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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® Nitrate Cell Test, Cat. No. 1.14542

Measuring Range	0.5 - 18.0 mg/l NO_3-N
Photometer	Reference
Cell	16-mm* round cell
Wavelength	525 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	0.0194 A
Sensitivity 0.010 A (absorbance)	0.1 mg/l NO_3-N
Confidence Interval (P=95%)	± 0.3 mg/l NO_3-N
Number of Lots	46
Standard Deviation of the Method	0.14 mg/l NO_3-N
Variation Coefficient of the Method	1.5%

Limit of Detection/Quantification

according to APHA 1030 C[3]

Lower Level of Detection (LLD)	0.08 mg/l NO_3-N
Method Detection Level (MDL)	0.16 mg/l NO_3-N

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

Limit of Detection (LOD)	0.07 mg/l NO_3-N
Limit of Quantification (LOQ)	0.20 mg/l NO_3-N

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

Detection Limit	0.04 mg/l NO_3-N
Determination Limit	0.16 mg/l NO_3-N

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

Accuracy	± 0.36 mg/l NO_3-N
Trueness	± 0.11 mg/l NO_3-N
Precision	± 0.25 mg/l NO_3-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 ($k = 2$)	± 0.4 mg/l NO_3-N

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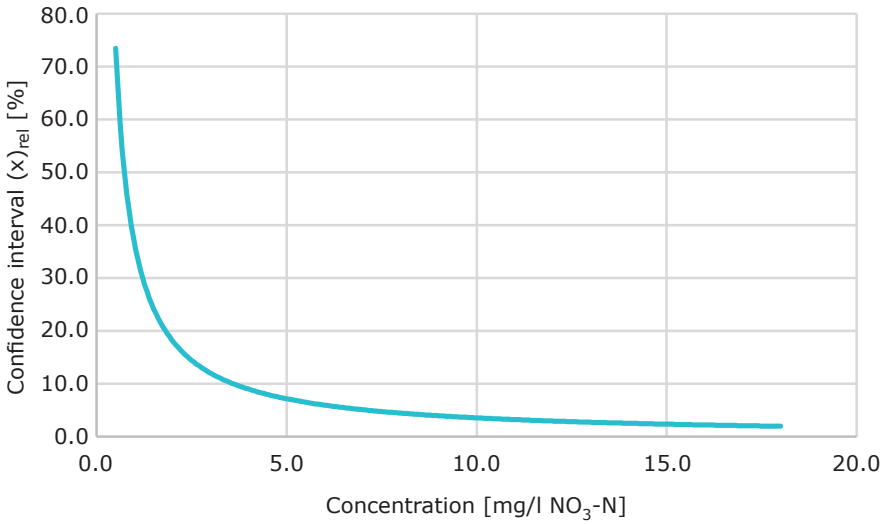
Relative Analytical Precision



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

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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® Nitrat-Küvettentest, Art. 1.14542

Messbereich	0,5 - 18,0 mg/l NO_3-N
Photometer	Referenz
Küvette	16-mm*-Rundküvette
Wellenlänge	525 nm

* Außendurchmesser

Verfahrenskenndaten

Chargenspezifische Daten

Steigung	siehe chargenspezifisches Analysenzertifikat (CoA)
Ordinatenabschnitt	
Reagenzienblindwert	

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

Reststandardabweichung	0,0194 E
Empfindlichkeit: 0,010 E (Extinktion)	0,1 mg/l NO_3-N
Vertrauensbereich (95 % Wahrscheinlichkeit)	± 0,3 mg/l NO_3-N
Anzahl Produktionschargen	46
Verfahrensstandardabweichung	0,14 mg/l NO_3-N
Verfahrensvariationskoeffizient	1,5 %

Nachweis-/Quantifizierungsgrenze

entsprechend APHA 1030 C[3]

Nachweisgrenze (LLD)	0,08 mg/l NO_3-N
Nachweisgrenze des Verfahrens (MDL)	0,16 mg/l NO_3-N

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

Nachweisgrenze (LOD)	0,07 mg/l NO_3-N
Bestimmungsgrenze (LOQ)	0,20 mg/l NO_3-N

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

Nachweisgrenze	0,04 mg/l NO_3-N
Bestimmungsgrenze	0,16 mg/l NO_3-N

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

Genauigkeit	± 0,36 mg/l NO_3-N
Richtigkeit	± 0,11 mg/l NO_3-N
Präzision	± 0,25 mg/l NO_3-N

