

# SAFETY DATA SHEET

## 1. Identification

**Product identifier:** Silver, 1,000 × µg/mL or 10,000

**Other means of identification**

**Product No.:** 6467, 5779, 5745

**Recommended use and restriction on use**

**Recommended use:** Not available.

**Restrictions on use:** Not known.

**Manufacturer/Importer/Supplier/Distributor Information**

**Manufacturer**

**Company Name:** Avantor Performance Materials, Inc.  
**Address:** 3477 Corporate Parkway, Suite 200  
Center Valley, PA 18034

**Telephone:** Customer Service: 855-282-6867

**Fax:**  
**Contact Person:** Environmental Health & Safety  
**e-mail:** info@avantormaterials.com

**Emergency telephone number:**

24 Hour Emergency: 908-859-2151

Chemtrec: 800-424-9300

## 2. Hazard(s) identification

**Hazard Classification**

**Physical Hazards**

Corrosive to metals Category 1

**Health Hazards**

Skin Corrosion/Irritation Category 1A

Acute toxicity (Oral) Category 4

Acute toxicity (Inhalation) Category 4

**Label Elements**

**Hazard Symbol:**



**Signal Word:** Danger

**Hazard Statement:** Causes severe skin burns and eye damage.  
May be corrosive to metals.  
Harmful if swallowed.  
Harmful if inhaled.

**Precautionary**

## Statement

- Prevention:** Keep only in original container. Do not breathe dust/fume/gas/mist/vapors/spray. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area.
- Response:** IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth. IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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 or doctor/physician. Wash contaminated clothing before reuse. Absorb spillage to prevent material damage.
- Storage:** Store in corrosive resistant container with a resistant inner liner.
- Disposal:** Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

**Other hazards which do not result in GHS classification:** None.

## 3. Composition/information on ingredients

### Mixtures

Chemical Identity	Common name and synonyms	CAS number	Content in percent (%)*
NITRIC ACID		7697-37-2	4%
SILVER		7440-22-4	1%

\* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

## 4. First-aid measures

- General information:** Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.
- Ingestion:** Rinse mouth thoroughly. Call a POISON CENTER or doctor/physician if you feel unwell.
- Inhalation:** Move to fresh air. Get medical attention if symptoms persist.
- Skin Contact:** Wash skin thoroughly with soap and water. Get medical attention if irritation persists after washing. Wash contaminated clothing before reuse.
- Eye contact:** Flush thoroughly with water. If irritation occurs, get medical assistance.

### Most important symptoms/effects, acute and delayed

**Symptoms:** Corrosive to skin and eyes.

### Indication of immediate medical attention and special treatment needed

**Treatment:** Treat symptomatically. Symptoms may be delayed.

## 5. Fire-fighting measures

**General Fire Hazards:** In case of fire and/or explosion do not breathe fumes.

### Suitable (and unsuitable) extinguishing media

**Suitable extinguishing media:** Use fire-extinguishing media appropriate for surrounding materials.

**Unsuitable extinguishing media:** None.

**Specific hazards arising from the chemical:** During fire, gases hazardous to health may be formed.

### Special protective equipment and precautions for firefighters

**Special fire fighting procedures:** Move containers from fire area if you can do so without risk. Use water spray to keep fire-exposed containers cool. Cool containers exposed to flames with water until well after the fire is out.

**Special protective equipment for fire-fighters:** Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

## 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures:** Keep unauthorized personnel away. Use personal protective equipment. See Section 8 of the MSDS for Personal Protective Equipment.

**Methods and material for containment and cleaning up:** Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination.

**Notification Procedures:** Inform authorities if large amounts are involved. Prevent runoff from entering drains, sewers, or streams.

**Environmental Precautions:** Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

## 7. Handling and storage

**Precautions for safe handling:** Use personal protective equipment as required. Avoid breathing mist or vapor. Wash hands thoroughly after handling. Avoid contact with eyes. Avoid contact with skin. Wash contaminated clothing before reuse.

**Conditions for safe storage, including any incompatibilities:** Keep container tightly closed. Store in a cool, dry place. Store in a well-ventilated place.

