



Agilent Technologies

Kit Name: ICH Q3D/USP 232 Elemental Impurities kit

Kit PN: 5190-9771

Kit Components

Component Part Number	Component Name	Volume or mass/ container	No. of component containers/ kit
5190-9766	ICH/USP Oral Target Elements Standard A: Hg @ 30; As @ 15; Cd, Pb @ 5 µg/mL in 2% HNO ₃	100 mL	1
5190-9767	ICH/USP Oral Target Elements Standard B: Ni @ 200; Ag, Se @ 150; V @ 100; Co @ 50; Tl @ 8 µg/mL in 2% HNO ₃	100 mL	1
5190-9768	ICH/USP Oral Target Elements Standard C: Au, Ir, Os, Pd, Pt, Rh, Ru @ 100 µg/mL in 15% HCl	100 mL	1
5190-9769	Calibration Blank Solution for ICP-OES, MP-AES, and AAS	100 mL	1
5190-9770	Pharma Internal Standard 1: Te @ 25; Sc @ 10; Ge, In, Lu, Bi @ 5 µg/mL in 2% HNO ₃ /tr. HF	100 mL	1

SDSs for each component follow this cover sheet.

Transportation Information

DOT	IATA/ICAO	China
UN3316, Chemical kits, 9, II	UN3316, Chemical kits, 9, II	UN3316, Chemical kits, 9, II

Safety Data Sheet according to HPR, Schedule 1

Printing date 02/19/2020

Reviewed on 02/19/2020

1 Identification

- **Product identifier**
- **Product name: ICH/USP Oral Target Elements Standard A: Hg @ 30; As @ 15; Cd, Pb @ 5 µg/mL in 2% HNO₃ [100ml bottle]**
- **Part number:** 5190-9766
- **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. Tel: 800-227-9770
5301 Stevens Creek Blvd
Santa Clara, CA 95051
USA
- **Information department:** e-mail: pdl-msds_author@agilent.com
- **Emergency telephone number:** CHEMTREC®: 1-800-424-9300

2 Hazard identification

- **Classification of the substance or mixture**



GHS05 Corrosion

Corrosive to Metals - Category 1 H290 May be corrosive to metals.



GHS07

Skin Irritation - Category 2 H315 Causes skin irritation.

Eye Irritation - Category 2A H319 Causes serious eye irritation.

- **Label elements**
- **GHS label elements**
The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS05

- **Signal word** Warning
- **Hazard statements**
H290 May be corrosive to metals.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
- **Precautionary statements**
P234 Keep only in original packaging.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P321 Specific treatment (see on this label).

(Contd. on page 2)

CA



Safety Data Sheet
according to HPR, Schedule 1

Printing date 02/19/2020

Reviewed on 02/19/2020

Product name: ICH/USP Oral Target Elements Standard A: Hg @ 30; As @ 15; Cd, Pb @ 5 µg/mL in 2% HNO3 [100ml bottle]

(Contd. of page 1)

P332+P313 If skin irritation occurs: Get medical advice/attention.
P337+P313 If eye irritation persists: Get medical advice/attention.

- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



- **HMIS-ratings (scale 0 - 4)**

HEALTH	2	Health = 2
FIRE	0	Fire = 0
REACTIVITY	0	Reactivity = 0

3 Composition/Information on ingredients

- **Chemical characterization: Mixtures**
- **Description:**
Aqueous solution.
Also contains substances at levels not considered to be hazardous.

- **Dangerous components:**

CAS: 7697-37-2	Nitric acid	>1-≤5% w/w
RTECS: QU5775000	⚠ Oxidizing Liquids – Category 2, H272; ⚠ Corrosive to Metals - Category 1, H290; Skin Corrosion - Category 1A, H314	

Actual concentration ranges are withheld as a trade secret.

- **Additional information:**
The concentration of the acid stated in this SDS is calculated as an absolute mass concentration (%w/v). This is less than the acid concentration stated on the product label and COA, which reflects a percent value of the commercially available concentrated aqueous form of the acid.

4 First aid measures

- **Description of first aid measures**
- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:**
Immediately wash with water and soap and rinse thoroughly.
If skin irritation continues, consult a doctor.
- **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:** Rinse mouth. Do not induce vomiting.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.

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Safety Data Sheet

according to HPR, Schedule 1

Printing date 02/19/2020

Reviewed on 02/19/2020

Product name: ICH/USP Oral Target Elements Standard A: Hg @ 30; As @ 15; Cd, Pb @ 5 µg/mL in 2% HNO₃ [100ml bottle]

- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

(Contd. of page 2)

5 Firefighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture**
Formation of toxic gases is possible during heating or in case of fire.
- **Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** Dilute with plenty of water.
- **Methods and material for containment and cleaning up:**
Use neutralizing agent.
Dispose contaminated material as waste according to item 13.
Absorb liquid components with liquid-binding material.
DO NOT USE 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.

7 Handling and storage

- **Handling:**
- **Precautions for safe handling** Store in cool, dry place in tightly closed receptacles.
- **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:**
Please refer to the manufacturers certificate for specific storage and transport temperature conditions.
Store only in the original receptacle unless other advice is given on the CoA.
Keep container in a well-ventilated place. Keep away from sources of ignition and heat.
- **Information about storage in one common storage facility:** Store away from foodstuffs.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **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 item 7.

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Safety Data Sheet

according to HPR, Schedule 1

Printing date 02/19/2020

Reviewed on 02/19/2020

Product name: ICH/USP Oral Target Elements Standard A: Hg @ 30; As @ 15; Cd, Pb @ 5 µg/mL in 2% HNO₃ [100ml bottle]

(Contd. of page 3)

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**

CAS: 7697-37-2 Nitric acid

EL Short-term value: 4 ppm
 Long-term value: 2 ppm

EV Short-term value: 10 mg/m³, 4 ppm
 Long-term value: 5 mg/m³, 2 ppm

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

· **Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

· **Breathing equipment:**

Not required.

Use suitable respiratory protective device in case of insufficient ventilation.

· **Protection of hands:**

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374



Protective gloves

· **Material of gloves**

PVC gloves

Neoprene gloves

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Tightly sealed goggles

CA

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Safety Data Sheet

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Printing date 02/19/2020

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Product name: ICH/USP Oral Target Elements Standard A: Hg @ 30; As @ 15; Cd, Pb @ 5 µg/mL in 2% HNO₃ [100ml bottle]

(Contd. of page 4)

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form:	<i>Liquid</i>
Color:	<i>Colorless</i>
Odor:	<i>Odorless</i>
Odor threshold:	<i>Not determined.</i>

· **pH-value:** < 2

· **Change in condition**

Melting point/Melting range:	<i>Not determined.</i>
Boiling point/Boiling range:	<i>100 °C</i>

· **Flash point:** *Not applicable.*

· **Flammability (solid, gaseous):** *Not determined.*

· **Ignition temperature:** *Not determined*

· **Decomposition temperature:** *Not determined.*

· **Auto igniting:** *Product is not selfigniting.*

· **Danger of explosion:** *Not determined.*

· **Explosion limits:**

Lower:	<i>Not determined.</i>
Upper:	<i>Not determined.</i>

· **Vapor pressure at 20 °C:** *23 hPa*

· **Density:** *Not determined.*

· **Relative density** *Not determined.*

· **Vapor density** *Not determined.*

· **Evaporation rate** *Not determined.*

· **Solubility in / Miscibility with**

Water: *Fully miscible.*

· **Partition coefficient (n-octanol/water):** *Not determined.*

· **Viscosity:**

Dynamic: *Not determined.*

Kinematic: *Not determined.*

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

10 Stability and reactivity

· **Reactivity**

Stable under normal conditions.

No further relevant information available.

