



Certificate of Analysis

Certipur® Certified Reference Material

Producer:	Merck KGaA, Frankfurter Str. 250, 64293 Darmstadt, Germany.
Accreditation:	Merck KGaA, Darmstadt, Germany is accredited as calibration Laboratory according to DIN EN ISO/IEC 17025.
Description of CRM:	Nickel standard solution 1000 mg/l Ni
Ord. No.:	1.19792.0500
Lot No.:	HC60114292
Composition:	Ni(NO ₃) ₂ in HNO ₃ Suprapur® 0.5 mol/l
Certified value and uncertainty:	986 mg/kg Ni ± 4 mg/kg Ni Mass fraction (w/w) ± expanded measurement uncertainty The expanded measurement uncertainty U is calculated as $U = k \cdot U_{\text{characterisation}}$, where $k = 2$ is the coverage factor for a 95% coverage probability and $U_{\text{characterisation}}$ is the combined measurement uncertainty in accordance to DIN EN ISO/IEC 17025.
Density:	The density of the standard solution is 1.0140 g/cm ³ at 20°C.
Calculated mass concentration:	999 mg/l Ni
Method of Analysis:	Inductively coupled plasma optical emission spectrometry (ICP-OES).
Traceability:	This reference material has been measured applying high precision ICP-OES and is directly traceable to the corresponding NIST SRM® 3136, lot 120619. <i>NIST: National Institute of Standards and Technology, Gaithersburg, USA.</i>
Storage:	Store at +15°C to +25°C tightly closed in the original container.
Application and correct use:	This reference material is intended for use as calibration standard for atomic absorption spectrometry, spectrophotometry and other analytical techniques. Shake well before use and never pipet directly from the original container.
Date of release:	2016/09/22
Minimum shelf life:	2019/09/30

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(Laboratory Manager)

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Accreditation:	Merck KGaA, Darmstadt, Germany is accredited as calibration Laboratory according to DIN EN ISO/IEC 17025.
Description of CRM:	Zinc standard solution 1000 mg/l Zn
Ord. No.:	1.19806.0500
Lot No.:	HC72486706
Composition:	Zn(NO ₃) ₂ in HNO ₃ Suprapur® 0.5 mol/l
Certified value and uncertainty:	986 mg/kg Zn ± 4 mg/kg Zn Mass fraction (w/w) ± expanded measurement uncertainty The expanded measurement uncertainty U is calculated as $U = k \cdot u_{\text{characterisation}}$, where $k = 2$ is the coverage factor for a 95% coverage probability and $u_{\text{characterisation}}$ is the combined measurement uncertainty in accordance to DIN EN ISO/IEC 17025.
Density:	The density of the standard solution is 1.0138 g/cm ³ at 20°C.
Calculated mass concentration:	999 mg/l Zn
Method of Analysis:	Inductively coupled plasma optical emission spectrometry (ICP-OES).
Traceability:	This reference material has been measured applying high precision ICP-OES and is directly traceable to the corresponding NIST SRM® 3168a, lot 120629. <i>NIST: National Institute of Standards and Technology, Gaithersburg, USA.</i>
Storage:	Store at +15°C to +25°C tightly closed in the original container.
Application and correct use:	This reference material is intended for use as calibration standard for atomic absorption spectrometry, spectrophotometry and other analytical techniques. Shake well before use and never pipet directly from the original container.
Date of release:	2017/05/19
Minimum shelf life:	2020/05/31

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