

The following list contains the Material Safety Data Sheets you requested. Please scroll down to view the requested MSDS(s).

Product	MSDS	Distributor	Format	Language	Quantity
2272200	34932	Hach Company	ROWGHS	English	1
2272200	107166	Hach Company	ROWGHS	English	1
2272200	107266	Hach Company	ROWGHS	English	1
2272200	2076266	Hach Company	ROWGHS	English	1
2272200	2267501	Hach Company	ROWGHS	English	1

Total Enclosures: 5

World Headquarters
Hach Company
P.O.Box 389
Loveland, CO USA 80539
(970) 669-3050

MSDS No: M00294

SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Starch Indicator Solution

Catalog Number: 34932

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

Emergency Telephone Numbers:
(Medical and Transportation)
(303) 623-5716 24 Hour Service
(515)232-2533 8am - 4pm CST

MSDS Number: M00294

Chemical Name: Not applicable

CAS Number: Not applicable

Additional CAS No. (for hydrated forms): Not applicable

Chemical Formula: Not applicable

Chemical Family: Mixture

Intended Use: Laboratory Reagent Oxidation-reduction indicator

2. HAZARDS IDENTIFICATION

This mixture is not classified as hazardous per GHS (UN publication ST/SG/AC.10/36/Add.3)

GHS Classification:

Hazard categories: Not applicable

GHS Label Elements:

Not applicable

Hazard statements: Not applicable

Precautionary statements: Not applicable

HMIS:

Health: 0

Flammability: 0

Reactivity: 0

Protective Equipment: X - See protective equipment, Section 8.

NFPA:

Health: 0

Flammability: 0

Reactivity: 0

Symbol: Not applicable

WHMIS Hazard Classification: Not applicable

WHMIS Symbols: Not applicable

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Components according to GHS:

Salicylic Acid

CAS Number: 69-72-7

Chemical Formula: C₇H₆O₃

GHS Classification:

Percent Range (Trade Secret): < 0.2

Percent Range Units: weight / weight

PEL: 15 mg/m³ as inhalable dust; 5 mg/m³ as respirable dust
TLV: 10 mg/m³ as inhalable dust

WHMIS Symbols: Other Toxic Effects

Hazardous Components according to GHS: No
Demineralized Water

CAS Number: 7732-18-5

Chemical Formula: H₂O

GHS Classification: Not a dangerous substance according to GHS.

Percent Range (Trade Secret): > 99.0

Percent Range Units: weight / weight

PEL: Not established

TLV: Not established

WHMIS Symbols: Not applicable

Starch

CAS Number: 9005-84-9

Chemical Formula: (C₆H₁₀O₅)_n

GHS Classification: Skin Irrit. 3, H316

Percent Range (Trade Secret): < 1.0

Percent Range Units: weight / weight

PEL: 15 mg/m³ total dust; 5 mg/m³ as respirable dust

TLV: 10 mg/m³ total dust

WHMIS Symbols: Other Toxic Effects

4. FIRST AID MEASURES

General Information: In the event of exposure, show this Material Safety Data Sheet and label (where possible) to a doctor.

Advice to doctor: Treat symptomatically.

Eye Contact: Immediately flush eyes with water for 15 minutes. Call physician.

Skin Contact (First Aid): Wash skin with plenty of water. Remove contaminated clothing. If you feel unwell, contact a physician.

Inhalation: Remove to fresh air.

Ingestion (First Aid): Give large quantities of water. Call physician immediately. Never give anything by mouth to an unconscious person.

5. FIRE FIGHTING MEASURES

Flammable Properties: Material will not burn.

Fire Fighting Instruction: As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear.

Extinguishing Media: Use media appropriate to surrounding fire conditions

Extinguishing Media NOT To Be Used: Not applicable

Fire / Explosion Hazards: None reported

Hazardous Combustion Products: This material will not burn.

6. ACCIDENTAL RELEASE MEASURES

Spill Response Notice:

Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance. Outside of the US, only persons properly qualified according to state or local regulations should respond to a spill involving chemicals.

Containment Technique: Absorb spilled liquid with non-reactive sorbent material. Dike large spills to keep spilled material from entering sewage and drainage systems or bodies of water.

Clean-up Technique: If permitted by regulation, Cover spilled material with a dry acid, such as citric or boric. Scoop up slurry into a large beaker. Adjust to a pH between 6 and 9 with an alkali, such as soda ash or sodium bicarbonate. Flush

reacted material to the drain with a large excess of water. Otherwise, Dispose of in accordance with local, state and federal regulations or laws. Decontaminate the area of the spill with a soap solution.

Evacuation Procedure: Evacuate as needed to perform spill clean-up. If conditions warrant, increase the size of the evacuation.

DOT Emergency Response Guide Number: Not applicable

7. HANDLING AND STORAGE

Handling: Avoid contact with eyes Do not breathe mist or vapors. Wash thoroughly after handling. Maintain general industrial hygiene practices when using this product.

Storage: Store between 10° and 25°C.

Flammability Class: Not applicable

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Maintain general industrial hygiene practices when using this product.

Personal Protective Equipment:

Eye Protection: safety glasses with top and side shields

Skin Protection: disposable latex gloves In the EU, the selected gloves must satisfy the specifications of EU Directive 89/686/EEC and standard EN 374 derived from it.

Inhalation Protection: adequate ventilation

Precautionary Measures: Avoid contact with: eyes Do not breathe: mist/vapor Wash thoroughly after handling.

TLV: Not established

PEL: Not established

For Occupational Exposure Limits (OEL) for ingredients, see section 3 - Composition/Information on Ingredients.:

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear to slightly turbid, colorless solution

Physical State: Liquid

Molecular Weight: Not applicable

Odor: Odorless

Odor Threshold: Not applicable

pH: 3.1

Metal Corrosivity:

Corrosivity Classification: Not classified as corrosive to metals according to GHS criteria.

Steel: Not determined

Aluminum: Not determined

Specific Gravity/ Relative Density (water = 1; air =1): 0.986

Viscosity: ~ 1.0 mPa·s

Solubility:

Water: Soluble

Acid: Soluble

Other: Not determined

Partition Coefficient (n-octanol / water): Not applicable

Coefficient of Water / Oil: Not applicable

Melting Point: 0 °C (32 °F)

Decomposition Temperature: Not applicable

Boiling Point: 100 °C (212 °F)

Vapor Pressure: 24 mm Hg @ 25 °C (77 °F)

Vapor Density (air = 1): 0.62

Evaporation Rate (water = 1): 1

Volatile Organic Compounds Content: Not applicable

Flammable Properties: Material will not burn.

Flash Point: Not applicable

Method: Not applicable

Flammability Limits:

Lower Explosion Limits: Not applicable

Upper Explosion Limits: Not applicable

Autoignition Temperature: Not applicable

Explosive Properties:

Not classified according to GHS criteria.

Oxidizing Properties:

Not classified according to GHS criteria.

Reactivity Properties:

Not classified as self-reactive, pyrophoric, self-heating or emitting flammable gases in contact with water according to GHS criteria.

Gas under Pressure:

Not classified according to GHS criteria.

10. STABILITY AND REACTIVITY

Chemical Stability: Stable when stored under proper conditions.

Mechanical Impact: None reported

Static Discharge: None reported.

Reactivity / Incompatibility: None reported

Hazardous Decomposition: No hazardous decomposition products known.

Conditions to Avoid: Extreme temperatures

11. TOXICOLOGICAL INFORMATION

Toxicokinetics, Metabolism and Distribution: No health effects are anticipated in normal use.

Toxicologically Synergistic Products: None reported

Acute Toxicity: Acute Toxicity Estimate (ATE) - Calculated from Ingredient Toxicity Data. Practically Non-toxic. Based on classification principles, the classification criteria are not met.

Specific Target Organ Toxicity - Single Exposure (STOT-SE): Based on classification principles, the classification criteria are not met.

Specific Target Organ Toxicity - Repeat Exposure (STOT-RE): Based on classification principles, the classification criteria are not met.

Skin Corrosion/Irritation: Based on classification principles, the classification criteria are not met.

Eye Damage: Based on classification principles, the classification criteria are not met.

Sensitization: Based on classification principles, the classification criteria are not met.

CMR Effects/Properties (carcinogenic, mutagenic or toxic to reproduction): No germ cell mutagenicity, carcinogenicity or reproductive toxicity data found.

This product does NOT contain any IARC listed chemicals.

This product does NOT contain any NTP listed chemicals.

This product does NOT contain any OSHA listed carcinogens.

Symptoms/Effects:

Ingestion: No Effects Anticipated

Inhalation: No effects anticipated

Skin Absorption: No effects anticipated

Chronic Effects: No effects anticipated

Medical Conditions Aggravated: Allergies or sensitivity to aspirin or salicylates.

12. ECOLOGICAL INFORMATION

Product Ecological Information: --

No ecological data available for this product. Mobility in soil: No data available. Based on classification principles, not classified as hazardous to the environment.

Ingredient Ecological Information: --

Ecological data for ingredients is not indicative of likely ecological harm.

13. DISPOSAL CONSIDERATIONS

EPA Waste ID Number: Not applicable

Special Instructions (Disposal): Dilute to 3 to 5 times the volume with cold water. Adjust to a pH between 6 and 9 with an alkali, such as soda ash or sodium bicarbonate. If permitted by regulation, Open cold water tap completely, slowly pour the reacted material to the drain. Allow cold water to run for 5 minutes to completely flush the system. Otherwise, Check with national, local municipal and state authorities and waste contractors for pertinent local information on the disposal of this article.

Empty Containers: Rinse three times with an appropriate solvent. Dispose of empty container as normal trash.

NOTICE (Disposal): These disposal guidelines are based on federal regulations and may be superseded by more stringent state or local requirements. Please consult your local environmental regulators for more information. In Europe: Chemical and analysis solutions must be disposed of in compliance with the respective national regulations. Product packaging must be disposed of in compliance with the country-specific regulations or must be passed to a packaging return system.