· **Chemical stability** *Stable under normal conditions.*

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Safety Data Sheet

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Product name: ICH/USP Oral Target Elements Standard A: Hg @ 30; As @ 15; Cd, Pb @ 5 µg/mL in 2% HNO₃ [100ml bottle]

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- **Thermal decomposition / conditions to be avoided:**
Formation of toxic gases is possible during heating or in case of fire.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** Heat.
- **Incompatible materials:**
Strong oxidizing agents.
Metals.
- **Hazardous decomposition products:** Formation of toxic gases is possible during heating or in case of fire.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant
- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

CAS: 7439-97-6	Mercury	3
CAS: 7440-38-2	Arsenic	1
CAS: 7440-43-9	cadmium	1
CAS: 7439-92-1	Lead	2B

- **NTP (National Toxicology Program)**

CAS: 7440-38-2	Arsenic	K
CAS: 7440-43-9	cadmium	K
CAS: 7439-92-1	Lead	R

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.
Must not reach bodies of water or drainage ditch undiluted or unneutralized.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

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Safety Data Sheet

according to HPR, Schedule 1

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Product name: ICH/USP Oral Target Elements Standard A: Hg @ 30; As @ 15; Cd, Pb @ 5 µg/mL in 2% HNO₃ [100ml bottle]

(Contd. of page 6)

· **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Dispose in accordance with national regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

- **UN-Number**
 - **DOT/TDG, ADR, IMDG, IATA**
 - **DOT/TDG**
 - **ADR**
 - **IMDG, IATA**
- UN3264
Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid)
3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)
CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)

- **Transport hazard class(es)**
- **DOT/TDG (Transport dangerous goods):**



- **Class**
 - **Label**
- 8 Corrosive substances
8

- **ADR, IMDG, IATA**



- **Class**
 - **Label**
- 8 Corrosive substances
8

- **Packing group**
 - **DOT/TDG, ADR, IMDG, IATA**
- III

- **Environmental hazards:** Not applicable.

- **Special precautions for user**
 - **Danger code (Kemler):**
 - **EMS Number:**
 - **Segregation groups**
 - **Stowage Category**
- Warning: Corrosive substances
80
F-A,S-B
Acids
A

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Safety Data Sheet

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Product name: ICH/USP Oral Target Elements Standard A: Hg @ 30; As @ 15; Cd, Pb @ 5 µg/mL in 2% HNO₃ [100ml bottle]

(Contd. of page 7)

· Stowage Code	SW2 Clear of living quarters.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· ADR	
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID), 8, III

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara

· Section 355 (extremely hazardous substances):

CAS: 7697-37-2	Nitric acid
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· Section 313 (Specific toxic chemical listings):

CAS: 7697-37-2	Nitric acid
----------------	-------------

CAS: 7439-97-6	Mercury
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CAS: 7440-38-2	Arsenic
----------------	---------

CAS: 7440-43-9	cadmium
----------------	---------

CAS: 7439-92-1	Lead
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· TSCA (Toxic Substances Control Act):

All components have the value ACTIVE.

· Canadian substance listings:
· Canadian Domestic Substances List (DSL)

All ingredients are listed.

· Canadian Ingredient Disclosure list (limit 0.1%)

None of the ingredients is listed.

· Canadian Ingredient Disclosure list (limit 1%)

CAS: 7697-37-2	Nitric acid
----------------	-------------

· Hazard pictograms


GHS05

· Signal word Warning
· Hazard statements

H290 May be corrosive to metals.

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Safety Data Sheet

according to HPR, Schedule 1

Printing date 02/19/2020

Reviewed on 02/19/2020

Product name: ICH/USP Oral Target Elements Standard A: Hg @ 30; As @ 15; Cd, Pb @ 5 µg/mL in 2% HNO₃ [100ml bottle]

(Contd. of page 8)

H315 Causes skin irritation.

H319 Causes serious eye irritation.

· **Precautionary statements**

P234 Keep only in original packaging.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P321 Specific treatment (see on this label).

P332+P313 If skin irritation occurs: Get medical advice/attention.

P337+P313 If eye irritation persists: Get medical advice/attention.

· **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.

· **Date of the latest revision of the safety data sheet** 02/19/2020 / -

· **Abbreviations and acronyms:**

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)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

· **Sources**

Tables 3.1 and 3.2 from Annex 6 of EC 1272/2008, EC 1907/2006, EH40/2005 as amended 2011, Registry of Toxic Effects of Chemical Substances (RTECS), The Dictionary of Substances and their Effects, 1st Edition, IUCLID.

· **Data compared to the previous version altered.** All sections have been updated.

CA

Safety Data Sheet according to HPR, Schedule 1

Printing date 02/19/2020

Reviewed on 02/19/2020

1 Identification

- **Product identifier**
- **Product name: ICH/USP Oral Target Elements Standard B: Ni @ 200; Ag, Se @ 150; V @ 100; Co @ 50; Tl @ 8 µg/mL in 2% HNO₃ [100ml bottle]**
- **Part number:** 5190-9767
- **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. Tel: 800-227-9770
5301 Stevens Creek Blvd
Santa Clara, CA 95051
USA
- **Information department:** e-mail: pdl-msds_author@agilent.com
- **Emergency telephone number:** CHEMTREC®: 1-800-424-9300

2 Hazard identification

- **Classification of the substance or mixture**



GHS05 Corrosion

Corrosive to Metals - Category 1 H290 May be corrosive to metals.



GHS07

Skin Irritation - Category 2 H315 Causes skin irritation.

Eye Irritation - Category 2A H319 Causes serious eye irritation.

- **Label elements**
- **GHS label elements**
The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS05

- **Signal word** Warning
- **Hazard statements**
H290 May be corrosive to metals.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
- **Precautionary statements**
P234 Keep only in original packaging.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P321 Specific treatment (see on this label).

(Contd. on page 2)

CA

Safety Data Sheet

according to HPR, Schedule 1

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Product name: ICH/USP Oral Target Elements Standard B: Ni @ 200; Ag, Se @ 150; V @ 100; Co @ 50; Tl @ 8 µg/mL in 2% HNO₃ [100ml bottle]

(Contd. of page 1)

P332+P313 If skin irritation occurs: Get medical advice/attention.
 P337+P313 If eye irritation persists: Get medical advice/attention.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



· **HMIS-ratings (scale 0 - 4)**

HEALTH	2	Health = 2
FIRE	0	Fire = 0
REACTIVITY	0	Reactivity = 0

3 Composition/Information on ingredients



· **Chemical characterization: Mixtures**

· **Description:**

Aqueous solution.

Also contains substances at levels not considered to be hazardous.

· **Dangerous components:**

CAS: 7697-37-2	Nitric acid	>1-≤5% w/w
RTECS: QU5775000	 Oxidizing Liquids – Category 2, H272;  Corrosive to Metals - Category 1, H290; Skin Corrosion - Category 1A, H314	

Actual concentration ranges are withheld as a trade secret.

· **Additional information:**

The concentration of the acid stated in this SDS is calculated as an absolute mass concentration (%w/v). This is less than the acid concentration stated on the product label and COA, which reflects a percent value of the commercially available concentrated aqueous form of the acid.

4 First aid measures

· **Description of first aid measures**

· **General information:** Immediately remove any clothing soiled by the product.

· **After inhalation:** Supply fresh air; consult doctor in case of complaints.

· **After skin contact:**

Immediately wash with water and soap and rinse thoroughly.

If skin irritation continues, consult a doctor.

· **After eye contact:**

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

· **After swallowing:** Rinse mouth. Do not induce vomiting.

· **Information for doctor:**

· **Most important symptoms and effects, both acute and delayed** No further relevant information available.

(Contd. on page 3)

Safety Data Sheet

according to HPR, Schedule 1

Printing date 02/19/2020

Reviewed on 02/19/2020

Product name: ICH/USP Oral Target Elements Standard B: Ni @ 200; Ag, Se @ 150; V @ 100; Co @ 50; Tl @ 8 µg/mL in 2% HNO₃ [100ml bottle]

(Contd. of page 2)

- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Firefighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture**
Formation of toxic gases is possible during heating or in case of fire.
- **Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** Dilute with plenty of water.
- **Methods and material for containment and cleaning up:**
Use neutralizing agent.
Dispose contaminated material as waste according to item 13.
Absorb liquid components with liquid-binding material.
DO NOT USE 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.

7 Handling and storage

- **Handling:**
- **Precautions for safe handling** Store in cool, dry place in tightly closed receptacles.
- **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:**
Please refer to the manufacturers certificate for specific storage and transport temperature conditions.
Store only in the original receptacle unless other advice is given on the CoA.
Keep container in a well-ventilated place. Keep away from sources of ignition and heat.
- **Information about storage in one common storage facility:** Store away from foodstuffs.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **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 item 7.

