

EMEP – 41st intercomparison of analytical methods - 2023

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

Ammonia on impregnated filters (J-samples)

Sample name	Determinand	Reported value [¥]	Expected value	Mean value	Standard deviation	Z score [*]	EMEP quality norm [¤]
J1	NH ₃ <i>µg N/filter</i>	4.514	3.9	4.06	0.495	0.917	S
J2		6.254	5.525	5.567	0.554	1.24	S
J4		7.899	6.925	6.853	0.689	1.52	S
J5		8.551	7.725	7.436	0.612	1.823	S

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* Z score is unitless

¤ EMEP quality norm; letters indicate:

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

Ammonia on impregnated filters (J-samples)

Sample name	Determinand	Reported value †	Expected value	Mean value	Standard deviation	Z score *	EMEP quality norm ‡
J1	NH ₃	3.88	3.9	4.06	0.495	-0.364	S
J2		5.51	5.525	5.567	0.554	-0.103	S
J4	µg N/filter	6.85	6.925	6.853	0.689	-0.004	S
J5		7.44	7.725	7.436	0.612	0.007	S

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

Ammonia on impregnated filters (J-samples)

Sample name	Determinand	Reported value [¥]	Expected value	Mean value	Standard deviation	Z score [*]	EMEP quality norm [¤]
J1	NH ₃	3.835	3.9	4.06	0.495	-0.455	S
J2		5.515	5.525	5.567	0.554	-0.094	S
J4	<i>µg N/filter</i>	6.745	6.925	6.853	0.689	-0.156	S
J5		7.475	7.725	7.436	0.612	0.064	S

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Laboratory 6, SGS France - EHS (France)

Ammonia on impregnated filters (J-samples)

Sample name	Determinand	Reported value [¥]	Expected value	Mean value	Standard deviation	Z score [*]	EMEP quality norm [¤]
J1	NH ₃ <i>µg N/filter</i>	4.061	3.9	4.06	0.495	0.001	S
J2		5.656	5.525	5.567	0.554	0.16	S
J4		6.966	6.925	6.853	0.689	0.164	S
J5		7.68	7.725	7.436	0.612	0.399	S

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Laboratory 8, Umweltbundesamt, Langen (Germany)

Ammonia on impregnated filters (J-samples)

Sample name	Determinand	Reported value [¥]	Expected value	Mean value	Standard deviation	Z score [*]	EMEP quality norm [¤]
J1	NH ₃ <i>µg N/filter</i>	4.8	3.9	4.06	0.495	1.495	Q
J2		6.1	5.525	5.567	0.554	0.962	S
J4		7.7	6.925	6.853	0.689	1.231	S
J5		8	7.725	7.436	0.612	0.922	S

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Laboratory 10, Air Quality Reference Centre (Hungary)

Ammonia on impregnated filters (J-samples)

Sample name	Determinand	Reported value [¥]	Expected value	Mean value	Standard deviation	Z score [*]	EMEP quality norm [¤]
J1	NH ₃ <i>µg N/filter</i>	3.588	3.9	4.06	0.495	-0.954	S
J2		4.717	5.525	5.567	0.554	-1.534	S
J4		6.539	6.925	6.853	0.689	-0.455	S
J5		6.999	7.725	7.436	0.612	-0.714	S

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Laboratory 15, NILU (Norway)

Ammonia on impregnated filters (J-samples)

Sample name	Determinand	Reported value [¥]	Expected value	Mean value	Standard deviation	Z score [*]	EMEP quality norm [¤]
J1	NH ₃ <i>µg N/filter</i>	3.875	3.9	4.06	0.495	-0.374	S
J2		5.185	5.525	5.567	0.554	-0.689	S
J4		6.535	6.925	6.853	0.689	-0.461	S
J5		7.195	7.725	7.436	0.612	-0.393	S

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

Ammonia on impregnated filters (J-samples)

Sample name	Determinand	Reported value [¥]	Expected value	Mean value	Standard deviation	Z score [*]	EMEP quality norm [¤]
J1	NH ₃	3.21	3.9	4.06	0.495	-1.718	S
J2		5.74	5.525	5.567	0.554	0.312	S
J4	µg N/filter	6.33	6.925	6.853	0.689	-0.759	S
J5		7.19	7.725	7.436	0.612	-0.402	S

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

Ammonia on impregnated filters (J-samples)

Sample name	Determinand	Reported value †	Expected value	Mean value	Standard deviation	Z score *	EMEP quality norm ‡
J1	NH ₃	4.061	3.9	4.06	0.495	0.001	S
J2		5.75	5.525	5.567	0.554	0.331	S
J4	µg N/filter	7.221	6.925	6.853	0.689	0.534	S
J5		7.88	7.725	7.436	0.612	0.727	S

