

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 2, Flemish Environment Agency (Belgium)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
H1	As	0.71	0.7	0.661	0.127	0.264	S
H2	As	0.54	0.55	0.529	0.113	0.209	S
H3	As	5.97	6	6.054	0.526	-0.16	S
H4	As	4.47	4.5	4.569	0.37	-0.269	S
H1	Cd	0.07	0.07	0.067	0.01	0.143	S
H2	Cd	0.05	0.05	0.047	0.008	0.348	S
H3	Cd	0.55	0.55	0.547	0.032	0.093	S
H4	Cd	0.8	0.8	0.796	0.061	0.072	S
H1	Cr	0.63	0.55	0.553	0.06	1.17	S
H2	Cr	0.59	0.6	0.581	0.047	0.331	S
H3	Cr	8.14	8.4	8.261	0.583	-0.207	S
H4	Cr	6.84	7	6.829	0.485	0.024	S
H1	Cu	1.6	1.2	1.206	0.204	1.932	Q
H2	Cu	1.24	1.2	1.327	0.668	-0.067	S
H3	Cu	7.03	7	6.847	0.502	0.364	S
H4	Cu	5.43	5.5	5.466	0.497	-0.073	S
H1	Ni	0.94	0.6	0.594	0.202	1.615	U
H2	Ni	0.77	0.8	0.752	0.097	0.26	S
H3	Ni	10.3	10.3	10.366	0.637	-0.103	S
H4	Ni	8.8	9	9.034	0.781	-0.299	S
H1	Pb	1.4	1.2	1.233	0.178	0.762	S
H2	Pb	0.94	0.9	0.922	0.313	0.131	S
H3	Pb	24.27	23.5	22.629	2.584	0.635	S
H4	Pb	21.54	20	19.642	1.651	1.15	S
H1	Zn	8.84	6	6.32	1.027	2.454	Q
H2	Zn	9.35	7.5	7.779	1.193	1.317	S
H3	Zn	115.46	115	117.817	7.238	-0.326	S
H4	Zn	98.77	97	99.615	5.978	-0.141	S

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

^x EMEP quality norm; the letters in the column indicates:

S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4

Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4

U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4

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

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 3, Czech Hydrometeorological Institute, Praha (Czech Republic)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
H1	As	0.713	0.7	0.661	0.127	0.28	S
H2	As	0.478	0.55	0.529	0.113	-0.197	S
H3	As	6.336	6	6.054	0.526	0.536	S
H4	As	4.606	4.5	4.569	0.37	0.099	S
H1	Cd	0.074	0.07	0.067	0.01	0.496	S
H2	Cd	0.054	0.05	0.047	0.008	0.869	S
H3	Cd	0.594	0.55	0.547	0.032	1.474	S
H4	Cd	0.868	0.8	0.796	0.061	1.185	S
H1	Cr	0.437	0.55	0.553	0.06	-1.483	S
H2	Cr	0.486	0.6	0.581	0.047	-1.034	S
H3	Cr	7.306	8.4	8.261	0.583	-1.638	S
H4	Cr	6.072	7	6.829	0.485	-1.56	S
H1	Cu	1.229	1.2	1.206	0.204	0.113	S
H2	Cu	1.209	1.2	1.327	0.668	-0.111	S
H3	Cu	6.808	7	6.847	0.502	-0.078	S
H4	Cu	5.406	5.5	5.466	0.497	-0.121	S
H1	Ni	0.52	0.6	0.594	0.202	-0.23	S
H2	Ni	0.763	0.8	0.752	0.097	0.219	S
H3	Ni	10.122	10.3	10.366	0.637	-0.382	S
H4	Ni	8.637	9	9.034	0.781	-0.508	S
H1	Pb	1.016	1.2	1.233	0.178	-0.817	S
H2	Pb	0.794	0.9	0.922	0.313	-0.291	S
H3	Pb	20.825	23.5	22.629	2.584	-0.698	S
H4	Pb	17.58	20	19.642	1.651	-1.249	S
H1	Zn	6.661	6	6.32	1.027	0.332	S
H2	Zn	8.486	7.5	7.779	1.193	0.593	S
H3	Zn	126.55	115	117.817	7.238	1.206	S
H4	Zn	105.8	97	99.615	5.978	1.035	S

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

^x EMEP quality norm; the letters in the column indicates:

- S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4
- Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4
- U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4
- B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

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

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
H1	As	< 1.500	0.7	0.661	0.127		
H2	As	< 1.500	0.55	0.529	0.113		B
H3	As	5.7	6	6.054	0.526	-0.673	S
H4	As	4.3	4.5	4.569	0.37	-0.728	S
H1	Cd	< 0.350	0.07	0.067	0.01		B
H2	Cd	< 0.350	0.05	0.047	0.008		B
H3	Cd	0.5	0.55	0.547	0.032	-1.475	S
H4	Cd	0.76	0.8	0.796	0.061	-0.583	S
H1	Cr	< 2.000	0.55	0.553	0.06		
H2	Cr	< 2.000	B	0.581	0.047		B
H3	Cr	8.6	8.4	8.261	0.583	0.582	S
H4	Cr	7.2	7	6.829	0.485	0.766	S
H1	Cu	< 2.500	1.2	1.206	0.204		B
H2	Cu	< 2.500	1.2	1.327	0.668		B
H3	Cu	6.4	7	6.847	0.502	-0.89	S
H4	Cu	5.5	5.5	5.466	0.497	0.068	S
H1	Ni	< 3.000	0.6	0.594	0.202	-2.515	
H2	Ni	< 3.000	B	0.752	0.097		B
H3	Ni	11	10.3	10.366	0.637	0.996	S
H4	Ni	9.3	9	9.034	0.781	0.341	S
H1	Pb	< 3.000	1.2	1.233	0.178		B
H2	Pb	< 3.000	0.9	0.922	0.313		B
H3	Pb	21.9	23.5	22.629	2.584	-0.282	S
H4	Pb	19.6	20	19.642	1.651	-0.026	S
H1	Zn		6	6.32	1.027		B
H2	Zn		7.5	7.779	1.193		B
H3	Zn		115	117.817	7.238		B
H4	Zn		97	99.615	5.978		B

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

^x EMEP quality norm; the letters in the column indicates:

S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4

Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4

U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4

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

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 5, Finnish Meteorological Institute. Air Quality Department (Finland)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
H1	As	0.72	0.7	0.661	0.127	0.318	S
H2	As	0.54	0.55	0.529	0.113	0.209	S
H3	As	6.063	6	6.054	0.526	0.017	S
H4	As	4.499	4.5	4.569	0.37	-0.19	S
H1	Cd	0.07	0.07	0.067	0.01	0.126	S
H2	Cd	0.051	0.05	0.047	0.008	0.453	S
H3	Cd	0.564	0.55	0.547	0.032	0.532	S
H4	Cd	0.803	0.8	0.796	0.061	0.121	S
H1	Cr	0.537	0.55	0.553	0.06	-0.108	S
H2	Cr	0.604	0.6	0.581	0.047	0.515	S
H3	Cr	8.337	8.4	8.261	0.583	0.131	S
H4	Cr	6.861	7	6.829	0.485	0.067	S
H1	Cu	1.243	1.2	1.206	0.204	0.181	S
H2	Cu	1.243	1.2	1.327	0.668	-0.062	S
H3	Cu	7.175	7	6.847	0.502	0.653	S
H4	Cu	5.608	5.5	5.466	0.497	0.285	S
H1	Ni	0.601	0.6	0.594	0.202	0.126	S
H2	Ni	0.781	0.8	0.752	0.097	0.324	S
H3	Ni	10.61	10.3	10.366	0.637	0.384	S
H4	Ni	8.968	9	9.034	0.781	-0.084	S
H1	Pb	1.242	1.2	1.233	0.178	0.112	S
H2	Pb	0.954	0.9	0.922	0.313	0.171	S
H3	Pb	24.05	23.5	22.629	2.584	0.55	S
H4	Pb	20.19	20	19.642	1.651	0.332	S
H1	Zn	6.093	6	6.32	1.027	-0.221	S
H2	Zn	7.817	7.5	7.779	1.193	0.032	S
H3	Zn	115.9	115	117.817	7.238	-0.265	S
H4	Zn	97.51	97	99.615	5.978	-0.352	S

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

^x EMEP quality norm; the letters in the column indicates:

- S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4
- Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4
- U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4
- B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 6, SGS Multilab (France)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
H1	As	0.79	0.7	0.661	0.127	0.696	S
H2	As	0.63	0.55	0.529	0.113	0.797	S
H3	As	6.69	6	6.054	0.526	1.209	S
H4	As	5.05	4.5	4.569	0.37	1.299	S
H1	Cd	0.08	0.07	0.067	0.01	1.025	S
H2	Cd	0.05	0.05	0.047	0.008	0.348	S
H3	Cd	0.56	0.55	0.547	0.032	0.407	S
H4	Cd	0.83	0.8	0.796	0.061	0.563	S
H1	Cr	0.5	0.55	0.553	0.06	-0.617	S
H2	Cr	0.52	0.6	0.581	0.047	-0.588	S
H3	Cr	8.08	8.4	8.261	0.583	-0.31	S
H4	Cr	6.65	7	6.829	0.485	-0.368	S
H1	Cu	1.22	1.2	1.206	0.204	0.069	S
H2	Cu	81.53	1.2	1.327	0.668	115.164	U
H3	Cu	6.87	7	6.847	0.502	0.046	S
H4	Cu	5.3	5.5	5.466	0.497	-0.335	S
H1	Ni	0.47	0.6	0.594	0.202	-0.45	S
H2	Ni	0.62	0.8	0.752	0.097	-0.616	S
H3	Ni	10.12	10.3	10.366	0.637	-0.386	S
H4	Ni	8.61	9	9.034	0.781	-0.543	S
H1	Pb	1.23	1.2	1.233	0.178	0.063	S
H2	Pb	0.99	0.9	0.922	0.313	0.275	S
H3	Pb	24.3	23.5	22.629	2.584	0.647	S
H4	Pb	20.21	20	19.642	1.651	0.344	S
H1	Zn	7.43	6	6.32	1.027	1.081	S
H2	Zn	10.95	7.5	7.779	1.193	2.659	Q
H3	Zn	125	115	117.817	7.238	0.992	S
H4	Zn	104	97	99.615	5.978	0.734	S

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

^x EMEP quality norm; the letters in the column indicates:

- S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4
- Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4
- U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4
- B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 8, Umweltbundesamt, Langen (Germany)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
H1	As	0.676	0.7	0.661	0.127	0.081	S
H2	As	0.535	0.55	0.529	0.113	0.176	S
H3	As	5.85	6	6.054	0.526	-0.388	S
H4	As	4.33	4.5	4.569	0.37	-0.647	S
H1	Cd	0.066	0.07	0.067	0.01	-0.209	S
H2	Cd	0.049	0.05	0.047	0.008	0.218	S
H3	Cd	0.521	0.55	0.547	0.032	-0.817	S
H4	Cd	0.743	0.8	0.796	0.061	-0.861	S
H1	Cr	0.537	0.55	0.553	0.06	-0.108	S
H2	Cr	0.601	0.6	0.581	0.047	0.475	S
H3	Cr	7.97	8.4	8.261	0.583	-0.499	S
H4	Cr	6.55	7	6.829	0.485	-0.574	S
H1	Cu	1.18	1.2	1.206	0.204	-0.128	S
H2	Cu	1.17	1.2	1.327	0.668	-0.167	S
H3	Cu	6.71	7	6.847	0.502	-0.273	S
H4	Cu	5.24	5.5	5.466	0.497	-0.456	S
H1	Ni	0.588	0.6	0.594	0.202	0.069	S
H2	Ni	0.757	0.8	0.752	0.097	0.184	S
H3	Ni	9.91	10.3	10.366	0.637	-0.715	S
H4	Ni	8.38	9	9.034	0.781	-0.837	S
H1	Pb	1.17	1.2	1.233	0.178	-0.184	S
H2	Pb	0.858	0.9	0.922	0.313	-0.106	S
H3	Pb	21.6	23.5	22.629	2.584	-0.398	S
H4	Pb	18.1	20	19.642	1.651	-0.934	S
H1	Zn	5.89	6	6.32	1.027	-0.419	S
H2	Zn	7.27	7.5	7.779	1.193	-0.427	S
H3	Zn	111	115	117.817	7.238	-0.942	S
H4	Zn	92.6	97	99.615	5.978	-1.174	S

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

^x EMEP quality norm; the letters in the column indicates:

- S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4
- Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4
- U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4
- B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 10, Institute for Atmospheric Physics (Hungary)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
H1	As		0.7	0.661	0.127		B
H2	As		0.55	0.529	0.113		B
H3	As		6	6.054	0.526		B
H4	As		4.5	4.569	0.37		B
H1	Cd	0.056	0.07	0.067	0.01	-1.091	S
H2	Cd	< 0.050	0.05	0.047	0.008	-2.904	Q
H3	Cd	0.594	0.55	0.547	0.032	1.474	S
H4	Cd	0.86	0.8	0.796	0.061	1.054	S
H1	Cr		0.55	0.553	0.06		B
H2	Cr		0.6	0.581	0.047		B
H3	Cr		8.4	8.261	0.583		B
H4	Cr		7	6.829	0.485		B
H1	Cu		1.2	1.206	0.204		B
H2	Cu		1.2	1.327	0.668		B
H3	Cu		7	6.847	0.502		B
H4	Cu		5.5	5.466	0.497		B
H1	Ni		0.6	0.594	0.202		B
H2	Ni		0.8	0.752	0.097		B
H3	Ni		10.3	10.366	0.637		B
H4	Ni		9	9.034	0.781		B
H1	Pb	1.685	1.2	1.233	0.178	1.934	Q
H2	Pb	0.983	0.9	0.922	0.313	0.255	S
H3	Pb	23.26	23.5	22.629	2.584	0.244	S
H4	Pb	19.965	20	19.642	1.651	0.196	S
H1	Zn		6	6.32	1.027		B
H2	Zn		7.5	7.779	1.193		B
H3	Zn		115	117.817	7.238		B
H4	Zn		97	99.615	5.978		B

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

^x EMEP quality norm; the letters in the column indicates:

S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4

Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4

U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4

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

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

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

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
H1	As	0.71	0.7	0.661	0.127	0.264	S
H2	As	0.55	0.55	0.529	0.113	0.274	S
H3	As	5.93	6	6.054	0.526	-0.236	S
H4	As	4.39	4.5	4.569	0.37	-0.485	S
H1	Cd	0.07	0.07	0.067	0.01	0.143	S
H2	Cd	0.05	0.05	0.047	0.008	0.348	S
H3	Cd	0.53	0.55	0.547	0.032	-0.534	S
H4	Cd	0.78	0.8	0.796	0.061	-0.255	S
H1	Cr	0.55	0.55	0.553	0.06	0.07	S
H2	Cr	0.6	0.6	0.581	0.047	0.462	S
H3	Cr	8.2	8.4	8.261	0.583	-0.104	S
H4	Cr	6.82	7	6.829	0.485	-0.018	S
H1	Cu	1.21	1.2	1.206	0.204	0.019	S
H2	Cu	1.2	1.2	1.327	0.668	-0.124	S
H3	Cu	6.57	7	6.847	0.502	-0.552	S
H4	Cu	5.45	5.5	5.466	0.497	-0.033	S
H1	Ni	0.6	0.6	0.594	0.202	0.121	S
H2	Ni	0.79	0.8	0.752	0.097	0.377	S
H3	Ni	10.3	10.3	10.366	0.637	-0.103	S
H4	Ni	8.94	9	9.034	0.781	-0.12	S
H1	Pb	1.13	1.2	1.233	0.178	-0.348	S
H2	Pb	0.89	0.9	0.922	0.313	-0.014	S
H3	Pb	22.9	23.5	22.629	2.584	0.105	S
H4	Pb	19.4	20	19.642	1.651	-0.147	S
H1	Zn	6.35	6	6.32	1.027	0.029	S
H2	Zn	8	7.5	7.779	1.193	0.185	S
H3	Zn	113	115	117.817	7.238	-0.666	S
H4	Zn	95	97	99.615	5.978	-0.772	S

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

^x EMEP quality norm; the letters in the column indicates:

- S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4
- Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4
- U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4
- B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

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

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
H1	As		0.7	0.661	0.127		B
H2	As		0.55	0.529	0.113		B
H3	As		6	6.054	0.526		B
H4	As		4.5	4.569	0.37		B
H1	Cd	0.07	0.07	0.067	0.01	0.143	S
H2	Cd	0.05	0.05	0.047	0.008	0.348	S
H3	Cd	0.55	0.55	0.547	0.032	0.093	S
H4	Cd	0.8	0.8	0.796	0.061	0.072	S
H1	Cr	0.5	0.55	0.553	0.06	-0.617	S
H2	Cr	0.6	0.6	0.581	0.047	0.462	S
H3	Cr	8.2	8.4	8.261	0.583	-0.104	S
H4	Cr	7	7	6.829	0.485	0.354	S
H1	Cu	1.1	1.2	1.206	0.204	-0.52	S
H2	Cu	1.3	1.2	1.327	0.668	0.019	S
H3	Cu	7	7	6.847	0.502	0.304	S
H4	Cu	6	5.5	5.466	0.497	1.075	S
H1	Ni	0.6	0.6	0.594	0.202	0.121	S
H2	Ni	0.7	0.8	0.752	0.097	-0.149	S
H3	Ni	9	10.3	10.366	0.637	-2.144	S
H4	Ni	10.5	9	9.034	0.781	1.878	Q
H1	Pb	1.3	1.2	1.233	0.178	0.351	S
H2	Pb	0.9	0.9	0.922	0.313	0.015	S
H3	Pb	24.5	23.5	22.629	2.584	0.724	S
H4	Pb	19.5	20	19.642	1.651	-0.086	S
H1	Zn	5.5	6	6.32	1.027	-0.799	S
H2	Zn	6.5	7.5	7.779	1.193	-1.072	S
H3	Zn	110	115	117.817	7.238	-1.08	S
H4	Zn	95	97	99.615	5.978	-0.772	S

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

^x EMEP quality norm; the letters in the column indicates:

S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4

Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4

U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4

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

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 24, Serbian Environmental Protection Agency (Serbia)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
H1	As	0.6	0.7	0.661	0.127	-0.33	S
H2	As	0.5	0.55	0.529	0.113	-0.053	S
H3	As	7	6	6.054	0.526	1.798	Q
H4	As	5.3	4.5	4.569	0.37	1.975	Q
H1	Cd	0.07	0.07	0.067	0.01	0.143	S
H2	Cd	0.04	0.05	0.047	0.008	-0.953	S
H3	Cd	0.55	0.55	0.547	0.032	0.093	S
H4	Cd	0.83	0.8	0.796	0.061	0.563	S
H1	Cr	0.5	0.55	0.553	0.06	-0.617	S
H2	Cr	0.6	0.6	0.581	0.047	0.462	S
H3	Cr	8.3	8.4	8.261	0.583	0.067	S
H4	Cr	6.9	7	6.829	0.485	0.147	S
H1	Cu	< 1.000	1.2	1.206	0.204	-3.462	U
H2	Cu	< 1.000	1.2	1.327	0.668	-1.129	U
H3	Cu	7.1	7	6.847	0.502	0.504	S
H4	Cu	5.3	5.5	5.466	0.497	-0.335	S
H1	Ni	0.5	0.6	0.594	0.202	-0.318	S
H2	Ni	0.8	0.8	0.752	0.097	0.435	S
H3	Ni	10.5	10.3	10.366	0.637	0.211	S
H4	Ni	8.9	9	9.034	0.781	-0.171	S
H1	Pb	0.7	1.2	1.233	0.178	-2.116	Q
H2	Pb	< 0.500	0.9	0.922	0.313	-1.862	U
H3	Pb	26.9	23.5	22.629	2.584	1.653	S
H4	Pb	22.8	20	19.642	1.651	1.913	S
H1	Zn	6.8	6	6.32	1.027	0.468	S
H2	Zn	8.5	7.5	7.779	1.193	0.605	S
H3	Zn	114.8	115	117.817	7.238	-0.417	S
H4	Zn	96.7	97	99.615	5.978	-0.488	S

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

^x EMEP quality norm; the letters in the column indicates:

S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4

Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4

U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4

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

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 31, Slovak Hydrometeorological Institute (Slovakia)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
H1	As		0.7	0.661	0.127		B
H2	As		0.55	0.529	0.113		B
H3	As		6	6.054	0.526		B
H4	As		4.5	4.569	0.37		B
H1	Cd	0.063	0.07	0.067	0.01	-0.474	S
H2	Cd	0.04	0.05	0.047	0.008	-0.953	S
H3	Cd	0.505	0.55	0.547	0.032	-1.319	S
H4	Cd	0.742	0.8	0.796	0.061	-0.877	S
H1	Cr	0.566	0.55	0.553	0.06	0.29	S
H2	Cr	0.604	0.6	0.581	0.047	0.515	S
H3	Cr	8.445	8.4	8.261	0.583	0.316	S
H4	Cr	6.904	7	6.829	0.485	0.156	S
H1	Cu	1.106	1.2	1.206	0.204	-0.491	S
H2	Cu	1.114	1.2	1.327	0.668	-0.248	S
H3	Cu	6.489	7	6.847	0.502	-0.713	S
H4	Cu	5.079	5.5	5.466	0.497	-0.78	S
H1	Ni		0.6	0.594	0.202		B
H2	Ni		0.8	0.752	0.097		B
H3	Ni	9.93	10.3	10.366	0.637	-0.684	S
H4	Ni	6.69	9	9.034	0.781	-3.002	Q
H1	Pb	1.107	1.2	1.233	0.178	-0.443	S
H2	Pb	0.786	0.9	0.922	0.313	-0.314	S
H3	Pb	21.56	23.5	22.629	2.584	-0.414	S
H4	Pb	18.34	20	19.642	1.651	-0.789	S
H1	Zn		6	6.32	1.027		B
H2	Zn		7.5	7.779	1.193		B
H3	Zn	116	115	117.817	7.238	-0.251	S
H4	Zn	97	97	99.615	5.978	-0.437	S

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

^x EMEP quality norm; the letters in the column indicates:

S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4

Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4

U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4

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

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 32, Atmospheric Pollution Research Laboratory, Institute of Physics, Vilnius (Lithuania)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
H1	As	0.7	0.7	0.661	0.127	0.21	S
H2	As	0.6	0.55	0.529	0.113	0.601	S
H3	As	4.4	6	6.054	0.526	-3.145	Q
H4	As	6.2	4.5	4.569	0.37	4.408	U
H1	Cd	0.08	0.07	0.067	0.01	1.025	S
H2	Cd	0.05	0.05	0.047	0.008	0.348	S
H3	Cd	0.56	0.55	0.547	0.032	0.407	S
H4	Cd	0.86	0.8	0.796	0.061	1.054	S
H1	Cr	0.6	0.55	0.553	0.06	0.758	S
H2	Cr	0.6	0.6	0.581	0.047	0.462	S
H3	Cr	7.9	8.4	8.261	0.583	-0.619	S
H4	Cr	6.7	7	6.829	0.485	-0.265	S
H1	Cu	1.3	1.2	1.206	0.204	0.461	S
H2	Cu	1.2	1.2	1.327	0.668	-0.124	S
H3	Cu	7	7	6.847	0.502	0.304	S
H4	Cu	5.8	5.5	5.466	0.497	0.672	S
H1	Ni	0.6	0.6	0.594	0.202	0.121	S
H2	Ni	0.8	0.8	0.752	0.097	0.435	S
H3	Ni	9.8	10.3	10.366	0.637	-0.888	S
H4	Ni	8.5	9	9.034	0.781	-0.684	S
H1	Pb	1.1	1.2	1.233	0.178	-0.472	S
H2	Pb	0.8	0.9	0.922	0.313	-0.274	S
H3	Pb	21.4	23.5	22.629	2.584	-0.476	S
H4	Pb	19.1	20	19.642	1.651	-0.328	S
H1	Zn	6.5	6	6.32	1.027	0.175	S
H2	Zn	7.3	7.5	7.779	1.193	-0.401	S
H3	Zn	114	115	117.817	7.238	-0.527	S
H4	Zn	102	97	99.615	5.978	0.399	S

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

^x EMEP quality norm; the letters in the column indicates:

- S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4
- Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4
- U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4
- B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 33, Environmental Pollution Observ. Centre (Latvia)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
H1	As	0.504	0.7	0.661	0.127	-0.848	Q
H2	As	0.419	0.55	0.529	0.113	-0.582	S
H3	As	6.46	6	6.054	0.526	0.772	S
H4	As	4.44	4.5	4.569	0.37	-0.35	S
H1	Cd	0.063	0.07	0.067	0.01	-0.474	S
H2	Cd	0.097	0.05	0.047	0.008	6.463	U
H3	Cd	0.504	0.55	0.547	0.032	-1.35	S
H4	Cd	0.66	0.8	0.796	0.061	-2.219	Q
H1	Cr	0.702	0.55	0.553	0.06	2.16	Q
H2	Cr	0.846	0.6	0.581	0.047	3.692	Q
H3	Cr	9.46	8.4	8.261	0.583	2.058	S
H4	Cr	7.46	7	6.829	0.485	1.302	S
H1	Cu	1.56	1.2	1.206	0.204	1.736	Q
H2	Cu	1.63	1.2	1.327	0.668	0.493	Q
H3	Cu	6.67	7	6.847	0.502	-0.353	S
H4	Cu	5.35	5.5	5.466	0.497	-0.234	S
H1	Ni	0.46	0.6	0.594	0.202	-0.494	S
H2	Ni	0.621	0.8	0.752	0.097	-0.611	S
H3	Ni	10.96	10.3	10.366	0.637	0.933	S
H4	Ni	9.01	9	9.034	0.781	-0.03	S
H1	Pb	1.04	1.2	1.233	0.178	-0.718	S
H2	Pb	0.79	0.9	0.922	0.313	-0.303	S
H3	Pb	22.62	23.5	22.629	2.584	-0.003	S
H4	Pb	18.46	20	19.642	1.651	-0.716	S
H1	Zn	5.98	6	6.32	1.027	-0.331	S
H2	Zn	8.98	7.5	7.779	1.193	1.007	S
H3	Zn	107.97	115	117.817	7.238	-1.36	S
H4	Zn	91.82	97	99.615	5.978	-1.304	S

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

^x EMEP quality norm; the letters in the column indicates:

S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4

Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4

U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4

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

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 34, Refik Saydam Hygiene Center, Ankara (Turkey)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
H1	As	< 12.000	0.7	0.661	0.127		B
H2	As	< 12.000	0.55	0.529	0.113		B
H3	As	< 12.000	6	6.054	0.526		B
H4	As	< 12.000	4.5	4.569	0.37		B
H1	Cd	< 1.000	0.07	0.067	0.01		B
H2	Cd	< 1.000	0.05	0.047	0.008		B
H3	Cd	< 1.000	0.55	0.547	0.032		B
H4	Cd	0.177	0.8	0.796	0.061	-10.123	U
H1	Cr	< 2.000	0.55	0.553	0.06		B
H2	Cr	< 2.000	0.6	0.581	0.047		B
H3	Cr	9.623	8.4	8.261	0.583	2.337	S
H4	Cr	7.937	7	6.829	0.485	2.286	S
H1	Cu	1.422	1.2	1.206	0.204	1.059	S
H2	Cu	1.337	1.2	1.327	0.668	0.072	S
H3	Cu	8.034	7	6.847	0.502	2.364	S
H4	Cu	6.394	5.5	5.466	0.497	1.868	Q
H1	Ni	0.015	0.6	0.594	0.202	-2.449	U
H2	Ni	0.474	0.8	0.752	0.097	-1.469	Q
H3	Ni	11.528	10.3	10.366	0.637	1.825	S
H4	Ni	9.702	9	9.034	0.781	0.856	S
H1	Pb	1.333	1.2	1.233	0.178	0.487	S
H2	Pb	2.414	0.9	0.922	0.313	4.388	U
H3	Pb	28.201	23.5	22.629	2.584	2.156	Q
H4	Pb	24.22	20	19.642	1.651	2.774	Q
H1	Zn	4.736	6	6.32	1.027	-1.543	S
H2	Zn	6.447	7.5	7.779	1.193	-1.117	S
H3	Zn	131.888	115	117.817	7.238	1.944	S
H4	Zn	110.967	97	99.615	5.978	1.899	S

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

^x EMEP quality norm; the letters in the column indicates:

S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4

Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4

U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4

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

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 36, Hydrometeorological Institute of Slovenia (Slovenia)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
H1	As	0.681	0.7	0.661	0.127	0.108	S
H2	As	0.513	0.55	0.529	0.113	0.032	S
H3	As	6.27	6	6.054	0.526	0.41	S
H4	As	4.64	4.5	4.569	0.37	0.191	S
H1	Cd	0.077	0.07	0.067	0.01	0.761	S
H2	Cd	0.057	0.05	0.047	0.008	1.259	S
H3	Cd	0.567	0.55	0.547	0.032	0.627	S
H4	Cd	0.817	0.8	0.796	0.061	0.35	S
H1	Cr	0.585	0.55	0.553	0.06	0.551	S
H2	Cr	0.627	0.6	0.581	0.047	0.817	S
H3	Cr	8.3	8.4	8.261	0.583	0.067	S
H4	Cr	6.93	7	6.829	0.485	0.209	S
H1	Cu	1.14	1.2	1.206	0.204	-0.324	S
H2	Cu	1.15	1.2	1.327	0.668	-0.196	S
H3	Cu	6.97	7	6.847	0.502	0.245	S
H4	Cu	5.45	5.5	5.466	0.497	-0.033	S
H1	Ni	0.484	0.6	0.594	0.202	-0.388	S
H2	Ni	0.696	0.8	0.752	0.097	-0.172	S
H3	Ni	10.8	10.3	10.366	0.637	0.682	S
H4	Ni	9.15	9	9.034	0.781	0.149	S
H1	Pb	1.16	1.2	1.233	0.178	-0.225	S
H2	Pb	0.88	0.9	0.922	0.313	-0.043	S
H3	Pb	22.9	23.5	22.629	2.584	0.105	S
H4	Pb	19.7	20	19.642	1.651	0.035	S
H1	Zn	6.29	6	6.32	1.027	-0.029	S
H2	Zn	8.06	7.5	7.779	1.193	0.236	S
H3	Zn	119	115	117.817	7.238	0.163	S
H4	Zn	99	97	99.615	5.978	-0.103	S

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

^x EMEP quality norm; the letters in the column indicates:

- S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4
- Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4
- U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4
- B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