14. TRANSPORT INFORMATION

D.O.T.:

D.O.T. Proper Shipping Name: Not Currently Regulated

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Hazard Class: NA

Subsidiary Risk: NA

ID Number: NA

Packing Group: NA

T.D.G.:

Proper Shipping Name: Not Currently Regulated

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Hazard Class: NA

Subsidiary Risk: NA

UN Number/PIN: NA

Packing Group: NA

I.C.A.O.:

I.C.A.O. Proper Shipping Name: Not Currently Regulated

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Hazard Class: NA

Subsidiary Risk: NA

ID Number: NA

Packing Group: NA

I.M.O.:

Proper Shipping Name: Not Currently Regulated

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Hazard Class: NA

Subsidiary Risk: NA

ID Number: NA

Packing Group: NA

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 set or kit, the classification given above applies. If the item IS part of a set or kit, the classification would change to the following: UN3316 Chemical Kit, Class 9, PG II or III. If the item is not regulated, the Chemical Kit classification does not apply.

15. REGULATORY INFORMATION

U.S. Federal Regulations:

O.S.H.A.: This product meets the criteria for a hazardous substance as defined in the Hazard Communication Standard. (29 CFR 1910.1200)

E.P.A.:

S.A.R.A. Title III Section 311/312 Categorization (40 CFR 370): Immediate (Acute) Health Hazard

S.A.R.A. Title III Section 313 (40 CFR 372): This product does NOT contain any chemical subject to the reporting requirements of Section 313 of Title III of SARA.

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302 (EHS) TPQ (40 CFR 355): Not applicable

304 CERCLA RQ (40 CFR 302.4): Not applicable

304 EHS RQ (40 CFR 355): Not applicable

Clean Water Act (40 CFR 116.4): Not applicable

RCRA: Contains no RCRA regulated substances.

State Regulations:

California Prop. 65: No Prop. 65 listed chemicals are present in this product.

Identification of Prop. 65 Ingredient(s): Not applicable

California Perchlorate Rule CCR Title 22 Chap 33: Not applicable

Trade Secret Registry: Not applicable

National Inventories:

U.S. Inventory Status: All ingredients in this product are listed on the TSCA 8(b) Inventory (40 CFR 710).

CAS Number: Not applicable

Canadian Inventory Status: All ingredients of this product are DSL Listed.

EEC Inventory Status: All ingredients used to make this product are listed on EINECS / ELINCS.

Australian Inventory (AICS) Status: All ingredients are listed.

New Zealand Inventory (NZIoC) Status: All components either listed or exempt.

Korean Inventory (KECI) Status: All components of this product are either listed, listed as the anhydrous compound or exempt.

Japan (ENCS) Inventory Status: All components either listed or exempt.

China (PRC) Inventory (MEP) Status: All components either listed or exempt.

16. OTHER INFORMATION

References: TLV's Threshold Limit Values and Biological Exposure Indices for 1992-1993. American Conference of Governmental Industrial Hygienists, 1992. Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. In-house information. Technical Judgment. Vendor Information. CCINFO RTECS. Canadian Centre for Occupational Health and Safety. Hamilton, Ontario Canada: 30 June 1993.

Complete Text of H phrases referred to in Section 3: H302 Harmful if swallowed. H315 Causes skin irritation. H316 Causes mild skin irritation. H319 Causes serious eye irritation.

Revision Summary: . Substantial revision to comply with EU Reg 1272/2008, Reg 1907/2006 and UN GHS (ST/SG/AC.10/36/Add.3).

Date of MSDS Preparation:

Day: 06

Month: November

Year: 2014

MSDS Prepared: MSDS prepared by Product Compliance Department extension 3350

CCOHS Evaluation Note: It is offered under exemption from WHMIS labeling as specified in the Controlled Products Regulation (CPR) Section 17. It is offered under the interim policy that was established by Health Canada permitting use of GHS-formatted safety data sheets in Canada prior to revision of CPR to GHS. This product has been classified and labeled in accordance with the requirements of GHS (ST/SG/AC.10/36/Add.3). This SDS has been prepared in accordance with the requirements of GHS (ST/SG/AC.10/36/Add.3).

Legend:

NA - Not Applicable	w/w - weight/weight
ND - Not Determined	w/v - weight/volume
NV - Not Available	v/v - volume/volume

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.

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

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World Headquarters
Hach Company
P.O.Box 389
Loveland, CO USA 80539
(970) 669-3050

MSDS No: M00029

SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Manganous Sulfate Powder Pillows
Catalog Number: 107166

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

Emergency Telephone Numbers:
(Medical and Transportation)
(303) 623-5716 24 Hour Service
(515)232-2533 8am - 4pm CST

MSDS Number: M00029

Chemical Name: Sulfuric acid, manganese(2+) salt (1:1)

CAS Number: 7785-87-7

Additional CAS No. (for hydrated forms): -

10034-96-5 monohydrate, 10101-68-5 tetrahydrate

Chemical Formula: $MnSO_4$

Chemical Family: Inorganic Salt

Intended Use: Laboratory Use

2. HAZARDS IDENTIFICATION

GHS Classification:

Hazard categories: . Serious Eye Damage/Eye Irritation: Eye Dam. 1 Specific Target Organ Toxicity - Repeated Exposure: STOT RE. 2 Hazardous to the Aquatic Environment: Aquatic Chronic 2

GHS Label Elements:

DANGER



Hazard statements: . Causes serious eye damage. May cause damage to organs through prolonged or repeated exposure. Toxic to aquatic life with long lasting effects.

Precautionary statements: . Do not breathe dust/fume/gas/mist/vapours/spray. Handle environmental release according to local, state, federal, provincial requirements. Wear eye protection. 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. Collect spillage.

HMIS:

Health: 2

Flammability: 0

Reactivity: 0

Protective Equipment: X - See protective equipment, Section 8.

NFPA:

Health: 2

Flammability: 0

Reactivity: 0

Symbol: Not applicable

WHMIS Hazard Classification: Class D, Division 2, Subdivision A - Very toxic materials (other toxic effects)

WHMIS Symbols: Other Toxic Effects

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Components according to GHS:

Manganous Sulfate

CAS Number: 7785-87-7

Chemical Formula: MnSO_4

GHS Classification: Acute Tox. 5 -Orl, H303; Eye Dam. 1, H318; STOT Rep. 2, H373; Aquatic Chronic 2, H411;

Percent Range: 100.0

Percent Range Units: weight / weight

PEL: Ceiling: 5 mg Mn/m³

TLV: 0.1 mg/m³ as inhalable Mn; 0.02 mg/m³ as respirable Mn

WHMIS Symbols: Other Toxic Effects

4. FIRST AID MEASURES

General Information: In the event of exposure, show this Material Safety Data Sheet and label (where possible) to a doctor.

Advice to doctor: Treat symptomatically.

Eye Contact: Immediately flush eyes with water for 15 minutes. Call physician immediately.

Skin Contact (First Aid): Remove contaminated clothing. Wash skin with soap and plenty of water. Call physician immediately.

Inhalation: Remove to fresh air. Give artificial respiration if necessary. Call physician. If breathing is difficult, give oxygen.

Ingestion (First Aid): Do not induce vomiting. Give 1-2 glasses of water. Induce vomiting using syrup of ipecac or by sticking finger down throat. Never give anything by mouth to an unconscious person. Call physician immediately.

5. FIRE FIGHTING MEASURES

Flammable Properties: During a fire, corrosive and toxic gases may be generated by thermal decomposition.

Fire Fighting Instruction: As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear. Evacuate area and fight fire from a safe distance.

Extinguishing Media: Use media appropriate to surrounding fire conditions

Extinguishing Media NOT To Be Used: Not applicable

Fire / Explosion Hazards: None reported

Hazardous Combustion Products: This material will not burn.

6. ACCIDENTAL RELEASE MEASURES

Spill Response Notice:

Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance. Outside of the US, only persons properly qualified according to state or local regulations should respond to a spill involving chemicals.

Containment Technique: Stop spilled material from being released to the environment.

Clean-up Technique: If permitted by regulation, Scoop up spilled material into a large beaker and dissolve with water. Adjust to a pH between 6 and 9 with an alkali, such as soda ash or sodium bicarbonate. Flush reacted material to the drain with a large excess of water. Decontaminate the area of the spill with a soap solution. Otherwise, Pick up spill for disposal and place in a closed container. Dispose of in accordance with local, state and federal regulations or laws.

Evacuation Procedure: Evacuate local area (15 foot radius or as directed by your facility's emergency response plan) when: a pound or more of loose powder is spilled. If conditions warrant, increase the size of the evacuation.

DOT Emergency Response Guide Number: Not applicable

7. HANDLING AND STORAGE

Handling: Avoid contact with eyes skin. Do not breathe dust. Wash thoroughly after handling. Use with adequate ventilation. Maintain general industrial hygiene practices when using this product.

Storage: Store at 10 - 30°C. Keep away from: oxidizers powdered metals

Flammability Class: Not applicable

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Have an eyewash station nearby. Have a safety shower nearby. Maintain adequate ventilation to keep vapor level below TWA for chemicals in this product. Maintain general industrial hygiene practices when using this product.

Personal Protective Equipment:

Eye Protection: safety glasses with top and side shields

Skin Protection: disposable latex gloves In the EU, the selected gloves must satisfy the specifications of EU Directive 89/686/EEC and standard EN 374 derived from it.

Inhalation Protection: adequate ventilation

Precautionary Measures: Avoid contact with: eyes skin Do not breathe: dust Wash thoroughly after handling. Use with adequate ventilation. Keep away from: oxidizers powdered metals

TLV: 0.1 mg/m³ as inhalable Mn; 0.02 mg/m³ as respirable Mn

PEL: Ceiling: 5 mg Mn/m³

For Occupational Exposure Limits (OEL) for ingredients, see section 3 - Composition/Information on Ingredients.:

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Pink powder

Physical State: Solid

Molecular Weight: 151.01 g/mol

Odor: Odorless

Odor Threshold: Not applicable

pH: 3.7 (5% sol'n)

Metal Corrosivity:

Corrosivity Classification: Not classified as corrosive to metals according to GHS criteria.

