



**Be Right™**

# SAFETY DATA SHEET

Issue Date 16-10-2018

Revision Date 14-Dec-2021

Version 3

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## Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

**Product identifier**

Product Code(s) 1279142-MY

Safety data sheet number M01165

Product Name Manganese Standard Solution 1000 ± 10 mg/l as Mn<sup>+2</sup>

**Contains**

**Recommended use of the chemical and restrictions on use**

Recommended Use Standard solution. Water Analysis.

Uses advised against No information available

**Details of the supplier of the safety data sheet**

Manufacturer Address Hach Company, P.O. Box 389, Loveland, CO 80539, USA, +1(970) 669-3050

**Emergency telephone number**

+1 (303) 623-5716 - 24 Hour Service +1 (515)232-2533 - 8am - 4pm CST  
Chemtrec 1-800-424-9300

E-mail address seasia@hach.com

## Section 2: HAZARDS IDENTIFICATION

**GHS Classification**

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1

**Label elements**



Signal word - Danger

**Hazard statements**

H315 - Causes skin irritation  
H318 - Causes serious eye damage

**Precautionary statements**

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P280 - Wear protective gloves, protective clothing, eye protection, and face protection

P302 + P352 - IF ON SKIN: Wash with plenty of soap and water

P332 + P313 - If skin irritation occurs: Get medical attention

P362 - Take off contaminated clothing and wash before reuse

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 or doctor/physician

**Other Hazards Known**

No information available

### Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

**Substance**

Not applicable

**Mixture**

Chemical name	Formula	EC No	CAS No	Percent Range	Malaysia ICOP GHS Classification
Nitric acid	HNO <sub>3</sub>	231-714-2	7697-37-2	<1%	Ox. Liq. 2, H272 Eye Dam. 1, H318 Skin Corr. 1A, H314
Nitric acid, manganese(2+) salt	Mn(NO <sub>3</sub> ) <sub>2</sub>	233-828-8	10377-66-9	<1%	Not Listed

### Section 4: FIRST AID MEASURES

**Description of necessary first aid measures**

**General advice** Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

**Inhalation** Remove to fresh air. Get medical attention immediately if symptoms occur.

**Skin contact** Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.

**Eye contact** Get immediate medical advice/attention. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area.

**Ingestion** Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a physician.

**For emergency responders**

**Self-protection of the first aider** Avoid contact with skin, eyes or clothing.

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

**Symptoms** Burning sensation.

**Indication of immediate medical attention and special treatment needed, if necessary**

**Note to physicians** Treat symptomatically.

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## Section 5: FIRE FIGHTING MEASURES

### Suitable Extinguishing Media

#### **Suitable Extinguishing Media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Unsuitable Extinguishing Media** No information available

### Specific hazards arising from the chemical

**Specific hazards arising from the chemical** No information available.

### Flammable properties

Material is not classified as flammable according to GHS criteria.

### Explosive properties

Not classified according to GHS criteria.

### Specific/special fire-fighting measures

**Specific/special fire-fighting measures** No information available.

### Special protective equipment and precautions for fire-fighters

**Special protective equipment for fire-fighters** Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

## Section 6: ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

**Personal precautions** Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Ensure adequate ventilation.

**For emergency responders** Use personal protective equipment as required.

### Environmental precautions

**Environmental precautions** Prevent further leakage or spillage if safe to do so.

### Methods and material for containment and cleaning up

**Methods for containment** Prevent further leakage or spillage if safe to do so.

### Methods for cleaning up

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Take up mechanically, placing in appropriate containers for disposal.

**Prevention of secondary hazards** Clean contaminated objects and areas thoroughly observing environmental regulations.

### Other Information

Refer to protective measures listed in Sections 7 and 8.

### Reference to other sections

See section 8 for more information.  
See section 13 for more information.

## Section 7: HANDLING AND STORAGE

### Preventive measures for safe handling

#### **Advice on safe handling**

Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.

