

## Certificate of Analysis

<b>Product Number:</b> 1.002186	<b>CAS Number:</b> 7697-37-2
<b>Product Description:</b> Nitric acid	<b>Molecular Weight:</b> 63.01
<b>Product Grade:</b> G4 ≤100ppt	<b>Molecular Formula:</b> HNO <sub>3</sub>
<b>Lot Number:</b> 00GS2407	<b>Density:</b> 1.41 g/mL
<b>Release Date:</b> 07/25/2024 (mm/dd/yyyy)	<b>Molarity:</b> 16 moles/litre
<b>Expiration Date:</b> 07/25/2026 (mm/dd/yyyy)	<b>Normality:</b> 16 moles/litre

Analytical Data					
Analyte	Specification	Actual Value	Analyte	Specification	Actual Value
Assay (HNO <sub>3</sub> )	67 - 70% w/w	68% w/w	Molybdenum (Mo)	100 ppt	< 1 ppt
Aluminum (Al)	100 ppt	< 5 ppt	Neodymium (Nd)	100 ppt	< 1 ppt
Antimony (Sb)	100 ppt	< 1 ppt	Nickel (Ni)	100 ppt	< 10 ppt
Arsenic (As)	100 ppt	< 2 ppt	Niobium (Nb)	100 ppt	< 1 ppt
Barium (Ba)	100 ppt	< 5 ppt	Palladium (Pd)	100 ppt	< 1 ppt
Beryllium (Be)	100 ppt	< 1 ppt	Platinum (Pt)	100 ppt	< 1 ppt
Bismuth (Bi)	100 ppt	< 1 ppt	Potassium (K)	100 ppt	< 2 ppt
Boron (B)	100 ppt	< 5 ppt	Praseodymium (Pr)	100 ppt	< 1 ppt
Cadmium (Cd)	100 ppt	< 1 ppt	Rhenium (Re)	100 ppt	< 1 ppt
Calcium (Ca)	100 ppt	< 5 ppt	Rhodium (Rh)	100 ppt	< 1 ppt
Cerium (Ce)	100 ppt	< 1 ppt	Rubidium (Rb)	100 ppt	< 1 ppt
Cesium (Cs)	100 ppt	< 1 ppt	Ruthenium (Ru)	100 ppt	< 1 ppt
Chromium (Cr)	100 ppt	< 5 ppt	Samarium (Sm)	100 ppt	< 1 ppt
Cobalt (Co)	100 ppt	< 5 ppt	Scandium (Sc)	100 ppt	< 1 ppt
Copper (Cu)	100 ppt	< 5 ppt	Selenium (Se)	100 ppt	< 1 ppt
Dysprosium (Dy)	100 ppt	< 1 ppt	Silver (Ag)	100 ppt	< 1 ppt
Erbium (Er)	100 ppt	< 1 ppt	Sodium (Na)	100 ppt	< 2 ppt
Europium (Eu)	100 ppt	< 1 ppt	Strontium (Sr)	100 ppt	< 1 ppt
Gadolinium (Gd)	100 ppt	< 1 ppt	Tantalum (Ta)	100 ppt	< 10 ppt
Gallium (Ga)	100 ppt	< 1 ppt	Tellurium (Te)	100 ppt	< 1 ppt
Germanium (Ge)	100 ppt	< 1 ppt	Terbium (Tb)	100 ppt	< 1 ppt
Gold (Au)	100 ppt	< 1 ppt	Thallium (Tl)	100 ppt	< 1 ppt
Hafnium (Hf)	100 ppt	< 1 ppt	Thorium (Th)	100 ppt	< 1 ppt
Holmium (Ho)	100 ppt	< 1 ppt	Thulium (Tm)	100 ppt	< 1 ppt
Indium (In)	100 ppt	< 1 ppt	Tin (Sn)	100 ppt	< 5 ppt
Iron (Fe)	100 ppt	< 2 ppt	Titanium (Ti)	100 ppt	< 5 ppt
Lanthanum (La)	100 ppt	< 1 ppt	Tungsten (W)	100 ppt	< 1 ppt
Lead (Pb)	100 ppt	< 2 ppt	Uranium (U)	100 ppt	< 1 ppt
Lithium (Li)	100 ppt	< 1 ppt	Vanadium (V)	100 ppt	< 1 ppt
Lutetium (Lu)	100 ppt	< 1 ppt	Ytterbium (Yb)	100 ppt	< 1 ppt
Magnesium (Mg)	100 ppt	< 2 ppt	Yttrium (Y)	100 ppt	< 1 ppt
Manganese (Mn)	100 ppt	< 1 ppt	Zinc (Zn)	100 ppt	< 1 ppt
Mercury (Hg)	100 ppt	< 10 ppt	Zirconium (Zr)	100ppt	< 1 ppt

Most elements are determined by high resolution ICP-MS using sample preconcentration. The results are an average of three aliquots subsampled from three samples representative of the lot. The samples are slowly evaporated to dryness. The resulting residue is reconstituted in a small volume of LabGenius™ Chemicals 2% Nitric Acid / 2% Hydrogen Peroxide. For volatile elements (indicated by \*), the acid samples are diluted then directly injected into the ICP-MS. Values below three times the standard deviation of the blank are shown with '<', no blank value is subtracted.



Greg Henson  
QA & RA Manager

For terms and conditions of use, please see page 2.

## Terms and Conditions of Use

### Safety Guidelines:

PRIOR to opening or storing this product be sure to consult the Safety Data Sheet (SDS) to ensure safe storage and handling with regards to this hazardous material. This information must be read and understood prior to use or storage.

SAFETY HANDLING NOTES: Consult the SDS PRIOR to handling this product. Use proper safety apparel according to the recommendations of the SDS. Exposure controls and personal protection should include: a properly functioning fume hood, protection for eyes (safety glasses), hands (chemically compatible gloves), feet (chemically compatible boots), and exposed skin (splash protection and a chemically compatible apron). All of these items must conform to local/regional/national regulatory requirements.

### LabGenius™'s Product Integrity Guidelines:

We have found our products, unopened and sealed, maintain the certified integrity, or product quality, for their stated certification period under the following conditions:

- Store at room temperature, maximum range 15°C (59°F) to 25°C (77°F).
- Avoid exposure to sunlight or ultraviolet light sources.
- Open in a 'particle free' environment. LabGenius recommends a HEPA or ULPA particle filtered trace metal clean room. Open product should be handled under Class 100 or ISO 5 clean room or better conditions.

Once opened, product integrity will depend on proper handling and exposure to contaminants. To reduce trace metal contamination, the inner pack of plastic bags and bottle should be opened under Class 100 or ISO 5 clean room or better conditions to maintain the integrity of the product. The use of plastic gloves, hair net and a clean room suit is also advised.

**For LabGenius™'s Product Expiration Policy and Product Permeation FAQ, please see our website.**

### Notes:

Reported density, molarity and normality values reflect published literature and are characteristic of the product's assay range. If you require an accurate density, molarity, or normality for the product that you have purchased, you will have to perform the measurement. Bottles within a given lot have small assay variations.

### Definitions:

- **Actual value:** the measured value in a particular lot analysis.
- **Analyte:** the substance being measured.
- **Specification:** the maximum certified value of an analyte, unless otherwise specified.
- **Unit(s):** **ppm** – part per million or µg (microgram) of analyte per gram of solution.  
**ppb** – part per billion or ng (nanogram) of analyte per gram of solution.  
**ppt** – part per trillion or pg (picogram) of analyte per gram of solution.



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