Steel: Not applicable

Aluminum: 0.002 in/yr (0.051 mm/yr)

Specific Gravity/ Relative Density (water = 1; air =1): 3.25

Viscosity: Not applicable

Solubility:

Water: 62.9 g/100 g

Acid: Soluble

Other: Insoluble in ethanol; slightly soluble in methanol; insoluble in ether.

Partition Coefficient (n-octanol / water): Not applicable

Coefficient of Water / Oil: Not applicable

Melting Point: > 400°C (loses all water); 700 °C

Decomposition Temperature: > 850 °C

Boiling Point: 850 °C; Decomposes

Vapor Pressure: Not applicable

Vapor Density (air = 1): Not applicable

Evaporation Rate (water = 1): Not applicable

Volatile Organic Compounds Content: Not applicable

Flammable Properties: During a fire, corrosive and toxic gases may be generated by thermal decomposition.

Flash Point: Not applicable

Method: Not applicable

Flammability Limits:

Lower Explosion Limits: Not applicable

Upper Explosion Limits: Not applicable

Autoignition Temperature: Not applicable

Explosive Properties:

Not classified according to GHS criteria.

Oxidizing Properties:

Not applicable Not classified according to GHS criteria.

Reactivity Properties:

Not classified as self-reactive, pyrophoric, self-heating or emitting flammable gases in contact with water according to GHS criteria.

Gas under Pressure:

Not classified according to GHS criteria.

Not applicable

10. STABILITY AND REACTIVITY

Chemical Stability: Stable when stored under proper conditions.

Mechanical Impact: None reported

Static Discharge: None reported.

Reactivity / Incompatibility: Incompatible with: oxidizers

Hazardous Decomposition: Heating to decomposition releases toxic and/or corrosive fumes of: sulfur oxides manganese oxides

Conditions to Avoid: Extreme temperatures Heating to decomposition.

11. TOXICOLOGICAL INFORMATION

Toxicokinetics, Metabolism and Distribution: Summary of findings reported in the literature follow.

Available data indicate that exposure to excess manganese for 14 days or less (acute duration) or up to a year (intermediate duration) has an effect on the respiratory system and the nervous system, with little to no effect on other organ systems.

Toxicologically Synergistic Products: None reported

Acute Toxicity: Generally Recognized as Safe (GRAS) designation by US Food and Drug Administration Toxicological Testing Route Data Given Below Based on classification principles, the classification criteria are not met.

Oral Rat LD50 = 2150 mg/kg

Specific Target Organ Toxicity - Single Exposure (STOT-SE): Based on classification principles, the classification criteria are not met.

Specific Target Organ Toxicity - Repeat Exposure (STOT-RE): Target Organs Central nervous system Respiratory Tract

Rhesus monkeys 0.7 mg Mn / m³ 22 day over 10 month period effects on nervous system and lungs

Skin Corrosion/Irritation: Irritating to skin.

Human - Moderately irritating

Eye Damage: Moderate reversible irritation to the eye

Human - irritating

Sensitization: Based on classification principles, the classification criteria are not met.

CMR Effects/Properties (carcinogenic, mutagenic or toxic to reproduction): Developmental toxicity associated with the substance or an ingredient of the mixture have been reported. Reported impairment of fertility by substance or ingredient of mixture. Data supporting mutagenicity was found. Data insufficient for classification Summary of findings reported in the literature follow.

Inhalation Rat TCLO = 0.5 mg/m³ - metabolic effects on newborn. Oral Mouse TDLo = 15 g/kg - Post-implantation mortality; Growth and behavioral effects on newborns. Mutation - Salmonella typhimurium - 1775 nmol. DNA Repair - Bacillus subtilis - 50 mmol/L

IARC Listed: No

NTP Listed: No

O.S.H.A. Listed: No

Symptoms/Effects:

Ingestion: Harmful Very large doses may cause: gastrointestinal tract irritation nausea

Inhalation: Harmful May cause: respiratory tract irritation pneumonitis

Skin Absorption: No effects anticipated

Chronic Effects: Chronic inhalation of manganese (or Mn compounds) may cause psychiatric disorders characterized by irritability, difficulty walking, speech disturbances, and compulsive behavior. If the conditions persist, manganese poisoning may cause a mask-like facial expression, symptoms similar to Parkinson's disease, and cirrhosis of the liver.

Medical Conditions Aggravated: Pre-existing: Respiratory conditions Central nervous system diseases Liver conditions

12. ECOLOGICAL INFORMATION

Product Ecological Information: 48 hr Mytilus edulis (mussel) EC50 = 30 mg/L; Fucus spiralis 20 days 5 mg/L intermittent 42% decrease in growth rate. 96 hr Rainbow trout LC50 = 3.17 mg/L; 48 hr Daphnia magna EC50 = 5.7 mg/L

Do not release into the environment. Do not place in landfill. Recycle appropriately. Mobility in soil: Highly mobile No bioaccumulation potential

CEPA Categorization: Persistent, not bioaccumulative or inherently toxic to aquatic organisms.

Ingredient Ecological Information: --

Not applicable

13. DISPOSAL CONSIDERATIONS

EPA Waste ID Number: Not applicable

Special Instructions (Disposal): If permitted by regulation, Dilute to 3 to 5 times the volume with cold water. Adjust to a pH between 6 and 9 with an alkali, such as soda ash or sodium bicarbonate. Open cold water tap completely, slowly pour the material to the drain. Flush system with plenty of water. Otherwise, Dispose of material in an E.P.A. approved hazardous waste facility.

Empty Containers: Rinse three times with an appropriate solvent. Collect rinsate and dispose of according to local, state or federal regulations. Dispose of empty container as normal trash. In the US, rinsate from empty containers is classified as hazardous waste and should be disposed of at an E.P. A. approved facility. Rinsate from empty containers may contain sufficient product to require disposal as hazardous waste.

NOTICE (Disposal): These disposal guidelines are based on federal regulations and may be superseded by more stringent state or local requirements. Please consult your local environmental regulators for more information. In Europe: Chemical and analysis solutions must be disposed of in compliance with the respective national regulations. Product packaging must be disposed of in compliance with the country-specific regulations or must be passed to a packaging return system.

14. TRANSPORT INFORMATION

D.O.T.:

D.O.T. Proper Shipping Name: Environmentally hazardous substances, solid, n.o.s.
(Manganese sulfate)

Hazard Class: 9

Subsidiary Risk: NA

ID Number: UN3077

Packing Group: III

T.D.G.:

Proper Shipping Name: Environmentally hazardous substance, solid, n.o.s.
(Manganese sulfate)

Hazard Class: 9

Subsidiary Risk: NA

UN Number/PIN: 3077

Packing Group: III

I.C.A.O.:

I.C.A.O. Proper Shipping Name: Environmentally Hazardous Substance, Solid, nos
(Manganese sulfate)

Hazard Class: 9

Subsidiary Risk: NA

ID Number: UN3077

Packing Group: III

I.M.O.:

Proper Shipping Name: Environmentally Hazardous Substance, Solid, nos
(Manganese sulfate)

Hazard Class: 9

Subsidiary Risk: NA

ID Number: UN3077

Packing Group: III

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 set or kit, the classification given above applies. If the item IS part of a set or kit, the classification would change to the following: UN3316 Chemical Kit, Class 9, PG II or III. If the item is not regulated, the Chemical Kit classification does not apply. ALSO NOTE: If the National Competent Authority declares this product an environmental hazard by Special Provision 909 (IMDG) and Special Provision A97 (IATA) the classification may be UN3077 or UN3082.

15. REGULATORY INFORMATION

U.S. Federal Regulations:

O.S.H.A.: This product meets the criteria for a hazardous substance as defined in the Hazard Communication Standard. (29 CFR 1910.1200)

E.P.A.:

S.A.R.A. Title III Section 311/312 Categorization (40 CFR 370): Immediate (Acute) Health Hazard Delayed (Chronic) Health Hazard

S.A.R.A. Title III Section 313 (40 CFR 372): This product contains a chemical(s) subject to the reporting requirements of Section 313 of Title III of SARA.

Manganese compounds

302 (EHS) TPQ (40 CFR 355): Not applicable

304 CERCLA RQ (40 CFR 302.4): Manganese Compounds 1 lb.

304 EHS RQ (40 CFR 355): Not applicable

Clean Water Act (40 CFR 116.4): Not applicable

RCRA: Contains no RCRA regulated substances.

State Regulations:

California Prop. 65: No Prop. 65 listed chemicals are present in this product.

Identification of Prop. 65 Ingredient(s): None

California Perchlorate Rule CCR Title 22 Chap 33: Not applicable

Trade Secret Registry: Not applicable

National Inventories:

U.S. Inventory Status: TSCA Listed: Yes

CAS Number: 7785-87-7

Canadian Inventory Status: DSL Listed: Yes

EEC Inventory Status: EINECS Listed: Yes

Australian Inventory (AICS) Status: Listed

New Zealand Inventory (NZIoC) Status: Listed

Korean Inventory (KECI) Status: Listed

Japan (ENCS) Inventory Status: Listed

China (PRC) Inventory (MEP) Status: Listed

16. OTHER INFORMATION

References: 29 CFR 1900 - 1910 (Code of Federal Regulations - Labor). Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. CCINFO RTECS. Canadian Centre for Occupational Health and Safety. Hamilton, Ontario Canada: 30 June 1993. Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Association, 1991. Cassaret and Doull's Toxicology, 3rd Ed. New York: Macmillan Publishing Co., Inc., 1986. List of Dangerous Substances Classified in Annex I of the EEC Directive (67/548) - Classification, Packaging and Labeling of Dangerous Substances, Amended July 1992. Technical Judgment. TLV's Threshold Limit Values and Biological Exposure Indices for 1992-1993. American Conference of Governmental Industrial Hygienists, 1992. Vendor Information.