(Contd. on page 4)

Safety Data Sheet

according to HPR, Schedule 1

Printing date 02/19/2020

Reviewed on 02/19/2020

Product name: ICH/USP Oral Target Elements Standard B: Ni @ 200; Ag, Se @ 150; V @ 100; Co @ 50; Tl @ 8 µg/mL in 2% HNO₃ [100ml bottle]

(Contd. of page 3)

- **Control parameters**

- **Components with limit values that require monitoring at the workplace:**

CAS: 7697-37-2 Nitric acid

EL Short-term value: 4 ppm
Long-term value: 2 ppm

EV Short-term value: 10 mg/m³, 4 ppm
Long-term value: 5 mg/m³, 2 ppm

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

- **Exposure controls**

- **Personal protective equipment:**

- **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

- **Breathing equipment:**

Not required.

Use suitable respiratory protective device in case of insufficient ventilation.

- **Protection of hands:**

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374



Protective gloves

- **Material of gloves**

PVC gloves

Neoprene gloves

- **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

- **Eye protection:**



Tightly sealed goggles

CA

(Contd. on page 5)

Safety Data Sheet

according to HPR, Schedule 1

Printing date 02/19/2020

Reviewed on 02/19/2020

Product name: ICH/USP Oral Target Elements Standard B: Ni @ 200; Ag, Se @ 150; V @ 100; Co @ 50; Tl @ 8 µg/mL in 2% HNO₃ [100ml bottle]

(Contd. of page 4)

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form:	Liquid
Color:	Colorless
Odor:	Odorless
Odor threshold:	Not determined.

· **pH-value:** < 2

· **Change in condition**

Melting point/Melting range:	Not determined. Not determined.
Boiling point/Boiling range:	100 °C

· **Flash point:** Not applicable.

· **Flammability (solid, gaseous):** Not determined.

· **Ignition temperature:** Not determined

· **Decomposition temperature:** Not determined.

· **Auto igniting:** Product is not selfigniting.

· **Danger of explosion:** Not determined.

· **Explosion limits:**

Lower:	Not determined.
Upper:	Not determined.

· **Vapor pressure at 20 °C:** 23 hPa

· **Density:** Not determined.

· **Relative density** Not determined.

· **Vapor density** Not determined.

· **Evaporation rate** Not determined.

· **Solubility in / Miscibility with**

Water: Fully miscible.

· **Partition coefficient (n-octanol/water):** Not determined.

· **Viscosity:**

Dynamic: Not determined.

Kinematic: Not determined.

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

10 Stability and reactivity

· **Reactivity**

Stable under normal conditions.

No further relevant information available.

· **Chemical stability** Stable under normal conditions.

(Contd. on page 6)

Safety Data Sheet

according to HPR, Schedule 1

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Reviewed on 02/19/2020

Product name: ICH/USP Oral Target Elements Standard B: Ni @ 200; Ag, Se @ 150; V @ 100; Co @ 50; Tl @ 8 µg/mL in 2% HNO₃ [100ml bottle]

(Contd. of page 5)

- **Thermal decomposition / conditions to be avoided:**
Formation of toxic gases is possible during heating or in case of fire.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** Heat.
- **Incompatible materials:**
Strong oxidizing agents.
Metals.
- **Hazardous decomposition products:** Formation of toxic gases is possible during heating or in case of fire.

11 Toxicological information

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

- **LD/LC50 values that are relevant for classification:**

CAS: 7440-22-4 Silver, powder

Oral	LD50	>10,000 mg/kg (mouse)
------	------	-----------------------

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

CAS: 7440-02-0	Nickel	2B
CAS: 7782-49-2	Selenium	3
CAS: 1314-62-1	vanadium pentoxide	2B
CAS: 7440-48-4	Cobalt	2B

- **NTP (National Toxicology Program)**

CAS: 7440-02-0	Nickel	R
CAS: 7440-48-4	Cobalt	R

12 Ecological information

- **Toxicity**

- **Aquatic toxicity:**

CAS: 7440-22-4 Silver, powder

LC50/24	0.015 mg/L (crustacean)
EC50/72h	0.00198 mg/l (Algae)
LC50/96 h	0.00807 mg/l (fish)

- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.

(Contd. on page 7)

Safety Data Sheet

according to HPR, Schedule 1

Printing date 02/19/2020

Reviewed on 02/19/2020

Product name: ICH/USP Oral Target Elements Standard B: Ni @ 200; Ag, Se @ 150; V @ 100; Co @ 50; Tl @ 8 µg/mL in 2% HNO3 [100ml bottle]

(Contd. of page 6)

- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
 Not hazardous for water.
 Must not reach bodies of water or drainage ditch undiluted or unneutralized.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
 Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Dispose in accordance with national regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

- **UN-Number**
- **DOT/TDG, ADR, IMDG, IATA** UN3264
- **DOT/TDG** Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid)
- **ADR** 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)
- **IMDG, IATA** CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)

- **Transport hazard class(es)**
- **DOT/TDG (Transport dangerous goods):**



- **Class** 8 Corrosive substances
- **Label** 8

- **ADR, IMDG, IATA**



- **Class** 8 Corrosive substances
- **Label** 8

(Contd. on page 8)

Safety Data Sheet

according to HPR, Schedule 1

Printing date 02/19/2020

Reviewed on 02/19/2020

Product name: ICH/USP Oral Target Elements Standard B: Ni @ 200; Ag, Se @ 150; V @ 100; Co @ 50; Tl @ 8 µg/mL in 2% HNO₃ [100ml bottle]

(Contd. of page 7)

· Packing group · DOT/TDG, ADR, IMDG, IATA	III
· Environmental hazards:	<i>Not applicable.</i>
· Special precautions for user · Danger code (Kemler): · EMS Number: · Segregation groups · Stowage Category · Stowage Code	<i>Warning: Corrosive substances</i> <i>80</i> <i>F-A,S-B</i> <i>Acids</i> <i>A</i> <i>SW2 Clear of living quarters.</i>
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	<i>Not applicable.</i>
· Transport/Additional information:	
· ADR · Excepted quantities (EQ)	<i>Code: E1</i> <i>Maximum net quantity per inner packaging: 30 ml</i> <i>Maximum net quantity per outer packaging: 1000 ml</i>
· UN "Model Regulation":	<i>UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID), 8, III</i>

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Sara**

· **Section 355 (extremely hazardous substances):**

CAS: 7697-37-2	Nitric acid
CAS: 1314-62-1	vanadium pentoxide

· **Section 313 (Specific toxic chemical listings):**

CAS: 7697-37-2	Nitric acid
CAS: 7440-02-0	Nickel
CAS: 7440-22-4	Silver, powder
CAS: 7782-49-2	Selenium
CAS: 1314-62-1	vanadium pentoxide
CAS: 7440-48-4	Cobalt
CAS: 7440-28-0	thallium

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

All components have the value ACTIVE.

· **Canadian substance listings:**

· **Canadian Domestic Substances List (DSL)**

CAS: 7697-37-2	Nitric acid
CAS: 7440-02-0	Nickel

(Contd. on page 9)

-CA

Safety Data Sheet

according to HPR, Schedule 1

Printing date 02/19/2020

Reviewed on 02/19/2020

Product name: ICH/USP Oral Target Elements Standard B: Ni @ 200; Ag, Se @ 150; V @ 100; Co @ 50; Tl @ 8 µg/mL in 2% HNO₃ [100ml bottle]

(Contd. of page 8)

CAS: 7440-22-4	Silver, powder
CAS: 7782-49-2	Selenium
CAS: 7440-48-4	Cobalt
CAS: 7440-28-0	thallium
CAS: 7732-18-5	Water

· **Canadian Ingredient Disclosure list (limit 0.1%)**

None of the ingredients is listed.

· **Canadian Ingredient Disclosure list (limit 1%)**

CAS: 7697-37-2 Nitric acid

· **Hazard pictograms**



GHS05

· **Signal word** Warning

· **Hazard statements**

H290 May be corrosive to metals.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

· **Precautionary statements**

P234 Keep only in original packaging.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P321 Specific treatment (see on this label).

