



Be Right™

SAFETY DATA SHEET

Issue Date 25-Aug-2016

Revision Date 12-Jan-2017

Version 3

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1. IDENTIFICATION

Product identifier

Product Name Ascorbic Acid

Other means of identification

Product Code(s) 1457799

Safety data sheet number M00075

Synonyms

Recommended use of the chemical and restrictions on use

Recommended Use Laboratory reagent.

Uses advised against None.

Restrictions on use None.

Details of the supplier of the safety data sheet

Manufacturer Address

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

Emergency telephone number

(303) 623-5716 - 24 Hour Service (515)232-2533 - 8am - 4pm CST

2. HAZARDS IDENTIFICATION

Classification

Regulatory Status

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Not Hazardous Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Hazards not otherwise classified (HNOC)

Not applicable

Label elements

Hazard statements

EUH210 - Safety data sheet available on request

The product contains no substances which at their given concentration, are considered to be hazardous to health

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Other Information

Not applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance

Not applicable

Mixture

Synonyms

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4. FIRST AID MEASURES

Description of first aid measures

General advice	IF IN EYES: Flush eyes for at least 15 minutes.
Eye contact	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If symptoms persist, call a physician.
Skin contact	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. If symptoms persist, call a physician.
Inhalation	IF INHALED: Remove person to fresh air and keep comfortable for breathing. If symptoms persist, call a physician.
Ingestion	IF SWALLOWED: Rinse Mouth. If symptoms persist, call a physician.
Self-protection of the first aider	Use personal protective equipment as required. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Most important symptoms and effects, both acute and delayed

Symptoms See Section 11: TOXICOLOGICAL INFORMATION.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Carbon dioxide. Dry chemical. Water.

Unsuitable extinguishing media Caution: Use of water spray when fighting fire may be inefficient.

Flammable properties

Can burn in fire, releasing toxic vapors.

Specific hazards arising from the chemical

May react violently with. Strong oxidizers.

Hazardous combustion products

Carbon monoxide, Carbon dioxide.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

U.S. 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.
EC Notice	Only persons properly qualified to respond to an emergency involving hazardous substances should respond to a spill involving chemicals. See Section 13, Special Instructions for disposal assistance.
WHMIS Notice	Only persons properly qualified to respond to an emergency involving hazardous substances should respond to a spill involving chemicals. See Section 13, Special Instructions for disposal assistance.

Personal precautions, protective equipment and emergency procedures

Personal precautions	Evacuate personnel to safe areas. Do not touch or walk through spilled material. Ventilate affected area. Use personal protective equipment as required.
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For emergency responders	Use personal protection recommended in Section 8.
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Environmental precautions

Environmental precautions	Stop spilled material from being released to the environment.
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Methods and material for containment and cleaning up

Methods for containment	Stop spilled material from being released to the environment.
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Methods for cleaning up	Take up mechanically, placing in appropriate containers for disposal. Clean contaminated surface thoroughly. Dispose of in accordance with local, state and federal regulations or laws.
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Emergency Response Guide Number	Not applicable
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7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling	Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Do not breathe dust/fume/gas/mist/vapors/spray.
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Conditions for safe storage, including any incompatibilities

Storage Conditions	Keep containers tightly closed in a dry, cool and well-ventilated place. Keep in properly labeled containers.
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Flammability class	Not applicable
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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines	This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.
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Legend See section 16 for terms and abbreviations

Appropriate engineering controls

Engineering Controls Eyewash stations

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin and body protection Wear protective gloves and protective clothing.

Respiratory protection In case of insufficient ventilation, wear suitable respiratory equipment.

General Hygiene Considerations Avoid breathing (dust, vapor, mist, gas). Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Wear suitable gloves and eye/face protection. Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Keep away from food, drink and animal feeding stuffs. Regular cleaning of equipment, work area and clothing is recommended. Handle in accordance with good industrial hygiene and safety practice. Avoid prolonged or repeated contact with skin. Take off all contaminated clothing and wash it before reuse.

Environmental exposure controls

Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state Solid

Gas Under Pressure Not classified according to GHS criteria

Appearance crystalline **Color** White to yellow

Odor sweet **Odor threshold** No data available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
Molecular weight	No data available	
pH	2.3	5% Solution
Melting point/freezing point	192 °C / 378 °F	
Boiling point / boiling range	No data available	
Evaporation rate	Not applicable	
Vapor pressure	Not applicable	
Vapor density (air = 1)	Not applicable	
Specific gravity (water = 1 / air = 1)	1.65	

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Partition Coefficient (n-octanol/water)	No data available
Soil Organic Carbon-Water Partition Coefficient	No data available
Autoignition temperature	No data available
Decomposition temperature	No data available
Dynamic viscosity	Not applicable
Kinematic viscosity	Not applicable

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

<u>Chemical Name</u>	<u>Solubility classification</u>	<u>Solubility</u>	<u>Solubility Temperature</u>
Ethyl alcohol	Soluble	> 1000 mg/L	25 °C / 77 °F
Glycerol	Soluble	> 1000 mg/L	25 °C / 77 °F

Other Information

Metal Corrosivity	Not classified as corrosive to metal according to GHS criteria
Steel Corrosion Rate	Not applicable
Aluminum Corrosion Rate	Not applicable
Volatile Organic Compounds (VOC) Content	Not applicable.

Bulk density	No data available
Explosive properties	Not classified according to GHS criteria.
Explosion data	Can burn in fire, releasing toxic vapors.
Upper explosion limit	No data available
Lower explosion limit	No data available
Flammable properties	Can burn in fire, releasing toxic vapors.
Flammability Limit in Air	
Upper flammability limit:	No data available
Lower flammability limit:	No data available
Flash point	Not applicable
Method	No information available
Oxidizing properties	Not classified according to GHS criteria.
Reactivity properties	Not classified as self-reactive, pyrophoric, self-heating or emitting

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flammable gases in contact with water according to GHS criteria.

10. STABILITY AND REACTIVITY

Reactivity properties

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

Chemical stability

Stable under recommended storage conditions.

Special dangers of the product

None reported

Possibility of Hazardous Reactions

None under normal processing.