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

Erweiterte Messunsicherheit ($k = 2$)	± 0,4 mg/l NO_3-N

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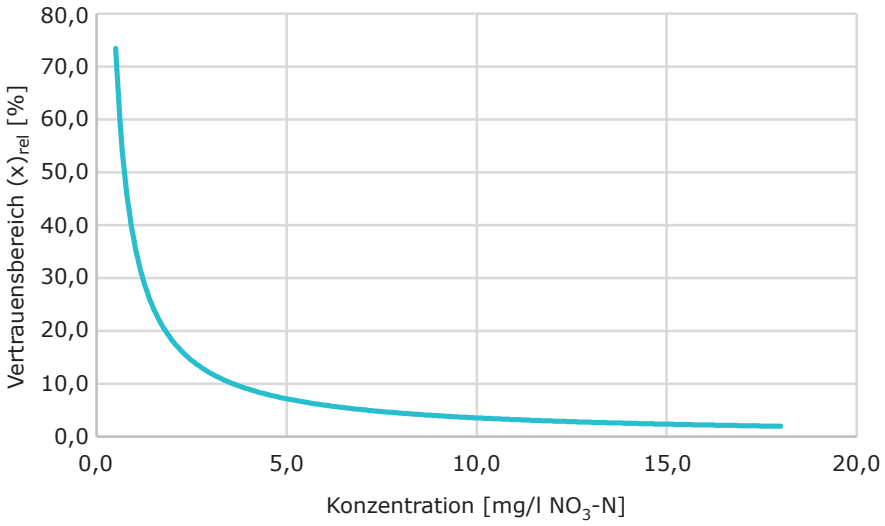
Relative analytische Präzision



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

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[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 Nitratos, art. 1.14542

Intervalo de medida	0,5 - 18,0 mg/l de NO_3-N
Fotómetro	Referencia
Cubeta	16-mm* cubeta redonda
Longitud de onda	525 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	0,0194 A
Sensibilidad: 0,010 A (absorbancia)	0,1 mg/l de NO_3-N
Intervalo de confianza (95 % de probabilidad)	± 0,3 mg/l de NO_3-N
Número de lotes de producción	46
Desviación estándar del procedimiento	0,14 mg/l de NO_3-N
Coeficiente de variación del procedimiento	1,5 %

Límite de detección/cuantificación

según APHA 1030 C[3]

Límite inferior de detección (LLD)	0,08 mg/l de NO_3-N
Límite de detección del procedimiento (MDL)	0,16 mg/l de NO_3-N

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

Límite de detección (LOD)	0,07 mg/l de NO_3-N
Límite de cuantificación (LOQ)	0,20 mg/l de NO_3-N

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

Límite de detección	0,04 mg/l de NO_3-N
Límite de determinación	0,16 mg/l de NO_3-N

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

Exactitud	± 0,36 mg/l de NO_3-N
Veracidad	± 0,11 mg/l de NO_3-N
Precisión	± 0,25 mg/l de NO_3-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 ($k = 2$)	± 0,4 mg/l de NO_3-N

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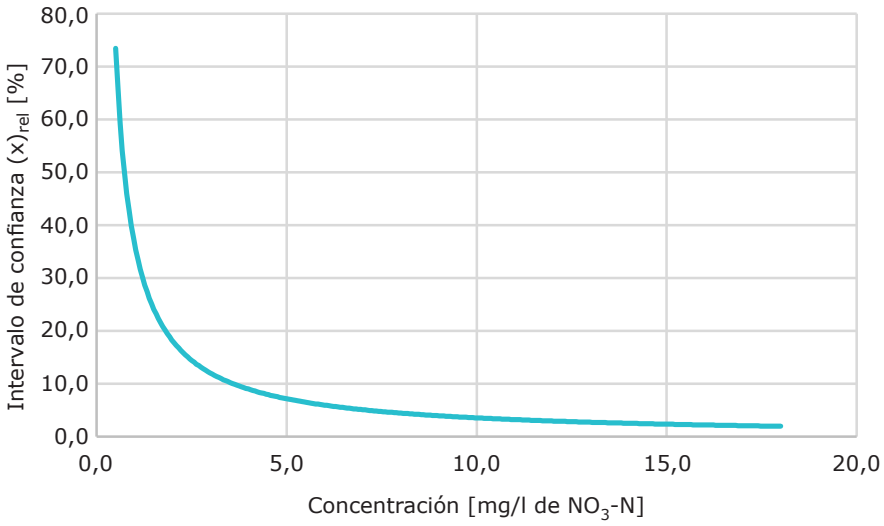
Precisión analítica relativa



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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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