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### Precautions for safe handling

#### **General Hygiene Considerations**

Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product.

### Conditions for safe storage, including any incompatibilities

#### **Storage Conditions**

Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Keep out of the reach of children.

#### **Incompatible materials**

Strong acids. Strong bases. Strong oxidizing agents.

## **Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

### Control parameters

#### **Exposure Limits**

Chemical name	Malaysia
Nitric acid (<1%) CAS#: 7697-37-2	TWA: 2 ppm TWA: 5.2 mg/m <sup>3</sup>
Nitric acid, manganese(2+) salt (<1%) CAS#: 10377-66-9	TWA: 0.2 mg/m <sup>3</sup>

#### **Legend**

See section 16 for terms and abbreviations

### Appropriate engineering controls

#### **Engineering Controls**

Showers  
Eyewash stations  
Ventilation systems.

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

#### **Respiratory protection**

No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

#### **Hand Protection**

Wear suitable gloves. Impervious gloves. Barrier creams may help to protect the exposed areas of skin. Gloves must be inspected prior to use. The selected protective gloves have to satisfy the specifications of EU Directive 2016/425 and the standard EN 374 derived from it. Chemical resistant gloves made of butyl rubber or nitrile rubber category III according to EN 374-1:2016.

#### **Eye/face protection**

Tight sealing safety goggles.

#### **Skin and body protection**

Wear suitable protective clothing. Long sleeved clothing.

#### **General Hygiene Considerations**

Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product.

#### **Environmental exposure controls**

Local authorities should be advised if significant spillages cannot be contained. Do not allow into any sewer, on the ground or into any body of water.

#### **Thermal hazards**

None under normal processing.

## **Section 9: PHYSICAL AND CHEMICAL PROPERTIES**

### Information on basic physical and chemical properties

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Physical state Liquid  
Appearance aqueous solution

Color light pink  
clear

Odor Odorless

Odor threshold No data available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
Molecular weight	No data available	
pH	1.3	@ 20 °C
Melting point/freezing point	~ -1 °C / 30.2 °F	
Boiling point / boiling range	~ 100 °C / 212 °F	
Evaporation rate	1.02 (water = 1)	
Vapor pressure	23.702 mm Hg / 3.16 kPa at 25 °C / 77 °F	
Relative vapor density	0.63	
Specific gravity (water = 1 / air = 1)	0.999	
Partition Coefficient (n-octanol/water)	Not applicable	
Soil Organic Carbon-Water Partition Coefficient	Not applicable	
Autoignition temperature	No data available	
Decomposition temperature	No data available	
Dynamic viscosity	No data available	
Kinematic viscosity	No data available	

#### Solubility(ies)

##### Water solubility

<u>Water solubility classification</u>	<u>Water solubility</u>	<u>Water Solubility Temperature</u>
Soluble	> 1000 mg/L	25 °C / 77 °F

##### Solubility in other solvents

Acid	Soluble	> 1000 mg/L	25 °C / 77 °F
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#### Other information

##### Metal Corrosivity

Classified as corrosive to metal according to GHS criteria

Steel Corrosion Rate

2.54 mm/yr / 0.1 in/yr

Aluminum Corrosion Rate

2.31 mm/yr / 0.09 in/yr

##### Volatile Organic Compounds (VOC) Content

<u>Chemical name</u>	<u>CAS No</u>	<u>Volatile organic compounds (VOC) content</u>	<u>CAA (Clean Air Act)</u>
Nitric acid	7697-37-2	Not applicable	23 mL

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Chemical name	CAS No	Volatile organic compounds (VOC) content	CAA (Clean Air Act)
Nitric acid, manganese(2+) salt	10377-66-9	No data available	23 mL

#### Explosive properties

Upper explosion limit  
Lower explosion limit

No data available  
No data available

#### Flammable properties

Flash point

No data available

#### Flammability Limit in Air

Upper flammability limit:  
Lower flammability limit:

No data available  
No data available

#### Oxidizing properties

Classified as an oxidizer according to GHS criteria.

