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certificate of quality

The characteristic data of the procedure of the following test kit were determined during the production control process.
For more details on how the data are determined please consult the respective reference in the literature.

Spectroquant® Ammonium Cell Test, Cat. No. 1.14739

Measuring Range	0.010 - 2.000 mg/l NH_4-N
Photometer	Reference
Cell	16-mm* round cell
Wavelength	690 nm

* outer diameter

Specified data for procedure

Lot-specific data

Slope	see lot-specific Certificate of Analysis (CoA)
Ordinate segment	
Reagent Blank	

Data for procedure according to ISO 8466-1[1] and DIN 38402 A51[2]

Residual Standard Deviation	0.0147 A
Sensitivity 0.010 A (absorbance)	0.009 mg/l NH_4-N
Confidence Interval (P=95%)	± 0.030 mg/l NH_4-N
Number of Lots	60
Standard Deviation of the Method	0.0127 mg/l NH_4-N
Variation Coefficient of the Method	1.3%

Limit of Detection/Quantification

according to APHA 1030 C[3]

Lower Level of Detection (LLD)	0.0079 mg/l NH_4-N
Method Detection Level (MDL)	0.0158 mg/l NH_4-N

according to ISO TS 13530[4] - based on standard deviation of blank samples

Limit of Detection (LOD)	0.0064 mg/l NH_4-N
Limit of Quantification (LOQ)	0.0191 mg/l NH_4-N

according to DIN 32645[5] - based on standard deviation of blank samples

Detection Limit	0.0041 mg/l NH_4-N
Determination Limit	0.0151 mg/l NH_4-N

Accuracy/Trueness/Precision according to DIN ISO 5725-1[6] (in the middle of the measuring range)

Accuracy	± 0.0349 mg/l NH_4-N
Trueness	± 0.0182 mg/l NH_4-N
Precision	± 0.0167 mg/l NH_4-N

Measurement Uncertainty according to DIN ISO 11352 2013-03 (Bias according to chapter 8.3.2) [7] (in the middle of the measuring range)

Expanded Measurement Uncertainty ($k = 2$)	± 0.040 mg/l NH_4-N

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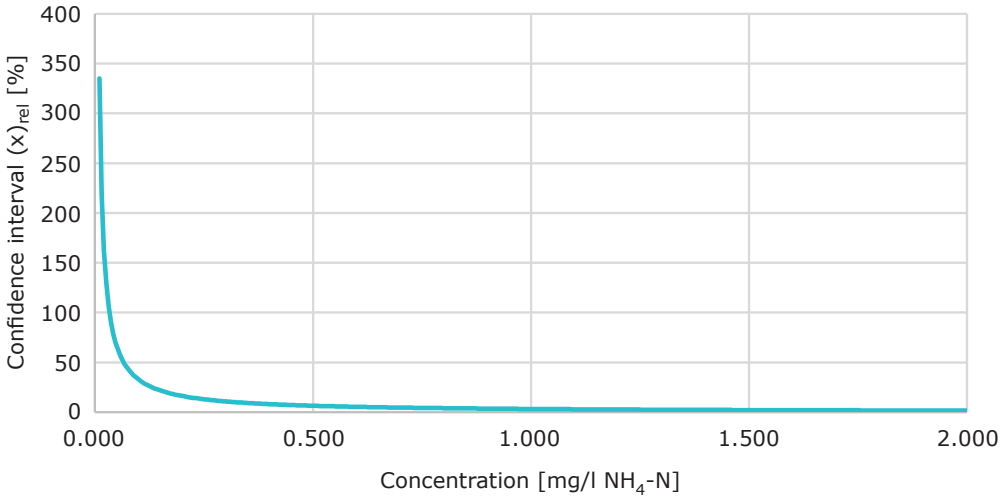
Relative Analytical Precision



Literature

[1] ISO 8466-1:2021(E), Water quality – Calibration and evaluation of analytical methods, Part 1: Linear Calibration function"

[2] DIN 38402-51:2017: German standard methods for the examination of water, waste water and sludge - general information (group A) - Part 51: Calibration of analytical methods - linear calibration (A51)

[3] American Public Health Association, American Water Works Association, Water Environment Federation. Lipps WC, Braun-Howland EB, Baxter TE, eds. Standard Methods for the Examination of Water and Wastewater - DATA QUALITY - Method Detection Level. 24th ed. Washington DC: APHA Press; 2023.

[4] ISO/TS 13530:2009: Water quality — Guidance on analytical quality control for chemical and physicochemical water analysis

[5] DIN ISO 5725-1:1997-11: Accuracy (trueness and precision) of measurement methods and results - Part 1: General principles and definitions

[6] DIN 32645:2008: German standard methods for the examination of water, waste water and sludge - general information (group A) - Part 51: Calibration of analytical methods - linear calibration (A51)

[7] DIN ISO 11352:2013-03, Water quality – Estimation of measurement uncertainty based on validation and quality control data

Merck KGaA, Darmstadt, Germany 30.03.2026

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qualitätszertifikat

Die Verfahrenskenndaten für den unten genannten Testsatz wurden bei der Produktionsendkontrolle ermittelt.
Nähere Einzelheiten zur Datenermittlung entnehmen Sie bitte der entsprechenden Literaturstelle.