Hazardous polymerization

Hazardous polymerization does not occur.

Conditions to avoid

Excess moisture.

Incompatible materials

Strong oxidizing agents. Strong acids. Strong bases.

Hazardous Decomposition Products

Heating to decomposition releases toxic fumes of carbon monoxide and carbon dioxide.

Explosive properties

Not classified according to GHS criteria. Can burn in fire, releasing toxic vapors.

Upper explosion limit

No data available

Lower explosion limit

No data available

Autoignition temperature

No data available

Sensitivity to Static Discharge

None reported

Sensitivity to Mechanical Impact

None reported

11. TOXICOLOGICAL INFORMATION

NIOSH (RTECS) Number

None reported

Information on Likely Routes of Exposure

Product Information	Product does not present an acute toxicity hazard based on known or supplied information.
Inhalation	No known effect based on information supplied.
Eye contact	No known effect based on information supplied.
Skin contact	No known effect based on information supplied.

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Ingestion	No known effect based on information supplied.
Aggravated Medical Conditions	None known.
Toxicologically synergistic products	None known.
Toxicokinetics, metabolism and distribution	See ingredients information below.

Product Acute Toxicity Data

Oral Exposure Route	No data available
Dermal Exposure Route	No data available
Inhalation (Dust/Mist) Exposure Route	No data available
Inhalation (Vapor) Exposure Route	No data available
Inhalation (Gas) Exposure Route	No data available

Ingredient Acute Toxicity Data

Oral Exposure Route	If available, see data below
Dermal Exposure Route	No data available
Inhalation (Dust/Mist) Exposure Route	No data available
Inhalation (Vapor) Exposure Route	No data available
Inhalation (Gas) Exposure Route	No data available

Product Skin Corrosion/Irritation Data

No data available.

Ingredient Skin Corrosion/Irritation Data

No data available

Product Serious Eye Damage/Eye Irritation Data

No data available.

Ingredient Eye Damage/Eye Irritation Data

No data available

Sensitization Information

Product Sensitization Data

Skin Sensitization Exposure Route	No data available.
Respiratory Sensitization Exposure Route	No data available.

Ingredient Sensitization Data

Skin Sensitization Exposure Route	No data available.
Respiratory Sensitization Exposure Route	No data available.

Chronic Toxicity Information

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Product Repeat Dose Toxicity Data

Oral Exposure Route	No data available.
Dermal Exposure Route	No data available.
Inhalation (Dust/Mist) Exposure Route	No data available.
Inhalation (Vapor) Exposure Route	No data available.
Inhalation (Gas) Exposure Route	No data available.

Ingredient Repeat Dose Toxicity Data

Oral Exposure Route	No data available
Dermal Exposure Route	No data available
Inhalation (Dust/Mist) Exposure Route	No data available
Inhalation (Vapor) Exposure Route	No data available
Inhalation (Gas) Exposure Route	No data available

Legend

ACGIH (American Conference of Governmental Industrial Hygienists)	Does not apply
IARC (International Agency for Research on Cancer)	Does not apply
NTP (National Toxicology Program)	Does not apply
OSHA (Occupational Safety and Health Administration of the US Department of Labor)	Does not apply

<u>Product Carcinogenicity Data</u>	No data available
Oral Exposure Route	No data available
Dermal Exposure Route	No data available
Inhalation (Dust/Mist) Exposure Route	No data available
Inhalation (Vapor) Exposure Route	No data available
Inhalation (Gas) Exposure Route	No data available

Ingredient Carcinogenicity Data

Oral Exposure Route	No data available
Dermal Exposure Route	No data available
Inhalation (Dust/Mist) Exposure Route	No data available
Inhalation (Vapor) Exposure Route	No data available
Inhalation (Gas) Exposure Route	No data available

Product Germ Cell Mutagenicity Data
No data available.

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Ingredient Germ Cell Mutagenicity Data

If available, see data below

Oral Exposure Route

No data available

Dermal Exposure Route

No data available

Inhalation (Dust/Mist) Exposure Route

No data available

Inhalation (Vapor) Exposure Route

No data available

Inhalation (Gas) Exposure Route

No data available

Ingredient Germ Cell Mutagenicity Data

Oral Exposure Route

No data available

Dermal Exposure Route

No data available

Inhalation (Dust/Mist) Exposure Route

No data available

Inhalation (Vapor) Exposure Route

No data available

Inhalation (Gas) Exposure Route

No data available

Oral Exposure Route

No data available

Dermal Exposure Route

No data available

Inhalation (Dust/Mist) Exposure Route

No data available

Inhalation (Vapor) Exposure Route

No data available

Inhalation (Gas) Exposure Route

No data available

Ingredient Reproductive Toxicity Data

Oral Exposure Route

If available, see data below

Dermal Exposure Route

No data available

Inhalation (Dust/Mist) Exposure Route

No data available

Inhalation (Vapor) Exposure Route

No data available

Inhalation (Gas) Exposure Route

No data available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Based on the classification principles, not classified as hazardous to the environment.

Product Ecological Data

Aquatic toxicity

Fish

No data available

Crustacea

No data available

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Algae

No data available

Terrestrial toxicity

Soil

No data available

Vertebrates

No data available

Invertebrates

No data available

Ingredient Ecological Data

Aquatic toxicity

Fish

If available, see ingredient data below

Crustacea

If available, see ingredient data below

Algae

If available, see ingredient data below

Terrestrial toxicity

Soil

No data available

Vertebrates

No data available

Invertebrates

No data available

Other Information

Persistence and degradability

None known.

Product Biodegradability Data

If available, see ingredient data below.

Ingredient Biodegradability Data

Test data reported below

Bioaccumulation

None known.

Product Bioaccumulation Data

No data available.

Ingredient Bioaccumulation Data

No data available

Additional information

Product Information

No data available

Partition Coefficient (n-octanol/water)

No data available

Ingredient Information

Mobility

Mobility in soil: Moderate to high mobility. If available, see ingredient data below.

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Product Information No data available

Soil Organic Carbon-Water Partition Coefficient No data available

Ingredient Information

Additional information

Water solubility

Product Information

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

Ingredient Information

Other adverse effects

No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes Disposal should be in accordance with applicable regional, national, and local laws and regulations.

