

**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 03/29/2019

Version Number 5

Reviewed on 03/29/2019

**1 Identification**

- **Product identifier**
- **Trade name:** CLP ICP Spike Standard (125 mL)
- **Part number:** ICM-451
- **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**



GHS08 Health hazard

Carc. 1A H350 May cause cancer.



GHS05 Corrosion

Eye Dam. 1 H318 Causes serious eye damage.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.

- **Label elements**

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

- **Hazard pictograms**



GHS05 GHS08

- **Signal word** Danger

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

nitric acid

Nitric acid, nickel(2+) salt, hexahydrate

- **Hazard statements**

Causes skin irritation.

Causes serious eye damage.

May cause cancer.

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**Precautionary statements**

- Obtain special instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Wash thoroughly after handling.
- Wear protective gloves/protective clothing/eye protection/face protection.
- If on skin: Wash with plenty of water.
- If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- Immediately call a poison center/doctor.
- IF exposed or concerned: Get medical advice/attention.
- Specific treatment (see on this label).
- Take off contaminated clothing and wash it before reuse.
- If skin irritation occurs: Get medical advice/attention.
- Store locked up.
- Dispose of contents/container in accordance with local/regional/national/international regulations.

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

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

**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:**

7697-37-2	nitric acid	4.95%
13478-00-7	Nitric acid, nickel(2+) salt, hexahydrate	0.248%
10026-22-9	cobalt (II) nitrate hexahydrate	0.247%

### 4 First-aid measures

**Description of first aid measures**

- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:** If symptoms persist consult doctor.

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- **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**  
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **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.  
Ensure adequate ventilation.
- **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:**

7697-37-2	nitric acid	0.16 ppm
7784-27-2	aluminium nitrate	83 mg/m <sup>3</sup>
7782-61-8	iron (III) nitrate nonahydrate	22 mg/m <sup>3</sup>
10022-31-8	barium nitrate	2.9 mg/m <sup>3</sup>
13478-00-7	Nitric acid, nickel(2+) salt, hexahydrate	1.5 mg/m <sup>3</sup>
10026-22-9	cobalt (II) nitrate hexahydrate	0.3 mg/m <sup>3</sup>
10196-18-6	zinc(II) nitrate hexahydrate	27 mg/m <sup>3</sup>
10377-66-9	manganese dinitrate	9.8 mg/m <sup>3</sup>
7803-55-6	ammonium trioxovanadate	0.01 mg/m <sup>3</sup>
7664-39-3	hydrogen fluoride	1.0 ppm
3251-23-8	copper dinitrate	8.9 mg/m <sup>3</sup>
7761-88-8	silver nitrate	0.047 mg/m <sup>3</sup>

- **PAC-2:**

7697-37-2	nitric acid	24 ppm
7784-27-2	aluminium nitrate	920 mg/m <sup>3</sup>
7782-61-8	iron (III) nitrate nonahydrate	110 mg/m <sup>3</sup>

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10022-31-8	barium nitrate	350 mg/m <sup>3</sup>
13478-00-7	Nitric acid, nickel(2+) salt, hexahydrate	53 mg/m <sup>3</sup>
10026-22-9	cobalt (II) nitrate hexahydrate	23 mg/m <sup>3</sup>
10196-18-6	zinc(II) nitrate hexahydrate	300 mg/m <sup>3</sup>
10377-66-9	manganese dinitrate	16 mg/m <sup>3</sup>
7803-55-6	ammonium trioxovanadate	0.11 mg/m <sup>3</sup>
7664-39-3	hydrogen fluoride	24 ppm
3251-23-8	copper dinitrate	31 mg/m <sup>3</sup>
7761-88-8	silver nitrate	0.9 mg/m <sup>3</sup>

**· PAC-3:**

7697-37-2	nitric acid	92 ppm
7784-27-2	aluminium nitrate	5,500 mg/m <sup>3</sup>
7782-61-8	iron (III) nitrate nonahydrate	640 mg/m <sup>3</sup>
10022-31-8	barium nitrate	2,100 mg/m <sup>3</sup>
13478-00-7	Nitric acid, nickel(2+) salt, hexahydrate	320 mg/m <sup>3</sup>
10026-22-9	cobalt (II) nitrate hexahydrate	140 mg/m <sup>3</sup>
10196-18-6	zinc(II) nitrate hexahydrate	1,800 mg/m <sup>3</sup>
10377-66-9	manganese dinitrate	96 mg/m <sup>3</sup>
7803-55-6	ammonium trioxovanadate	80 mg/m <sup>3</sup>
7664-39-3	hydrogen fluoride	44 ppm
3251-23-8	copper dinitrate	190 mg/m <sup>3</sup>
7761-88-8	silver nitrate	5.4 mg/m <sup>3</sup>