## 8. Exposure controls/personal protection

### Control Parameters

#### Occupational Exposure Limits

Chemical Identity	Type	Exposure Limit Values	Source
NITRIC ACID	STEL	4 ppm	US. ACGIH Threshold Limit Values (2011)
	TWA	2 ppm	US. ACGIH Threshold Limit Values (2011)
	STEL	4 ppm 10 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2010)
	REL	2 ppm 5 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2010)
	PEL	2 ppm 5 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
	STEL	4 ppm 10 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	TWA	2 ppm 5 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
SILVER - Dust and fume.	TWA	0.1 mg/m3	US. ACGIH Threshold Limit Values (2011)
SILVER - Dust. - as Ag	REL	0.01 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2010)
SILVER - as Ag	PEL	0.01 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
	TWA	0.01 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)

#### Appropriate Engineering Controls

No data available.

#### Individual protection measures, such as personal protective equipment

**General information:** Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

**Eye/face protection:** Use eye protection.

#### Skin Protection

**Hand Protection:** Wear protective gloves.

**Other:** Wear suitable protective clothing.

**Respiratory Protection:** In case of inadequate ventilation use suitable respirator.

**Hygiene measures:** Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing to remove contaminants. Discard contaminated footwear that cannot be cleaned.

## 9. Physical and chemical properties

### Appearance

**Physical state:** Liquid

**Form:** No data available.

**Color:** Colorless

**Odor:** Odorless

**Odor threshold:** No data available.

**pH:** No data available.

**Melting point/freezing point:** 0 °C

**Initial boiling point and boiling range:** 100 °C

SDS\_US - SDSMIX000247

<b>Flash Point:</b>	No data available.
<b>Evaporation rate:</b>	No data available.
<b>Flammability (solid, gas):</b>	No data available.
<b>Upper/lower limit on flammability or explosive limits</b>	
<b>Flammability limit - upper (%):</b>	No data available.
<b>Flammability limit - lower (%):</b>	No data available.
<b>Explosive limit - upper (%):</b>	No data available.
<b>Explosive limit - lower (%):</b>	No data available.
<b>Vapor pressure:</b>	No data available.
<b>Vapor density:</b>	No data available.
<b>Relative density:</b>	calculated 1
<b>Solubility(ies)</b>	
<b>Solubility in water:</b>	Completely soluble in water
<b>Solubility (other):</b>	No data available.
<b>Partition coefficient (n-octanol/water):</b>	No data available.
<b>Auto-ignition temperature:</b>	No data available.
<b>Decomposition temperature:</b>	No data available.
<b>Viscosity:</b>	No data available.

## 10. Stability and reactivity

<b>Reactivity:</b>	No dangerous reaction known under conditions of normal use.
<b>Chemical Stability:</b>	Material is stable under normal conditions.
<b>Possibility of Hazardous Reactions:</b>	Hazardous polymerization does not occur.
<b>Conditions to Avoid:</b>	Heat, sparks, flames. Contact with incompatible materials.
<b>Incompatible Materials:</b>	Strong oxidizing agents. Acids. Bases. Carbonates. Organic compounds. Organic peroxides/hydroperoxides. Powdered metal.
<b>Hazardous Decomposition Products:</b>	By heating and fire, toxic vapors/gases may be formed. Nitrogen Oxides

## 11. Toxicological information

### Information on likely routes of exposure

<b>Ingestion:</b>	May be fatal if swallowed.
<b>Inhalation:</b>	Harmful or fatal if inhaled.
<b>Skin Contact:</b>	Causes severe skin burns.
<b>Eye contact:</b>	May irritate eyes.

### Information on toxicological effects

#### Acute toxicity (list all possible routes of exposure)

##### Oral

<b>Product:</b>	No data available.
<b>Specified substance(s):</b>	
SILVER	LD 50 (Rat, Male): > 2,000 - 10,000 mg/kg LD (Guinea Pig): < 5,000 mg/kg

##### Dermal

<b>Product:</b>	No data available.
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**Specified substance(s):**

SILVER

LD 50 (Rat): &gt; 2,000 mg/kg

**Inhalation****Product:**

No data available.