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

Ammonia on impregnated filters (J-samples)

Sample name	Determinand	Reported value [¥]	Expected value	Mean value	Standard deviation	Z score [*]	EMEP quality norm [¤]
J1	NH ₃ <i>µg N/filter</i>	6.963	3.9	4.06	0.495	5.866	U
J2		-1.377	5.525	5.567	0.554	-12.533	U
J4		11.973	6.925	6.853	0.689	7.435	U
J5		15.312	7.725	7.436	0.612	12.875	U

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Laboratory 31, Slovak Hydrometeorological Institute (Slovakia)

Ammonia on impregnated filters (J-samples)

Sample name	Determinand	Reported value [¥]	Expected value	Mean value	Standard deviation	Z score [*]	EMEP quality norm [¤]
J1	NH ₃ <i>µg N/filter</i>	4.807	3.9	4.06	0.495	1.509	Q
J2		5.776	5.525	5.567	0.554	0.377	S
J4		7.205	6.925	6.853	0.689	0.512	S
J5		7.794	7.725	7.436	0.612	0.586	S

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

Ammonia on impregnated filters (J-samples)

Sample name	Determinand	Reported value [¥]	Expected value	Mean value	Standard deviation	Z score [*]	EMEP quality norm [¤]
J1	NH ₃ <i>µg N/filter</i>	3.28	3.9	4.06	0.495	-1.577	S
J2		4.28	5.525	5.567	0.554	-2.323	Q
J4		5.48	6.925	6.853	0.689	-1.993	Q
J5		6.08	7.725	7.436	0.612	-2.216	Q

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

Ammonia on impregnated filters (J-samples)

Sample name	Determinand	Reported value [¥]	Expected value	Mean value	Standard deviation	Z score [*]	EMEP quality norm [¤]
J1	NH ₃ <i>µg N/filter</i>	3.682	3.9	4.06	0.495	-0.764	S
J2		4.978	5.525	5.567	0.554	-1.063	S
J4		6.148	6.925	6.853	0.689	-1.023	S
J5		7.078	7.725	7.436	0.612	-0.585	S

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Laboratory 34, Ministry of Environment and Urbanisation (Turkey)

Ammonia on impregnated filters (J-samples)

Sample name	Determinand	Reported value [¥]	Expected value	Mean value	Standard deviation	Z score [*]	EMEP quality norm [¤]
J1	NH ₃ <i>µg N/filter</i>	2.208	3.9	4.06	0.495	-3.742	U
J2		10.909	5.525	5.567	0.554	9.641	U
J4		5.627	6.925	6.853	0.689	-1.78	S
J5		6.713	7.725	7.436	0.612	-1.18	S

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

Ammonia on impregnated filters (J-samples)

Sample name	Determinand	Reported value [¥]	Expected value	Mean value	Standard deviation	Z score [*]	EMEP quality norm [¤]
J1	NH ₃ <i>µg N/filter</i>	4.205	3.9	4.06	0.495	0.293	S
J2		5.975	5.525	5.567	0.554	0.736	S
J4		7.425	6.925	6.853	0.689	0.831	S
J5		8.115	7.725	7.436	0.612	1.11	S

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

Ammonia on impregnated filters (J-samples)

Sample name	Determinand	Reported value [¥]	Expected value	Mean value	Standard deviation	Z score [*]	EMEP quality norm [¤]
J1	NH ₃ <i>µg N/filter</i>	4.715	3.9	4.06	0.495	1.324	Q
J2		6.375	5.525	5.567	0.554	1.458	S
J4		7.675	6.925	6.853	0.689	1.194	S
J5		6.685	7.725	7.436	0.612	-1.227	S

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

Ammonia on impregnated filters (J-samples)

Sample name	Determinand	Reported value [¥]	Expected value	Mean value	Standard deviation	Z score [*]	EMEP quality norm [¤]
J1	NH ₃ <i>µg N/filter</i>	4.37	3.9	4.06	0.495	0.626	S
J2		5.75	5.525	5.567	0.554	0.33	S
J4		7.2	6.925	6.853	0.689	0.505	S
J5		7.75	7.725	7.436	0.612	0.514	S

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Laboratory 200, FUB AG (Switzerland)

Ammonia on impregnated filters (J-samples)

Sample name	Determinand	Reported value [¥]	Expected value	Mean value	Standard deviation	Z score [*]	EMEP quality norm [¤]
J1	NH ₃ <i>µg N/filter</i>	4.08	3.9	4.06	0.495	0.04	S
J2		5.51	5.525	5.567	0.554	-0.103	S
J4		6.95	6.925	6.853	0.689	0.141	S
J5		7.78	7.725	7.436	0.612	0.563	S

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