



IDENTIFICATION SHEET

Aqueous calibration solution ASTASOL[®]

ASTASOL[®] TUNE07P

This Identification sheet is designed in accordance with ISO Guide 31

Category: Traced reference materials

Analytes: Ag, Al, Ba, Be, Bi, Ce, Co, Cs, Cu, Ga, Ho, In, Li, Mg, Mn, Ni, Rh, Sc, Sr, Ta, Tb, Tl, U, Y, Zn

Product code: TUNE07P

Starting primary compounds and their purities (%):

Ag 99.9999; Al 99.999; BaCO₃ 99.997; Be 99.5; Bi 99.999; Ce(NO₃)₃ · 6H₂O 99.99; Co 99.995; CsNO₃ 99.999; Cu 99.999; Ga 99.9999; Ho₂O₃ 99.999; In 99.999; Li₂CO₃ 99.999; Mg 99.99; Mn 99.98; Ni 99.999; Rh(NO₃)₃ 99.99; Sc₂O₃ 99.999; SrCO₃ 99.995; Ta 99.98; Tb₄O₇ 99.999; TlNO₃ 99.9995; UO₂(NO₃)₂ · 6 H₂O 99.95; Y₂O₃ 99.999; Zn 99.999;

Matrix:

2% HNO₃ (v/v), prepared from sub boil distilled HNO₃ (ANALPURE[®]) and ultrapure demineralized water with traces of HF (ANALPURE[®]) (resistivity ≥ 18 MΩ.cm, 0.22μm filtered)

Assigned concentration value and expanded uncertainty (k = 2) at 20 °C

Be	35.00 ± 0.35 μg /l	Co, Li, Sc	8.00 ± 0.08 μg /l
Zn	20.0 ± 0.2 μg /l	Ag, Mn	6.00 ± 0.06 μg /l
Cu, Ni	15.00 ± 0.15 μg /l	Sr	5.00 ± 0.05 μg /l
Al, Ga, Mg	10.0 ± 0.1 μg /l	Ba, Tl	4.00 ± 0.04 μg /l
Bi, Ce, Cs, Ho, In, Rh, Ta, Tb, U, Y			3.00 ± 0.03 μg /l

Specification:

Batch No.: 10186

The date of production: 19.01.2023

Expiry date: 19.07.2024

Intended use:

As a calibrator of analytical methods analysing aqueous solutions such as atomic spectrometry (AAS, AES, ICP-OES, ICP-MS), molecular absorption spectrometry and selected electroanalytical methods.

Characterization and traceability:

This RM has an assigned value of concentration and uncertainty on the basis of gravimetric preparation. Traceability is realized with CRM AN 9001(1N), AN 9002(1N), AN 9006(1N), AN 9007(1N), AN 9008(1N), AN 9011(1N), AN 9012(1N), AN 9014(1N), AN 9015(1N), AN 9020(1N), AN 9025(1N), AN 9026(1N), AN 9030(1N), AN 9032(1N), AN 9033(1N), AN 9038(1N), AN 9047(1C), AN 9052(1N), AN 9056(1N), AN 9057(1FN), AN 9058(1N), AN 9062(1N), AN 9064(1N), AN 9067(1N) and AN 9069(1N), through a short unbroken chain of calibrations (AAS, AES, ICP-OES) or comparisons (primary analytical methods). All mentioned CRM AN are traceable to the corresponding SRMs NIST.

Trace impurities in bottled solution (in µg/l):

Max. 0.04 (total)

Homogeneity and stability:

It has been demonstrated that this RM is homogeneous and its stability is guaranteed during the whole shelf life provided the solution it kept under conditions presented below.

Storing and instruction for use:

This RM has to be stored in the original closed bottle between 5 – 30 °C. The producer guarantees a declared expiration time provided the RM is properly stored and professionally handled. The temperature of the solution must be 20 ± 0.5 °C before every use. It is important to cover the screw cap and the neck of the bottle with a parafilm layer after each opening to prevent vapour phase losses. It is not recommended to use the standard solution when the bottle contains less than 10 % of the solution. Therefore, in case of not transparent bottle, it is important to indicate the amount of the solution used, e.g. on the label. Do not pipette from the bottle. Do not return removed aliquots to bottle.

Producer:

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Quality management systems:

The Producer has a certified quality management system ČSN EN ISO 9001: 2016.

The Producer meets the requirements of ČSN EN ISO 17034:2017: General requirements for the competence of reference material producers.

Head of production department:

Mgr. Mirka Petránková

Date of the first issue of IS: 14.03.2023

Revision of IS:

IS revision date:

Version of IS: 01