Complete Text of H phrases referred to in Section 3: Not applicable H318 Causes serious eye damage. H373 May cause damage to organs through prolonged or repeated exposure. H411 Toxic to aquatic life with long lasting effects.

Revision Summary: Substantial revision to comply with EU Reg 1272/2008, Reg 1907/2006 and UN GHS (ST/SG/AC.10/36/Add.3).

Date of MSDS Preparation:

Day: 22

Month: August

Year: 2014

MSDS Prepared: MSDS prepared by Product Compliance Department extension 3350

CCOHS Evaluation Note: It is offered under the interim policy that was established by Health Canada permitting use of GHS-formatted safety data sheets in Canada prior to revision of CPR to GHS.

Legend:

NA - Not Applicable	w/w - weight/weight
ND - Not Determined	w/v - weight/volume
NV - Not Available	v/v - volume/volume

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.

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

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World Headquarters
Hach Company
P.O.Box 389
Loveland, CO USA 80539
(970) 669-3050

MSDS No: M00028

SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Alkaline Iodide-Azide Reagent Powder Pillows
Catalog Number: 107266

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

Emergency Telephone Numbers:
(Medical and Transportation)
(303) 623-5716 24 Hour Service
(515)232-2533 8am - 4pm CST

MSDS Number: M00028
Chemical Name: Not applicable
CAS Number: Not applicable
Additional CAS No. (for hydrated forms): Not applicable
Chemical Formula: Not applicable
Chemical Family: Mixture
Intended Use: Laboratory Reagent Determination of dissolved oxygen

2. HAZARDS IDENTIFICATION

GHS Classification:

Hazard categories: Corrosive to Metals: Met. Corr. 1 Skin Corrosion/Irritation: Skin Corr. 1A Hazardous to the Aquatic Environment: Aquatic Chronic 2 Acute Toxicity: Acute Tox. 3-Orl Acute Toxicity: Acute Tox. 4-Inh Acute Toxicity: Acute Tox. 3-Derm .

GHS Label Elements:

DANGER



Hazard statements: May be corrosive to metals. Toxic if swallowed. Toxic in contact with skin. Harmful if inhaled. Causes severe skin burns and eye damage. May cause damage to liver through prolonged or repeated exposure by inhalation. Harmful to aquatic life with long lasting effects.

Contact with acids liberates very toxic gas.

Precautionary statements: Wear protective gloves / protective clothing / eye protection / face protection. Wash contaminated clothing before reuse. Do not breathe dust/fume/gas/mist/vapours/spray. Use only outdoors or in a well-ventilated area. Handle environmental release according to local, state, federal, provincial requirements. IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. IF SWALLOWED: rinse mouth. Do NOT induce vomiting. IF INHALED: Remove victim/person to fresh air and keep at rest in a position comfortable for breathing. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. 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.

HMIS:

Health: 3

Flammability: 1

Reactivity: 1

Protective Equipment: X - See protective equipment, Section 8.

NFPA:

Health: 3

Flammability: 1

Reactivity: 1

Symbol: Not applicable

WHMIS Hazard Classification: Class E - Corrosive material Class D, Division 1, Subdivision B - Toxic material (immediate effects)

WHMIS Symbols: Acute Poison Corrosive

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Components according to GHS:

Lithium Hydroxide

CAS Number: 1310-65-2

Chemical Formula: LiOH · H₂O

GHS Classification: Met. Corr. 1, H290; Acute Tox. 3 -Orl., H301; Skin Corr. 1A, H314; Acute Tox. 3 - Inh, H331

Percent Range (Trade Secret): 55.0 - 65.0

Percent Range Units: weight / weight

PEL: 15 mg/m³ as inhalable dust; 5 mg/m³ as respirable dust

TLV: 10 mg/m³ as inhalable dust; 3 mg/m³ as respirable dust

WHMIS Symbols: Corrosive Acute Poison

Potassium Iodide

CAS Number: 7681-11-0

Chemical Formula: KI

GHS Classification: Acute Tox 5 -Orl, H303; Skin Irr. 2, H315; Eye Irr. 2A, H319

Percent Range (Trade Secret): 30.0 - 40.0

Percent Range Units: weight / weight

PEL: 15 mg/m³ as total dust; 5 mg/m³ as respirable dust

TLV: 10 mg/m³ as inhalable dust; 3 mg/m³ as respirable dust

WHMIS Symbols: Other Toxic Effects

Sodium Azide

CAS Number: 26628-22-8

Chemical Formula: NaN₃

GHS Classification: Acute Tox. 2-Orl, H300; Aquatic acute 1, H400; Aquatic chronic 1, H410

Percent Range (Trade Secret): 1.0 - 5.0

Percent Range Units: weight / weight

PEL: Not established

TLV: C: 0.29 mg/m³ as Sodium azide; C: 0.11 ppm as Hydrazoic acid vapor

WHMIS Symbols: Acute Poison

4. FIRST AID MEASURES

General Information: In the event of exposure, show this Material Safety Data Sheet and label (where possible) to a doctor.

Advice to doctor: Treat symptomatically.

Eye Contact: Immediately flush eyes with water for 15 minutes. Call physician.

Skin Contact (First Aid): Remove contaminated clothing. Wash skin with plenty of water for 15 minutes. Call physician immediately.

Inhalation: Remove to fresh air. Give artificial respiration if necessary. If breathing is difficult, give oxygen. Call physician.

Ingestion (First Aid): Do not induce vomiting. Give 1-2 glasses of water. Never give anything by mouth to an unconscious person. Call physician immediately.

5. FIRE FIGHTING MEASURES

Flammable Properties: Does not burn, but may melt in a fire, releasing toxic fumes. During a fire, corrosive and toxic gases may be generated by thermal decomposition.

Fire Fighting Instruction: As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear. Evacuate area and fight fire from a safe distance.

Extinguishing Media: Carbon dioxide Dry chemical. Water.

Extinguishing Media NOT To Be Used: Not applicable

Fire / Explosion Hazards: Contact with metals gives off hydrogen gas which is flammable Closed containers may explode if heated.

Hazardous Combustion Products: None reported

6. ACCIDENTAL RELEASE MEASURES

Spill Response Notice:

Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance. Outside of the US, only persons properly qualified according to state or local regulations should respond to a spill involving chemicals.

Containment Technique: Stop spilled material from being released to the environment. Releases of this material may contaminate the environment.

Clean-up Technique: Avoid contact with spilled material. Sweep up material. Dispose of material in government approved hazardous waste facility. Decontaminate the area of the spill with a weak acid solution.

Evacuation Procedure: Evacuate general area (50 foot radius or as directed by your facility's emergency response plan) when: a pound or more of loose powder is spilled. If conditions warrant, increase the size of the evacuation.

DOT Emergency Response Guide Number: 154

7. HANDLING AND STORAGE

Handling: Avoid contact with eyes skin clothing Do not breathe dust. Wash thoroughly after handling. Use with adequate ventilation. Maintain general industrial hygiene practices when using this product.

Storage: Store in a cool, dry place. Keep away from: metals acids / acid fumes.

Flammability Class: Not applicable

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Use a fume hood to avoid exposure to dust, mist or vapor. Maintain general industrial hygiene practices when using this product.

Personal Protective Equipment:

Eye Protection: chemical splash goggles

Skin Protection: nitrile gloves In the EU, the selected gloves must satisfy the specifications of EU Directive 89/686/EEC and standard EN 374 derived from it. lab coat

Inhalation Protection: laboratory fume hood and / or adequate ventilation

Precautionary Measures: Avoid contact with: eyes skin clothing Do not breathe: dust Wash thoroughly after handling. Keep away from: metals acids/acid fumes

TLV: 10 mg/m³ as inhalable dust

PEL: 15 mg/m³ as inhalable dust; 5 mg/m³ as respirable dust

For Occupational Exposure Limits (OEL) for ingredients, see section 3 - Composition/Information on Ingredients.:

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: White crystals

Physical State: Solid

Molecular Weight: Not applicable

Odor: Slight

Odor Threshold: Not applicable

pH: 12.6 (5% solution)

Metal Corrosivity:

Corrosivity Classification: Classified as corrosive to metals.

Steel: Not determined

Aluminum: 0.248 in/yr (6.30 mm/yr)

Specific Gravity/ Relative Density (water = 1; air =1): 1.94

Viscosity: Not applicable

Solubility:

Water: Soluble
Acid: Soluble
Other: Not determined
Partition Coefficient (n-octanol / water): Not applicable
Coefficient of Water / Oil: Not applicable
Melting Point: 110 °C (230 °F)
Decomposition Temperature: Not determined
Boiling Point: Not applicable
Vapor Pressure: Not applicable
Vapor Density (air = 1): Not applicable
Evaporation Rate (water = 1): Not applicable
Volatile Organic Compounds Content: Not applicable
Flammable Properties: Does not burn, but may melt in a fire, releasing toxic fumes. During a fire, corrosive and toxic gases may be generated by thermal decomposition.
Flash Point: Not applicable
Method: Not applicable
Flammability Limits:
Lower Explosion Limits: Not applicable
Upper Explosion Limits: Not applicable
Autoignition Temperature: Not applicable
Explosive Properties:
Not classified according to GHS criteria.
Oxidizing Properties:
Not classified according to GHS criteria.
Reactivity Properties:
Not classified as self-reactive, pyrophoric, self-heating or emitting flammable gases in contact with water according to GHS criteria.
Gas under Pressure:
Not applicable

10. STABILITY AND REACTIVITY

Chemical Stability: Stable when stored under proper conditions.
Mechanical Impact: None reported
Static Discharge: None reported.
Reactivity / Incompatibility: May react violently in contact with: acids oxidizers
Hazardous Decomposition: Heating to decomposition releases toxic and/or corrosive fumes of: Iodine iodine compounds potassium oxide nitrogen oxides sodium oxides Contact with metals may release flammable hydrogen gas.
Conditions to Avoid: Excess moisture Extreme temperatures Contact with acid or acid fumes Contact with oxidizers

11. TOXICOLOGICAL INFORMATION

Toxicokinetics, Metabolism and Distribution: No information available for mixture.
Toxicologically Synergistic Products: None reported
Acute Toxicity: Acute Toxicity Estimate (ATE) - Calculated from Ingredient Toxicity Data Route Data Given Below
Oral Rat LD50 = 256 mg/kg
Dermal Rabbit LD50 = 862 mg/kg
Inhalation (powder/dust) Rat LC50 = 1.5 mg/L
Specific Target Organ Toxicity - Single Exposure (STOT-SE): Based on classification principles, the classification criteria are not met.
Specific Target Organ Toxicity - Repeat Exposure (STOT-RE): Based on classification principles, the classification criteria are not met.
Skin Corrosion/Irritation: Corrosive to skin.
Eye Damage: Corrosive to eyes.
Sensitization: Based on classification principles, the classification criteria are not met.
CMR Effects/Properties (carcinogenic, mutagenic or toxic to reproduction): Based on classification principles, the classification criteria are not met. Data insufficient for classification
Sodium Azide: DNA inhibition in human fibroblasts @ 50 mg/l; other data reported in RTECS.
This product does NOT contain any IARC listed chemicals.
This product does NOT contain any NTP listed chemicals.
This product does NOT contain any OSHA listed carcinogens.