Contaminated packaging 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 in countries other than the US. Improper disposal or reuse of this container may be dangerous and illegal. Disposal should be in accordance with applicable regional, national, and local laws and regulations.

Special instructions for disposal Work in an approved fume hood. 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 reacted material to the drain. Allow cold water to run for 5 minutes to completely flush the system.

14. TRANSPORT INFORMATION

DOT Not regulated

TDG Not regulated

IATA Not regulated

IMDG Not regulated

Note: No special precautions necessary.

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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.

15. REGULATORY INFORMATION

National Inventories

TSCA	Complies
DSL/NDSL	Complies

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

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

International Inventories

EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
TCSI	Complies
AICS	Complies
NZIoC	Complies

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

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

Acute health hazard	No
Chronic Health Hazard	No
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

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US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

Additional information

Global Automotive Declarable Substance List (GADSL)

Not applicable

Special Comments

None

NFPA and HMIS Classifications

NFPA	Health hazards - 0	Flammability - 0	Instability - 0	Physical and Chemical Properties -
HMIS	Health hazards - 0	Flammability - 0	Physical hazards - 0	Personal protection - X - See section 8 for more 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)
MAC	Maximum Allowable Concentration	Ceiling	Ceiling Limit Value
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 "liberated" exposure limits in their state regulations.
SKN*	Skin designation	SKN+	Skin sensitization
RSP+	Respiratory sensitization	**	Hazard Designation
C	Carcinogen	R	Reproductive toxicant
M	mutagen		

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.

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.

HACH COMPANY©2016

End of Safety Data Sheet



Be Right™

SAFETY DATA SHEET

Issue Date 27-Sep-2016

Revision Date 18-Oct-2017

Version 4.2

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1. IDENTIFICATION

Product identifier

Product Name Alkaline Cyanide Reagent

Other means of identification

Product Code(s) 2122326

Safety data sheet number M00379

UN/ID no UN2922

Recommended use of the chemical and restrictions on use

Recommended Use Laboratory reagent. Determination of manganese.

Uses advised against None.

Restrictions on use None.

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

2. HAZARDS IDENTIFICATION

Classification

Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Oral	Category 3
Acute toxicity - Dermal	Category 2
Acute toxicity - Inhalation (Dusts/Mists)	Category 3
Skin corrosion/irritation	Category 1
Serious eye damage/eye irritation	Category 1

Hazards not otherwise classified (HNOC)

Not applicable

Label elements

Signal word - Danger

Product Code(s) 2122326
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Product Name Alkaline Cyanide Reagent
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Hazard statements

H301 - Toxic if swallowed
H310 - Fatal in contact with skin
H314 - Causes severe skin burns and eye damage
H331 - Toxic if inhaled

Precautionary statements

P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P271 - Use only outdoors or in a well-ventilated area
P311 - Call a POISON CENTER or doctor/physician
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
P260 - Do not breathe dusts or mists
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P363 - Wash contaminated clothing before reuse
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P280 - Wear eye protection/ face protection
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P330 - Rinse mouth
P262 - Do not get in eyes, on skin, or on clothing
P264 - Wash face, hands and any exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P280 - Wear protective gloves and protective clothing
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P310 - Immediately call a POISON CENTER or doctor/physician
P361 - Remove/Take off immediately all contaminated clothing
P405 - Store locked up
P501 - Dispose of contents/ container to an approved waste disposal plant

Other Information

Very toxic to aquatic life with long lasting effects
Very toxic to aquatic life

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance

Not applicable

Mixture

Percent ranges are used where confidential product information is applicable.

Chemical name	CAS No.	Percent Range	HMRIC #
Sodium cyanide	143-33-9	5 - 10%	-
Sodium hydroxide	1310-73-2	1 - 5%	-

4. FIRST AID MEASURES

Description of first aid measures

General advice	See section 8 for PPE that may be required during handling. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). If no local exhaust use approved fume hood or self-contained breathing apparatus. IF exposed: Call a POISON CENTER or doctor/physician. Immediate medical attention is required. Remove from exposure, lie down. IF IN EYES: Flush eyes for at least 15 minutes. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
Eye contact	In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Remove contact lenses, if present and easy to do. Continue rinsing. Immediate medical attention is required.
Skin contact	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately flush skin with plenty of water for at least 15 (30 or 60) minutes. Immediate medical attention is required. Call a physician immediately. Removal of solidified molten material from skin requires medical assistance. In case of contact with Hydrogen fluoride, anhydrous (UN1052), flush skin and eyes with water for 5 minutes; then, for skin exposures rub on a calcium/jelly combination; for eyes flush with a water/calcium solution for 15 minutes. Remove and isolate contaminated clothing and shoes. Wash contaminated clothing before reuse.
Inhalation	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediate medical attention is required. Call a physician or poison control center immediately. Artificial respiration and/or oxygen may be necessary. Immediately give oxygen if victim turns blue (lips, ears, fingernails). If not breathing, give artificial respiration. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. If breathing is difficult, give oxygen.
Ingestion	If swallowed, call a poison control center or physician immediately. Immediate medical attention is required. Never give anything by mouth to an unconscious person. Clean mouth with water and drink afterwards plenty of water. Do not induce vomiting without medical advice. Remove from exposure, lie down.
Self-protection of the first aider	First aider: Pay attention to self-protection!. Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Most important symptoms and effects, both acute and delayed

Symptoms	See Section 11: TOXICOLOGICAL INFORMATION.
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Indication of any immediate medical attention and special treatment needed

Note to physicians	Break an amyl nitrite pearl in cloth and hold lightly under nose for 15 seconds. If patient has not responded to amyl nitrite, inject intravenously 10 mL of a 3% solution of sodium nitrite at a rate not greater than 2.5 - 5 mL/min. Follow directly with 50 mL of a 25 % solution of sodium thiosulfate at the same rate by the same route. Repeat 5 times at 15 second intervals. Transport to hospital immediately. Cyanide levels, arterial blood gases and acid-base balance should be monitored. If indicated use a cyanide antidote. Keep patient under observation. If signs of poisoning persist or reappear, repeat nitrite and thiosulfate injections 1 hour later in one-half the original doses.
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5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

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

Unsuitable extinguishing media Caution: Use of water spray when fighting fire may be inefficient.