#### Bulk density

No data available

## Section 10: STABILITY AND REACTIVITY

#### Reactivity

Not applicable.

#### Chemical stability

##### Stability

Stable under normal conditions.

#### Explosion data

Sensitivity to Mechanical Impact None  
Sensitivity to Static Discharge None.

#### Possibility of hazardous reactions

Possibility of Hazardous Reactions None under normal processing.

#### Hazardous polymerization

None under normal processing.

#### Conditions to avoid

##### Conditions to avoid

None known based on information supplied.

#### Incompatible materials

##### Incompatible materials

Strong acids. Strong bases. Strong oxidizing agents.

#### Hazardous decomposition products

Thermal decomposition can lead to release of irritating and toxic gases and vapors.

## Section 11: TOXICOLOGICAL INFORMATION

#### Information on likely routes of exposure

#### Product Information

##### Inhalation

May cause irritation of respiratory tract.

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**Eye contact** Severely irritating to eyes. Causes serious eye damage. May cause burns. May cause irreversible damage to eyes.

**Skin contact** Causes skin irritation.

**Ingestion** Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

**Symptoms** Redness. Burning. May cause blindness. May cause redness and tearing of the eyes.

**Acute toxicity**

Based on available data, the classification criteria are not met

**Product Acute Toxicity Data**

No data available.

**Ingredient Acute Toxicity Data**

Test data reported below.

**Inhalation (Dust/Mist) Exposure Route**

**Unknown Acute Toxicity**

0 % of the mixture consists of ingredient(s) of unknown toxicity.

0 % of the mixture consists of ingredient(s) of unknown acute oral toxicity

0 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity

0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)

0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)

**Acute Toxicity Estimations (ATE)**

<b>ATEmix (oral)</b>	No information available
<b>ATEmix (dermal)</b>	No information available
<b>ATEmix (inhalation-dust/mist)</b>	No information available
<b>ATEmix (inhalation-vapor)</b>	No information available
<b>ATEmix (inhalation-gas)</b>	No information available

**Skin corrosion/irritation**

Classification based on data available for ingredients. Irritating to skin.

**Product Skin Corrosion/Irritation Data**

No data available.

**Ingredient Skin Corrosion/Irritation Data**

Test data reported below.

<b>Chemical name</b>	<b>Test method</b>	<b>Species</b>	<b>Reported dose</b>	<b>Exposure time</b>	<b>Results</b>	<b>Key literature references and sources for data</b>
Nitric acid (<1%) CAS#: 7697-37-2	Existing human experience	Human	None reported	None reported	Corrosive to skin	ERMA (New Zealand's Environmental Risk Management Authority)

**Serious eye damage/irritation**

Classification based on data available for ingredients. Causes burns. Risk of serious damage to eyes.

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#### Product Serious Eye Damage/Eye Irritation Data

No data available.

#### Ingredient Eye Damage/Eye Irritation Data

Test data reported below.

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Nitric acid (<1%) CAS#: 7697-37-2	Existing human experience	Human	None reported	None reported	Corrosive to eyes	ERMA (New Zealand's Environmental Risk Management Authority)

#### Respiratory or skin sensitization

Based on available data, the classification criteria are not met.

#### Product Sensitization Data

No data available.

#### Ingredient Sensitization Data

No data available.

#### STOT - single exposure

Based on available data, the classification criteria are not met.

#### Product Specific Target Organ Toxicity Single Exposure Data

No data available.

#### Ingredient Specific Target Organ Toxicity Single Exposure Data

Test data reported below.