P332+P313 If skin irritation occurs: Get medical advice/attention.

P337+P313 If eye irritation persists: Get medical advice/attention.

· **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.

· **Date of the latest revision of the safety data sheet** 02/19/2020 / -

· **Abbreviations and acronyms:**

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)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

(Contd. on page 10)

Safety Data Sheet
according to HPR, Schedule 1

Printing date 02/19/2020

Reviewed on 02/19/2020

Product name: ICH/USP Oral Target Elements Standard B: Ni @ 200; Ag, Se @ 150; V @ 100; Co @ 50; Tl @ 8 µg/mL in 2% HNO₃ [100ml bottle]

(Contd. of page 9)

*vPvB: very Persistent and very Bioaccumulative***· Sources**

Tables 3.1 and 3.2 from Annex 6 of EC 1272/2008, EC 1907/2006, EH40/2005 as amended 2011, Registry of Toxic Effects of Chemical Substances (RTECS), The Dictionary of Substances and their Effects, 1st Edition, IUCLID.

· Data compared to the previous version altered. *All sections have been updated.*

CA

Safety Data Sheet

according to HPR, Schedule 1

Printing date 06/01/2020

Reviewed on 06/01/2020

1 Identification

- **Product identifier**
- **Product name: ICH/USP Oral Target Elements Standard C: Au, Ir, Os, Pd, Pt, Rh, Ru @ 100 µg/mL in 15% HCl [100ml bottle]**
- **Part number:** 5190-9768
- **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. Tel: 800-227-9770
 5301 Stevens Creek Blvd
 Santa Clara, CA 95051
 USA
- **Information department:** e-mail: pdl-msds_author@agilent.com
- **Emergency telephone number:** CHEMTREC®: 1-800-424-9300

2 Hazard identification

- **Classification of the substance or mixture**



GHS05 Corrosion

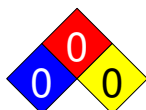
Corrosive to Metals - Category 1 H290 May be corrosive to metals.

- **Label elements**
- **GHS label elements**
 The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS05

- **Signal word** Warning
- **Hazard statements**
 H290 May be corrosive to metals.
- **Precautionary statements**
 P234 Keep only in original packaging.
 P390 Absorb spillage to prevent material-damage.
- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



Health = 0
 Fire = 0
 Reactivity = 0

- **HMIS-ratings (scale 0 - 4)**



HEALTH 0 Health = 0
 FIRE 0 Fire = 0
 REACTIVITY 0 Reactivity = 0



Safety Data Sheet
according to HPR, Schedule 1

Printing date 06/01/2020

Reviewed on 06/01/2020

Product name: ICH/USP Oral Target Elements Standard C: Au, Ir, Os, Pd, Pt, Rh, Ru @ 100 µg/mL in 15% HCl [100ml bottle]

(Contd. of page 1)

3 Composition/Information on ingredients

- **Chemical characterization: Mixtures**
- **Description:**
Aqueous solution.
Also contains substances at levels not considered to be hazardous.

· **Dangerous components:**

CAS: 7647-01-0 RTECS: MW 9620000	Hydrochloric acid ⚠ Skin Corrosion - Category 1B, H314; Serious Eye Damage - Category 1, H318; ⚠ Specific Target Organ Toxicity - Single Exposure - Category 3, H335	>3-≤7% w/w
-------------------------------------	---	------------

Actual concentration ranges are withheld as a trade secret.

- **Additional information:**
The concentration of the acid stated in this SDS is calculated as an absolute mass concentration (%w/v). This is less than the acid concentration stated on the product label and COA, which reflects a percent value of the commercially available concentrated aqueous form of the acid.

4 First aid measures

- **Description of first aid measures**
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for several minutes under running water.
- **After swallowing:** Rinse mouth. Do not induce vomiting.
- **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 Firefighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture**
Formation of toxic gases is possible during heating or in case of fire.
- **Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:**
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.

(Contd. on page 3)

Safety Data Sheet

according to HPR, Schedule 1

Printing date 06/01/2020

Reviewed on 06/01/2020

Product name: ICH/USP Oral Target Elements Standard C: Au, Ir, Os, Pd, Pt, Rh, Ru @ 100 µg/mL in 15% HCl [100ml bottle]

(Contd. of page 2)

- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralizing agent.
Dispose contaminated material as waste according to item 13.
- **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.

7 Handling and storage

- **Handling:**
- **Precautions for safe handling** Store in cool, dry place in tightly closed receptacles.
- **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:**
Please refer to the manufacturers certificate for specific storage and transport temperature conditions.
Store only in the original receptacle unless other advice is given on the CoA.
Keep container in a well-ventilated place. Keep away from sources of ignition and heat.
- **Information about storage in one common storage facility:** Store away from foodstuffs.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **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 item 7.
 - **Control parameters**
- | | |
|---|----------------------------|
| Components with limit values that require monitoring at the workplace: | |
| CAS: 7647-01-0 Hydrochloric acid | |
| EL | Ceiling limit value: 2 ppm |
| EV | Ceiling limit value: 2 ppm |

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
- **Breathing equipment:**
Not required.
Use suitable respiratory protective device in case of insufficient ventilation.
- **Protection of hands:**
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

(Contd. on page 4)

Safety Data Sheet

according to HPR, Schedule 1

Printing date 06/01/2020

Reviewed on 06/01/2020

Product name: ICH/USP Oral Target Elements Standard C: Au, Ir, Os, Pd, Pt, Rh, Ru @ 100 µg/mL in 15% HCl [100ml bottle]

(Contd. of page 3)

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374



Protective gloves

- **Material of gloves**

- PVC gloves

- Neoprene gloves

- **Penetration time of glove material**

- The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.*

- **Eye protection:**



Tightly sealed goggles

9 Physical and chemical properties

- **Information on basic physical and chemical properties**

- **General Information**

- **Appearance:**

- **Form:** Liquid

- **Color:** Colorless

- **Odor:** Odorless

- **Odor threshold:** Not determined.

- **pH-value:** < 2

- **Change in condition**

- **Melting point/Melting range:** Not determined.

- Not determined.

- **Boiling point/Boiling range:** 100 °C

- **Flash point:** Not applicable.

- **Flammability (solid, gaseous):** Not determined.

- **Ignition temperature:** Not determined

- **Decomposition temperature:** Not determined.

- **Auto igniting:** Product is not selfigniting.

- **Danger of explosion:** Not determined.

- **Explosion limits:**

- **Lower:** Not determined.

- **Upper:** Not determined.

(Contd. on page 5)

Safety Data Sheet

according to HPR, Schedule 1

Printing date 06/01/2020

Reviewed on 06/01/2020

Product name: ICH/USP Oral Target Elements Standard C: Au, Ir, Os, Pd, Pt, Rh, Ru @ 100 µg/mL in 15% HCl [100ml bottle]

(Contd. of page 4)

· Vapor pressure at 20 °C:	23 hPa
· Density:	Not determined.
· Relative density	Not determined.
· Vapor density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with Water:	Fully miscible.
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
· Dynamic:	Not determined.
· Kinematic:	Not determined.
· Other information	No further relevant information available.