Flammable properties

During a fire, irritating and highly toxic gases may be generated by thermal decomposition.

Specific hazards arising from the chemical

The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating and toxic gases and vapors. In the event of fire and/or explosion do not breathe fumes.

Hazardous combustion products

Cyanide compounds. Sodium monoxide.

Protective equipment and precautions for firefighters

Wear self-contained breathing apparatus and protective suit.

Special protective equipment for fire-fighters

Wear self-contained breathing apparatus and protective suit

6. ACCIDENTAL RELEASE MEASURES

U.S. 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.

Personal precautions, protective equipment and emergency procedures

Personal precautions

Evacuate personnel to safe areas. Do not touch or walk through spilled material. Ventilate affected area. Use personal protective equipment as required.

For emergency responders

Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions

Do not allow into any sewer, on the ground or into any body of water. Should not be released into the environment. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. See Section 12 for additional ecological information.

Methods and material for containment and cleaning up

Methods for containment

Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up

Neutralize spill if necessary. Soak up with inert absorbent material. Take up mechanically, placing in appropriate containers for disposal. Clean contaminated surface thoroughly. Dispose of in accordance with local, state and federal regulations or laws.

Emergency Response Guide Number

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7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling

Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Do not breathe dust/fume/gas/mist/vapors/spray.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep out of the reach of children. Keep container tightly closed in a dry and well-ventilated place. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep in properly labeled containers.

Flammability class Not applicable

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Sodium cyanide 5 - 10%	S* Ceiling: 5 mg/m ³	TWA: 5 mg/m ³ (vacated) TWA: 5 mg/m ³ *	IDLH: 25 mg/m ³ CN Ceiling: 4.7 ppm CN 10 min Ceiling: 5 mg/m ³ CN 10 min
Sodium hydroxide 1 - 5%	Ceiling: 2 mg/m ³	TWA: 2 mg/m ³ (vacated) Ceiling: 2 mg/m ³	IDLH: 10 mg/m ³ Ceiling: 2 mg/m ³

Chemical name	Alberta OEL	British Columbia OEL	Manitoba OEL	New Brunswick OEL	New Foundland & Labrador OEL
Sodium cyanide 5 - 10%	Ceiling: 5 mg/m ³ SKN*	Ceiling: 5 mg/m ³ SKN*	Ceiling: 5 mg/m ³ SKN*	Ceiling: 5 mg/m ³ SKN*	Ceiling: 5 mg/m ³ SKN*
Sodium hydroxide 1 - 5%	Ceiling: 2 mg/m ³	Ceiling: 2 mg/m ³	Ceiling: 2 mg/m ³	Ceiling: 2 mg/m ³	Ceiling: 2 mg/m ³

Chemical name	Northwest Territories OEL	Nova Scotia OEL	Nunavut OEL	Ontario TWA	Prince Edward Island OEL
Sodium cyanide 5 - 10%	Ceiling: 5 mg/m ³ SKN*	Ceiling: 5 mg/m ³ SKN*	Ceiling: 5 mg/m ³ SKN*	Ceiling: 5 mg/m ³ SKN*	Ceiling: 5 mg/m ³
Sodium hydroxide 1 - 5%	Ceiling: 2 mg/m ³	Ceiling: 2 mg/m ³	Ceiling: 2 mg/m ³	Ceiling: 2 mg/m ³	Ceiling: 2 mg/m ³

Chemical name	Quebec OEL	Saskatchewan OEL	Yukon OEL
Sodium cyanide 5 - 10%	Ceiling: 10 ppm Ceiling: 11 mg/m ³ SKN*	Ceiling: 5 mg/m ³ Ceiling: 4.7 ppm SKN*	STEL: 5 mg/m ³ TWA: 5 mg/m ³ SKN*
Sodium hydroxide 1 - 5%	Ceiling: 2 mg/m ³	Ceiling: 2 mg/m ³	Ceiling: 2 mg/m ³

Other Information Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

Legend See section 16 for terms and abbreviations

Appropriate engineering controls

Engineering Controls If no local exhaust use approved fume hood or self-contained breathing apparatus
Showers
Eyewash stations

Individual protection measures, such as personal protective equipment

Eye/face protection Avoid contact with eyes. Tight sealing safety goggles. and/or. Face protection shield.

Skin and body protection Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Respiratory protection	Do not breathe gas/fumes/vapor/spray. If no local exhaust use approved fume hood or self-contained breathing apparatus. Ensure adequate ventilation, especially in confined areas.
General Hygiene Considerations	Avoid breathing (dust, vapor, mist, gas). Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Wear suitable gloves and eye/face protection. Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Keep away from food, drink and animal feeding stuffs. Regular cleaning of equipment, work area and clothing is recommended. Handle in accordance with good industrial hygiene and safety practice. Avoid prolonged or repeated contact with skin. Take off all contaminated clothing and wash it before reuse.

Environmental exposure controls

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Liquid		
Gas Under Pressure	Not classified according to GHS criteria		
Appearance	aqueous solution	Color	colorless
Odor	None	Odor threshold	No data available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
Molecular weight	No data available	
pH	12.3	
Melting point/freezing point	~ -11 °C / 12 °F	Estimation based on theoretical calculation
Boiling point / boiling range	92 °C / 198 °F	
Evaporation rate	0.57 (water = 1)	
Vapor pressure	22.652 mm Hg / 3.02 kPa at 25 °C / 77 °F	Estimation based on theoretical calculation
Vapor density (air = 1)	0.62 (air = 1)	
Specific gravity (water = 1 / air = 1)	1.112	
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	

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Kinematic viscosity No data available

Solubility(ies)

Water solubility

<u>Water solubility classification</u>	<u>Water solubility</u>	<u>Water Solubility Temperature</u>
Soluble Releases toxic hydrogen cyanide gas.	No data available	No information available

Solubility in other solvents

<u>Chemical Name</u>	<u>Solubility classification</u>	<u>Solubility</u>	<u>Solubility Temperature</u>
None reported	No information available	No data available	No information available

Other Information

Metal Corrosivity Not classified as corrosive to metal according to GHS criteria

Steel Corrosion Rate No data available

Aluminum Corrosion Rate No data available

Bulk density Not applicable

Explosive properties Not classified according to GHS criteria.