**Specified substance(s):**

NITRIC ACID

LC 50 (Rat, 1 h): 7 mg/l

LC 50 (Rat, 4 h): 65 ppm

LC 50 (Mouse, 4 h): 67 ppm

**Repeated Dose Toxicity****Product:**

No data available.

**Skin Corrosion/Irritation****Product:**

Corrosive.

**Serious Eye Damage/Eye Irritation****Product:**

May irritate eyes.

**Respiratory or Skin Sensitization****Product:**

Not a skin sensitizer.

**Carcinogenicity****Product:**

This substance has no evidence of carcinogenic properties.

**IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:**

No carcinogenic components identified

**US. National Toxicology Program (NTP) Report on Carcinogens:**

No carcinogenic components identified

**US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):**

No carcinogenic components identified

**Germ Cell Mutagenicity****In vitro****Product:**

No mutagenic components identified

**In vivo****Product:**

No mutagenic components identified

**Reproductive Toxicity****Product:**

No components toxic to reproduction

**Specific Target Organ Toxicity - Single Exposure****Product:**

No data available.

**Specific Target Organ Toxicity - Repeated Exposure****Product:**

No data available.

**Aspiration Hazard****Product:**

Not classified

**Other Effects:**

None known.

## 12. Ecological information

### Ecotoxicity:

#### Acute hazards to the aquatic environment:

##### Fish

**Product:** No data available.

##### Specified substance(s):

NITRIC ACID LC 50 (Starfish (*Asterias rubens*), 48 h): 100 - 330 mg/l Mortality

SILVER

LC 50 (Goldfish (*Carassius auratus*), 7 d): 0.03 mg/l Mortality

LC 50 (Sheepshead minnow (*Cyprinodon variegatus*), 24 h): > 54 - < 110 mg/l Mortality

LC 50 (Rainbow trout, donaldson trout (*Oncorhynchus mykiss*), 28 d): 0.01 mg/l Mortality

LC 50 (Sheepshead minnow (*Cyprinodon variegatus*), 48 h): > 64 - < 110 mg/l Mortality

LC 50 (Fathead minnow (*Pimephales promelas*), 96 h): 0.00155 - 0.00293 mg/l Mortality

##### Aquatic Invertebrates

**Product:** No data available.

##### Specified substance(s):

NITRIC ACID LC 50 (Cockle (*Cerastoderma edule*), 48 h): 330 - 1,000 mg/l Mortality

LC 50 (Green or European shore crab (*Carcinus maenas*), 48 h): 180 mg/l Mortality

SILVER

EC 50 (Water flea (*Daphnia magna*), 48 h): 0.00024 mg/l Mortality

EC 50 (Water flea (*Daphnia magna*), 48 h): 0.0095 mg/l Mortality

LC 50 (Rotifer (*Brachionus calyciflorus*), 24 h): 0.0072 - 0.0079 mg/l Mortality

LC 50 (Rotifer (*Brachionus calyciflorus*), 24 h): 0.0072 - 0.0079 mg/l Mortality

LC 50 (Rotifer (*Brachionus plicatilis*), 24 h): 0.07 - 0.18 mg/l Mortality

#### Chronic hazards to the aquatic environment:

##### Fish

**Product:** No data available.

##### Aquatic Invertebrates

**Product:** No data available.

##### Toxicity to Aquatic Plants

**Product:** No data available.

#### Persistence and Degradability

##### Biodegradation

**Product:** There are no data on the degradability of this product.

##### BOD/COD Ratio

**Product:** No data available.

#### Bioaccumulative Potential

##### Bioconcentration Factor (BCF)

**Product:** No data available on bioaccumulation.

##### Partition Coefficient n-octanol / water (log Kow)

**Product:** No data available.

<b>Mobility in Soil:</b>	The product is water soluble and may spread in water systems.
<b>Other Adverse Effects:</b>	Not expected to be harmful to aquatic organisms. Low acute toxicity to aquatic organisms.

### 13. Disposal considerations

<b>Disposal instructions:</b>	Discharge, treatment, or disposal may be subject to national, state, or local laws. Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.
<b>Contaminated Packaging:</b>	Since emptied containers retain product residue, follow label warnings even after container is emptied.