10 Stability and reactivity

- **Reactivity**
Stable under normal conditions.
No further relevant information available.
- **Chemical stability** Stable under normal conditions.
- **Thermal decomposition / conditions to be avoided:**
Formation of toxic gases is possible during heating or in case of fire.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** Heat.
- **Incompatible materials:**
Strong oxidizing agents.
Metals.
- **Hazardous decomposition products:** Formation of toxic gases is possible during heating or in case of fire.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** Based on available data, the classification criteria are not met.
- **on the eye:** Based on available data, the classification criteria are not met.
- **Sensitization:** Based on available data, the classification criteria are not met.
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
- **Carcinogenic categories**

· IARC (International Agency for Research on Cancer)

CAS: 7647-01-0	Hydrochloric acid	3
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(Contd. on page 6)

Safety Data Sheet

according to HPR, Schedule 1

Printing date 06/01/2020

Reviewed on 06/01/2020

Product name: ICH/USP Oral Target Elements Standard C: Au, Ir, Os, Pd, Pt, Rh, Ru @ 100 µg/mL in 15% HCl [100ml bottle]

(Contd. of page 5)

· NTP (National Toxicology Program)

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:**
*Water hazard class 1 (Self-assessment): slightly hazardous for water
 Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
 Must not reach bodies of water or drainage ditch undiluted or unneutralized.*
- **Results of PBT and vPvB assessment**
- **PBT:** *Not applicable.*
- **vPvB:** *Not applicable.*
- **Other adverse effects** *No further relevant information available.*

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** *Dispose in accordance with national regulations.*
- **Recommended cleansing agent:** *Water, if necessary with cleansing agents.*

14 Transport information

- | | |
|-----------------------------------|---------------------------------|
| · UN-Number | UN1789 |
| · DOT/TDG, ADR, IMDG, IATA | Hydrochloric acid solution |
| · DOT/TDG | 1789 HYDROCHLORIC ACID solution |
| · ADR | HYDROCHLORIC ACID solution |
| · IMDG, IATA | |

(Contd. on page 7)

CA

Safety Data Sheet

according to HPR, Schedule 1

Printing date 06/01/2020

Reviewed on 06/01/2020

Product name: ICH/USP Oral Target Elements Standard C: Au, Ir, Os, Pd, Pt, Rh, Ru @ 100 µg/mL in 15% HCl [100ml bottle]

(Contd. of page 6)

 · **Transport hazard class(es)**

 · **DOT/TDG (Transport dangerous goods):**


· Class	8 Corrosive substances
· Label	8

 · **ADR, IMDG, IATA**


· Class	8 Corrosive substances
· Label	8

 · **Packing group**

· DOT/TDG, ADR, IMDG, IATA	II
-----------------------------------	----

· Environmental hazards:	Not applicable.
---------------------------------	-----------------

· Special precautions for user	Warning: Corrosive substances
---------------------------------------	-------------------------------

· Danger code (Kemler):	80
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· EMS Number:	F-A,S-B
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· Segregation groups	Acids
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· Stowage Category	A
---------------------------	---

· Stowage Code	SW2 Clear of living quarters.
-----------------------	-------------------------------

· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
--	-----------------

 · **Transport/Additional information:**

 · **ADR**

· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
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· UN "Model Regulation":	UN 1789 HYDROCHLORIC ACID SOLUTION, 8, II
---------------------------------	---

15 Regulatory information

 · **Safety, health and environmental regulations/legislation specific for the substance or mixture**

 · **Sara**

 · **Section 355 (extremely hazardous substances):**

CAS: 7647-01-0	Hydrochloric acid
----------------	-------------------

 · **Section 313 (Specific toxic chemical listings):**

CAS: 7647-01-0	Hydrochloric acid
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(Contd. on page 8)

Safety Data Sheet

according to HPR, Schedule 1

Printing date 06/01/2020

Reviewed on 06/01/2020

**Product name: ICH/USP Oral Target Elements Standard C: Au, Ir, Os, Pd, Pt, Rh, Ru @
100 µg/mL in 15 % HCl [100ml bottle]**

(Contd. of page 7)

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

CAS: 7647-01-0	Hydrochloric acid	ACTIVE
CAS: 7440-57-5	Gold	ACTIVE
CAS: 12125-08-5	Diammonium hexachloroosmate	ACTIVE
CAS: 7440-05-3	Palladium	ACTIVE
CAS: 7440-06-4	Platinum	ACTIVE
CAS: 7732-18-5	Water	ACTIVE

· **Canadian substance listings:**

· **Canadian Domestic Substances List (DSL)**

CAS: 7647-01-0	Hydrochloric acid
CAS: 7440-57-5	Gold
CAS: 7440-05-3	Palladium
CAS: 7440-06-4	Platinum
CAS: 7732-18-5	Water

· **Canadian Ingredient Disclosure list (limit 0.1%)**

None of the ingredients is listed.

· **Canadian Ingredient Disclosure list (limit 1%)**

CAS: 7647-01-0	Hydrochloric acid
----------------	-------------------

· **Hazard pictograms**



GHS05

· **Signal word** Warning

· **Hazard statements**

H290 May be corrosive to metals.

· **Precautionary statements**

P234 Keep only in original packaging.

P390 Absorb spillage to prevent material-damage.

· **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.

· **Date of the latest revision of the safety data sheet** 06/01/2020 / 1

· **Abbreviations and acronyms:**

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)

(Contd. on page 9)

CA

Safety Data Sheet
according to HPR, Schedule 1

Printing date 06/01/2020

Reviewed on 06/01/2020

**Product name: ICH/USP Oral Target Elements Standard C: Au, Ir, Os, Pd, Pt, Rh, Ru @
100 µg/mL in 15% HCl [100ml bottle]**

(Contd. of page 8)

*NFPA: National Fire Protection Association (USA)**HMIS: Hazardous Materials Identification System (USA)**PBT: Persistent, Bioaccumulative and Toxic**vPvB: very Persistent and very Bioaccumulative***· Sources***Tables 3.1 and 3.2 from Annex 6 of EC 1272/2008, EC 1907/2006, EH40/2005 as amended 2011, Registry of Toxic Effects of Chemical Substances (RTECS), The Dictionary of Substances and their Effects, 1st Edition, IUCLID.*

- *Data compared to the previous version altered. All sections have been updated.***

CA

Safety Data Sheet

according to HPR, Schedule 1

Printing date 03/09/2020

Reviewed on 03/09/2020

1 Identification

- **Product identifier**
- **Product name:** ICH/USP Oral Target Elements Standard D: Cr @ 11,000; Sn @ 6000; Cu, Mo @ 3000; Ba @ 1400; Sb @ 1200; Li @ 550 µg/mL in 5% HNO₃/tr. HF [100ml bottle]
- **Part number:** 5190-9769
- **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. Tel: 800-227-9770
 5301 Stevens Creek Blvd
 Santa Clara, CA 95051
 USA
- **Information department:** e-mail: pdl-msds_author@agilent.com
- **Emergency telephone number:** CHEMTREC®: 1-800-424-9300

2 Hazard identification

- **Classification of the substance or mixture**



GHS05 Corrosion

Corrosive to Metals - Category 1	H290 May be corrosive to metals.
Serious Eye Damage - Category 1	H318 Causes serious eye damage.



GHS07

Acute Toxicity (Oral) - Category 4	H302 Harmful if swallowed.
Acute Toxicity (Dermal) – Category 4	H312 Harmful in contact with skin.
Acute Toxicity (Inhalation) - Category 4	H332 Harmful if inhaled.
Skin Irritation - Category 2	H315 Causes skin irritation.
Aquatic Acute 3	H402 Harmful to aquatic life.
Aquatic Chronic 3	H412 Harmful to aquatic life with long lasting effects.

- **Label elements**
- **GHS label elements**
 The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS05 GHS07

- **Signal word** Danger
- **Hazard-determining components of labeling:**
 Nitric acid

(Contd. on page 2)

Safety Data Sheet

according to HPR, Schedule 1

Printing date 03/09/2020

Reviewed on 03/09/2020

Product name: ICH/USP Oral Target Elements Standard D: Cr @ 11,000; Sn @ 6000; Cu, Mo @ 3000; Ba @ 1400; Sb @ 1200; Li @ 550 µg/mL in 5% HNO₃/tr. HF [100ml bottle]

(Contd. of page 1)

hydrofluoric acid
Hazard statements

- H290 *May be corrosive to metals.*
 H302+H312+H332 *Harmful if swallowed, in contact with skin or if inhaled.*
 H315 *Causes skin irritation.*
 H318 *Causes serious eye damage.*
 H402 *Harmful to aquatic life.*
 H412 *Harmful to aquatic life with long lasting effects.*

Precautionary statements

- P261 *Avoid breathing dust/fume/gas/mist/vapours/spray.*
 P280 *Wear protective gloves/protective clothing/eye protection/face protection.*
 P305+P351+P338 *IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.*
 P310 *Immediately call a poison center/doctor.*
 P361 *Take off immediately all contaminated clothing.*
 P501 *Dispose of contents/container in accordance with local/regional/national/international regulations.*

Classification system:
NFPA ratings (scale 0 - 4)

HMIS-ratings (scale 0 - 4)

HEALTH	3	Health = 3
FIRE	0	Fire = 0
REACTIVITY	0	Reactivity = 0

3 Composition/Information on ingredients

Chemical characterization: Mixtures
Description: Also contains substances at levels not considered to be hazardous.