Explosion data No data available

Upper explosion limit No data available

Lower explosion limit No data available

Flammable properties During a fire, irritating and highly toxic gases may be generated by thermal decomposition.

Flammability Limit in Air

Upper flammability limit: No data available

Lower flammability limit: No data available

Flash point No data available

Method No information available

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.

10. STABILITY AND REACTIVITY

Reactivity properties

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

Chemical stability

Stable under recommended storage conditions.

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Special dangers of the product

None reported

Possibility of Hazardous Reactions

None under normal processing.

Hazardous polymerization

Hazardous polymerization does not occur.

Conditions to avoid

Extremes of temperature and direct sunlight. Incompatible materials.

Incompatible materials

Strong oxidizing agents. Strong acids. Strong bases.

Hazardous Decomposition Products

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

Explosive properties

Not classified according to GHS criteria.

Upper explosion limit

No data available

Lower explosion limit

No data available

Autoignition temperature

No data available

Sensitivity to Static Discharge

None reported

Sensitivity to Mechanical Impact

None reported

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Product Information	Fatal in contact with skin. Toxic by ingestion. Corrosive to skin. Corrosive to eyes. Toxic if inhaled.
Inhalation	Avoid breathing dust/fume/gas/mist/vapors/spray. Toxic by inhalation. Immediate medical attention is required.
Eye contact	Corrosive to the eyes and may cause severe damage including blindness. Causes burns. Corrosive to eyes.
Skin contact	Fatal in contact with skin. Cause severe skin burns and eye damage.
Ingestion	Toxic if swallowed. Ingestion causes burns of the upper digestive and respiratory tracts.
Aggravated Medical Conditions	Eye disorders. Skin disorders. Respiratory disorders.
Toxicologically synergistic products	None known.
Toxicokinetics, metabolism and distribution	See ingredients information below.
Chemical name	Toxicokinetics, metabolism and distribution
Sodium cyanide (5 - 10%) CAS#: 143-33-9	NaCN is absorbed across the gastrointestinal mucosa after oral intake, and through the skin and the eye after direct contact.

Product Acute Toxicity Data

Test data reported below

Oral Exposure Route

Endpoint type	Reported dose	Toxicological effects	Key literature references and sources for data
Rat LD ₅₀	69 mg/kg	Behavioral Tonic convulsions Gastrointestinal Dyspnea Skin and Appendages Skin abnormalities	Outside testing

Dermal Exposure Route

Endpoint type	Reported dose	Toxicological effects	Key literature references and sources for data
Rabbit LD ₅₀	200 mg/kg	Behavioral Tonic convulsions Tremors Dyspnea Skin and Appendages Skin abnormalities	Outside testing

Inhalation (Dust/Mist) Exposure Route

No data available

Inhalation (Vapor) Exposure Route

No data available

Inhalation (Gas) Exposure Route

No data available

Acute Toxicity Estimations (ATE)

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (inhalation-dust/mist)	0.67 mg/L
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Ingredient Acute Toxicity Data

Oral Exposure Route

If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sodium cyanide (5 - 10%) CAS#: 143-33-9	Rat LD ₅₀	4.8 mg/kg	None reported	None reported	IUCLID (The International Uniform Chemical Information Database)
Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sodium hydroxide (1 - 5%) CAS#: 1310-73-2	Rabbit LD ₅₀	500 mg/kg	None reported	None reported	No information available

Dermal Exposure Route

If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sodium cyanide (5 - 10%) CAS#: 143-33-9	Rabbit LD ₅₀	7.7 mg/kg	None reported	None reported	IUCLID (The International Uniform Chemical Information Database)
Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sodium hydroxide (1 - 5%) CAS#: 1310-73-2	Rabbit LD ₅₀	1350 mg/kg	None reported	None reported	IUCLID (The International Uniform Chemical Information Database)

Inhalation (Dust/Mist) Exposure Route

If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sodium cyanide (5 - 10%) CAS#: 143-33-9	Rat LC ₅₀	2.56 mg/L	4 hours	None reported	IUCLID (The International Uniform Chemical Information Database)

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Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sodium cyanide (5 - 10%) CAS#: 143-33-9	Rat LC ₅₀	.16 mg/L	1 hours	None reported	No information available

Inhalation (Vapor) Exposure Route

If available, see data below

Inhalation (Gas) Exposure Route

If available, see data below

Product Specific Target Organ Toxicity Single Exposure Data

Oral Exposure Route

Dermal Exposure Route

Inhalation (Dust/Mist) Exposure Route

No data available

Inhalation (Vapor) Exposure Route

No data available

Inhalation (Gas) Exposure Route

No data available

Ingredient Specific Target Organ Toxicity Single Exposure Data

Oral Exposure Route

If available, see data below

Dermal Exposure Route

If available, see data below

Inhalation (Dust/Mist) Exposure Route

If available, see data below

Inhalation (Vapor) Exposure Route

If available, see data below

Inhalation (Gas) Exposure Route

If available, see data below

Aspiration toxicity

No data available

Product Skin Corrosion/Irritation Data

No data available.

Exposure time	Results	Key literature references and sources for data
1 hours	Corrosive to skin	Outside testing

Ingredient Skin Corrosion/Irritation Data

If available, see data below

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Sodium hydroxide (1 - 5%) CAS#: 1310-73-2	Patch test	Human	20 mg	24 hours	Corrosive to skin	RTECS (Registry of Toxic Effects of Chemical Substances)

Product Serious Eye Damage/Eye Irritation Data

No data available.

Ingredient Eye Damage/Eye Irritation Data

If available, see data below

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Sodium hydroxide (1 - 5%) CAS#: 1310-73-2	Standard Draize Test	Rabbit	0.05 mg	24 hours	Corrosive to eyes	RTECS (Registry of Toxic Effects of Chemical Substances)

Sensitization Information

Product Sensitization Data

Skin Sensitization Exposure Route

No data available.

Respiratory Sensitization Exposure Route

No data available.

