison of analytical methods - 2021

Laboratory 184, Institute for Public Health Pozarevac (Republic of Serbia)

### Nitrogen dioxide in absorbing solution (C-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score *	EMEP quality norm <sup>†</sup>
C1	NO <sub>2</sub> <i>µg N/ml</i>	0.094	0.094	0.093	0.005	0.254	S
C2		0.075	0.076	0.076	0.006	-0.205	S
C3		0.089	0.089	0.089	0.007	-0.066	S
C4		0.101	0.103	0.102	0.008	-0.19	S

\* Z score is unitless

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

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NO-2027 KJELLER, Norway  
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Framsenteret / The Fram Centre  
NO-9296 TROMSØ, Norway  
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76  
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

**e-mail:** nilu@nilu.no  
nilu-tromso@nilu.no  
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## EMEP – 39<sup>th</sup> intercomparison of analytical methods - 2021

Laboratory 185, Public Health Centre - Cacak, Department for Sanitary Chemistry and Ecotoxicology  
(Republic of Serbia)

### Nitrogen dioxide in absorbing solution (C-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score *	EMEP quality norm <sup>†</sup>
C1	NO <sub>2</sub>  µg N/ml	0.089	0.094	0.093	0.005	-0.748	S
C2		0.073	0.076	0.076	0.006	-0.525	S
C3		0.084	0.089	0.089	0.007	-0.787	S
C4		0.099	0.103	0.102	0.008	-0.446	S

\* Z score is unitless

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

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Phone: +47 77 75 03 75/Fax: +47 77 75 03 76  
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**e-mail:** nilu@nilu.no  
nilu-tromso@nilu.no  
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## EMEP – 39<sup>th</sup> intercomparison of analytical methods - 2021

Laboratory 187, Public Health Institute - Nis, Department for Sanitary Chemistry (Republic of Serbia)

### Nitrogen dioxide in absorbing solution (C-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score *	EMEP quality norm †
C1	NO <sub>2</sub> µg N/ml	0.09	0.094	0.093	0.005	-0.547	S
C2		0.073	0.076	0.076	0.006	-0.525	S
C3		0.085	0.089	0.089	0.007	-0.643	S
C4		0.099	0.103	0.102	0.008	-0.446	S

\* Z score is unitless

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PO Box 100  
NO-2027 KJELLER, Norway  
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Framsenteret / The Fram Centre  
NO-9296 TROMSØ, Norway  
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76  
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

**e-mail:** nilu@nilu.no  
nilu-tromso@nilu.no  
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## EMEP – 39<sup>th</sup> intercomparison of analytical methods - 2021

Laboratory 188, Institute of Public Health - Krusevac (Republic of Serbia)

### Nitrogen dioxide in absorbing solution (C-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score *	EMEP quality norm <sup>†</sup>
C1	NO <sub>2</sub> <i>µg N/ml</i>	0.087	0.094	0.093	0.005	-1.149	S
C2		0.071	0.076	0.076	0.006	-0.844	S
C3		0.083	0.089	0.089	0.007	-0.932	S
C4		0.097	0.103	0.102	0.008	-0.702	S

\* Z score is unitless

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

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U – Unsatisfactory: Your result deviates more than ±20% of the expected value

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Framsenteret / The Fram Centre  
NO-9296 TROMSØ, Norway  
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76  
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nilu-tromso@nilu.no  
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## EMEP – 39<sup>th</sup> intercomparison of analytical methods - 2021

Laboratory 193, Institute of Public Health of Vojvodina (Republic of Serbia)

### Nitrogen dioxide in absorbing solution (C-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score *	EMEP quality norm <sup>†</sup>
C1	NO <sub>2</sub> <i>µg N/ml</i>	0.094	0.094	0.093	0.005	0.254	S
C2		0.076	0.076	0.076	0.006	-0.046	S
C3		0.092	0.089	0.089	0.007	0.367	S
C4		0.102	0.103	0.102	0.008	-0.062	S

\* Z score is unitless

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

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Q – Questionable: Your result deviates between ±10-20% of the expected value