Dangerous components:

CAS: 7697-37-2 RTECS: QU5775000	Nitric acid ⚠ Oxidizing Liquids – Category 2, H272; ⚠ Corrosive to Metals – Category 1, H290; Skin Corrosion - Category 1A, H314	>1-≤5% w/w
CAS: 7789-02-8 RTECS: GB6300000	Chromium (III) nitrate nonahydrate ⚠ Oxidizing Solids – Category 2, H272; ⚠ Skin Irritation - Category 2, H315; Eye Irritation - Category 2A, H319	>0.5-≤1.5% w/w
CAS: 7440-50-8 RTECS: GL 5325000	Copper ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410	>0.1-≤1% w/w

Actual concentration ranges are withheld as a trade secret.
Additional information:

The concentration of the acid stated in this SDS is calculated as an absolute mass concentration (%w/v). This is less than the acid concentration stated on the product label and COA, which reflects a percent value of the commercially available concentrated aqueous form of the acid.

CA

(Contd. on page 3)

Safety Data Sheet
according to HPR, Schedule 1

Printing date 03/09/2020

Reviewed on 03/09/2020

Product name: ICH/USP Oral Target Elements Standard D: Cr @ 11,000; Sn @ 6000; Cu, Mo @ 3000; Ba @ 1400; Sb @ 1200; Li @ 550 µg/mL in 5% HNO₃/tr. HF [100ml bottle]

(Contd. of page 2)

4 First aid measures**· Description of first aid measures****· General information:**

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

· After inhalation:

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

In case of unconsciousness place patient stably in side position for transportation.

Seek medical treatment.

· After skin contact:

Immediately wash with water and soap and rinse thoroughly.

Seek medical treatment.

If skin irritation continues, consult a doctor.

· After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.**· After swallowing:**

Rinse mouth. Do not induce vomiting.

Seek medical treatment.

· 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 Firefighting measures**· Extinguishing media**

· **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.

· Special hazards arising from the substance or mixture

Formation of toxic gases is possible during heating or in case of fire.

· Advice for firefighters**· Protective equipment:**

Mouth respiratory protective device.

Wear self-contained respiratory protective device.

6 Accidental release measures**· Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

· Environmental precautions:

Inform respective authorities in case of seepage into water course or sewage system.

Dilute with plenty of water.

Do not allow to enter sewers/ surface or ground water.

· Methods and material for containment and cleaning up:

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

(Contd. on page 4)

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Reviewed on 03/09/2020

Product name: ICH/USP Oral Target Elements Standard D: Cr @ 11,000; Sn @ 6000; Cu, Mo @ 3000; Ba @ 1400; Sb @ 1200; Li @ 550 µg/mL in 5% HNO3/tr. HF [100ml bottle]

(Contd. of page 3)

- Ensure adequate ventilation.
Absorb liquid components with liquid-binding material.
DO NOT USE 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.

7 Handling and storage

- Handling:
Precautions for safe handling
Ensure good ventilation/exhaustion at the workplace.
Store in cool, dry place in tightly closed receptacles.
Prevent formation of aerosols.
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:
Please refer to the manufacturers certificate for specific storage and transport temperature conditions.
Store only in the original receptacle unless other advice is given on the CoA.
Keep container in a well-ventilated place. Keep away from sources of ignition and heat.
Information about storage in one common storage facility: Store away from foodstuffs.
Further information about storage conditions: Keep receptacle tightly sealed.
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 item 7.
Control parameters

Components with limit values that require monitoring at the workplace:

CAS: 7697-37-2 Nitric acid

Table with 2 columns: Exposure Limit (EL/EV) and Limit Value. EL Short-term value: 4 ppm, Long-term value: 2 ppm. EV Short-term value: 10 mg/m³, 4 ppm, Long-term value: 5 mg/m³, 2 ppm.

CAS: 7440-50-8 Copper

Table with 2 columns: Exposure Limit (EL/EV) and Limit Value. EL Long-term value: 1 0.2 mg/m³ dusts and mists; fume, as Cu. EV Long-term value: 0.2 1 mg/m³ as copper, fume;dust and mists.

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

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Product name: ICH/USP Oral Target Elements Standard D: Cr @ 11,000; Sn @ 6000; Cu, Mo @ 3000; Ba @ 1400; Sb @ 1200; Li @ 550 µg/mL in 5% HNO₃/tr. HF [100ml bottle]

(Contd. of page 4)

- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
 Keep away from foodstuffs, beverages and feed.
 Immediately remove all soiled and contaminated clothing.
 Wash hands before breaks and at the end of work.
 Avoid contact with the skin.
 Avoid contact with the eyes and skin.
- **Breathing equipment:**
 In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- **Protection of hands:**
 The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
 Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
 The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374



Protective gloves

- **Material of gloves**
 PVC gloves
 Neoprene gloves
- **Penetration time of glove material**
 The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:**



Tightly sealed goggles

9 Physical and chemical properties

- **Information on basic physical and chemical properties**
- **General Information**
- **Appearance:**

Form:	Liquid
Color:	Colorless
Odor:	Odorless
Odor threshold:	Not determined.
- **pH-value:** <2

(Contd. on page 6)

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Reviewed on 03/09/2020

Product name: ICH/USP Oral Target Elements Standard D: Cr @ 11,000; Sn @ 6000; Cu, Mo @ 3000; Ba @ 1400; Sb @ 1200; Li @ 550 µg/mL in 5% HNO₃/tr. HF [100ml bottle]

(Contd. of page 5)

· Change in condition	
Melting point/Melting range:	Not determined.
Boiling point/Boiling range:	Not determined. 100 °C
· Flash point:	Not applicable.
· Flammability (solid, gaseous):	Not determined.
· Ignition temperature:	Not determined
· Decomposition temperature:	Not determined.
· Auto igniting:	Product is not selfigniting.
· Danger of explosion:	Not determined.
· Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
· Vapor pressure at 20 °C:	23 hPa
· Density:	Not determined.
· Relative density	Not determined.
· Vapor density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with Water:	Fully miscible.
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
· Other information	No further relevant information available.

10 Stability and reactivity

- Reactivity**
Stable under normal conditions.
No further relevant information available.
- Chemical stability** Stable under normal conditions.
- Thermal decomposition / conditions to be avoided:**
Formation of toxic gases is possible during heating or in case of fire.
- Possibility of hazardous reactions** No dangerous reactions known.
- Conditions to avoid** Heat.
- Incompatible materials:**
Strong oxidizing agents.
Metals.

(Contd. on page 7)

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Product name: ICH/USP Oral Target Elements Standard D: Cr @ 11,000; Sn @ 6000; Cu, Mo @ 3000; Ba @ 1400; Sb @ 1200; Li @ 550 µg/mL in 5% HNO₃/tr. HF [100ml bottle]

(Contd. of page 6)

· **Hazardous decomposition products:** Formation of toxic gases is possible during heating or in case of fire.

11 Toxicological information

· **Information on toxicological effects**

· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

CAS: 7697-37-2 Nitric acid

Inhalative	LC50/4 h	130 mg/l (rat)
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· **Primary irritant effect:**

· **on the skin:** Irritant to skin and mucous membranes.

· **on the eye:** Strong irritant with the danger of severe eye injury.

· **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

Harmful

Irritant

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

12 Ecological information

· **Toxicity**

· **Aquatic toxicity:**

CAS: 7697-37-2 Nitric acid

LC50/48	180 mg/l (crustacean)
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CAS: 7440-50-8 Copper

LC50/48	0.044 mg/l (crustacean)
---------	-------------------------

EC50/48 h	0.02 mg/l (crustacean)
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EC50/72h	0.57 mg/l (Algae)
----------	-------------------

LC50/96 h	0.665 mg/l (fish)
-----------	-------------------

· **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.