Ingredient Sensitization Data

Skin Sensitization Exposure Route

If available, see data below.

Respiratory Sensitization Exposure Route

If available, see data below.

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Chronic Toxicity Information

Product Specific Target Organ Toxicity Repeat Dose Data

Oral Exposure Route	No data available.
Dermal Exposure Route	No data available.
Inhalation (Dust/Mist) Exposure Route	No data available.
Inhalation (Vapor) Exposure Route	No data available.
Inhalation (Gas) Exposure Route	No data available.

Ingredient Specific Target Organ Toxicity Repeat Exposure Data

Oral Exposure Route	If available, see data below
Dermal Exposure Route	If available, see data below
Inhalation (Dust/Mist) Exposure Route	If available, see data below
Inhalation (Vapor) Exposure Route	If available, see data below
Inhalation (Gas) Exposure Route	If available, see data below

Product Carcinogenicity Data

Oral Exposure Route	No data available
Dermal Exposure Route	No data available
Inhalation (Dust/Mist) Exposure Route	No data available
Inhalation (Vapor) Exposure Route	No data available
Inhalation (Gas) Exposure Route	No data available

Ingredient Carcinogenicity Data

Chemical name	CAS No.	ACGIH	IARC	NTP	OSHA
Sodium cyanide	143-33-9	-	-	-	-
Sodium hydroxide	1310-73-2	-	-	-	-

Legend

ACGIH (American Conference of Governmental Industrial Hygienists)	Does not apply
IARC (International Agency for Research on Cancer)	Does not apply
NTP (National Toxicology Program)	Does not apply
OSHA (Occupational Safety and Health Administration of the US Department of Labor)	Does not apply

Oral Exposure Route	If available, see data below
Dermal Exposure Route	If available, see data below
Inhalation (Dust/Mist) Exposure Route	If available, see data below
Inhalation (Vapor) Exposure Route	If available, see data below
Inhalation (Gas) Exposure Route	If available, see data below

Product Germ Cell Mutagenicity Data

No data available.

Ingredient Germ Cell Mutagenicity Data

If available, see data below

Chemical name	Test	Cell Strain	Reported dose	Exposure time	Results	Key literature references and sources for data
Sodium cyanide (5 - 10%) CAS#: 143-33-9	Mutation in microorganisms	<i>Salmonella typhimurium</i>	None reported	None reported	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)

Product Germ Cell Mutagenicity Data

Oral Exposure Route	No data available
Dermal Exposure Route	No data available
Inhalation (Dust/Mist) Exposure Route	No data available
Inhalation (Vapor) Exposure Route	No data available

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Inhalation (Gas) Exposure Route

No data available

Ingredient Germ Cell Mutagenicity Data

Oral Exposure Route

If available, see data below

Dermal Exposure Route

If available, see data below

Inhalation (Dust/Mist) Exposure Route

If available, see data below

Inhalation (Vapor) Exposure Route

If available, see data below

Inhalation (Gas) Exposure Route

If available, see data below

Product Reproductive Toxicity Data

Oral Exposure Route

No data available

Dermal Exposure Route

No data available

Inhalation (Dust/Mist) Exposure Route

No data available

Inhalation (Vapor) Exposure Route

No data available

Inhalation (Gas) Exposure Route

No data available

Ingredient Reproductive Toxicity Data

Oral Exposure Route

If available, see data below

Inhalation (Dust/Mist) Exposure Route

If available, see data below

Inhalation (Vapor) Exposure Route

If available, see data below

Inhalation (Gas) Exposure Route

If available, see data below

12. ECOLOGICAL INFORMATION

Ecotoxicity

Very toxic to aquatic life with long lasting effects.

Product Ecological Data

Aquatic toxicity

Fish

No data available

Crustacea

No data available

Algae

No data available

Ingredient Ecological Data

Aquatic toxicity

Fish

If available, see ingredient data below

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Sodium cyanide (5 - 10%) CAS#: 143-33-9	96 hours	<i>Lepomis macrochirus</i>	LC ₅₀	0.083 mg/L	IUCLID (The International Uniform Chemical Information Database)
Sodium hydroxide (1 - 5%) CAS#: 1310-73-2	96 hours	<i>Oncorhynchus mykiss</i>	LC ₅₀	45.4 mg/L	IUCLID (The International Uniform Chemical Information Database)

Crustacea

If available, see ingredient data below

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Sodium hydroxide (1 - 5%) CAS#: 1310-73-2	48 Hours	<i>Daphnia sp.</i>	EC ₅₀	40.4 mg/L	IUCLID (The International Uniform Chemical Information Database)

Algae

No data available

Other Information

Canadian Environmental Protection Act (CEPA) - Domestic Substances List (DSL):
Environmentally Hazardous Substances Categorizations

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Chemical name	Category	Persistent	Bioaccumulation	Inherently Toxic to Aquatic Organisms
Sodium cyanide (5 - 10%) CAS#: 143-33-9	Inorganics	Yes	No	Yes

Persistence and degradability

Product Biodegradability Data

If available, see ingredient data below.

Ingredient Biodegradability Data

Test data reported below

Chemical name	Test method	Biodegradation	Exposure time	Results
Sodium cyanide (5 - 10%) CAS#: 143-33-9	Inorganic Salt	None reported	None reported	Not readily biodegradable
Sodium hydroxide (1 - 5%) CAS#: 1310-73-2	None reported	None reported	None reported	Readily biodegradable

Bioaccumulation

Product Bioaccumulation Data

If available, see ingredient data below.