Spectroquant® Ammonium-Küvettentest, Art. 1.14739

Messbereich	0,010 - 2,000 mg/l NH_4-N
Photometer	Referenz
Küvette	16-mm*-Rundküvette
Wellenlänge	690 nm

* Außendurchmesser

Verfahrenskenndaten

Chargenspezifische Daten

Steigung	siehe chargenspezifisches Analysenzertifikat (CoA)
Ordinatenabschnitt	
Reagenzienblindwert	

Verfahrenskenndaten entsprechend ISO 8466-1[1] und DIN 38402 A51[2]

Reststandardabweichung	0,0147 E
Empfindlichkeit: 0,010 E (Extinktion)	0,009 mg/l NH_4-N
Vertrauensbereich (95 % Wahrscheinlichkeit)	± 0,030 mg/l NH_4-N
Anzahl Produktionschargen	60
Verfahrensstandardabweichung	0,0127 mg/l NH_4-N
Verfahrensvariationskoeffizient	1,3 %

Nachweis-/Quantifizierungsgrenze

entsprechend APHA 1030 C[3]

Nachweisgrenze (LLD)	0,0079 mg/l NH_4-N
Nachweisgrenze des Verfahrens (MDL)	0,0158 mg/l NH_4-N

entsprechend ISO TS 13530[4] - basierend auf der Standardabweichung von Blindwerten

Nachweisgrenze (LOD)	0,0064 mg/l NH_4-N
Bestimmungsgrenze (LOQ)	0,0191 mg/l NH_4-N

entsprechend DIN 32645[5] - basierend auf der Standardabweichung von Blindwerten

Nachweisgrenze	0,0041 mg/l NH_4-N
Bestimmungsgrenze	0,0151 mg/l NH_4-N

Genauigkeit/Richtigkeit/Präzision entsprechend DIN ISO 5725-1[6] (bezogen auf die Mitte des Messbereichs)

Genauigkeit	± 0,0349 mg/l NH_4-N
Richtigkeit	± 0,0182 mg/l NH_4-N
Präzision	± 0,0167 mg/l NH_4-N

Messunsicherheit entsprechend DIN ISO 11352 2013-03 (Bias entsprechend Kapitel 8.3.2)[7] (bezogen auf die Mitte des Messbereichs)

Erweiterte Messunsicherheit ($k = 2$)	± 0,040 mg/l NH_4-N

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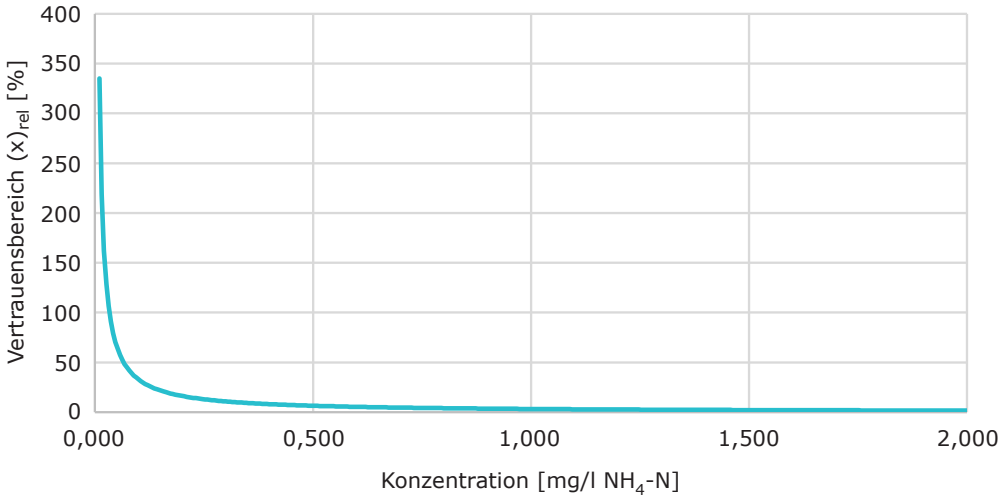
Relative analytische Präzision



Literaturangabe

[1] ISO 8466-1:2021(E), Water quality – Calibration and evaluation of analytical methods, Part 1: Linear Calibration function"

[2] DIN 38402-51:2017: German standard methods for the examination of water, waste water and sludge - general information (group A) - Part 51: Calibration of analytical methods - linear calibration (A51)

[3] American Public Health Association, American Water Works Association, Water Environment Federation. Lipps WC, Braun-Howland EB, Baxter TE, eds. Standard Methods for the Examination of Water and Wastewater - DATA QUALITY - Method Detection Level. 24th ed. Washington DC: APHA Press; 2023.