· **Ecotoxicological effects:**

· **Remark:** Harmful to fish

(Contd. on page 8)

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Product name: ICH/USP Oral Target Elements Standard D: Cr @ 11,000; Sn @ 6000; Cu, Mo @ 3000; Ba @ 1400; Sb @ 1200; Li @ 550 µg/mL in 5% HNO₃/tr. HF [100ml bottle]

(Contd. of page 7)

- **Additional ecological information:**
- **General notes:**
Water hazard class 1 (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Must not reach bodies of water or drainage ditch undiluted or unneutralized.
Harmful to aquatic organisms
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** *Dispose in accordance with national regulations.*
- **Recommended cleansing agent:** *Water, if necessary with cleansing agents.*

14 Transport information

- **UN-Number**
 - **DOT/TDG, ADR, IMDG, IATA**
 - **DOT/TDG**
 - **ADR**
 - **IMDG, IATA**
- UN3264
 Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid, Hydrofluoric acid)
 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID, HYDROFLUORIC ACID)
 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID, HYDROFLUORIC ACID)

- **Transport hazard class(es)**
- **DOT/TDG (Transport dangerous goods):**



- **Class**
 - **Label**
- 8 Corrosive substances
 8

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Product name: ICH/USP Oral Target Elements Standard D: Cr @ 11,000; Sn @ 6000; Cu, Mo @ 3000; Ba @ 1400; Sb @ 1200; Li @ 550 µg/mL in 5% HNO₃/tr. HF [100ml bottle]

(Contd. of page 8)

· ADR, IMDG, IATA



· Class 8 Corrosive substances
 · Label 8

· Packing group
 · DOT/TDG, ADR, IMDG, IATA III

· Environmental hazards: Not applicable.

· Special precautions for user Warning: Corrosive substances
 · Danger code (Kemler): 80
 · EMS Number: F-A,S-B
 · Segregation groups Acids

· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.

· Transport/Additional information:

· ADR
 · Excepted quantities (EQ) Code: E1
 Maximum net quantity per inner packaging: 30 ml
 Maximum net quantity per outer packaging: 1000 ml

· UN "Model Regulation": UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID, HYDROFLUORIC ACID), 8, III

15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture
 · Sara

· Section 355 (extremely hazardous substances):

CAS: 7697-37-2	Nitric acid
----------------	-------------

CAS: 7664-39-3	hydrofluoric acid
----------------	-------------------

· Section 313 (Specific toxic chemical listings):

CAS: 7697-37-2	Nitric acid
----------------	-------------

CAS: 7789-02-8	Chromium (III) nitrate nonahydrate
----------------	------------------------------------

CAS: 7664-39-3	hydrofluoric acid
----------------	-------------------

CAS: 7440-50-8	Copper
----------------	--------

CAS: 10022-31-8	Barium nitrate
-----------------	----------------

CAS: 7440-36-0	Antimony
----------------	----------

CAS: 554-13-2	Lithium carbonate
---------------	-------------------

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Product name: ICH/USP Oral Target Elements Standard D: Cr @ 11,000; Sn @ 6000; Cu, Mo @ 3000; Ba @ 1400; Sb @ 1200; Li @ 550 µg/mL in 5% HNO₃/tr. HF [100ml bottle]

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

CAS: 7697-37-2	Nitric acid	ACTIVE
CAS: 7664-39-3	hydrofluoric acid	ACTIVE
CAS: 7440-31-5	Tin	ACTIVE
CAS: 7440-50-8	Copper	ACTIVE
CAS: 7439-98-7	Molybdenum	ACTIVE
CAS: 10022-31-8	Barium nitrate	ACTIVE
CAS: 7440-36-0	Antimony	ACTIVE
CAS: 554-13-2	Lithium carbonate	ACTIVE
CAS: 7732-18-5	Water	ACTIVE

· **Canadian substance listings:**

· **Canadian Domestic Substances List (DSL)**

CAS: 7697-37-2	Nitric acid
CAS: 7664-39-3	hydrofluoric acid
CAS: 7440-31-5	Tin
CAS: 7440-50-8	Copper
CAS: 7439-98-7	Molybdenum
CAS: 10022-31-8	Barium nitrate
CAS: 7440-36-0	Antimony
CAS: 554-13-2	Lithium carbonate
CAS: 7732-18-5	Water

· **Canadian Ingredient Disclosure list (limit 0.1%)**

None of the ingredients is listed.

· **Canadian Ingredient Disclosure list (limit 1%)**

CAS: 7697-37-2	Nitric acid
----------------	-------------

· **Hazard pictograms**



GHS05 GHS07

· **Signal word** Danger

· **Hazard-determining components of labeling:**

Nitric acid
hydrofluoric acid

· **Hazard statements**

H290 May be corrosive to metals.
H302+H312+H332 Harmful if swallowed, in contact with skin or if inhaled.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H402 Harmful to aquatic life.

(Contd. on page 11)

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Reviewed on 03/09/2020

Product name: ICH/USP Oral Target Elements Standard D: Cr @ 11,000; Sn @ 6000; Cu, Mo @ 3000; Ba @ 1400; Sb @ 1200; Li @ 550 µg/mL in 5% HNO₃/tr. HF [100ml bottle]

(Contd. of page 10)

H412 Harmful to aquatic life with long lasting effects.

· **Precautionary statements**

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a poison center/doctor.

P361 Take off immediately all contaminated clothing.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **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.

· **Date of the latest revision of the safety data sheet** 03/09/2020 / 1

· **Abbreviations and acronyms:**

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)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

· **Sources**

Tables 3.1 and 3.2 from Annex 6 of EC 1272/2008, EC 1907/2006, EH40/2005 as amended 2011, Registry of Toxic Effects of Chemical Substances (RTECS), The Dictionary of Substances and their Effects, 1st Edition, IUCLID.

· **Data compared to the previous version altered.** All sections have been updated.

CA

Safety Data Sheet
according to HPR, Schedule 1

Printing date 06/01/2020

Reviewed on 06/01/2020

1 Identification· **Product identifier**· **Product name: Pharma Internal Standard 1**· **Part number:** 5190-9770· **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

Tel: 800-227-9770

· **Information department:** e-mail: pdl-msds_author@agilent.com· **Emergency telephone number:** CHEMTREC®: 1-800-424-9300**2 Hazard identification**· **Classification of the substance or mixture**

GHS05 Corrosion

Corrosive to Metals - Category 1

H290 May be corrosive to metals.



GHS07

Acute Toxicity (Oral) - Category 4

H302 Harmful if swallowed.

Acute Toxicity (Dermal) - Category 4

H312 Harmful in contact with skin.

Acute Toxicity (Inhalation) - Category 4

H332 Harmful if inhaled.

Skin Irritation - Category 2

H315 Causes skin irritation.

Eye Irritation - Category 2A

H319 Causes serious eye irritation.

· **Label elements**· **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**

GHS05



GHS07

· **Signal word** Warning· **Hazard-determining components of labeling:**

hydrofluoric acid

· **Hazard statements**

H290

May be corrosive to metals.

H302+H312+H332 Harmful if swallowed, in contact with skin or if inhaled.

H315

Causes skin irritation.

H319

Causes serious eye irritation.

(Contd. on page 2)

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Safety Data Sheet

according to HPR, Schedule 1

Printing date 06/01/2020

Reviewed on 06/01/2020

Product name: Pharma Internal Standard 1

(Contd. of page 1)

Precautionary statements

- P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
 P280 Wear protective gloves/protective clothing/eye protection/face protection.
 P305+P351+P338 **IF IN EYES:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P322 Specific measures (see on this label).
 P361 Take off immediately all contaminated clothing.
 P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Classification system:
NFPA ratings (scale 0 - 4)

HMIS-ratings (scale 0 - 4)



HEALTH	2	Health = 2
FIRE	0	Fire = 0
REACTIVITY	0	Reactivity = 0

3 Composition/Information on ingredients

Chemical characterization: Mixtures
Description:

Aqueous solution.
 Also contains substances at levels not considered to be hazardous.

Dangerous components:

CAS: 7697-37-2 RTECS: QU5775000	Nitric acid  Oxidizing Liquids – Category 2, H272;  Corrosive to Metals - Category 1, H290; Skin Corrosion - Category 1A, H314	>1-≤5% w/w
------------------------------------	---	------------

Actual concentration ranges are withheld as a trade secret.