Partition Coefficient (n-octanol/water)

Not applicable

Ingredient Bioaccumulation Data

No data available

Chemical name	Test method	Exposure time	Species	Bioconcentration factor (BCF)	Results
Sodium cyanide (5 - 10%) CAS#: 143-33-9	None reported	None reported	None reported	BCF < 500	Does not have the potential to bioaccumulate

Chemical name	Partition Coefficient (n-octanol/water)	Method
Sodium hydroxide (1 - 5%) CAS#: 1310-73-2	log K _{ow} ~ 0	No information available

Mobility

Product Information

Soil Organic Carbon-Water Partition Coefficient

Not applicable

Water solubility

<u>Water solubility classification</u>	<u>Water solubility</u>	<u>Water Solubility Temperature</u>
Soluble Releases toxic hydrogen cyanide gas.	No data available	No information available

Ingredient Information

Chemical name	Soil Organic Carbon-Water Partition	Method
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	Coefficient	
Sodium hydroxide (1 - 5%) CAS#: 1310-73-2	$\log K_{oc} \sim 0$	No information available

Chemical name	Water solubility classification	Water solubility	Water solubility temperature °C	Water solubility temperature °F
Sodium cyanide CAS#: 143-33-9	Soluble	> 1000 mg/L	25 °C	77 °F
Sodium hydroxide CAS#: 1310-73-2	Completely soluble	420000 mg/L	0 °C	32 °F

Other adverse effects
Environmental exposure.

Chemical name	EU - Endocrine Disruptors Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Endocrine disrupting potential
Sodium cyanide (5 - 10%) CAS#: 143-33-9	Group III Chemical	-	-

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes Disposal should be in accordance with applicable regional, national, and local laws and regulations.

Contaminated packaging Do not reuse container.

US EPA Waste Number D002

Chemical name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Sodium cyanide 143-33-9	P106	Included in waste streams: F007, F008, F009, F010, F011	-	-

Chemical name	RCRA - Halogenated Organic Compounds	RCRA - P Series Wastes	RCRA - F Series Wastes	RCRA - K Series Wastes
Sodium cyanide 143-33-9	-	P106 P030	-	-

Special instructions for disposal Dispose of material in an E.P.A. approved hazardous waste facility.

14. TRANSPORT INFORMATION

U.S. DOT

UN/ID no UN2922
Proper shipping name Corrosive Liquid, Toxic, N.O.S.
DOT Technical Name (Sodium Hydroxide/Sodium Cyanide Solution)
Hazard Class 8
Subsidiary class 6.1
Packing Group II
Special Provisions Contact with acids forms toxic fumes.
Marine pollutant This product contains a chemical which is listed as a marine pollutant according to DOT.
Emergency Response Guide Number 154

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TDG

UN/ID no	UN2922
Hazard Class	8
Subsidiary class	6.1
Packing Group	II
Marine pollutant	This product contains a chemical which is listed as a marine pollutant according to TDG.

IATA

UN/ID no	UN2922
Proper shipping name	Corrosive Liquid, Toxic, N.O.S.
IATA Technical Name	(Sodium Hydroxide/Sodium Cyanide Solution)
Hazard Class	8
Subsidiary hazard class	6.1
Packing Group	II
ERG Code	154

IMDG

UN/ID no	UN2922
Proper shipping name	Corrosive Liquid, Toxic, N.O.S.
IMDG Technical Name	(Sodium Hydroxide/Sodium Cyanide Solution)
Hazard Class	8
Subsidiary hazard class	6.1
Packing Group	II
Marine pollutant	This material meets the definition of a marine pollutant

Note: No special precautions necessary.

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.

15. REGULATORY INFORMATION

National Inventories

TSCA	Complies
DSL/NDSL	Complies

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

International Inventories

EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
TCSI	Complies
AICS	Complies
NZIoC	Complies

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

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NZIoC - New Zealand Inventory of Chemicals

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical name	SARA 313 - Threshold Values %
Sodium cyanide (CAS #: 143-33-9)	1.0

SARA 311/312 Hazard Categories

Acute health hazard	Yes
Chronic Health Hazard	Yes
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Sodium cyanide 143-33-9	10 lb	X	X	X
Sodium hydroxide 1310-73-2	1000 lb	-	-	X

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

Chemical name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Sodium cyanide 143-33-9	10 lb	10 lb	RQ 10 lb final RQ RQ 4.54 kg final RQ
Sodium hydroxide 1310-73-2	1000 lb	-	RQ 1000 lb final RQ RQ 454 kg final RQ

U.S. - Department of Homeland Security - Chemical Facility Anti-Terrorism Standards (CFATS) - Security Issues

Chemical name	U.S. - Department of Homeland Security - Chemical Facility Anti-Terrorism Standards (CFATS) - Security Issues
Sodium cyanide (5 - 10%) CAS#: 143-33-9	Sabotage/Contamination

US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals

Chemical name	California Proposition 65
Sodium cyanide (CAS #: 143-33-9)	Male Reproductive

U.S. State Right-to-Know Regulations

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Chemical name	New Jersey	Massachusetts	Pennsylvania
Sodium cyanide 143-33-9	X	X	X
Sodium hydroxide 1310-73-2	X	X	X

U.S. EPA Label Information

Chemical name	FIFRA	FDA
Sodium hydroxide	180.0910	21 CFR 184.1763

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

Special Comments

None

Additional information

Global Automotive Declarable Substance List (GADSL)

Not applicable

NFPA and HMIS Classifications

NFPA	Health hazards - 3	Flammability - 0	Instability - 0	Physical and Chemical Properties -
HMIS	Health hazards - 3	Flammability - 0	Physical Hazards - 0	Personal protection - X - See section 8 for more 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)
MAC	Maximum Allowable Concentration	Ceiling	Ceiling Limit Value
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 "liberated" exposure limits in their state regulations.
SKN*	Skin designation	SKN+	Skin sensitization
RSP+	Respiratory sensitization	**	Hazard Designation
C	Carcinogen	R	Reproductive toxicant
M	mutagen		

Prepared By Hach Product Compliance Department

Issue Date 27-Sep-2016

Product Code(s) 2122326
Issue Date 27-Sep-2016
Version 4.2

Product Name Alkaline Cyanide Reagent
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Revision Date 18-Oct-2017

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.

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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End of Safety Data Sheet



Be Right™

SAFETY DATA SHEET

Issue Date 22-Jun-2016

Revision Date 18-Oct-2017

Version 2.1

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1. IDENTIFICATION

Product identifier

Product Name PAN Indicator Solution 0.1%

Other means of identification

Product Code(s) 2122426

Safety data sheet number M00388

Recommended use of the chemical and restrictions on use

Recommended Use Laboratory reagent. Determination of manganese.

Uses advised against None.

Restrictions on use None.