## 7 Handling and storage

**· Handling:**
**· Precautions for safe handling**

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

**· Information about protection against explosions and fires:** Keep respiratory protective device available.

**· 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:** 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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- **Control parameters**

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

**7697-37-2 nitric acid**

PEL	Long-term value: 5 mg/m <sup>3</sup> , 2 ppm
REL	Short-term value: 10 mg/m <sup>3</sup> , 4 ppm Long-term value: 5 mg/m <sup>3</sup> , 2 ppm
TLV	Short-term value: 10 mg/m <sup>3</sup> , 4 ppm Long-term value: 5.2 mg/m <sup>3</sup> , 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.  
Store protective clothing separately.  
Avoid contact with the skin.  
Avoid contact with the eyes and skin.

- **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:**



Tightly sealed goggles

## \* 9 Physical and chemical properties

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

- **General Information**

- **Appearance:**

**Form:** Fluid

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· <b>Color:</b>	According to product specification
· <b>Odor:</b>	Characteristic
· <b>Odor threshold:</b>	Not determined.
· <b>pH-value:</b>	Not determined.
· <b>Change in condition</b>	
<b>Melting point/Melting range:</b>	Undetermined.
<b>Boiling point/Boiling range:</b>	100 °C (212 °F)
· <b>Flash point:</b>	Not applicable.
· <b>Flammability (solid, gaseous):</b>	Not applicable.
· <b>Decomposition temperature:</b>	Not determined.
· <b>Auto igniting:</b>	Product is not selfigniting.
· <b>Danger of explosion:</b>	Product does not present an explosion hazard.
· <b>Explosion limits:</b>	
<b>Lower:</b>	Not determined.
<b>Upper:</b>	Not determined.
· <b>Vapor pressure at 20 °C (68 °F):</b>	23 hPa (17.3 mm Hg)
· <b>Density:</b>	Not determined.
· <b>Relative density</b>	Not determined.
· <b>Vapor density</b>	Not determined.
· <b>Evaporation rate</b>	Not determined.
· <b>Solubility in / Miscibility with</b>	
<b>Water:</b>	Not miscible or difficult to mix.
· <b>Partition coefficient (n-octanol/water):</b>	Not determined.
· <b>Viscosity:</b>	
<b>Dynamic:</b>	Not determined.
<b>Kinematic:</b>	Not determined.
· <b>Solvent content:</b>	
<b>Water:</b>	89.7 %
<b>VOC content:</b>	0.00 %
	0.0 g/l / 0.00 lb/gal
<b>Solids content:</b>	5.2 %
· <b>Other information</b>	No further relevant information available.

### 10 Stability and reactivity

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

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 · **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	35,519 mg/kg (rat)
Dermal	LD50	5,000 mg/kg
Inhalative	LC50/4 h	365 mg/L

**7697-37-2 nitric acid**

Inhalative	LC50/4 h	67 mg/L (rat)
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**13478-00-7 Nitric acid, nickel(2+) salt, hexahydrate**

Oral	LD50	1,620 mg/kg (rat)
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**10026-22-9 cobalt (II) nitrate hexahydrate**

Oral	LD50	691 mg/kg (rat)
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**7803-55-6 ammonium trioxovanadate**

Oral	LD50	58 mg/kg (rat)
Dermal	LD50	2,102 mg/kg (rat)
Inhalative	LC50/4 h	7.8 mg/L (rat)

**7664-39-3 hydrogen fluoride**

Oral	LD50	1,276 mg/kg (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.
- **Sensitization:** No sensitizing effects known.

 · **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)**

13478-00-7	Nitric acid, nickel(2+) salt, hexahydrate	1
10026-22-9	cobalt (II) nitrate hexahydrate	2B
543-81-7	acetic acid beryllium salt	1

 · **NTP (National Toxicology Program)**

13478-00-7	Nitric acid, nickel(2+) salt, hexahydrate	K
543-81-7	acetic acid beryllium salt	K

 · **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

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### 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:** Disposal must be made according to official regulations.