Symptoms/Effects:

Ingestion: Toxic Causes: severe burns hypotension May cause iodism, which symptoms include skin rash, conjunctivitis, runny nose, sneezing, bronchitis, headache, fever and irritation of mucous membranes. May cause: abdominal pain dizziness nausea vomiting respiratory stimulation convulsions followed by respiratory depression central nervous system effects kidney damage liver damage spleen damage lung damage coma death

Inhalation: Causes: severe burns May cause: coughing shortness of breath bronchitis headache dizziness weakness respiratory stimulation convulsions followed by respiratory depression death

Skin Absorption: Toxic Effects similar to those of ingestion

Chronic Effects: Lithium compounds have been implicated in development of aplastic anemia. Signs of lithium poisoning include dehydration, extreme weight loss, fine tremor of hands, nausea, vomiting and diarrhea. Chronic overexposure may cause headache central nervous system effects kidney damage liver damage adverse effects to the blood brain damage coma death Not determined

Medical Conditions Aggravated: Sodium azide produces a larger blood pressure drop in persons with high blood pressure than in persons with normal blood pressure. Pre-existing: Eye conditions Skin conditions Respiratory conditions Kidney conditions Liver conditions

12. ECOLOGICAL INFORMATION

Product Ecological Information: --

No ecological data available for this product. Do not place in landfill. Recycle appropriately. Do not release into the environment. Mobility in soil: Highly mobile

Method Used for Estimation of Aquatic Toxicity of Mixture Summation Method M-factor (Multiplier) for highly toxic ingredients: 1

Ingredient Ecological Information: Sodium azide: 96 hr Oncorhynchus mykiss LC50 = 0.8 mg/L; 96 hr Lepomis macrochirus LC50 = 0.68 mg/L; 48 hr Daphnia pulex EC50 = 4.2 mg/L; 96 hr Selenastrum capricornutum ErC50 = 0.348 mg/L. Potassium iodide: 48 hr Aquatic invertebrates EC50 = 9.8 mg/L

CEPA categorization for each and every ingredient: Persistent and inherently toxic to non-human organisms (PiT)

13. DISPOSAL CONSIDERATIONS

EPA Waste ID Number: D002

Special Instructions (Disposal): Never put unreacted azides down the drain! Dispose of material in an E.P.A. approved hazardous waste facility.

Empty Containers: Rinse three times with an appropriate solvent. Dispose of empty container as normal trash. In the US, rinsate from empty containers is classified as hazardous waste and should be disposed of at an E.P. A. approved facility. Rinsate from empty containers may contain sufficient product to require disposal as hazardous waste.

NOTICE (Disposal): These disposal guidelines are based on federal regulations and may be superseded by more stringent state or local requirements. Please consult your local environmental regulators for more information. In Europe: Chemical and analysis solutions must be disposed of in compliance with the respective national regulations. Product packaging must be disposed of in compliance with the country-specific regulations or must be passed to a packaging return system.

14. TRANSPORT INFORMATION

D.O.T.:

D.O.T. Proper Shipping Name: Lithium Hydroxide Mixture

--

Hazard Class: 8

Subsidiary Risk: NA

ID Number: UN2680

Packing Group: II

T.D.G.:

Proper Shipping Name: Lithium Hydroxide Mixture

--

Hazard Class: 8

Subsidiary Risk: NA

UN Number/PIN: 2680

Packing Group: II

I.C.A.O.:

I.C.A.O. Proper Shipping Name: Lithium Hydroxide Mixture

--

Hazard Class: 8

Subsidiary Risk: NA

ID Number: UN2680

Packing Group: II

I.M.O.:

Proper Shipping Name: Lithium Hydroxide Mixture

--

Hazard Class: 8

Subsidiary Risk: NA

ID Number: UN2680

Packing Group: II

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 set or kit, the classification given above applies. If the item IS part of a set or kit, the classification would change to the following: UN3316 Chemical Kit, Class 9, PG II or III. If the item is not regulated, the Chemical Kit classification does not apply.

15. REGULATORY INFORMATION

U.S. Federal Regulations:

O.S.H.A.: This product meets the criteria for a hazardous substance as defined in the Hazard Communication Standard. (29 CFR 1910.1200)

E.P.A.:

S.A.R.A. Title III Section 311/312 Categorization (40 CFR 370): Immediate (Acute) Health Hazard Delayed (Chronic) Health Hazard

S.A.R.A. Title III Section 313 (40 CFR 372): This product contains a chemical(s) subject to the reporting requirements of Section 313 of Title III of SARA.

Sodium azide

302 (EHS) TPQ (40 CFR 355): Sodium Azide 500 lbs.

304 CERCLA RQ (40 CFR 302.4): Sodium azide 1000 lbs.

304 EHS RQ (40 CFR 355): Sodium Azide - RQ 1000 lbs.

Clean Water Act (40 CFR 116.4): Not applicable

RCRA: Contains RCRA regulated substances. See Section 13, EPA Waste ID Number.

State Regulations:

California Prop. 65: No Prop. 65 listed chemicals are present in this product.

Identification of Prop. 65 Ingredient(s): None

California Perchlorate Rule CCR Title 22 Chap 33: Not applicable

Trade Secret Registry: Not applicable

National Inventories:

U.S. Inventory Status: All ingredients in this product are listed on the TSCA 8(b) Inventory (40 CFR 710).

CAS Number: Not applicable

Canadian Inventory Status: All ingredients of this product are DSL Listed.

EEC Inventory Status: All ingredients used to make this product are listed on EINECS / ELINCS.

Australian Inventory (AICS) Status: All ingredients are listed.

New Zealand Inventory (NZIoC) Status: All components either listed or exempt.

Korean Inventory (KECI) Status: All components of this product are either listed, listed as the anhydrous compound or exempt.

Japan (ENCs) Inventory Status: All components either listed or exempt.

China (PRC) Inventory (MEP) Status: All components either listed or exempt.

16. OTHER INFORMATION

References: 29 CFR 1900 - 1910 (Code of Federal Regulations - Labor). Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. CCINFO RTECS. Canadian Centre for Occupational Health and Safety. Hamilton, Ontario Canada: 30 June 1993. Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Association, 1991. List of Dangerous Substances Classified in Annex I of the EEC Directive (67/548) - Classification, Packaging and Labeling of Dangerous Substances, Amended July 1992. Outside Testing. Technical Judgment.

Complete Text of H phrases referred to in Section 3: H290 May be corrosive to metals. H302 Harmful if swallowed. H314 Causes severe skin burns and eye damage. H411 Toxic to aquatic life with long lasting effects.

Revision Summary: . Substantially Revised MSDS Substantial revision to comply with EU Reg 1272/2008, Reg 1907/2006 and UN GHS (ST/SG/AC.10/36/Add.3).

Date of MSDS Preparation:

Day: 16

Month: June

Year: 2014

MSDS Prepared: MSDS prepared by Product Compliance Department extension 3350

CCOHS Evaluation Note: It is offered under exemption from WHMIS labeling as specified in the Controlled Products Regulation (CPR) Section 17. It is offered under the interim policy that was established by Health Canada permitting use of GHS-formatted safety data sheets in Canada prior to revision of CPR to GHS. This product has been classified and labeled in accordance with the requirements of GHS (ST/SG/AC.10/36/Add.3). This SDS has been prepared in accordance with the requirements of GHS (ST/SG/AC.10/36/Add.3).

Legend:

NA - Not Applicable

ND - Not Determined

NV - Not Available

w/w - weight/weight

w/v - weight/volume

v/v - volume/volume

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.

**THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE.
HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA
OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.**

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World Headquarters
Hach Company
P.O.Box 389
Loveland, CO USA 80539
(970) 669-3050

MSDS No: M00007

SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Sulfamic Acid Powder Pillows
Catalog Number: 2076266

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

Emergency Telephone Numbers:
(Medical and Transportation)
(303) 623-5716 24 Hour Service
(515)232-2533 8am - 4pm CST

MSDS Number: M00007
Chemical Name: Sulfamic Acid
CAS Number: 5329-14-6
Additional CAS No. (for hydrated forms): Not applicable
Chemical Formula: $\text{H}_3\text{NO}_3\text{S}$
Chemical Family: Inorganic Acid
Intended Use: Laboratory Use

2. HAZARDS IDENTIFICATION

GHS Classification:

Hazard categories: Corrosive to Metals: Met. Corr. 1 Acute Toxicity: Acute Tox. 4-Orl Skin Corrosion/Irritation: Skin Irrit. 2 Serious Eye Damage/Eye Irritation: Eye Irrit. 2 Hazardous to the Aquatic Environment: Aquatic Chronic 3

GHS Label Elements:

WARNING



Hazard statements: May be corrosive to metals. Harmful if swallowed. Causes skin irritation. Causes serious eye irritation. Harmful to aquatic life with long lasting effects.