U – Unsatisfactory: Your result deviates more than ±20% of the expected value

B – Blank: You reported either no value or the detection limit

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Phone: +47 63 89 80 00/Fax: +47 63 89 80 50  
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Framsenteret / The Fram Centre  
NO-9296 TROMSØ, Norway  
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76  
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

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nilu-tromso@nilu.no  
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Bank: 5102.05.19030  
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## EMEP – 39<sup>th</sup> intercomparison of analytical methods - 2021

Laboratory 198, Institute for public health - Sremska Mitrovica (Republic of Serbia)

### Nitrogen dioxide in absorbing solution (C-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score *	EMEP quality norm †
C1	NO <sub>2</sub> µg N/ml	0.099	0.094	0.093	0.005	1.256	S
C2		0.078	0.076	0.076	0.006	0.273	S
C3		0.098	0.089	0.089	0.007	1.233	Q
C4		0.106	0.103	0.102	0.008	0.451	S

\* Z score is unitless

† EMEP quality norm; letters indicate:

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U – Unsatisfactory: Your result deviates more than ±20% of the expected value

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NO-2027 KJELLER, Norway  
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Framsenteret / The Fram Centre  
NO-9296 TROMSØ, Norway  
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76  
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nilu-tromso@nilu.no  
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## EMEP – 39<sup>th</sup> intercomparison of analytical methods - 2021

Laboratory 200, FUB AG (Switzerland)

### Nitrogen dioxide in absorbing solution (C-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score *	EMEP quality norm <sup>†</sup>
C1	NO <sub>2</sub> µg N/ml	0.094	0.094	0.093	0.005	0.254	S
C2		0.077	0.076	0.076	0.006	0.114	S
C3		0.089	0.089	0.089	0.007	-0.066	S
C4		0.103	0.103	0.102	0.008	0.066	S

\* Z score is unitless

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

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Framsenteret / The Fram Centre  
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## EMEP – 39<sup>th</sup> intercomparison of analytical methods - 2021

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

### Nitrogen dioxide in absorbing solution (C-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score *	EMEP quality norm <sup>†</sup>
C1	NO <sub>2</sub> <i>µg N/ml</i>	0.091	0.094	0.093	0.005	-0.347	S
C2		0.074	0.076	0.076	0.006	-0.365	S
C3		0.088	0.089	0.089	0.007	-0.21	S
C4		0.101	0.103	0.102	0.008	-0.19	S

\* Z score is unitless

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

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NO-2027 KJELLER, Norway  
Phone: +47 63 89 80 00/Fax: +47 63 89 80 50  
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Framsenteret / The Fram Centre  
NO-9296 TROMSØ, Norway  
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76  
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**e-mail:** nilu@nilu.no  
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## EMEP – 39<sup>th</sup> intercomparison of analytical methods - 2021

Laboratory 203, The Public Health Institute Vranje (Republic of Serbia)

### Nitrogen dioxide in absorbing solution (C-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score *	EMEP quality norm †
C1	NO <sub>2</sub> <i>µg N/ml</i>	0.096	0.094	0.093	0.005	0.655	S
C2		0.077	0.076	0.076	0.006	0.114	S
C3		0.091	0.089	0.089	0.007	0.223	S
C4		0.102	0.103	0.102	0.008	-0.062	S

\* Z score is unitless

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U – Unsatisfactory: Your result deviates more than ±20% of the expected value

B – Blank: You reported either no value or the detection limit

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

**Deltaker i CIENS og Framsenteret / Associated with CIENS and the Fram Centre  
ISO-sertifisert etter / ISO certified according to NS-EN ISO 9001/ISO 14001**

NILU – Norsk institutt for luftforskning  
PO Box 100  
NO-2027 KJELLER, Norway  
Phone: +47 63 89 80 00/Fax: +47 63 89 80 50  
Besøk/visit: Instituttveien 18, 2007 Kjeller

NILU – Norsk institutt for luftforskning  
Framsenteret / The Fram Centre  
NO-9296 TROMSØ, Norway  
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76  
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

**e-mail:** nilu@nilu.no  
nilu-tromso@nilu.no  
**Internet:** [www.nilu.no](http://www.nilu.no)  
Bank: 5102.05.19030  
Foretaksnr./Enterprise no. 941705561

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