### 14 Transport information

· <b>UN-Number</b> · <b>DOT, IMDG, IATA</b>	UN3264
· <b>UN proper shipping name</b> · <b>DOT</b> · <b>IMDG, IATA</b>	Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)
· <b>Transport hazard class(es)</b> · <b>DOT, IMDG, IATA</b>	8 <div style="text-align: center;">  </div>
· <b>Class</b> · <b>Label</b>	8 Corrosive substances 8
· <b>Packing group</b> · <b>DOT, IMDG, IATA</b>	II
· <b>Environmental hazards:</b>	Not applicable.

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· <b>Special precautions for user</b>	Warning: Corrosive substances
· <b>Danger code (Kemler):</b>	80
· <b>EMS Number:</b>	F-A,S-B
· <b>Segregation groups</b>	Acids
· <b>Stowage Category</b>	B
· <b>Stowage Code</b>	SW2 Clear of living quarters.
· <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.
· <b>Transport/Additional information:</b>	
· <b>DOT</b>	
· <b>Quantity limitations</b>	On passenger aircraft/rail: 1 L On cargo aircraft only: 30 L
· <b>IMDG</b>	
· <b>Limited quantities (LQ)</b>	1L
· <b>Excepted quantities (EQ)</b>	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· <b>UN "Model Regulation":</b>	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID), 8, II

### 15 Regulatory information

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

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

7697-37-2	nitric acid
7664-39-3	hydrogen fluoride

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

7697-37-2	nitric acid
7784-27-2	aluminium nitrate
7782-61-8	iron (III) nitrate nonahydrate
10022-31-8	barium nitrate
13478-00-7	Nitric acid, nickel(2+) salt, hexahydrate
10026-22-9	cobalt (II) nitrate hexahydrate
10196-18-6	zinc(II) nitrate hexahydrate
7789-02-8	chromium (III) nitrate nonahydrate
10377-66-9	manganese dinitrate
7803-55-6	ammonium trioxovanadate
7664-39-3	hydrogen fluoride
3251-23-8	copper dinitrate
543-81-7	acetic acid beryllium salt
7761-88-8	silver nitrate

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

7697-37-2	nitric acid
10022-31-8	barium nitrate
10377-66-9	manganese dinitrate
7803-55-6	ammonium trioxovanadate
7664-39-3	hydrogen fluoride
3251-23-8	copper dinitrate
7761-88-8	silver nitrate
7732-18-5	water

**· TSCA new (21st Century Act): (Substances not listed)**

13478-00-7	Nitric acid, nickel(2+) salt, hexahydrate
10026-22-9	cobalt (II) nitrate hexahydrate

**· Proposition 65**
**· Chemicals known to cause cancer:**

13478-00-7	Nitric acid, nickel(2+) salt, hexahydrate
543-81-7	acetic acid beryllium salt

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

None of the ingredients is listed.

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

13478-00-7	Nitric acid, nickel(2+) salt, hexahydrate
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**· Chemicals known to cause developmental toxicity:**

13478-00-7	Nitric acid, nickel(2+) salt, hexahydrate
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**· Carcinogenic categories**
**· EPA (Environmental Protection Agency)**

10022-31-8	barium nitrate	D, CBD(inh), NL(oral)
10377-66-9	manganese dinitrate	D

**· TLV (Threshold Limit Value established by ACGIH)**

10022-31-8	barium nitrate	A4
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**· NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

**· National regulations:**
**· Additional classification according to Decree on Hazardous Materials:**

Carcinogenic hazardous material group III (dangerous).

**· Information about limitation of use:**

Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation.

Exceptions can be made by the authorities in certain cases.

**· 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.

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- **Department issuing SDS:** Document Control / Regulatory

- **Contact:** regulatory@ultrasci.com

- **Date of preparation / last revision** 03/29/2019 / 4

- **Abbreviations and acronyms:**

ADR: Accord européen sur le transport 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

ACGIH: American Conference of Governmental Industrial Hygienists

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

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

Carc. 1A: Carcinogenicity – Category 1A

- **\* Data compared to the previous version altered.**