Precautionary statements: Wear protective gloves / protective clothing / eye protection / face protection. Do not eat, drink or smoke when using this product. IF ON SKIN: Wash with plenty of soap and water. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Absorb spillage to prevent material damage.

HMIS:

Health: 1

Flammability: 1

Reactivity: 1

Protective Equipment: X - See protective equipment, Section 8.

NFPA:

Health: 1

Flammability: 1

Reactivity: 1

Symbol: Not applicable

WHMIS Hazard Classification: Class E - Corrosive material

WHMIS Symbols: Corrosive

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Components according to GHS:

Sulfamic Acid

CAS Number: 5329-14-6

Chemical Formula: $\text{H}_3\text{NO}_3\text{S}$

GHS Classification: Met. Corr. 1, H290; Acute Tox 4 -Orl, H302; Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Aquatic Chronic 3, H412;

Percent Range (Trade Secret): > 99.0

Percent Range Units: weight / weight

PEL: 15 mg/m³ as inhalable dust; 5 mg/m³ as respirable dust

TLV: 10 mg/m³ as inhalable dust; 3 mg/m³ as respirable dust

WHMIS Symbols: Corrosive

Hazardous Components according to GHS: No

Magnesium Sulfate

CAS Number: 7487-88-9

Chemical Formula: MgSO_4

GHS Classification: Not applicable

Percent Range (Trade Secret): < 1.0

Percent Range Units: weight / weight

PEL: 15 mg/m³ as inhalable dust; 5 mg/m³ as respirable dust

TLV: 10 mg/m³ as inhalable dust; 3 mg/m³ as respirable dust

WHMIS Symbols: Not applicable

4. FIRST AID MEASURES

General Information: In the event of exposure, show this Material Safety Data Sheet and label (where possible) to a doctor.

Advice to doctor: Treat symptomatically.

Eye Contact: Immediately flush eyes with water for 15 minutes. Call physician if irritation develops.

Skin Contact (First Aid): Wash skin with plenty of water for 15 minutes. Call physician if irritation develops.

Inhalation: Remove to fresh air.

Ingestion (First Aid): Do not induce vomiting. Give 1-2 glasses of water. Call physician immediately. Never give anything by mouth to an unconscious person.

5. FIRE FIGHTING MEASURES

Flammable Properties: During a fire, irritating and highly toxic gases may be generated by thermal decomposition. Material is not classified as flammable according to GHS criteria.

Fire Fighting Instruction: As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear.

Extinguishing Media: Dry chemical. Water.

Extinguishing Media NOT To Be Used: Not applicable

Fire / Explosion Hazards: May react violently with: chlorine / chlorine compounds metal nitrates metal nitrites nitric acid

Hazardous Combustion Products: Toxic fumes of: ammonia nitrogen oxides. sulfur oxides.

6. ACCIDENTAL RELEASE MEASURES

Spill Response Notice:

Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance. Outside of the US, only persons properly qualified according to state or local regulations should respond to a spill involving chemicals.

Containment Technique: Stop spilled material from being released to the environment. Cover spilled solid material with sand or other inert material.

Clean-up Technique: If permitted by regulation, Scoop up spilled material into a large beaker and dissolve with water. Adjust to a pH between 6 and 9 with an alkali, such as soda ash or sodium bicarbonate. Flush reacted material to the drain with a large excess of water. Decontaminate the area of the spill with a soap solution. Otherwise, Pick up spill for disposal and place in a closed container. Dispose of in accordance with local, state and federal regulations or laws.

Evacuation Procedure: Evacuate local area (15 foot radius or as directed by your facility's emergency response plan) when: a pound or more of loose powder is spilled. If conditions warrant, increase the size of the evacuation.

DOT Emergency Response Guide Number: 154

7. HANDLING AND STORAGE

Handling: Avoid contact with eyes skin. Do not breathe dust. Maintain general industrial hygiene practices when using this product.

Storage: Store away from: oxidizers alkalies chlorine/chlorinated metals. Protect from: heat moisture

Flammability Class: Not applicable

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Maintain general industrial hygiene practices when using this product.

Personal Protective Equipment:

Eye Protection: safety glasses with top and side shields

Skin Protection: disposable latex gloves. In the EU, the selected gloves must satisfy the specifications of EU Directive 89/686/EEC and standard EN 374 derived from it. lab coat

Inhalation Protection: adequate ventilation

Precautionary Measures: Avoid contact with: eyes skin. Do not breathe: dust. Wash thoroughly after handling. Keep away from: alkalies metals. Protect from: heat moisture

TLV: Not established

PEL: Not established

For Occupational Exposure Limits (OEL) for ingredients, see section 3 - Composition/Information on Ingredients.:

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: White crystals

Physical State: Solid

Molecular Weight: 97.10

Odor: Odorless

Odor Threshold: Not applicable

pH: 1% soln = 1.18

Metal Corrosivity:

Corrosivity Classification: Classified as corrosive to metals.

Steel: 0.814 in/yr

Aluminum: 0.212 in/yr

Specific Gravity/ Relative Density (water = 1; air = 1): 2.15

Viscosity: Not determined

Solubility:

Water: 1:2 ratio at 80 °C (176 °F)

Acid: Soluble

Other: Slightly soluble in alcohol, methanol.

Partition Coefficient (n-octanol / water): Not determined

Coefficient of Water / Oil: None reported

Melting Point: Product decomposes at 205 °C (401 °F)

Decomposition Temperature: Not determined

Boiling Point: Not applicable

Vapor Pressure: Not applicable

Vapor Density (air = 1): Not applicable

Evaporation Rate (water = 1): Not applicable

Volatile Organic Compounds Content: Not applicable

Flammable Properties: During a fire, irritating and highly toxic gases may be generated by thermal decomposition. Material is not classified as flammable according to GHS criteria.

Flash Point: Not applicable

Method: Not applicable

Flammability Limits:

Lower Explosion Limits: Not applicable

Upper Explosion Limits: Not applicable

Autoignition Temperature: Not applicable

Explosive Properties:

Not classified according to GHS criteria.

Oxidizing Properties:

Not classified according to GHS criteria.

Reactivity Properties:

Not classified as self-reactive, pyrophoric, self-heating or emitting flammable gases in contact with water according to GHS criteria.

Gas under Pressure:

Not classified according to GHS criteria.

10. STABILITY AND REACTIVITY

Chemical Stability: Stable when stored under proper conditions.

Mechanical Impact: None reported

Static Discharge: None reported.

Reactivity / Incompatibility: May react violently in contact with: chlorates metal nitrates metal nitrites nitric acid

Incompatible with: alkalis oxidizers

Hazardous Decomposition: Heating to decomposition releases toxic and/or corrosive fumes of: ammonia nitrogen oxides sulfur oxides

Conditions to Avoid: Heating to decomposition. Excess moisture

11. TOXICOLOGICAL INFORMATION

Toxicokinetics, Metabolism and Distribution: No information available

Toxicologically Synergistic Products: None reported

Acute Toxicity: Route Data Given Below Acute Toxicity Estimate (ATE) - Calculated from Ingredient Toxicity Data

ATE Oral LD50 = 1054 mg/kg

Specific Target Organ Toxicity - Single Exposure (STOT-SE): Based on classification principles, the classification criteria are not met.

Specific Target Organ Toxicity - Repeat Exposure (STOT-RE): Based on classification principles, the classification criteria are not met.

Skin Corrosion/Irritation: Irritating to skin.

Skin Rabbit = irritating

Eye Damage: Irritating to eyes.

Eye rabbit = irritating

Sensitization: Based on classification principles, the classification criteria are not met.

CMR Effects/Properties (carcinogenic, mutagenic or toxic to reproduction): Data insufficient for classification

Genetic Toxicity "in vitro", Ames Test = Negative

IARC Listed: No

NTP Listed: No

O.S.H.A. Listed: No

Symptoms/Effects:

Ingestion: Harmful May cause: irritation of the mouth and esophagus gastrointestinal tract irritation

Inhalation: May cause: irritation of nose and throat

Skin Absorption: None Reported

Chronic Effects: None reported

Medical Conditions Aggravated: Pre-existing: Eye conditions Skin conditions Respiratory conditions

12. ECOLOGICAL INFORMATION

Product Ecological Information: 96 hr Pimephales promelas LC50 = 42.2 mg/L

No ecological data available for this product. Do not place in landfill. Recycle appropriately. Do not release into the environment. Mobility in soil: Highly mobile No bioaccumulation potential

CEPA Categorization: Persistent Not Bioaccumulative Not inherently toxic to aquatic organisms

Ingredient Ecological Information: --

Not applicable

13. DISPOSAL CONSIDERATIONS

EPA Waste ID Number: Not applicable

Special Instructions (Disposal): Dilute to 3 to 5 times the volume with cold water. Adjust to a pH between 6 and 9 with an alkali, such as soda ash or sodium bicarbonate. If permitted by regulation, Open cold water tap completely, slowly pour the reacted material to the drain. Otherwise, Check with local municipal and state authorities and waste contractors for pertinent local information regarding the proper disposal of chemicals.

Empty Containers: Working in a well-ventilated area, Rinse three times with an appropriate solvent. Collect rinsate and dispose of according to local, state or federal regulations. Dispose of empty container as normal trash. In the US, rinsate from empty containers is classified as hazardous waste and should be disposed of at an E.P. A. approved facility. Rinsate from empty containers may contain sufficient product to require disposal as hazardous waste.

NOTICE (Disposal): These disposal guidelines are based on federal regulations and may be superseded by more stringent state or local requirements. Please consult your local environmental regulators for more information. In Europe: Chemical and analysis solutions must be disposed of in compliance with the respective national regulations. Product packaging must be disposed of in compliance with the country-specific regulations or must be passed to a packaging return system.