[4] ISO/TS 13530:2009: Water quality — Guidance on analytical quality control for chemical and physicochemical water analysis

[5] DIN ISO 5725-1:1997-11: Accuracy (trueness and precision) of measurement methods and results - Part 1: General principles and definitions

[6] DIN 32645:2008: German standard methods for the examination of water, waste water and sludge - general information (group A) - Part 51: Calibration of analytical methods - linear calibration (A51)

[7] DIN ISO 11352:2013-03, Water quality – Estimation of measurement uncertainty based on validation and quality control data

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certificado de calidad

Los datos característicos del procedimiento para el equipo de ensayo abajo citado se determinaron durante el control final de producción.
Para obtener más detalles sobre cómo se determinan los datos, consulte la referencia correspondiente en la bibliografía.

Spectroquant® Test en cubetas Amonio, art. 1.14739

Intervalo de medida	0,010 - 2,000 mg/l de NH_4-N
Fotómetro	Referencia
Cubeta	16-mm* cubeta redonda
Longitud de onda	690 nm

* diámetro exterior

Datos especificados para el procedimiento

Datos especificados del lote

Pendiente	consulte el Certificado de Análisis (CoA) específico del lote
Intersecto en ordenadas	
Blanco de reactivo	

Datos para el procedimiento según ISO 8466-1[1] y DIN 38402 A51[2]

Desviación estándar residual	0,0147 A
Sensibilidad: 0,010 A (absorbancia)	0,009 mg/l de NH_4-N
Intervalo de confianza (95 % de probabilidad)	± 0,030 mg/l de NH_4-N
Número de lotes de producción	60
Desviación estándar del procedimiento	0,0127 mg/l de NH_4-N
Coeficiente de variación del procedimiento	1,3 %

Límite de detección/cuantificación

según APHA 1030 C[3]

Límite inferior de detección (LLD)	0,0079 mg/l de NH_4-N
Límite de detección del procedimiento (MDL)	0,0158 mg/l de NH_4-N

según ISO TS 13530[4] - basado en la desviación estándar de muestras en blanco

Límite de detección (LOD)	0,0064 mg/l de NH_4-N
Límite de cuantificación (LOQ)	0,0191 mg/l de NH_4-N

según DIN 32645[5] - basado en la desviación estándar de muestras en blanco

Límite de detección	0,0041 mg/l de NH_4-N
Límite de determinación	0,0151 mg/l de NH_4-N

Exactitud/Veracidad/Precisión según DIN ISO 5725-1[6] (en el medio del intervalo de medida)

Exactitud	± 0,0349 mg/l de NH_4-N
Veracidad	± 0,0182 mg/l de NH_4-N
Precisión	± 0,0167 mg/l de NH_4-N

Incertidumbre de medicion según DIN ISO 11352 2013-03 (Sesgo según capítulo 8.3.2)[7] (en el medio del intervalo de medida)

Incertidumbre de medida ampliada ($k = 2$)	± 0,040 mg/l de NH_4-N

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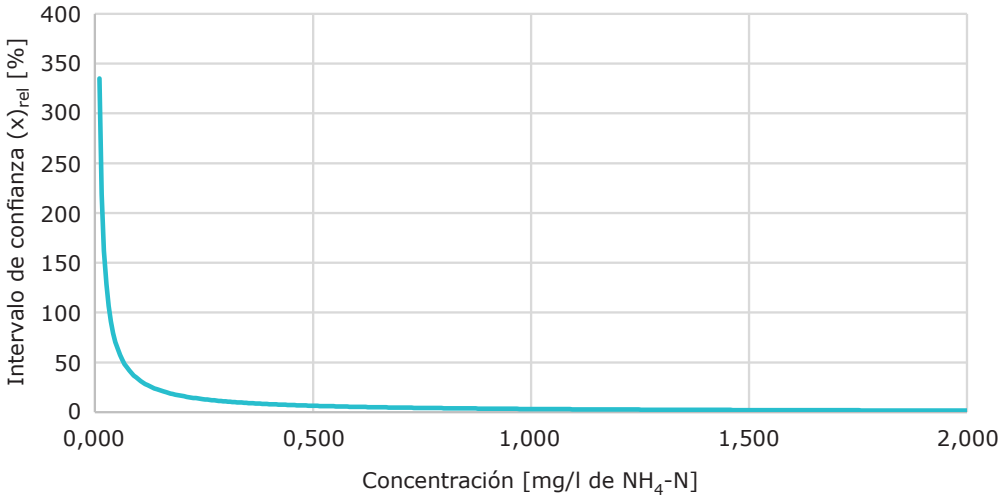
Precisión analítica relativa



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[7] DIN ISO 11352:2013-03, Water quality – Estimation of measurement uncertainty based on validation and quality control data

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