Safety Data Sheet
acc. to OSHA HCS

Revision date 08/23/2024

*
1 Identification

· **Product identifier**

· **Product Name: ICP-MS Calibration Standard (125 mL)**

· **Part number:** IMS-104
· **Application of the substance / the mixture** Reagents and Standards for Analytical Chemical Laboratory Use

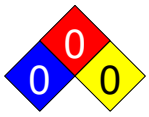
· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Agilent Technologies, Inc.
5301 Stevens Creek Blvd.
Santa Clara, CA 95051 USA

· **Information department:**
Telephone: 800-227-9770
e-mail: pdl-msds_author@agilent.com
· **Emergency telephone number:** CHEMTREC®: 1-800-424-9300

*
2 Hazard(s) identification

· **Classification of the substance or mixture**
The product is not classified, according to the Globally Harmonized System (GHS).

· **Label elements**
· **GHS label elements** Void
· **Hazard pictograms** Void
· **Signal word** Void
· **Hazard statements** Void
· **Classification system:**
· **NFPA ratings (scale 0 - 4)**



Health = 0
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = 0
Fire = 0
Reactivity = 0

· **Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

*
3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**		
7664-39-3	hydrogen fluoride	0.1%

US

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Printing date 08/23/2024 Revision date 08/23/2024

Product Name: ICP-MS Calibration Standard (125 mL)

(Contd. of page 1)

4 First-aid measures

· **Description of first aid measures**
· **General information:** No special measures required.
· **After inhalation:** Supply fresh air; consult doctor in case of complaints.
· **After skin contact:** Generally the product does not irritate the skin.
· **After eye contact:** Rinse opened eye for several minutes under running water.
· **After swallowing:** If symptoms persist consult doctor.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

*
5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
· **Special hazards arising from the substance or mixture** No further relevant information available.
· **Advice for firefighters**
· **Protective equipment:** No special measures required.

*
6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures** Not required.
· **Environmental precautions:** No special measures required.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· **Protective Action Criteria for Chemicals**

· **PAC-1:**		
7664-39-3	hydrogen fluoride	1.0 ppm
7697-37-2	nitric acid	0.16 ppm
16919-19-0	alkali fluorosilicates (NH4)	12 mg/m³
10043-35-3	boric acid	6 mg/m³
7783-20-2	ammonium sulfate	13 mg/m³
7722-76-1	ammonium dihydrogenorthophosphate	17 mg/m³
14985-18-3	zirconyl nitrate hydrate	27 mg/m³
1313-27-5	molybdenum trioxide	2.3 mg/m³
1313-96-8	niobium (V) oxide	6.6 mg/m³
1310-53-8	germanium dioxide	3.8 mg/m³
7440-25-7	tantalum	10 mg/m³

· **PAC-2:**		
7664-39-3	hydrogen fluoride	24 ppm

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Printing date 08/23/2024 Revision date 08/23/2024

Product Name: ICP-MS Calibration Standard (125 mL)

(Contd. of page 2)

7697-37-2	nitric acid	24 ppm
16919-19-0	alkali fluorosilicates (NH4)	130 mg/m³
10043-35-3	boric acid	23 mg/m³
7783-20-2	ammonium sulfate	99 mg/m3
7722-76-1	ammonium dihydrogenorthophosphate	190 mg/m³
14985-18-3	zirconyl nitrate hydrate	230 mg/m³
1313-27-5	molybdenum trioxide	43 mg/m³
1313-96-8	niobium (V) oxide	40 mg/m3
1310-53-8	germanium dioxide	41 mg/m³
7440-25-7	tantalum	11 mg/m³

· **PAC-3:**

7664-39-3	hydrogen fluoride	44 ppm
7697-37-2	nitric acid	92 ppm
16919-19-0	alkali fluorosilicates (NH4)	780 mg/m³
10043-35-3	boric acid	830 mg/m³
7783-20-2	ammonium sulfate	590 mg/m3
7722-76-1	ammonium dihydrogenorthophosphate	1,100 mg/m³
14985-18-3	zirconyl nitrate hydrate	1,400 mg/m³
1313-27-5	molybdenum trioxide	260 mg/m³
1313-96-8	niobium (V) oxide	240 mg/m3
1310-53-8	germanium dioxide	250 mg/m³
7440-25-7	tantalum	64 mg/m³

7 Handling and storage

· **Handling:**
· **Precautions for safe handling** No special measures required.
· **Information about protection against explosions and fires:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** None.
· **Specific end use(s)** No further relevant information available.

*
8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see section 7.

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Product Name: ICP-MS Calibration Standard (125 mL)

(Contd. of page 3)

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
7664-39-3 hydrogen fluoride	
PEL	Long-term value: 1* mg/m³, 3 ppm as F, *sulfuric acid
REL	Long-term value: 2.5 mg/m³, 3 ppm Ceiling limit value: 5* mg/m³, 6* ppm *15-min, as F
TLV	Long-term value: 0.5 ppm Ceiling limit value: 2 ppm as F; Skin, BEI

· **Ingredients with biological limit values:**	
7664-39-3 hydrogen fluoride	
BEI	3 mg/g creatinine Medium: urine Time: prior to shift Parameter: Fluorides (background, nonspecific) 10 mg/g creatinine Medium: urine Time: end of shift Parameter: Fluorides (background, nonspecific)

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
· **Breathing equipment:**
When used as intended with Agilent instruments, the use of the product under normal laboratory conditions and with standard practices does not result in significant airborne exposures and therefore respiratory protection is not needed.
Under an emergency condition where a respirator is deemed necessary, use a NIOSH or equivalent approved device/equipment with appropriate organic or acid gas cartridge.
· **Protection of hands:**
Although not recommended for constant contact with the chemicals or for clean-up, nitrile gloves 11-13 mil thickness are recommended for normal use. The breakthrough time is 1 hr. For cleaning a spill where there is direct contact of the chemical, butyl rubber gloves are recommended 12-15 mil thickness with breakthrough times exceeding 4 hrs. Supplier recommendations should be followed.
· **Material of gloves**
For normal use: nitrile rubber, 11-13 mil thickness
For direct contact with the chemical: butyl rubber, 12-15 mil thickness
· **Penetration time of glove material**
For normal use: nitrile rubber: 1 hour
For direct contact with the chemical: butyl rubber: >4 hours
· **Eye protection:** Goggles recommended during refilling.