14. TRANSPORT INFORMATION

D.O.T.:

D.O.T. Proper Shipping Name: Sulphamic Acid

--

Hazard Class: 8

Subsidiary Risk: NA

ID Number: UN2967

Packing Group: III

T.D.G.:

Proper Shipping Name: Sulphamic Acid

--

Hazard Class: 8

Subsidiary Risk: NA

UN Number/PIN: 2967

Packing Group: III

I.C.A.O.:

I.C.A.O. Proper Shipping Name: Sulphamic Acid

--

Hazard Class: 8

Subsidiary Risk: NA

ID Number: UN2967

Packing Group: III

I.M.O.:

Proper Shipping Name: Sulphamic Acid

--

Hazard Class: 8

Subsidiary Risk: NA

ID Number: UN2967

Packing Group: III

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 set or kit, the classification given above applies. If the item IS part of a set or kit, the classification would change to the following: UN3316 Chemical Kit, Class 9, PG II or III. If the item is not regulated, the Chemical Kit classification does not apply.

15. REGULATORY INFORMATION

U.S. Federal Regulations:

O.S.H.A.: This product meets the criteria for a hazardous substance as defined in the Hazard Communication Standard. (29 CFR 1910.1200)

E.P.A.:

S.A.R.A. Title III Section 311/312 Categorization (40 CFR 370): Immediate (Acute) Health Hazard

S.A.R.A. Title III Section 313 (40 CFR 372): This product does NOT contain any chemical subject to the reporting requirements of Section 313 of Title III of SARA.

--

302 (EHS) TPQ (40 CFR 355): Not applicable
304 CERCLA RQ (40 CFR 302.4): Not applicable
304 EHS RQ (40 CFR 355): Not applicable
Clean Water Act (40 CFR 116.4): Not applicable
RCRA: Contains no RCRA regulated substances.

State Regulations:

California Prop. 65: No Prop. 65 listed chemicals are present in this product.

Identification of Prop. 65 Ingredient(s): Not applicable

California Perchlorate Rule CCR Title 22 Chap 33: Not applicable

Trade Secret Registry: Not applicable

National Inventories:

U.S. Inventory Status: TSCA Listed: Yes

CAS Number: 5329-14-6

Canadian Inventory Status: DSL Listed: Yes

EEC Inventory Status: EINECS Listed: Yes

Australian Inventory (AICS) Status: Listed

New Zealand Inventory (NZIoC) Status: Listed

Korean Inventory (KECI) Status: Listed

Japan (ENCS) Inventory Status: Listed

China (PRC) Inventory (MEP) Status: Listed

16. OTHER INFORMATION

References: Vendor Information. NIOSH Registry of Toxic Effects of Chemical Substances, 1985-86. Cincinnati: U.S. Department of Health and Human Services, April, 1987. Gosselin, R. E. et al. Clinical Toxicology of Commercial Products, 5th Ed. Baltimore: The Williams and Wilkins Co., 1984. Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Association, 1991. Outside Testing. Technical Judgment. The Merck Index, 11th Ed. Rahway, New Jersey: Merck and Co., Inc., 1989. Sax, N. Irving. Dangerous Properties of Industrial Materials, 7th Ed. New York: Van Nostrand Reinhold Co., 1989. Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. TLV's Threshold Limit Values and Biological Exposure Indices for 1992-1993. American Conference of Governmental Industrial Hygienists, 1992.

Complete Text of H phrases referred to in Section 3: H290 May be corrosive to metals. H315 Causes skin irritation. H319 Causes serious eye irritation. H412 Harmful to aquatic life with long lasting effects.

Revision Summary: . Substantial revision to comply with EU Reg 1272/2008, Reg 1907/2006 and UN GHS (ST/SG/AC.10/36/Add.3).

Date of MSDS Preparation:

Day: 04

Month: March

Year: 2014

MSDS Prepared: MSDS prepared by Product Compliance Department 515 232-2533 (3350)

CCOHS Evaluation Note: It is offered under exemption from WHMIS labeling as specified in the Controlled Products Regulation (CPR) Section 17. It is offered under the interim policy that was established by Health Canada permitting use of GHS-formatted safety data sheets in Canada prior to revision of CPR to GHS. This product has been classified and labeled in accordance with the requirements of GHS (ST/SG/AC.10/36/Add.3). This SDS has been prepared in accordance with the requirements of GHS (ST/SG/AC.10/36/Add.3).

Legend:

NA - Not Applicable	w/w - weight/weight
ND - Not Determined	w/v - weight/volume
NV - Not Available	v/v - volume/volume

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.

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

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World Headquarters
Hach Company
P.O.Box 389
Loveland, CO USA 80539
(970) 669-3050

MSDS No: M03181

SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Sodium Thiosulfate 0.2000 \pm 0.0010 N
Catalog Number: 2267501

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

Emergency Telephone Numbers:
(Medical and Transportation)
(303) 623-5716 24 Hour Service
(515)232-2533 8am - 4pm CST

MSDS Number: M03181
Chemical Name: Not applicable
CAS Number: Not applicable
Additional CAS No. (for hydrated forms): Not applicable
Chemical Formula: Not applicable
Chemical Family: Not applicable
Intended Use: Laboratory Reagent Standard solution Laboratory reagent

2. HAZARDS IDENTIFICATION

This mixture is not classified as hazardous per GHS (UN publication ST/SG/AC.10/36/Add.3)

GHS Classification:

Hazard categories: Not applicable

GHS Label Elements:

Not applicable

Hazard statements: Not applicable

Precautionary statements: Not applicable

HMIS:

Health: 0

Flammability: 0

Reactivity: 0

Protective Equipment: X - See protective equipment, Section 8.

NFPA:

Health: 0

Flammability: 0

Reactivity: 0

Symbol: Not applicable

WHMIS Hazard Classification: Not applicable

WHMIS Symbols: Not applicable

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Components according to GHS:

Sodium Thiosulfate

CAS Number: 7772-98-7

Chemical Formula: $\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$

GHS Classification: Skin Irrit 2, H315; Eye Irrit 2, H319, STOT SE 3, H335

Percent Range (Trade Secret): 1.0 - 5.0

Percent Range Units: weight / weight

PEL: 15 mg/m³ as total dust; 5 mg/m³ as respirable dust
TLV: 10 mg/m³ as inhalable dust

WHMIS Symbols: Not applicable

Toluene

CAS Number: 108-88-3

Chemical Formula: C₇H₈

GHS Classification: Flam. Liq. 2, H225; Acute Tox. 4-Orl, H302; Asp. Tox. 1, H304; Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Acute Tox. 4-Inh, H332; STOT Single 3, H336; Repr. 2, H361; STOT Rep. 2, H373; Aquatic Acute 2, H401

Percent Range (Trade Secret): < 0.1

Percent Range Units: weight / weight

PEL: 200 ppm (750 mg/m³)

TLV: 20 ppm (75 mg/m³)

WHMIS Symbols: Acute Poison Flammable / Combustible

Sodium Carbonate

CAS Number: 497-19-8

Chemical Formula: Na₂CO₃

GHS Classification: Eye Irrit. 2, H319; Acute Tox. Inh. 4, H332; Acute Tox. Orl. 5, H303

Percent Range (Trade Secret): < 0.1

Percent Range Units: weight / weight

PEL: Not established

TLV: Not established

WHMIS Symbols: Other Toxic Effects

EDTA Tetrasodium Salt

CAS Number: 64-02-8

Chemical Formula: C₁₀H₁₂N₂Na₄O₈ 2H₂O

GHS Classification: Acute Tox. 4-Orl, H302; Eye Dam. 1, H318

Percent Range (Trade Secret): < 0.1

Percent Range Units: weight / weight

PEL: 15 mg/m³ as total dust; 5 mg/m³ as respirable dust

TLV: 10 mg/m³ as inhalable dust; 3 mg/m³ as respirable dust

WHMIS Symbols: Other Toxic Effects

Hazardous Components according to GHS: No

Demineralized Water

CAS Number: 7732-18-5

Chemical Formula: H₂O

GHS Classification: Not a dangerous substance according to GHS.

Percent Range (Trade Secret): 90.0 - 100.0

Percent Range Units: weight / weight

PEL: Not established

TLV: Not established

WHMIS Symbols: Not applicable

4. FIRST AID MEASURES

General Information: In the event of exposure, show this Material Safety Data Sheet and label (where possible) to a doctor.

Advice to doctor: Treat symptomatically.

Eye Contact: Call physician if irritation develops. Immediately flush eyes with water for 15 minutes.

Skin Contact (First Aid): Wash skin with soap and plenty of water. Call physician if irritation develops. Remove contaminated clothing.

Inhalation: Remove to fresh air.

Ingestion (First Aid): Do not induce vomiting. Give large quantities of water. Call physician immediately. Never give anything by mouth to an unconscious person.

5. FIRE FIGHTING MEASURES

Flammable Properties: Material will not burn.

Fire Fighting Instruction: As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear.

Extinguishing Media: Use media appropriate to surrounding fire conditions

Extinguishing Media NOT To Be Used: Not applicable

Fire / Explosion Hazards: None reported

Hazardous Combustion Products: None reported

6. ACCIDENTAL RELEASE MEASURES

Spill Response Notice:

Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance. Outside of the US, only persons properly qualified according to state or local regulations should respond to a spill involving chemicals.

Containment Technique: Stop spilled material from being released to the environment.

Clean-up Technique: If permitted by regulation, Absorb spilled liquid with non-reactive sorbent material. Place material in a plastic bag. Mark bag 'Non-hazardous trash', and dispose of as normal refuse. Otherwise, Pick up spill for disposal and place in a closed container. Dispose of in accordance with local, state and federal regulations or laws.

Evacuation Procedure: Evacuate as needed to perform spill clean-up. If conditions warrant, increase the size of the evacuation.

DOT Emergency Response Guide Number: Not applicable

7. HANDLING AND STORAGE

Handling: Avoid contact with eyes. Wash thoroughly after handling. Maintain general industrial hygiene practices when using this product.

Storage: Keep container tightly closed when not in use.

Flammability Class: Not applicable

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Maintain general industrial hygiene practices when using this product.