Additional information:

The concentration of the acid stated in this SDS is calculated as an absolute mass concentration (%w/v). This is less than the acid concentration stated on the product label and COA, which reflects a percent value of the commercially available concentrated aqueous form of the acid.

4 First aid measures

Description of first aid measures
General information:

Immediately remove any clothing soiled by the product.
 Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

After inhalation:

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
 In case of unconsciousness place patient stably in side position for transportation.

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Safety Data Sheet according to HPR, Schedule 1

Printing date 06/01/2020

Reviewed on 06/01/2020

Product name: Pharma Internal Standard 1

(Contd. of page 2)

- Seek medical treatment.*
- **After skin contact:**
Immediately wash with water and soap and rinse thoroughly.
Seek medical treatment.
If skin irritation continues, consult a doctor.
 - **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
 - **After swallowing:**
Rinse mouth. Do not induce vomiting.
Seek medical treatment.
 - **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 Firefighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** *Use fire fighting measures that suit the environment.*
- **Special hazards arising from the substance or mixture**
Formation of toxic gases is possible during heating or in case of fire.
- **Advice for firefighters**
- **Protective equipment:**
Mouth respiratory protective device.
Wear self-contained respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:**
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Use neutralizing agent.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
Absorb liquid components with liquid-binding material.
DO NOT USE 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.

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.

(Contd. on page 4)

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Reviewed on 06/01/2020

Product name: Pharma Internal Standard 1

(Contd. of page 3)

Store in cool, dry place in tightly closed receptacles.

Prevent formation of aerosols.

· **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:**

Please refer to the manufacturers certificate for specific storage and transport temperature conditions.

Store only in the original receptacle unless other advice is given on the CoA.

Keep container in a well-ventilated place. Keep away from sources of ignition and heat.

· **Information about storage in one common storage facility:** *Store away from foodstuffs.*

· **Further information about storage conditions:** *Keep receptacle tightly sealed.*

· **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 item 7.*

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**

CAS: 7697-37-2 Nitric acid

EL Short-term value: 4 ppm

Long-term value: 2 ppm

EV Short-term value: 10 mg/m³, 4 ppm

Long-term value: 5 mg/m³, 2 ppm

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

· **Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

· **Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· **Protection of hands:**

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374



Protective gloves

· **Material of gloves**

PVC gloves

Neoprene gloves

(Contd. on page 5)

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according to HPR, Schedule 1

Printing date 06/01/2020

Reviewed on 06/01/2020

Product name: Pharma Internal Standard 1

(Contd. of page 4)

- **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

- **Eye protection:**



Tightly sealed goggles

9 Physical and chemical properties

- **Information on basic physical and chemical properties**

- **General Information**

- **Appearance:**

Form:	Liquid
Color:	Colorless
Odor:	Odorless
Odor threshold:	Not determined.

- **pH-value:** <2

- **Change in condition**

Melting point/Melting range:	Not determined.
Boiling point/Boiling range:	100 °C

- **Flash point:** Not applicable.

- **Flammability (solid, gaseous):** Not determined.

- **Ignition temperature:** Not determined

- **Decomposition temperature:** Not determined.

- **Auto igniting:** Product is not selfigniting.

- **Danger of explosion:** Not determined.

- **Explosion limits:**

Lower:	Not determined.
Upper:	Not determined.

- **Vapor pressure at 20 °C:** 23 hPa

Density at 20 °C:	1.00756 g/cm ³
Relative density	Not determined.
Vapor density	Not determined.
Evaporation rate	Not determined.

- **Solubility in / Miscibility with**

Water: Fully miscible.

- **Partition coefficient (n-octanol/water):** Not determined.

- **Viscosity:**

Dynamic: Not determined.

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Safety Data Sheet

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Product name: Pharma Internal Standard 1

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Kinematic:	Not determined.
· Other information	No further relevant information available.

10 Stability and reactivity

- **Reactivity**
Stable under normal conditions.
No further relevant information available.
- **Chemical stability** Stable under normal conditions.
- **Thermal decomposition / conditions to be avoided:**
Formation of toxic gases is possible during heating or in case of fire.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** Heat.
- **Incompatible materials:**
Strong oxidizing agents.
Metals.
- **Hazardous decomposition products:** Formation of toxic gases is possible during heating or in case of fire.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Sensitization:** Based on available data, the classification criteria are not met.
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Harmful
Irritant
- **Carcinogenic categories**

· IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

· NTP (National Toxicology Program)
--

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.

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-CA

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- **Additional ecological information:**
- **General notes:**
*Water hazard class 1 (Self-assessment): slightly hazardous for water
 Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
 Must not reach bodies of water or drainage ditch undiluted or unneutralized.*
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Dispose in accordance with national regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

- | | |
|--|--|
| <ul style="list-style-type: none"> · UN-Number · DOT/TDG, ADR, IMDG, IATA · DOT/TDG · ADR · IMDG, IATA | <p>UN3264
 Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid, Hydrofluoric acid)
 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID, HYDROFLUORIC ACID)
 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID, HYDROFLUORIC ACID)</p> |
|--|--|

- **Transport hazard class(es)**
- **DOT/TDG (Transport dangerous goods):**



- | | |
|--|-------------------------------------|
| <ul style="list-style-type: none"> · Class · Label | <p>8 Corrosive substances
8</p> |
|--|-------------------------------------|

- **ADR, IMDG, IATA**



- | | |
|--|-------------------------------------|
| <ul style="list-style-type: none"> · Class · Label | <p>8 Corrosive substances
8</p> |
|--|-------------------------------------|

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· Packing group	
· DOT/TDG, ADR, IMDG, IATA	III
· Environmental hazards:	Not applicable.
· Special precautions for user	Warning: Corrosive substances
· Danger code (Kemler):	80
· EMS Number:	F-A,S-B
· Segregation groups	Acids
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· ADR	
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID, HYDROFLUORIC ACID), 8, III

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara

· Section 355 (extremely hazardous substances):

CAS: 7697-37-2 Nitric acid

CAS: 7664-39-3 hydrofluoric acid

CAS: 13494-80-9 tellurium

· Section 313 (Specific toxic chemical listings):

CAS: 7697-37-2 Nitric acid

CAS: 7664-39-3 hydrofluoric acid

· TSCA (Toxic Substances Control Act):

All components have the value ACTIVE.

· Canadian substance listings:

· Canadian Domestic Substances List (DSL)

CAS: 7697-37-2 Nitric acid

CAS: 7664-39-3 hydrofluoric acid

CAS: 13494-80-9 tellurium

CAS: 12060-08-1 Scandium oxide

CAS: 7440-74-6 Indium

CAS: 12032-20-1 Lutetium (III) oxide

CAS: 7440-69-9 Bismuth

CAS: 7732-18-5 Water

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· Canadian Ingredient Disclosure list (limit 0.1%)

None of the ingredients is listed.

· Canadian Ingredient Disclosure list (limit 1%)

CAS: 7697-37-2 Nitric acid

· Hazard pictograms


GHS05 GHS07

· Signal word Warning

· Hazard-determining components of labeling:

hydrofluoric acid

· Hazard statements

H290

May be corrosive to metals.

H302+H312+H332 Harmful if swallowed, in contact with skin or if inhaled.

H315

Causes skin irritation.

H319

Causes serious eye irritation.

· Precautionary statements

P261

Avoid breathing dust/fume/gas/mist/vapours/spray.

P280

Wear protective gloves/protective clothing/eye protection/face protection.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P322

Specific measures (see on this label).

P361

Take off immediately all contaminated clothing.

P501

Dispose of contents/container in accordance with local/regional/national/international regulations.

· 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.

· Date of the latest revision of the safety data sheet 06/01/2020 / -

· Abbreviations and acronyms:

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)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

· Sources

Tables 3.1 and 3.2 from Annex 6 of EC 1272/2008, EC 1907/2006, EH40/2005 as amended 2011, Registry of Toxic Effects of Chemical Substances (RTECS), The Dictionary of Substances and their Effects, 1st Edition, IUCLID.

· Data compared to the previous version altered. All sections have been updated.