#### Dermal Exposure Route

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Nitric acid (<1%) CAS#: 7697-37-2	Rat TD <sub>Lo</sub>	226500 mg/kg	None reported	<b>Blood</b> Methemoglobinemia-Carboxyhemoglobin	RTECS (Registry of Toxic Effects of Chemical Substances)

#### Inhalation (Vapor) Exposure Route

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Nitric acid (<1%) CAS#: 7697-37-2	Rat TC <sub>Lo</sub>	460 mg/L	1 hours	<b>Nutritional and Gross Metabolic</b> Weight loss or decreased weight gain	RTECS (Registry of Toxic Effects of Chemical Substances)

#### STOT - repeated exposure

Based on available data, the classification criteria are not met.

#### Product Specific Target Organ Toxicity Repeat Dose Data

No data available.

#### Ingredient Specific Target Organ Toxicity Repeat Exposure Data

Test data reported below.

#### Inhalation (Vapor) Exposure Route



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Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Nitric acid (<1%) CAS#: 7697-37-2	Rat TC <sub>Lo</sub>	0.001071 mg/L	84 days	<b>Behavioral</b> Muscle contraction or spasticity <b>Biochemical</b> Enzyme inhibition, induction, or change in blood or tissue levels (true cholinesterase) <b>Kidney, Ureter, or Bladder</b> Other changes in urine composition	RTECS (Registry of Toxic Effects of Chemical Substances)

**Carcinogenicity**

Based on available data, the classification criteria are not met.

**Product Carcinogenicity Data**

No data available.

**Ingredient Carcinogenicity Data**

No data available.

Chemical name	CAS No	ACGIH	IARC	NTP	OSHA
Nitric acid	7697-37-2	-	Group 2A Group 1	-	X
Nitric acid, manganese(2+) salt	10377-66-9	-	Group 2A	-	X

**Legend**

<b>ACGIH (American Conference of Governmental Industrial Hygienists)</b>	Does not apply
<b>IARC (International Agency for Research on Cancer)</b>	Group 2A - Probably Carcinogenic to Humans Group 1 - Carcinogenic to Humans
<b>NTP (National Toxicology Program)</b>	Does not apply
<b>OSHA (Occupational Safety and Health Administration of the US Department of Labor)</b>	X - Present

**Germ cell mutagenicity**

Based on available data, the classification criteria are not met.

**Product Germ Cell Mutagenicity invitro Data**

No data available.

**Ingredient Germ Cell Mutagenicity invitro Data**

No data available.

**Product Germ Cell Mutagenicity invivo Data**

No data available.

**Ingredient Germ Cell Mutagenicity invivo Data**

No data available.

**Reproductive toxicity**

Based on available data, the classification criteria are not met.

**Product Reproductive Toxicity Data**

No data available.

**Ingredient Reproductive Toxicity Data**

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Test data reported below.

#### Oral Exposure Route

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Nitric acid (<1%) CAS#: 7697-37-2	Rat TD <sub>Lo</sub>	21150 mg/kg	21 days	Effects on Embryo or Fetus Fetotoxicity (except death e.g. stunted fetus)	RTECS (Registry of Toxic Effects of Chemical Substances)

#### Aspiration hazard

Based on available data, the classification criteria are not met.

## Section 12: ECOLOGICAL INFORMATION

#### Ecotoxicity

Based on available data, the classification criteria are not met.

#### Unknown aquatic toxicity

0 % of the mixture consists of component(s) of unknown hazards to the aquatic environment.

#### Product Ecological Data

##### Aquatic Acute Toxicity

No data available.

##### Aquatic Chronic Toxicity

No data available.

#### Ingredient Ecological Data

##### Aquatic Acute Toxicity

Test data reported below.

#### Fish

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Nitric acid, manganese(2+) salt (<1%) CAS#: 10377-66-9	96 hours	<i>Pimephales promelas</i>	LC <sub>50</sub>	33.8 mg/L	Vendor SDS

##### Aquatic Chronic Toxicity

No data available.

#### Persistence and degradability

##### Product Biodegradability Data

No data available.

##### Bioaccumulation

There is no data for this product.

##### Product Bioaccumulation Data

No data available.