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

(Contd. of page 4)

*

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Fluid
Color:	Colorless
· **Odor:**	Odorless
· **Odor threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Change in condition**	
Melting point/Melting range:	0 °C (32 °F)
Boiling point/Boiling range:	100 °C (212 °F)
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Not applicable.
· **Decomposition temperature:**	Not determined.
· **Ignition temperature:**	Product is not selfigniting.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure at 20 °C (68 °F):**	23 hPa (17.3 mm Hg)
· **Density at 20 °C (68 °F):**	1 g/cm³ (8.345 lbs/gal)
· **Relative density**	Not determined.
· **Vapor density**	Not determined.
· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with**	
Water:	Not miscible or difficult to mix.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic at 20 °C (68 °F):	0.952 mPas
Kinematic:	Not determined.
· **Solvent content:**	
Water:	99.8 %
VOC content:	0.00 % 0.0 g/l / 0.00 lb/gal
Solids content:	0.0 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Printing date 08/23/2024 Revision date 08/23/2024

Product Name: ICP-MS Calibration Standard (125 mL)

(Contd. of page 5)

· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

*
11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**		
ATE (Acute Toxicity Estimate)		
Oral	LD50	1,276,000 mg/kg (rat)
Dermal	LD50	5,000 mg/kg
Inhalative	LC50/4 h	500 mg/L

7664-39-3 hydrogen fluoride		
Oral	LD50	1,276 mg/kg (rat)

· **Primary irritant effect:**
· **on the skin:** No irritant effect.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product is not subject to classification according to internally approved calculation methods for preparations:
When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**		
1313-27-5	molybdenum trioxide	2B

· **NTP (National Toxicology Program)**
None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**
None of the ingredients is listed.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:** Not hazardous for water.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.

(Contd. on page 7)

Safety Data Sheet
acc. to OSHA HCS

Printing date 08/23/2024 Revision date 08/23/2024

Product Name: ICP-MS Calibration Standard (125 mL)

(Contd. of page 6)

· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:** Smaller quantities can be disposed of with household waste.

· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· **UN-Number** · **DOT, ADN, IMDG, IATA**	not regulated
· **UN proper shipping name** · **DOT, ADN, IMDG, IATA**	not regulated
· **Transport hazard class(es)** · **DOT, ADN, IMDG, IATA** · **Class**	not regulated
· **Packing group** · **DOT, IMDG, IATA**	not regulated
· **Environmental hazards:**	Not applicable.
· **Special precautions for user**	Not applicable.
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **UN "Model Regulation":**	not regulated

*
15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
No further relevant information available.
· **Sara**

· **Section 355 (extremely hazardous substances):**	
7664-39-3	hydrogen fluoride
7697-37-2	nitric acid

· **Section 313 (Specific toxic chemical listings):**	
7664-39-3	hydrogen fluoride
7697-37-2	nitric acid
7783-20-2	ammonium sulfate
1313-27-5	molybdenum trioxide

(Contd. on page 8)

Safety Data Sheet
acc. to OSHA HCS

Product Name: ICP-MS Calibration Standard (125 mL)

(Contd. of page 7)

· **TSCA (Toxic Substances Control Act):**

7732-18-5	water	ACTIVE
7664-39-3	hydrogen fluoride	ACTIVE
7697-37-2	nitric acid	ACTIVE
16919-19-0	alkali fluorosilicates (NH4)	ACTIVE
10043-35-3	boric acid	ACTIVE
7783-20-2	ammonium sulfate	ACTIVE
16962-40-6	ammonium hexafluorotitanate	ACTIVE
7722-76-1	ammonium dihydrogenorthophosphate	ACTIVE
1313-27-5	molybdenum trioxide	ACTIVE
1313-96-8	niobium (V) oxide	ACTIVE
1310-53-8	germanium dioxide	ACTIVE
7440-15-5	rhenium	ACTIVE
7440-25-7	tantalum	ACTIVE

· **Hazardous Air Pollutants**

7664-39-3	hydrogen fluoride

· **Proposition 65**

· **Chemicals known to cause cancer:**

1313-27-5	molybdenum trioxide

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

10043-35-3	boric acid	I (oral)

· **TLV (Threshold Limit Value)**

10043-35-3	boric acid	A4

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

The information contained in this document is based on Agilent's state of knowledge at the time of preparation.
No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

· **Department issuing SDS:** Document Control / Regulatory
· **Contact:** pdl-acg-regulatory-cq@agilent.com
· **Date of preparation / last revision** 08/23/2024 / 6

(Contd. on page 9)

Safety Data Sheet
acc. to OSHA HCS

Printing date 08/23/2024 Revision date 08/23/2024

Product Name: ICP-MS Calibration Standard (125 mL)

(Contd. of page 8)

· **Abbreviations and acronyms:**
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
BEI: Biological Exposure Limit
· *** Data compared to the previous version altered.**