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

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
H1	As	0.76	0.7	0.661	0.127	0.534	S
H2	As	0.58	0.55	0.529	0.113	0.47	S
H3	As	5.81	6	6.054	0.526	-0.464	S
H4	As	4.43	4.5	4.569	0.37	-0.377	S
H1	Cd	0.07	0.07	0.067	0.01	0.143	S
H2	Cd	0.05	0.05	0.047	0.008	0.348	S
H3	Cd	0.517	0.55	0.547	0.032	-0.942	S
H4	Cd	0.75	0.8	0.796	0.061	-0.746	S
H1	Cr	0.545	0.55	0.553	0.06	0.002	S
H2	Cr	0.587	0.6	0.581	0.047	0.292	S
H3	Cr	8.2	8.4	8.261	0.583	-0.104	S
H4	Cr	6.93	7	6.829	0.485	0.209	S
H1	Cu	1.24	1.2	1.206	0.204	0.167	S
H2	Cu	1.24	1.2	1.327	0.668	-0.067	S
H3	Cu	6.91	7	6.847	0.502	0.125	S
H4	Cu	5.56	5.5	5.466	0.497	0.189	S
H1	Ni	0.555	0.6	0.594	0.202	-0.076	S
H2	Ni	0.878	0.8	0.752	0.097	0.891	S
H3	Ni	10	10.3	10.366	0.637	-0.574	S
H4	Ni	8.75	9	9.034	0.781	-0.363	S
H1	Pb	1.31	1.2	1.233	0.178	0.392	S
H2	Pb	0.987	0.9	0.922	0.313	0.266	S
H3	Pb	22.7	23.5	22.629	2.584	0.028	S
H4	Pb	19.7	20	19.642	1.651	0.035	S
H1	Zn	5.97	6	6.32	1.027	-0.341	S
H2	Zn	7.3	7.5	7.779	1.193	-0.401	S
H3	Zn	112	115	117.817	7.238	-0.804	S
H4	Zn	95.5	97	99.615	5.978	-0.688	S

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

^x EMEP quality norm; the letters in the column indicates:

- S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4
- Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4
- U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4
- B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 39, Environmental Monitoring Laboratory, Institute of Environmental Protection (Poland)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
H1	As		0.7	0.661	0.127		B
H2	As		0.55	0.529	0.113		B
H3	As	6	6	6.054	0.526	-0.103	S
H4	As	5	4.5	4.569	0.37	1.164	S
H1	Cd		0.07	0.067	0.01		B
H2	Cd		0.05	0.047	0.008		B
H3	Cd	0.6	0.55	0.547	0.032	1.662	S
H4	Cd	1	0.8	0.796	0.061	3.345	Q
H1	Cr		0.55	0.553	0.06		B
H2	Cr		0.6	0.581	0.047		B
H3	Cr	7	8.4	8.261	0.583	-2.163	Q
H4	Cr	5.5	7	6.829	0.485	-2.74	Q
H1	Cu		1.2	1.206	0.204		B
H2	Cu		1.2	1.327	0.668		B
H3	Cu	8.5	7	6.847	0.502	3.292	Q
H4	Cu	6.5	5.5	5.466	0.497	2.082	Q
H1	Ni		0.6	0.594	0.202		B
H2	Ni		0.8	0.752	0.097		B
H3	Ni	10	10.3	10.366	0.637	-0.574	S
H4	Ni	9	9	9.034	0.781	-0.043	S
H1	Pb		1.2	1.233	0.178		B
H2	Pb		0.9	0.922	0.313		B
H3	Pb	25	23.5	22.629	2.584	0.918	S
H4	Pb	22	20	19.642	1.651	1.429	S
H1	Zn		6	6.32	1.027		B
H2	Zn		7.5	7.779	1.193		B
H3	Zn	115	115	117.817	7.238	-0.389	S
H4	Zn	97	97	99.615	5.978	-0.437	S

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

^x EMEP quality norm; the letters in the column indicates:

S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4

Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4

U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4

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

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 110, Thüringer Landesanstalt für Landwirtschaft TTL, Jena (Germany)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
H1	As	0.7	0.7	0.661	0.127	0.21	S
H2	As	0.5	0.55	0.529	0.113	-0.053	S
H3	As	5.91	6	6.054	0.526	-0.274	S
H4	As	4.49	4.5	4.569	0.37	-0.215	S
H1	Cd	< 0.100	0.07	0.067	0.01		B
H2	Cd	< 0.100	0.05	0.047	0.008		B
H3	Cd	0.51	0.55	0.547	0.032	-1.162	S
H4	Cd	0.75	0.8	0.796	0.061	-0.746	S
H1	Cr	0.6	0.55	0.553	0.06	0.758	S
H2	Cr	0.65	0.6	0.581	0.047	1.119	S
H3	Cr	8.46	8.4	8.261	0.583	0.342	S
H4	Cr	6.99	7	6.829	0.485	0.333	S
H1	Cu	1.31	1.2	1.206	0.204	0.51	S
H2	Cu	1.35	1.2	1.327	0.668	0.091	S
H3	Cu	6.96	7	6.847	0.502	0.225	S
H4	Cu	5.86	5.5	5.466	0.497	0.793	S
H1	Ni	0.55	0.6	0.594	0.202	-0.098	S
H2	Ni	0.74	0.8	0.752	0.097	0.085	S
H3	Ni	10.7	10.3	10.366	0.637	0.525	S
H4	Ni	9.35	9	9.034	0.781	0.405	S
H1	Pb	1.3	1.2	1.233	0.178	0.351	S
H2	Pb	1.05	0.9	0.922	0.313	0.448	S
H3	Pb	22.8	23.5	22.629	2.584	0.066	S
H4	Pb	22.8	20	19.642	1.651	1.913	S
H1	Zn	5.14	6	6.32	1.027	-1.149	S
H2	Zn	6.65	7.5	7.779	1.193	-0.946	S
H3	Zn	114	115	117.817	7.238	-0.527	S
H4	Zn	96.4	97	99.615	5.978	-0.538	S

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

^x EMEP quality norm; the letters in the column indicates:

- S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4
- Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4
- U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4
- B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 112, Niedersächsische Forstliche Versuchsanstalt NVF (Germany)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
H1	As		0.7	0.661	0.127		B
H2	As		0.55	0.529	0.113		B
H3	As		6	6.054	0.526		B
H4	As		4.5	4.569	0.37		B
H1	Cd	0.073	0.07	0.067	0.01	0.408	S
H2	Cd	0.05	0.05	0.047	0.008	0.348	S
H3	Cd	0.55	0.55	0.547	0.032	0.093	S
H4	Cd	0.807	0.8	0.796	0.061	0.186	S
H1	Cr	0.57	0.55	0.553	0.06	0.345	S
H2	Cr	0.61	0.6	0.581	0.047	0.594	S
H3	Cr	8.67	8.4	8.261	0.583	0.702	S
H4	Cr	7.26	7	6.829	0.485	0.89	S
H1	Cu	1.18	1.2	1.206	0.204	-0.128	S
H2	Cu	1.14	1.2	1.327	0.668	-0.21	S
H3	Cu	7	7	6.847	0.502	0.304	S
H4	Cu	5.48	5.5	5.466	0.497	0.028	S
H1	Ni	0.54	0.6	0.594	0.202	-0.142	S
H2	Ni	0.72	0.8	0.752	0.097	-0.032	S
H3	Ni	10.99	10.3	10.366	0.637	0.98	S
H4	Ni	9.38	9	9.034	0.781	0.444	S
H1	Pb	1.28	1.2	1.233	0.178	0.269	S
H2	Pb	0.93	0.9	0.922	0.313	0.102	S
H3	Pb	24.1	23.5	22.629	2.584	0.569	S
H4	Pb	20.3	20	19.642	1.651	0.399	S
H1	Zn	6.69	6	6.32	1.027	0.36	S
H2	Zn	7.93	7.5	7.779	1.193	0.127	S
H3	Zn	120.1	115	117.817	7.238	0.315	S
H4	Zn	101.2	97	99.615	5.978	0.265	S

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

^x EMEP quality norm; the letters in the column indicates:

- S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4
- Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4
- U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4
- B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 113, Fachhochschule Eberswalde (Germany)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
H1	As	< 4.000	0.7	0.661	0.127		B
H2	As	< 4.000	0.55	0.529	0.113		B
H3	As	5.18	6	6.054	0.526	-1.662	S
H4	As	4.245	4.5	4.569	0.37	-0.877	S
H1	Cd	0.055	0.07	0.067	0.01	-1.206	S
H2	Cd	0.034	0.05	0.047	0.008	-1.746	Q
H3	Cd	0.567	0.55	0.547	0.032	0.627	S
H4	Cd	0.781	0.8	0.796	0.061	-0.239	S
H1	Cr	0.521	0.55	0.553	0.06	-0.334	S
H2	Cr	0.577	0.6	0.581	0.047	0.154	S
H3	Cr	5.073	8.4	8.261	0.583	-5.469	U
H4	Cr	4.203	7	6.829	0.485	-5.414	U
H1	Cu	< 4.000	1.2	1.206	0.204		B
H2	Cu	< 4.000	1.2	1.327	0.668		B
H3	Cu	4.52	7	6.847	0.502	-4.634	U
H4	Cu	< 4.000	5.5	5.466	0.497	-6.98	U
H1	Ni	< 2.000	0.6	0.594	0.202		B
H2	Ni	< 2.000	0.8	0.752	0.097		B
H3	Ni	9.583	10.3	10.366	0.637	-1.229	S
H4	Ni	8.478	9	9.034	0.781	-0.712	S
H1	Pb	0.966	1.2	1.233	0.178	-1.023	S
H2	Pb	0.726	0.9	0.922	0.313	-0.487	S
H3	Pb	21.85	23.5	22.629	2.584	-0.301	S
H4	Pb	18.325	20	19.642	1.651	-0.798	S
H1	Zn	< 7.000	6	6.32	1.027		B
H2	Zn	< 7.000	7.5	7.779	1.193	-3.587	U
H3	Zn	86.1	115	117.817	7.238	-4.382	Q
H4	Zn	70.35	97	99.615	5.978	-4.896	Q

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

^x EMEP quality norm; the letters in the column indicates:

S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4

Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4

U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4

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

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 114, C.N.R. Istituto Italiano di Idrobiologia (Italy)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
H1	As	3.3	0.7	0.661	0.127	14.246	U
H2	As	3.2	0.55	0.529	0.113	17.594	U
H3	As	8.1	6	6.054	0.526	3.889	U
H4	As	6.8	4.5	4.569	0.37	6.03	U
H1	Cd	0.1	0.07	0.067	0.01	2.789	Q
H2	Cd	0.1	0.05	0.047	0.008	6.854	U
H3	Cd	0.6	0.55	0.547	0.032	1.662	S
H4	Cd	0.8	0.8	0.796	0.061	0.072	S
H1	Cr	0.5	0.55	0.553	0.06	-0.617	S
H2	Cr	0.5	0.6	0.581	0.047	-0.851	S
H3	Cr	8	8.4	8.261	0.583	-0.447	S
H4	Cr	6.6	7	6.829	0.485	-0.471	S
H1	Cu	1.1	1.2	1.206	0.204	-0.52	S
H2	Cu	1.1	1.2	1.327	0.668	-0.268	S
H3	Cu	6.3	7	6.847	0.502	-1.09	S
H4	Cu	5	5.5	5.466	0.497	-0.939	S
H1	Ni	0.5	0.6	0.594	0.202	-0.318	S
H2	Ni	0.7	0.8	0.752	0.097	-0.149	S
H3	Ni	9.9	10.3	10.366	0.637	-0.731	S
H4	Ni	8.5	9	9.034	0.781	-0.684	S
H1	Pb	1.6	1.2	1.233	0.178	1.585	Q
H2	Pb	1.2	0.9	0.922	0.313	0.882	Q
H3	Pb	22.9	23.5	22.629	2.584	0.105	S
H4	Pb	19.5	20	19.642	1.651	-0.086	S
H1	Zn	6.7	6	6.32	1.027	0.37	S
H2	Zn	7.1	7.5	7.779	1.193	-0.569	S
H3	Zn	114.3	115	117.817	7.238	-0.486	S
H4	Zn	97.6	97	99.615	5.978	-0.337	S