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

Not applicable

#### Mobility

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**Soil Organic Carbon-Water Partition Coefficient**

Not applicable

**Other adverse effects**

No information available

### Section 13: DISPOSAL CONSIDERATIONS

**Disposal methods**

**Waste from residues/unused products**

Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

**Contaminated packaging**

Do not reuse empty containers.

### Section 14: TRANSPORT INFORMATION

**Note:**

No special precautions necessary.

**IMDG**

<b>UN number or ID number</b>	Not regulated
<b>Transport hazard class(es)</b>	Not regulated
<b>Packing Group</b>	Not regulated
<b>Marine pollutant</b>	Not applicable
<b>Special precautions for user</b>	Not applicable

**ADR**

<b>UN number or ID number</b>	Not regulated
<b>Proper shipping name</b>	Not regulated
<b>Transport hazard class(es)</b>	Not regulated
<b>Packing Group</b>	Not regulated
<b>Environmental hazards</b>	Not applicable
<b>Special precautions for user</b>	None

**IATA**

<b>UN number or ID number</b>	Not regulated
<b>Transport hazard class(es)</b>	Not regulated
<b>Packing group</b>	Not regulated
<b>Environmental hazards</b>	Not applicable
<b>Special precautions for user</b>	None

**Additional information**

There is a possibility that this product could be contained in a reagent set or kit composed of various compatible dangerous goods. If the item is not in a reagent set or kit, the classification given above applies.

If the item is part of a reagent set or kit the classification would change to the following:

UN3316 Chemical Kit, Hazard Class 9, Packing Group II or III.

If the item is not regulated, the Chemical Kit classification does not apply.

### Section 15: REGULATORY INFORMATION

**Regulatory information**

**National regulations**

**Malaysia**

GHS-Specification for Classification, Labeling and Formulation of Safety Data Sheet for Chemical Products (MS1804:2008)  
Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) (CLASS Regulations)

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Guidance for the Industry on the Notification and Registration Scheme for Environmentally Hazardous Substances in Malaysia (EHSNR Guidance)

See section 8 for national exposure control parameters

#### International Inventories

<b>TSCA</b>	Complies
<b>DSL/NDSL</b>	Complies
<b>EINECS/ELINCS</b>	Complies
<b>ENCS</b>	Complies
<b>IECSC</b>	Complies
<b>KECL - Existing substances</b>	Complies
<b>PICCS</b>	Complies
<b>TCSI</b>	Complies
<b>AICS</b>	Complies
<b>NZIoC</b>	Complies

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

**ENCS** - Japan Existing and New Chemical Substances

**IECSC** - China Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**TCSI** - Taiwan Chemical Substances Inventory

**AICS** - Australian Inventory of Chemical Substances

**NZIoC** - New Zealand Inventory of Chemicals

#### International Regulations

**The Montreal Protocol on Substances that Deplete the Ozone Layer** Not applicable

**The Stockholm Convention on Persistent Organic Pollutants** Not applicable

**The Rotterdam Convention** Not applicable

### **Section 16: OTHER INFORMATION**

#### Key or legend to abbreviations and acronyms used in the safety data sheet

*NIOSH IDLH*

*Immediately Dangerous to Life or Health*

*ACGIH*

ACGIH (American Conference of Governmental Industrial Hygienists)

*NDF*

*no data*

#### Legend - Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Ceiling Limit Value	MAC	Maximum Allowable Concentration
X	Listed	Vacated	These values have no official status. The only binding levels of contaminants are those listed in the final OSHA PEL. These lists are for reference purposes only. Please note that some reference state regulations of these

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"liberated" exposure limits in their state regulations.

SKN\*  
RSP+  
C  
M

Skin designation  
Respiratory sensitization  
Carcinogen  
mutagen

SKN+  
\*\*  
R

Skin sensitization  
Hazard Designation  
Reproductive toxicant

**Prepared By** Hach Product Compliance Department

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**Revision Note** None

**Disclaimer**

**USER RESPONSIBILITY:** Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

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**End of Safety Data Sheet**