Personal Protective Equipment:

Eye Protection: safety glasses with top and side shields

Skin Protection: lab coat

Inhalation Protection: adequate ventilation

Precautionary Measures: Avoid contact with: eyes. Wash thoroughly after handling.

TLV: Not established

PEL: Not established

For Occupational Exposure Limits (OEL) for ingredients, see section 3 - Composition/Information on Ingredients.:

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear, colorless

Physical State: Liquid

Molecular Weight: Not applicable

Odor: None

Odor Threshold: Not applicable

pH: 7.9

Metal Corrosivity:

Corrosivity Classification: Not classified as corrosive to metals according to GHS criteria.

Steel: Not determined

Aluminum: Not determined

Specific Gravity/ Relative Density (water = 1; air =1): 0.996

Viscosity: Not determined

Solubility:

Water: Soluble
Acid: Soluble
Other: Not determined
Partition Coefficient (n-octanol / water): Not determined
Coefficient of Water / Oil: Not determined
Melting Point: 145-148 C
Decomposition Temperature: Not determined
Boiling Point: >100 C
Vapor Pressure: Not determined
Vapor Density (air = 1): Not determined
Evaporation Rate (water = 1): 0.74
Volatile Organic Compounds Content: Not determined
Flammable Properties: Material will not burn.
Flash Point: Not determined
Method: Not applicable
Flammability Limits:
Lower Explosion Limits: Not determined
Upper Explosion Limits: Not determined
Autoignition Temperature: Not determined
Explosive Properties:
Not classified according to GHS criteria.
Oxidizing Properties:
Not classified according to GHS criteria.
Reactivity Properties:
Not classified as self-reactive, pyrophoric, self-heating or emitting flammable gases in contact with water according to GHS criteria.
Gas under Pressure:
Not classified according to GHS criteria.

10. STABILITY AND REACTIVITY

Chemical Stability: Stable when stored under proper conditions.
Mechanical Impact: None reported
Static Discharge: None reported.
Reactivity / Incompatibility: None reported
Hazardous Decomposition: None reported
Conditions to Avoid: Heat Evaporation Exposure to direct sunlight.

11. TOXICOLOGICAL INFORMATION

Toxicokinetics, Metabolism and Distribution: No information available for mixture.
Toxicologically Synergistic Products: Not applicable
Acute Toxicity: Based on classification principles, the classification criteria are not met.
Specific Target Organ Toxicity - Single Exposure (STOT-SE): Based on classification principles, the classification criteria are not met.
Specific Target Organ Toxicity - Repeat Exposure (STOT-RE): Based on classification principles, the classification criteria are not met.
Skin Corrosion/Irritation: Mildly irritating to skin.
Eye Damage: Based on classification principles, the classification criteria are not met.
Sensitization: Based on classification principles, the classification criteria are not met.
CMR Effects/Properties (carcinogenic, mutagenic or toxic to reproduction): No germ cell mutagenicity, carcinogenicity or reproductive toxicity data found.
This product does NOT contain any IARC listed chemicals.
This product does NOT contain any NTP listed chemicals.
This product does NOT contain any OSHA listed carcinogens.
Symptoms/Effects:
Ingestion: None reported
Inhalation: No effects anticipated
Skin Absorption: No effects anticipated
Chronic Effects: No effects anticipated Not applicable
Medical Conditions Aggravated: None reported

12. ECOLOGICAL INFORMATION

Product Ecological Information: --

No ecological data available for this product. Mobility in soil: No data available Based on classification principles, not classified as hazardous to the environment.

Ingredient Ecological Information: Sodium Carbonate: Lepomis macrochirus 96 hr LC50 = 300 mg/L; Daphnia magna 48 hr EC50 = 265 mg/L. Tetrasodium EDTA: Bluegill LC50 96hr = 410 mg/l; Lepomis macrochirus 96 hr LC50 = 157-2070 mg/L; Daphnia magna LC50 24 hr = 625 mg/L

Sodium Thiosulfate: Gambusia affinis 96 hr LC50 = 24000 mg/L; Ankistrodesmus falcatus 1 hr 64 mg/L. CEPA

Statement: Persistent, not bioaccumulative or inherently toxic to aquatic organisms.

Toluene: 96 hr Oncorhynchus mykiss LC50 = 5.8 mg/L; 48 hr Daphnia magna EC50 = 11.5 mg/L; 72 hr Selenastrum capricornutum ErC50 = 12.5 mg/L

13. DISPOSAL CONSIDERATIONS

EPA Waste ID Number: U220

Special Instructions (Disposal): Open cold water tap completely, slowly pour the material to the drain. Flush system with plenty of water. If permitted by regulation, Otherwise, Check with local municipal and state authorities and waste contractors for pertinent local information regarding the proper disposal of chemicals.

Empty Containers: Rinse three times with an appropriate solvent. Collect rinsate and dispose of according to local, state or federal regulations. Dispose of empty container as normal trash. In the US, rinsate from empty containers is classified as hazardous waste and should be disposed of at an E.P. A. approved facility. Rinsate from empty containers may contain sufficient product to require disposal as hazardous waste.

NOTICE (Disposal): These disposal guidelines are based on federal regulations and may be superseded by more stringent state or local requirements. Please consult your local environmental regulators for more information. In Europe: Chemical and analysis solutions must be disposed of in compliance with the respective national regulations. Product packaging must be disposed of in compliance with the country-specific regulations or must be passed to a packaging return system.

14. TRANSPORT INFORMATION

D.O.T.:

D.O.T. Proper Shipping Name: Not Currently Regulated

Hazard Class: NA

Subsidiary Risk: NA

ID Number: NA

Packing Group: NA

T.D.G.:

Proper Shipping Name: Not Currently Regulated

Hazard Class: NA

Subsidiary Risk: NA

UN Number/PIN: NA

Packing Group: NA

I.C.A.O.:

I.C.A.O. Proper Shipping Name: Not Currently Regulated

Hazard Class: NA

Subsidiary Risk: NA

ID Number: NA

Packing Group: NA

I.M.O.:

Proper Shipping Name: Not Currently Regulated

Hazard Class: NA

Subsidiary Risk: NA

ID Number: NA

Packing Group: NA

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 set or kit, the classification given above applies. If the item IS part of a set or kit, the classification would change to the following: UN3316 Chemical Kit, Class 9, PG II or III. If the item is not regulated, the Chemical Kit classification does not apply.

15. REGULATORY INFORMATION

U.S. Federal Regulations:

O.S.H.A.: This product does not meet the criteria for a hazardous substance as defined in the Hazard Communication Standard. (29 CFR 1910.1200)

E.P.A.:

S.A.R.A. Title III Section 311/312 Categorization (40 CFR 370): This product is not hazardous under 29 CFR.1910.1200 and therefore is not covered by Title III under SARA.

S.A.R.A. Title III Section 313 (40 CFR 372): This product contains a chemical(s) subject to the reporting requirements of Section 313 of Title III of SARA.

Toluene 108-88-3

302 (EHS) TPQ (40 CFR 355): Not applicable

304 CERCLA RQ (40 CFR 302.4): Toluene 1000 lbs.

304 EHS RQ (40 CFR 355): Not applicable

Clean Water Act (40 CFR 116.4): Not applicable

RCRA: Contains RCRA regulated substances. See Section 13, EPA Waste ID Number.

State Regulations:

California Prop. 65: WARNING - This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Identification of Prop. 65 Ingredient(s): Toluene

California Perchlorate Rule CCR Title 22 Chap 33: Not applicable

Trade Secret Registry: Not applicable

National Inventories:

U.S. Inventory Status: All ingredients in this product are listed on the TSCA 8(b) Inventory (40 CFR 710).

CAS Number: Not applicable

Canadian Inventory Status: All ingredients of this product are DSL Listed.

EEC Inventory Status: All ingredients used to make this product are listed on EINECS / ELINCS.

Australian Inventory (AICS) Status: All ingredients are listed.

New Zealand Inventory (NZIoC) Status: All components either listed or exempt.

Korean Inventory (KECI) Status: All components of this product are either listed, listed as the anhydrous compound or exempt.

Japan (ENCS) Inventory Status: All components either listed or exempt.

China (PRC) Inventory (MEP) Status: All components either listed or exempt.

16. OTHER INFORMATION

References: 29 CFR 1900 - 1910 (Code of Federal Regulations - Labor). Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. TLV's Threshold Limit Values and Biological Exposure Indices for 1992-1993. American Conference of Governmental Industrial Hygienists, 1992. Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Association, 1991. In-house information. Technical Judgment.

Complete Text of H phrases referred to in Section 3: H225 Highly flammable liquid and vapour. H302 Harmful if swallowed. Not applicable H304 May be fatal if swallowed and enters airways. H315 Causes skin irritation. H318 Causes serious eye damage. H319 Causes serious eye irritation. H332 Harmful if inhaled. H335 May cause respiratory irritation. H336 May cause drowsiness or dizziness. H361fd Suspected of damaging fertility. Suspected of damaging the unborn child. H373 May cause damage to organs through prolonged or repeated exposure. H401 Toxic to aquatic life.

Revision Summary: . Substantial revision to comply with EU Reg 1272/2008, Reg 1907/2006 and UN GHS (ST/SG/AC.10/36/Add.3).

Date of MSDS Preparation:

Day: 03

Month: December

Year: 2014

MSDS Prepared: MSDS prepared by Product Compliance Department extension 3350

CCOHS Evaluation Note: It is offered under exemption from WHMIS labeling as specified in the Controlled Products Regulation (CPR) Section 17. It is offered under the interim policy that was established by Health Canada permitting use of GHS-formatted safety data sheets in Canada prior to revision of CPR to GHS. This product has been classified and labeled in accordance with the requirements of GHS (ST/SG/AC.10/36/Add.3). This SDS has been prepared in accordance with the requirements of GHS (ST/SG/AC.10/36/Add.3).

Legend:

NA - Not Applicable
ND - Not Determined
NV - Not Available

w/w - weight/weight
w/v - weight/volume
v/v - volume/volume

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.

**THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE.
HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA
OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.**

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