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

^x EMEP quality norm; the letters in the column indicates:

S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4

Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4

U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4

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

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 115, Bayerische Landesanstalt f. Wald- und Forstwirtschaft (Germany)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
H1	As	0.818	0.7	0.661	0.127	0.847	S
H2	As	0.558	0.55	0.529	0.113	0.326	S
H3	As	6.08	6	6.054	0.526	0.049	S
H4	As	4.55	4.5	4.569	0.37	-0.053	S
H1	Cd	0.071	0.07	0.067	0.01	0.232	S
H2	Cd	0.05	0.05	0.047	0.008	0.348	S
H3	Cd	0.55	0.55	0.547	0.032	0.093	S
H4	Cd	0.79	0.8	0.796	0.061	-0.092	S
H1	Cr	0.592	0.55	0.553	0.06	0.648	S
H2	Cr	0.644	0.6	0.581	0.047	1.04	S
H3	Cr	8.16	8.4	8.261	0.583	-0.173	S
H4	Cr	6.76	7	6.829	0.485	-0.141	S
H1	Cu	1.22	1.2	1.206	0.204	0.069	S
H2	Cu	1.2	1.2	1.327	0.668	-0.124	S
H3	Cu	6.96	7	6.847	0.502	0.225	S
H4	Cu	5.55	5.5	5.466	0.497	0.169	S
H1	Ni	0.57	0.6	0.594	0.202	-0.011	S
H2	Ni	0.77	0.8	0.752	0.097	0.26	S
H3	Ni	10.1	10.3	10.366	0.637	-0.417	S
H4	Ni	9.1	9	9.034	0.781	0.085	S
H1	Pb	1.23	1.2	1.233	0.178	0.063	S
H2	Pb	0.91	0.9	0.922	0.313	0.044	S
H3	Pb	23.2	23.5	22.629	2.584	0.221	S
H4	Pb	19.7	20	19.642	1.651	0.035	S
H1	Zn	6.11	6	6.32	1.027	-0.204	S
H2	Zn	7.53	7.5	7.779	1.193	-0.209	S
H3	Zn	117.6	115	117.817	7.238	-0.03	S
H4	Zn	100.3	97	99.615	5.978	0.115	S

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

^x EMEP quality norm; the letters in the column indicates:

- S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4
- Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4
- U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4
- B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 117, Standortserkundung/Bodenmonitoring Forsten, Graupa (Germany)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
H1	As		0.7	0.661	0.127		B
H2	As		0.55	0.529	0.113		B
H3	As		6	6.054	0.526		B
H4	As		4.5	4.569	0.37		B
H1	Cd	0.04	0.07	0.067	0.01	-2.502	Q
H2	Cd	0.04	0.05	0.047	0.008	-0.953	S
H3	Cd	0.55	0.55	0.547	0.032	0.093	S
H4	Cd	0.81	0.8	0.796	0.061	0.235	S
H1	Cr	0.5	0.55	0.553	0.06	-0.617	S
H2	Cr	0.5	0.6	0.581	0.047	-0.851	S
H3	Cr	8	8.4	8.261	0.583	-0.447	S
H4	Cr	6.6	7	6.829	0.485	-0.471	S
H1	Cu	1.4	1.2	1.206	0.204	0.951	S
H2	Cu	1.3	1.2	1.327	0.668	0.019	S
H3	Cu	6.9	7	6.847	0.502	0.105	S
H4	Cu	5.4	5.5	5.466	0.497	-0.134	S
H1	Ni	0.77	0.6	0.594	0.202	0.868	Q
H2	Ni	0.85	0.8	0.752	0.097	0.727	S
H3	Ni	10.63	10.3	10.366	0.637	0.415	S
H4	Ni	8.84	9	9.034	0.781	-0.248	S
H1	Pb	1.17	1.2	1.233	0.178	-0.184	S
H2	Pb	0.87	0.9	0.922	0.313	-0.071	S
H3	Pb	21.5	23.5	22.629	2.584	-0.437	S
H4	Pb	18.2	20	19.642	1.651	-0.874	S
H1	Zn	7.5	6	6.32	1.027	1.149	S
H2	Zn	9.2	7.5	7.779	1.193	1.192	S
H3	Zn	117	115	117.817	7.238	-0.113	S
H4	Zn	98	97	99.615	5.978	-0.27	S

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

^x EMEP quality norm; the letters in the column indicates:

- S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4
- Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4
- U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4
- B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 118, Forstliche Versuchs-und Forschungsanstalt (Germany)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
H1	As	0.5	0.7	0.661	0.127	-0.87	Q
H2	As	0.5	0.55	0.529	0.113	-0.053	S
H3	As	5	6	6.054	0.526	-2.004	Q
H4	As	3.9	4.5	4.569	0.37	-1.81	S
H1	Cd	0.05	0.07	0.067	0.01	-1.62	Q
H2	Cd	0.04	0.05	0.047	0.008	-0.953	S
H3	Cd	0.55	0.55	0.547	0.032	0.093	S
H4	Cd	0.78	0.8	0.796	0.061	-0.255	S
H1	Cr	< 0.600	0.55	0.553	0.06		B
H2	Cr	< 0.600	0.6	0.581	0.047	-3.476	Q
H3	Cr	7.6	8.4	8.261	0.583	-1.133	S
H4	Cr	6.2	7	6.829	0.485	-1.296	S
H1	Cu	4.2	1.2	1.206	0.204	14.682	U
H2	Cu	4.8	1.2	1.327	0.668	5.042	U
H3	Cu	8.1	7	6.847	0.502	2.495	Q
H4	Cu	6.6	5.5	5.466	0.497	2.283	Q
H1	Ni	3.9	0.6	0.594	0.202	14.619	U
H2	Ni	5	0.8	0.752	0.097	24.976	U
H3	Ni	12.2	10.3	10.366	0.637	2.88	Q
H4	Ni	11.8	9	9.034	0.781	3.543	U
H1	Pb	1.6	1.2	1.233	0.178	1.585	Q
H2	Pb	< 1.500	0.9	0.922	0.313		B
H3	Pb	24.1	23.5	22.629	2.584	0.569	S
H4	Pb	19.6	20	19.642	1.651	-0.026	S
H1	Zn	13.4	6	6.32	1.027	6.896	U
H2	Zn	14	7.5	7.779	1.193	5.216	U
H3	Zn	124.9	115	117.817	7.238	0.978	S
H4	Zn	105.7	97	99.615	5.978	1.018	S

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

^x EMEP quality norm; the letters in the column indicates:

- S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4
- Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4
- U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4
- B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 120, Landwirtschaftliche Untersuchungs- und Forschungsanstalt LUFA (Germany)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
H1	As	0.3	0.7	0.661	0.127	-1.949	U
H2	As	0.1	0.55	0.529	0.113	-2.667	U
H3	As	4.3	6	6.054	0.526	-3.335	Q
H4	As	3	4.5	4.569	0.37	-4.242	U
H1	Cd	< 0.100	0.07	0.067	0.01		B
H2	Cd	< 0.100	0.05	0.047	0.008		B
H3	Cd	0.5	0.55	0.547	0.032	-1.475	S
H4	Cd	0.8	0.8	0.796	0.061	0.072	S
H1	Cr	0.8	0.55	0.553	0.06	3.507	Q
H2	Cr	0.6	0.6	0.581	0.047	0.462	S
H3	Cr	8.7	8.4	8.261	0.583	0.754	S
H4	Cr	7.4	7	6.829	0.485	1.178	S
H1	Cu	0.9	1.2	1.206	0.204	-1.501	S
H2	Cu	0.9	1.2	1.327	0.668	-0.555	S
H3	Cu	6.2	7	6.847	0.502	-1.289	S
H4	Cu	5	5.5	5.466	0.497	-0.939	S
H1	Ni	< 1.000	0.6	0.594	0.202		B
H2	Ni	< 1.000	0.8	0.752	0.097		B
H3	Ni	10	10.3	10.366	0.637	-0.574	S
H4	Ni	9	9	9.034	0.781	-0.043	S
H1	Pb	1.2	1.2	1.233	0.178	-0.06	S
H2	Pb	1	0.9	0.922	0.313	0.304	S
H3	Pb	20	23.5	22.629	2.584	-1.017	S
H4	Pb	16	20	19.642	1.651	-2.207	Q
H1	Zn	7.2	6	6.32	1.027	0.857	S
H2	Zn	7.5	7.5	7.779	1.193	-0.234	S
H3	Zn	119	115	117.817	7.238	0.163	S
H4	Zn	99.3	97	99.615	5.978	-0.053	S

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

^x EMEP quality norm; the letters in the column indicates:

S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4

Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4

U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4

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

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 121, Landeslabor Schleswig-Holsteinmwelt (Germany)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
H1	As	0.82	0.7	0.661	0.127	0.858	S
H2	As	0.64	0.55	0.529	0.113	0.862	S
H3	As	6.3	6	6.054	0.526	0.467	S
H4	As	4.7	4.5	4.569	0.37	0.353	S
H1	Cd	0.075	0.07	0.067	0.01	0.584	S
H2	Cd	0.06	0.05	0.047	0.008	1.65	S
H3	Cd	0.52	0.55	0.547	0.032	-0.848	S
H4	Cd	0.74	0.8	0.796	0.061	-0.91	S
H1	Cr	0.57	0.55	0.553	0.06	0.345	S
H2	Cr	0.59	0.6	0.581	0.047	0.331	S
H3	Cr	8.6	8.4	8.261	0.583	0.582	S
H4	Cr	7.7	7	6.829	0.485	1.797	S
H1	Cu	1.1	1.2	1.206	0.204	-0.52	S
H2	Cu	1.07	1.2	1.327	0.668	-0.311	S
H3	Cu	6.77	7	6.847	0.502	-0.154	S
H4	Cu	5.39	5.5	5.466	0.497	-0.154	S
H1	Ni	0.75	0.6	0.594	0.202	0.78	Q
H2	Ni	0.8	0.8	0.752	0.097	0.435	S
H3	Ni	10.9	10.3	10.366	0.637	0.839	S
H4	Ni	9.58	9	9.034	0.781	0.7	S
H1	Pb	1.26	1.2	1.233	0.178	0.186	S
H2	Pb	0.84	0.9	0.922	0.313	-0.158	S
H3	Pb	21	23.5	22.629	2.584	-0.63	S
H4	Pb	17.5	20	19.642	1.651	-1.298	S
H1	Zn	6.5	6	6.32	1.027	0.175	S
H2	Zn	8.1	7.5	7.779	1.193	0.269	S
H3	Zn	163	115	117.817	7.238	6.242	U
H4	Zn	123	97	99.615	5.978	3.912	Q

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

^x EMEP quality norm; the letters in the column indicates:

S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4

Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4

U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4

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

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 124, Laboratorium voor Bondemkunde, Gent (Belgium)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm [*]
H1	As	< 10.000	0.7	0.661	0.127		B
H2	As	< 10.000	0.55	0.529	0.113		B
H3	As	< 10.000	6	6.054	0.526		B
H4	As	< 10.000	4.5	4.569	0.37		B
H1	Cd	< 2.000	0.07	0.067	0.01		B
H2	Cd	< 2.000	0.05	0.047	0.008		B
H3	Cd	< 2.000	0.55	0.547	0.032		B
H4	Cd	< 2.000	0.8	0.796	0.061		B
H1	Cr	< 2.000	0.55	0.553	0.06		B
H2	Cr	< 2.000	0.6	0.581	0.047		B
H3	Cr	8.51	8.4	8.261	0.583	0.428	S
H4	Cr	6.68	7	6.829	0.485	-0.306	S
H1	Cu	1.33	1.2	1.206	0.204	0.608	S
H2	Cu	1.38	1.2	1.327	0.668	0.134	S
H3	Cu	6.14	7	6.847	0.502	-1.408	S
H4	Cu	5.35	5.5	5.466	0.497	-0.234	S
H1	Ni	< 5.000	0.6	0.594	0.202		B
H2	Ni	< 5.000	0.8	0.752	0.097		B
H3	Ni	10.33	10.3	10.366	0.637	-0.056	S
H4	Ni	8.63	9	9.034	0.781	-0.517	S
H1	Pb	< 5.000	1.2	1.233	0.178		B
H2	Pb	11.47	0.9	0.922	0.313	30.544	U
H3	Pb	22.2	23.5	22.629	2.584	-0.166	S
H4	Pb	21.94	20	19.642	1.651	1.392	S
H1	Zn	< 10.000	6	6.32	1.027		B
H2	Zn	< 10.000	7.5	7.779	1.193		B
H3	Zn	120.38	115	117.817	7.238	0.354	S
H4	Zn	99.83	97	99.615	5.978	0.036	S

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

* EMEP quality norm; the letters in the column indicates:

S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4

Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4

U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4

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

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 125, Bayerisches Landesamt für Umweltschutz, Augsburg (Germany)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
H1	As	0.785	0.7	0.661	0.127	0.669	S
H2	As	0.613	0.55	0.529	0.113	0.686	S
H3	As	6.63	6	6.054	0.526	1.095	S
H4	As	4.99	4.5	4.569	0.37	1.137	S
H1	Cd	0.069	0.07	0.067	0.01	0.055	S
H2	Cd	0.051	0.05	0.047	0.008	0.479	S
H3	Cd	0.548	0.55	0.547	0.032	0.03	S
H4	Cd	0.806	0.8	0.796	0.061	0.17	S
H1	Cr	0.595	0.55	0.553	0.06	0.689	S
H2	Cr	0.647	0.6	0.581	0.047	1.079	S
H3	Cr	8.97	8.4	8.261	0.583	1.217	S
H4	Cr	7.5	7	6.829	0.485	1.385	S
H1	Cu	1.47	1.2	1.206	0.204	1.294	S
H2	Cu	1.44	1.2	1.327	0.668	0.22	S
H3	Cu	7.7	7	6.847	0.502	1.698	S
H4	Cu	6.15	5.5	5.466	0.497	1.377	S
H1	Ni	0.548	0.6	0.594	0.202	-0.107	S
H2	Ni	0.781	0.8	0.752	0.097	0.324	S
H3	Ni	11	10.3	10.366	0.637	0.996	S
H4	Ni	9.48	9	9.034	0.781	0.572	S
H1	Pb	1.19	1.2	1.233	0.178	-0.101	S
H2	Pb	0.893	0.9	0.922	0.313	-0.005	S
H3	Pb	22.9	23.5	22.629	2.584	0.105	S
H4	Pb	19.5	20	19.642	1.651	-0.086	S
H1	Zn	7.04	6	6.32	1.027	0.701	S
H2	Zn	8.87	7.5	7.779	1.193	0.915	S
H3	Zn	131	115	117.817	7.238	1.821	S
H4	Zn	111	97	99.615	5.978	1.905	S

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

^x EMEP quality norm; the letters in the column indicates:

S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4

Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4

U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4

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

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 127, Dept. of Chemistry Malaysia, Environmental Health Division (Malaysia)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
H1	As	0.7	0.7	0.661	0.127	0.21	S
H2	As	0.5	0.55	0.529	0.113	-0.053	S
H3	As	4.8	6	6.054	0.526	-2.384	Q
H4	As	3.7	4.5	4.569	0.37	-2.35	Q
H1	Cd	< 0.200	0.07	0.067	0.01		B
H2	Cd	< 0.200	0.05	0.047	0.008		B
H3	Cd	0.5	0.55	0.547	0.032	-1.475	S
H4	Cd	0.7	0.8	0.796	0.061	-1.565	S
H1	Cr	0.5	0.55	0.553	0.06	-0.617	S
H2	Cr	0.5	0.6	0.581	0.047	-0.851	S
H3	Cr	8.1	8.4	8.261	0.583	-0.276	S
H4	Cr	6.6	7	6.829	0.485	-0.471	S
H1	Cu	1.2	1.2	1.206	0.204	-0.03	S
H2	Cu	1.2	1.2	1.327	0.668	-0.124	S
H3	Cu	7	7	6.847	0.502	0.304	S
H4	Cu	5.4	5.5	5.466	0.497	-0.134	S
H1	Ni	< 2.000	0.6	0.594	0.202		B
H2	Ni	< 2.000	0.8	0.752	0.097		B
H3	Ni	10.3	10.3	10.366	0.637	-0.103	S
H4	Ni	8.5	9	9.034	0.781	-0.684	S
H1	Pb	1.2	1.2	1.233	0.178	-0.06	S
H2	Pb	0.9	0.9	0.922	0.313	0.015	S
H3	Pb	23.3	23.5	22.629	2.584	0.26	S
H4	Pb	19.8	20	19.642	1.651	0.096	S
H1	Zn	4.9	6	6.32	1.027	-1.383	S
H2	Zn	6.3	7.5	7.779	1.193	-1.24	S
H3	Zn	111.3	115	117.817	7.238	-0.9	S
H4	Zn	92.2	97	99.615	5.978	-1.24	S

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

^x EMEP quality norm; the letters in the column indicates:

- S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4
- Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4
- U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4
- B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 129, Ecole Nationale d'ingénieurs de Sfax (Tunisia)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm [*]
H1	As	0.696	0.7	0.661	0.127	0.189	S
H2	As	0.496	0.55	0.529	0.113	-0.079	S
H3	As	6.144	6	6.054	0.526	0.171	S
H4	As	4.492	4.5	4.569	0.37	-0.209	S
H1	Cd	0.007	0.07	0.067	0.01	-5.411	U
H2	Cd	< 0.0001	0.05	0.047	0.008	-6.15	U
H3	Cd	0.422	0.55	0.547	0.032	-3.922	Q
H4	Cd	0.697	0.8	0.796	0.061	-1.614	S
H1	Cr	0.326	0.55	0.553	0.06	-3.009	Q
H2	Cr	0.386	0.6	0.581	0.047	-2.347	Q
H3	Cr	7.472	8.4	8.261	0.583	-1.353	S
H4	Cr	6.075	7	6.829	0.485	-1.554	S
H1	Cu	1.227	1.2	1.206	0.204	0.103	S
H2	Cu	1.813	1.2	1.327	0.668	0.756	U
H3	Cu	6.275	7	6.847	0.502	-1.139	S
H4	Cu	4.909	5.5	5.466	0.497	-1.122	S
H1	Ni	0.404	0.6	0.594	0.202	-0.74	Q
H2	Ni	0.57	0.8	0.752	0.097	-0.909	Q
H3	Ni	9.344	10.3	10.366	0.637	-1.604	S
H4	Ni	7.922	9	9.034	0.781	-1.424	S
H1	Pb	0.905	1.2	1.233	0.178	-1.273	S
H2	Pb	0.606	0.9	0.922	0.313	-0.834	Q
H3	Pb	125	23.5	22.629	2.584	39.613	U
H4	Pb	17.469	20	19.642	1.651	-1.317	S
H1	Zn	4.448	6	6.32	1.027	-1.823	Q
H2	Zn	5.43	7.5	7.779	1.193	-1.969	Q
H3	Zn	122	115	117.817	7.238	0.578	S
H4	Zn	100.205	97	99.615	5.978	0.099	S

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

* EMEP quality norm; the letters in the column indicates:

S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4

Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4

U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4

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

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 132, Comision Chilena de Energia Nuclear (Chile)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
H1	As		0.7	0.661	0.127		B
H2	As		0.55	0.529	0.113		B
H3	As		6	6.054	0.526		B
H4	As		4.5	4.569	0.37		B
H1	Cd	< 5.000	0.07	0.067	0.01		B
H2	Cd	< 5.000	0.05	0.047	0.008		B
H3	Cd	< 5.000	0.55	0.547	0.032		B
H4	Cd	< 5.000	0.8	0.796	0.061		B
H1	Cr	< 1.000	0.55	0.553	0.06		B
H2	Cr	< 1.000	0.6	0.581	0.047		B
H3	Cr	7.9	8.4	8.261	0.583	-0.619	S
H4	Cr	6.5	7	6.829	0.485	-0.678	S
H1	Cu	< 5.000	1.2	1.206	0.204		B
H2	Cu	< 5.000	1.2	1.327	0.668		B
H3	Cu	6.5	7	6.847	0.502	-0.691	S
H4	Cu	5.5	5.5	5.466	0.497	0.068	S
H1	Ni	< 5.000	0.6	0.594	0.202		B
H2	Ni	< 5.000	0.8	0.752	0.097		B
H3	Ni	9.3	10.3	10.366	0.637	-1.673	S
H4	Ni	9.7	9	9.034	0.781	0.853	S
H1	Pb	< 5.000	1.2	1.233	0.178		B
H2	Pb	< 5.000	0.9	0.922	0.313		B
H3	Pb	22.4	23.5	22.629	2.584	-0.089	S
H4	Pb	20.2	20	19.642	1.651	0.338	S
H1	Zn	5.7	6	6.32	1.027	-0.604	S
H2	Zn	6.7	7.5	7.779	1.193	-0.904	S
H3	Zn	108	115	117.817	7.238	-1.356	S
H4	Zn	92.5	97	99.615	5.978	-1.19	S

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

^x EMEP quality norm; the letters in the column indicates:

S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4

Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4

U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4

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

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 141, Marine Division, Global Environment and Marine Department, Japan Meteorological Agency, Tokyo (Japan)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm [⌘]
H1	As		0.7	0.661	0.127		B
H2	As		0.55	0.529	0.113		B
H3	As		6	6.054	0.526		B
H4	As		4.5	4.569	0.37		B
H1	Cd	0.063	0.07	0.067	0.01	-0.474	S
H2	Cd	0.041	0.05	0.047	0.008	-0.822	S
H3	Cd	0.51	0.55	0.547	0.032	-1.162	S
H4	Cd	0.722	0.8	0.796	0.061	-1.205	S
H1	Cr		0.55	0.553	0.06		B
H2	Cr		0.6	0.581	0.047		B
H3	Cr		8.4	8.261	0.583		B
H4	Cr		7	6.829	0.485		B
H1	Cu		1.2	1.206	0.204		B
H2	Cu		1.2	1.327	0.668		B
H3	Cu		7	6.847	0.502		B
H4	Cu		5.5	5.466	0.497		B
H1	Ni		0.6	0.594	0.202		B
H2	Ni		0.8	0.752	0.097		B
H3	Ni		10.3	10.366	0.637		B
H4	Ni		9	9.034	0.781		B
H1	Pb		1.2	1.233	0.178		B
H2	Pb		0.9	0.922	0.313		B
H3	Pb		23.5	22.629	2.584		B
H4	Pb		20	19.642	1.651		B
H1	Zn		6	6.32	1.027		B
H2	Zn		7.5	7.779	1.193		B
H3	Zn		115	117.817	7.238		B
H4	Zn		97	99.615	5.978		B

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

⌘ EMEP quality norm; the letters in the column indicates:

S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4

Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4

U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4

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

Please check the EMEP intercalibration website for Youden plots, updated expected values ect:

<http://www.nilu.no/projects/ccc/intercomparison.html>

**Deltaker i CIENS og Framsenderet / 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
Framsenderet / 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 146, Cellule de Recherche en Environnement et Biotechnologies Public Research Center- Gabriel Lippm (Luxembourg)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm [⌘]
H1	As	< 1.000	0.7	0.661	0.127		B
H2	As	< 1.000	0.55	0.529	0.113		B
H3	As	6.201	6	6.054	0.526	0.279	S
H4	As	4.67	4.5	4.569	0.37	0.272	S
H1	Cd	0.071	0.07	0.067	0.01	0.232	S
H2	Cd	0.05	0.05	0.047	0.008	0.348	S
H3	Cd	0.553	0.55	0.547	0.032	0.187	S
H4	Cd	0.814	0.8	0.796	0.061	0.301	S
H1	Cr	0.517	0.55	0.553	0.06	-0.383	S
H2	Cr	0.589	0.6	0.581	0.047	0.318	S
H3	Cr	7.643	8.4	8.261	0.583	-1.06	S
H4	Cr	6.493	7	6.829	0.485	-0.692	S
H1	Cu	1.105	1.2	1.206	0.204	-0.495	S
H2	Cu	1.172	1.2	1.327	0.668	-0.164	S
H3	Cu	6.768	7	6.847	0.502	-0.158	S
H4	Cu	5.261	5.5	5.466	0.497	-0.413	S
H1	Ni	0.582	0.6	0.594	0.202	0.042	S
H2	Ni	0.768	0.8	0.752	0.097	0.248	S
H3	Ni	10.95	10.3	10.366	0.637	0.917	S
H4	Ni	9.422	9	9.034	0.781	0.497	S
H1	Pb	1.176	1.2	1.233	0.178	-0.159	S
H2	Pb	0.92	0.9	0.922	0.313	0.073	S
H3	Pb	23.62	23.5	22.629	2.584	0.384	S
H4	Pb	20.14	20	19.642	1.651	0.302	S
H1	Zn	5.871	6	6.32	1.027	-0.437	S
H2	Zn	7.632	7.5	7.779	1.193	-0.123	S
H3	Zn	121.8	115	117.817	7.238	0.55	S
H4	Zn	105.2	97	99.615	5.978	0.934	S

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

⌘ EMEP quality norm; the letters in the column indicates:

S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4

Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4

U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4

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

Please check the EMEP intercalibration website for Youden plots, updated expected values ect:

<http://www.nilu.no/projects/ccc/intercomparison.html>

**Deltaker i CIENS og Framsenderet / 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
Framsenderet / 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 166, Forest Research Institute, Laboratory of Forest Environment Chemistry (Poland)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
H1	As		0.7	0.661	0.127		B
H2	As		0.55	0.529	0.113		B
H3	As		6	6.054	0.526		B
H4	As		4.5	4.569	0.37		B
H1	Cd	< 0.500	0.07	0.067	0.01		B
H2	Cd	< 0.500	0.05	0.047	0.008		B
H3	Cd	0.59	0.55	0.547	0.032	1.348	S
H4	Cd	0.82	0.8	0.796	0.061	0.399	S
H1	Cr		0.55	0.553	0.06		B
H2	Cr		0.6	0.581	0.047		B
H3	Cr		8.4	8.261	0.583		B
H4	Cr		7	6.829	0.485		B
H1	Cu	< 9.000	1.2	1.206	0.204		B
H2	Cu	< 9.000	1.2	1.327	0.668		B
H3	Cu	< 9.000	7	6.847	0.502		B
H4	Cu	< 9.000	5.5	5.466	0.497		B
H1	Ni	< 3.000	0.6	0.594	0.202		B
H2	Ni	< 3.000	0.8	0.752	0.097		B
H3	Ni	10.735	10.3	10.366	0.637	0.58	S
H4	Ni	9.365	9	9.034	0.781	0.424	S
H1	Pb	< 10.000	1.2	1.233	0.178		B
H2	Pb	< 10.000	0.9	0.922	0.313		B
H3	Pb	23.23	23.5	22.629	2.584	0.233	S
H4	Pb	19.28	20	19.642	1.651	-0.219	S
H1	Zn	3.85	6	6.32	1.027	-2.406	Q
H2	Zn	5.53	7.5	7.779	1.193	-1.885	Q
H3	Zn	113.57	115	117.817	7.238	-0.587	S
H4	Zn	96.28	97	99.615	5.978	-0.558	S

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

^x EMEP quality norm; the letters in the column indicates:

S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4

Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4

U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4

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

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 169, Lancaster Environment Centre, Centre for Ecology and Hydrology (United Kingdom)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
H1	As	0.617	0.7	0.661	0.127	-0.238	S
H2	As	0.488	0.55	0.529	0.113	-0.131	S
H3	As	5.53	6	6.054	0.526	-0.996	S
H4	As	4.27	4.5	4.569	0.37	-0.809	S
H1	Cd	0.059	0.07	0.067	0.01	-0.853	S
H2	Cd	0.04	0.05	0.047	0.008	-0.914	S
H3	Cd	0.507	0.55	0.547	0.032	-1.256	S
H4	Cd	0.755	0.8	0.796	0.061	-0.665	S
H1	Cr	0.521	0.55	0.553	0.06	-0.328	S
H2	Cr	0.571	0.6	0.581	0.047	0.082	S
H3	Cr	8.24	8.4	8.261	0.583	-0.035	S
H4	Cr	7.21	7	6.829	0.485	0.787	S
H1	Cu	1.24	1.2	1.206	0.204	0.167	S
H2	Cu	1.19	1.2	1.327	0.668	-0.139	S
H3	Cu	6.72	7	6.847	0.502	-0.253	S
H4	Cu	5.31	5.5	5.466	0.497	-0.315	S
H1	Ni	0.705	0.6	0.594	0.202	0.583	S
H2	Ni	0.757	0.8	0.752	0.097	0.184	S
H3	Ni	9.82	10.3	10.366	0.637	-0.856	S
H4	Ni	8.7	9	9.034	0.781	-0.427	S
H1	Pb	1.79	1.2	1.233	0.178	2.366	Q
H2	Pb	0.885	0.9	0.922	0.313	-0.028	S
H3	Pb	22.3	23.5	22.629	2.584	-0.127	S
H4	Pb	19.3	20	19.642	1.651	-0.207	S
H1	Zn	7.03	6	6.32	1.027	0.692	S
H2	Zn	7.97	7.5	7.779	1.193	0.16	S
H3	Zn	107	115	117.817	7.238	-1.494	S
H4	Zn	92.5	97	99.615	5.978	-1.19	S

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

^x EMEP quality norm; the letters in the column indicates:

- S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4
- Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4
- U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4
- B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 171, Ecole de Mines de Douai, Department Chimie et Environnement (France)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
H1	As	0.732	0.7	0.661	0.127	0.383	S
H2	As	0.571	0.55	0.529	0.113	0.411	S
H3	As	6.114	6	6.054	0.526	0.114	S
H4	As	4.603	4.5	4.569	0.37	0.091	S
H1	Cd	0.078	0.07	0.067	0.01	0.849	S
H2	Cd	0.054	0.05	0.047	0.008	0.869	S
H3	Cd	0.577	0.55	0.547	0.032	0.94	S
H4	Cd	0.857	0.8	0.796	0.061	1.005	S
H1	Cr	0.517	0.55	0.553	0.06	-0.383	S
H2	Cr	0.55	0.6	0.581	0.047	-0.194	S
H3	Cr	7.948	8.4	8.261	0.583	-0.536	S
H4	Cr	6.599	7	6.829	0.485	-0.473	S
H1	Cu	1.251	1.2	1.206	0.204	0.221	S
H2	Cu	1.228	1.2	1.327	0.668	-0.084	S
H3	Cu	7.233	7	6.847	0.502	0.768	S
H4	Cu	5.72	5.5	5.466	0.497	0.511	S
H1	Ni	1.235	0.6	0.594	0.202	2.911	U
H2	Ni	0.92	0.8	0.752	0.097	1.136	S
H3	Ni	22.944	10.3	10.366	0.637	19.745	U
H4	Ni	19.464	9	9.034	0.781	13.359	U
H1	Pb	0.589	1.2	1.233	0.178	-2.573	U
H2	Pb	0.77	0.9	0.922	0.313	-0.36	S
H3	Pb	10.412	23.5	22.629	2.584	-4.727	U
H4	Pb	8.902	20	19.642	1.651	-6.507	U
H1	Zn	7.449	6	6.32	1.027	1.1	S
H2	Zn	9.151	7.5	7.779	1.193	1.15	S
H3	Zn	130.971	115	117.817	7.238	1.817	S
H4	Zn	110.537	97	99.615	5.978	1.827	S