### 14. Transport information

#### DOT

UN Number:	UN 3264
UN Proper Shipping Name:	Corrosive liquid, acidic, inorganic, n.o.s.(NITRIC ACID)
Transport Hazard Class(es)	
Class(es):	8
Label(s):	8
Packing Group:	III
Marine Pollutant:	No

#### IMDG

UN Number:	UN 3264
UN Proper Shipping Name:	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.(NITRIC ACID)
Transport Hazard Class(es)	
Class(es):	8
Label(s):	8
EmS No.:	F-A, S-B
Packing Group:	III
Marine Pollutant:	No

#### IATA

UN Number:	UN 3264
Proper Shipping Name:	Corrosive liquid, acidic, inorganic, n.o.s.(NITRIC ACID)
Transport Hazard Class(es):	
Class(es):	8
Label(s):	8
Marine Pollutant:	No
Packing Group:	III

### 15. Regulatory information

#### US Federal Regulations

##### TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

##### US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

None present or none present in regulated quantities.



**CERCLA Hazardous Substance List (40 CFR 302.4):**

NITRIC ACID Reportable quantity: 1000 lbs.  
SILVER Reportable quantity: 1000 lbs.

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**
**Hazard categories**

☒ Acute (Immediate) ☒ Chronic (Delayed) ☐ Fire ☐ Reactive ☐ Pressure Generating

**SARA 302 Extremely Hazardous Substance**

Chemical Identity	RQ	Threshold Planning Quantity
NITRIC ACID	1000 lbs.	1000 lbs.

**SARA 304 Emergency Release Notification**

Chemical Identity	RQ
NITRIC ACID	1000 lbs.
SILVER	1000 lbs.

**SARA 311/312 Hazardous Chemical**

Chemical Identity	Threshold Planning Quantity
NITRIC ACID	500lbs
SILVER	500 lbs

**SARA 313 (TRI Reporting)**

Chemical Identity	Reporting threshold for other users	Reporting threshold for manufacturing and processing
NITRIC ACID	10000 lbs	25000 lbs.
SILVER	10000 lbs	25000 lbs.

**Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)**

NITRIC ACID Reportable quantity: 1000 lbs.

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):**

NITRIC ACID Threshold quantity: 15000 lbs

**US State Regulations**
**US. California Proposition 65**

No ingredient regulated by CA Prop 65 present.

**US. New Jersey Worker and Community Right-to-Know Act**

NITRIC ACID Listed

**US. Massachusetts RTK - Substance List**

NITRIC ACID Listed

**US. Pennsylvania RTK - Hazardous Substances**

NITRIC ACID Listed

**US. Rhode Island RTK**

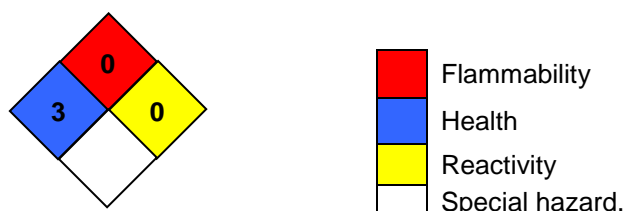
NITRIC ACID Listed

**Inventory Status:**

Australia AICS:	On or in compliance with the inventory
Canada DSL Inventory List:	On or in compliance with the inventory
EINECS, ELINCS or NLP:	On or in compliance with the inventory
Japan (ENCS) List:	Not in compliance with the inventory.
China Inv. Existing Chemical Substances:	On or in compliance with the inventory
Korea Existing Chemicals Inv. (KECI):	On or in compliance with the inventory
Canada NDSL Inventory:	Not in compliance with the inventory.
Philippines PICCS:	On or in compliance with the inventory
US TSCA Inventory:	On or in compliance with the inventory
New Zealand Inventory of Chemicals:	On or in compliance with the inventory
Japan ISHL Listing:	Not in compliance with the inventory.
Japan Pharmacopoeia Listing:	Not in compliance with the inventory.

**16. Other information, including date of preparation or last revision**

**NFPA Hazard ID**



Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe

<b>Issue Date:</b>	12-22-2014
<b>Revision Date:</b>	No data available.
<b>Version #:</b>	1.0
<b>Further Information:</b>	No data available.

**Disclaimer:**

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