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

^x EMEP quality norm; the letters in the column indicates:

S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4

Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4

U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4

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

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 174, Background Monitoring Department, Institute of Global Climate and Ecology (IGCE), Moscow (Russian Federation)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm [⌘]
H1	As		0.7	0.661	0.127		B
H2	As		0.55	0.529	0.113		B
H3	As		6	6.054	0.526		B
H4	As		4.5	4.569	0.37		B
H1	Cd	0.049	0.07	0.067	0.01	-1.708	Q
H2	Cd	0.04	0.05	0.047	0.008	-0.953	S
H3	Cd	0.37	0.55	0.547	0.032	-5.554	U
H4	Cd	0.52	0.8	0.796	0.061	-4.51	U
H1	Cr		0.55	0.553	0.06		B
H2	Cr		0.6	0.581	0.047		B
H3	Cr		8.4	8.261	0.583		B
H4	Cr		7	6.829	0.485		B
H1	Cu	1.25	1.2	1.206	0.204	0.216	S
H2	Cu	1	1.2	1.327	0.668	-0.411	S
H3	Cu	5.2	7	6.847	0.502	-3.28	Q
H4	Cu	4.1	5.5	5.466	0.497	-2.751	Q
H1	Ni		0.6	0.594	0.202		B
H2	Ni		0.8	0.752	0.097		B
H3	Ni		10.3	10.366	0.637		B
H4	Ni		9	9.034	0.781		B
H1	Pb	1.1	1.2	1.233	0.178	-0.472	S
H2	Pb	0.8	0.9	0.922	0.313	-0.274	S
H3	Pb	21.9	23.5	22.629	2.584	-0.282	S
H4	Pb	19.1	20	19.642	1.651	-0.328	S
H1	Zn		6	6.32	1.027		B
H2	Zn		7.5	7.779	1.193		B
H3	Zn		115	117.817	7.238		B
H4	Zn		97	99.615	5.978		B

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

⌘ EMEP quality norm; the letters in the column indicates:

- S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4
- Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4
- U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4
- B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for Youden plots, updated expected values ect:

<http://www.nilu.no/projects/ccc/intercomparison.html>

**Deltaker i CIENS og Framsenderet / 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
Framsenderet / 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 178, Environmental Chemistry and EANET Monitoring Laboratory, Limnological Institute RAS/SB, Irkutsk (Russian Federation)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm [⌘]
H1	As	0.95	0.7	0.661	0.127	1.56	Q
H2	As	0.74	0.55	0.529	0.113	1.516	Q
H3	As	6.9	6	6.054	0.526	1.608	Q
H4	As	5.2	4.5	4.569	0.37	1.705	Q
H1	Cd	0.07	0.07	0.067	0.01	0.143	S
H2	Cd	0.05	0.05	0.047	0.008	0.348	S
H3	Cd	0.59	0.55	0.547	0.032	1.348	S
H4	Cd	0.87	0.8	0.796	0.061	1.217	S
H1	Cr	0.5	0.55	0.553	0.06	-0.617	S
H2	Cr	0.55	0.6	0.581	0.047	-0.194	S
H3	Cr	7.7	8.4	8.261	0.583	-0.962	S
H4	Cr	6.6	7	6.829	0.485	-0.471	S
H1	Cu	1.2	1.2	1.206	0.204	-0.03	S
H2	Cu	1.25	1.2	1.327	0.668	-0.052	S
H3	Cu	6.9	7	6.847	0.502	0.105	S
H4	Cu	5.5	5.5	5.466	0.497	0.068	S
H1	Ni	0.6	0.6	0.594	0.202	0.121	S
H2	Ni	0.8	0.8	0.752	0.097	0.435	S
H3	Ni	10.2	10.3	10.366	0.637	-0.26	S
H4	Ni	8.8	9	9.034	0.781	-0.299	S
H1	Pb	1.1	1.2	1.233	0.178	-0.472	S
H2	Pb	0.8	0.9	0.922	0.313	-0.274	S
H3	Pb	20.7	23.5	22.629	2.584	-0.746	S
H4	Pb	17.7	20	19.642	1.651	-1.177	S
H1	Zn	7.5	6	6.32	1.027	1.149	S
H2	Zn	9.3	7.5	7.779	1.193	1.275	S
H3	Zn	136	115	117.817	7.238	2.512	Q
H4	Zn	116	97	99.615	5.978	2.741	Q

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

⌘ EMEP quality norm; the letters in the column indicates:

S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4

Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4

U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4

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

Please check the EMEP intercalibration website for Youden plots, updated expected values ect:

<http://www.nilu.no/projects/ccc/intercomparison.html>

**Deltaker i CIENS og Framsenderet / 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
Framsenderet / 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 179, Murmansk Environmental Monitoring Center, Murmansk (Russian Federation)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
H1	As	0.64	0.7	0.661	0.127	-0.114	S
H2	As	0.53	0.55	0.529	0.113	0.143	S
H3	As	6.49	6	6.054	0.526	0.829	S
H4	As	5.05	4.5	4.569	0.37	1.299	S
H1	Cd	0.071	0.07	0.067	0.01	0.232	S
H2	Cd	0.052	0.05	0.047	0.008	0.609	S
H3	Cd	0.375	0.55	0.547	0.032	-5.397	U
H4	Cd	0.846	0.8	0.796	0.061	0.825	S
H1	Cr	0.7	0.55	0.553	0.06	2.132	Q
H2	Cr	0.53	0.6	0.581	0.047	-0.457	S
H3	Cr	9.61	8.4	8.261	0.583	2.315	S
H4	Cr	8.37	7	6.829	0.485	3.179	Q
H1	Cu	0.81	1.2	1.206	0.204	-1.942	Q
H2	Cu	1.21	1.2	1.327	0.668	-0.11	S
H3	Cu	5.48	7	6.847	0.502	-2.722	Q
H4	Cu	4.33	5.5	5.466	0.497	-2.288	Q
H1	Ni	0.67	0.6	0.594	0.202	0.429	S
H2	Ni	0.9	0.8	0.752	0.097	1.02	S
H3	Ni	10.8	10.3	10.366	0.637	0.682	S
H4	Ni	9.63	9	9.034	0.781	0.764	S
H1	Pb	1.48	1.2	1.233	0.178	1.091	S
H2	Pb	1.17	0.9	0.922	0.313	0.795	Q
H3	Pb	22.9	23.5	22.629	2.584	0.105	S
H4	Pb	24.5	20	19.642	1.651	2.943	Q
H1	Zn	6.68	6	6.32	1.027	0.351	S
H2	Zn	7.7	7.5	7.779	1.193	-0.066	S
H3	Zn	114.3	115	117.817	7.238	-0.486	S
H4	Zn	96.5	97	99.615	5.978	-0.521	S

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

^x EMEP quality norm; the letters in the column indicates:

- S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4
- Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4
- U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4
- B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

EMEP – Analytical intercomparison of heavy metals in precipitation 2012

Laboratory 181, TNO innovation for life (The Netherlands)

Heavy metals in precipitation (H-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
H1	As	0.705	0.7	0.661	0.127	0.237	S
H2	As	0.581	0.55	0.529	0.113	0.477	S
H3	As	6.05	6	6.054	0.526	-0.008	S
H4	As	4.49	4.5	4.569	0.37	-0.215	S
H1	Cd	0.079	0.07	0.067	0.01	0.937	S
H2	Cd	0.057	0.05	0.047	0.008	1.259	S
H3	Cd	0.561	0.55	0.547	0.032	0.438	S
H4	Cd	0.794	0.8	0.796	0.061	-0.026	S
H1	Cr	0.584	0.55	0.553	0.06	0.538	S
H2	Cr	0.631	0.6	0.581	0.047	0.869	S
H3	Cr	8.78	8.4	8.261	0.583	0.891	S
H4	Cr	7.15	7	6.829	0.485	0.663	S
H1	Cu	1.25	1.2	1.206	0.204	0.216	S
H2	Cu	1.18	1.2	1.327	0.668	-0.153	S
H3	Cu	7.16	7	6.847	0.502	0.623	S
H4	Cu	5.61	5.5	5.466	0.497	0.289	S
H1	Ni	0.67	0.6	0.594	0.202	0.429	S
H2	Ni	0.788	0.8	0.752	0.097	0.365	S
H3	Ni	10.5	10.3	10.366	0.637	0.211	S
H4	Ni	9.2	9	9.034	0.781	0.213	S
H1	Pb	1.24	1.2	1.233	0.178	0.104	S
H2	Pb	0.935	0.9	0.922	0.313	0.116	S
H3	Pb	23.7	23.5	22.629	2.584	0.414	S
H4	Pb	20	20	19.642	1.651	0.217	S
H1	Zn	6.57	6	6.32	1.027	0.244	S
H2	Zn	7.59	7.5	7.779	1.193	-0.158	S
H3	Zn	115	115	117.817	7.238	-0.389	S
H4	Zn	97	97	99.615	5.978	-0.437	S

If your laboratory reported values as less than the detection limit, and your detection limit equal or is lower than the expected value, ½ DL is taken as the reported value in further calculations.

^x EMEP quality norm; the letters in the column indicates:

- S – Satisfactory: Your result deviates less than ±25% of the expected value for samples H1 and H2, and less than ±15% for samples H3 and H4
- Q – Questionable: Your result deviates between ±25-50% of the expected value for samples H1 and H2, and between ±15-30% for samples H3 and H4
- U – Unsatisfactory: Your result deviates more than ±50% of the expected value for samples H1 and H2, and more than ±30% for samples H3 and H4
- B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for 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
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.