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

2. HAZARDS IDENTIFICATION

Classification

Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Serious eye damage/eye irritation	Category 1
Reproductive toxicity	Category 1B

Hazards not otherwise classified (HNOC)

Not applicable

Label elements

Signal word - Danger



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Hazard statements

H318 - Causes serious eye damage
H360 - May damage fertility or the unborn child

Precautionary statements

P280 - Wear eye protection/ face protection
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/physician
P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P281 - Use personal protective equipment as required
P308 + P313 - IF exposed or concerned: Get medical advice/attention
P405 - Store locked up
P501 - Dispose of contents/ container to an approved waste disposal plant

Other Information

May be harmful in contact with skin
Very toxic to aquatic life with long lasting effects
Toxic to aquatic life

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance

Not applicable

Mixture

Percent ranges are used where confidential product information is applicable.

Chemical name	CAS No.	Percent Range	HMRIC #
N,N-Dimethylformamide	68-12-2	20 - 30%	-
Ammonium acetate	631-61-8	20 - 30%	-
Octylphenol ethoxylate	9036-19-5	7 - 13%	-

4. FIRST AID MEASURES

Description of first aid measures

General advice	See section 8 for PPE that may be required during handling. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). If no local exhaust use approved fume hood and/or respirator. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician. Remove from exposure, lie down. Immediate medical attention is required. IF IN EYES: Flush eyes for at least 15 minutes. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. May cause skin irritation.
Eye contact	In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Remove contact lenses, if present and easy to do. Continue rinsing. Immediate medical attention is required.
Skin contact	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately flush skin with plenty of water for at least 15 (30 or 60) minutes. Immediate medical attention is required. Call a physician immediately. Removal of solidified molten material from skin requires medical assistance. In case of contact with Hydrogen fluoride, anhydrous (UN1052), flush skin and eyes with water for 5 minutes; then, for skin exposures rub on a calcium/jelly combination; for eyes flush with a water/calcium solution for 15 minutes. Remove and isolate contaminated clothing and shoes. Wash contaminated clothing before reuse.
Inhalation	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell.
Ingestion	IF SWALLOWED: Rinse Mouth. If symptoms persist, call a physician.
Self-protection of the first aider	First aider: Pay attention to self-protection!. Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Most important symptoms and effects, both acute and delayed

Symptoms See Section 11: TOXICOLOGICAL INFORMATION.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Water. Alcohol foam. Dry chemical. Carbon dioxide. Use. Dry chemical. Carbon dioxide (CO₂). Water spray (fog). Alcohol resistant foam.

Unsuitable extinguishing media Caution: Use of water spray when fighting fire may be inefficient.

Flammable properties

Can burn in fire, releasing toxic vapors.

Specific hazards arising from the chemical

May react violently with. Nitric acid. Metal nitrates. Strong oxidizers. Alkali metals. Keep product and empty container away from heat and sources of ignition. Risk of ignition.

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Hazardous combustion products

dimethylamine.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

U.S. 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.

Personal precautions, protective equipment and emergency procedures

Personal precautions

Evacuate personnel to safe areas. Do not touch or walk through spilled material. Ventilate affected area. Use personal protective equipment as required.

For emergency responders

Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions

Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Do not flush into surface water or sanitary sewer system. See Section 12 for additional ecological information.

Methods and material for containment and cleaning up

Methods for containment

Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up

Neutralize spill if necessary. Soak up with inert absorbent material. Take up mechanically, placing in appropriate containers for disposal. Clean contaminated surface thoroughly. Dispose of in accordance with local, state and federal regulations or laws.

Emergency Response Guide Number

Not applicable

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling

Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Do not breathe dust/fume/gas/mist/vapors/spray.

Conditions for safe storage, including any incompatibilities

Storage Conditions

Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children. Keep containers tightly closed in a cool, well-ventilated place. Keep in properly labeled containers. Keep away from heat.

Flammability class

Class IIIB

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
N,N-Dimethylformamide 20 - 30%	TWA: 10 ppm S*	TWA: 10 ppm TWA: 30 mg/m ³ (vacated) TWA: 10 ppm (vacated) TWA: 30 mg/m ³ (vacated) SKN* *	IDLH: 500 ppm TWA: 10 ppm TWA: 30 mg/m ³

Chemical name	Alberta OEL	British Columbia OEL	Manitoba OEL	New Brunswick OEL	New Foundland & Labrador OEL
N,N-Dimethylformamide 20 - 30%	TWA: 10 ppm TWA: 30 mg/m ³ SKN*	TWA: 10 ppm SKN*	TWA: 10 ppm SKN*	TWA: 10 ppm TWA: 30 mg/m ³ SKN*	TWA: 10 ppm SKN*

Chemical name	Northwest Territories OEL	Nova Scotia OEL	Nunavut OEL	Ontario TWA	Prince Edward Island OEL
N,N-Dimethylformamide 20 - 30%	TWA: 10 ppm STEL: 15 ppm SKN*	TWA: 10 ppm SKN*	TWA: 10 ppm STEL: 15 ppm SKN*	TWA: 10 ppm SKN*	TWA: 10 ppm

Chemical name	Quebec OEL	Saskatchewan OEL	Yukon OEL
N,N-Dimethylformamide 20 - 30%	TWA: 10 ppm TWA: 30 mg/m ³ SKN*	TWA: 10 ppm STEL: 15 ppm SKN*	STEL: 20 ppm STEL: 60 mg/m ³ TWA: 10 ppm TWA: 30 mg/m ³ SKN*

Other Information Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

Legend See section 16 for terms and abbreviations

Appropriate engineering controls

Engineering Controls If no local exhaust use approved fume hood or self-contained breathing apparatus
 If no local exhaust use approved fume hood and/or respirator
 Showers
 Eyewash stations

Individual protection measures, such as personal protective equipment

Eye/face protection Avoid contact with eyes. Tight sealing safety goggles. and/or. Face protection shield.

Skin and body protection Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Respiratory protection Do not breathe gas/fumes/vapor/spray. If no local exhaust use approved fume hood and/or respirator. In case of inadequate ventilation wear respiratory protection.

General Hygiene Considerations Avoid breathing (dust, vapor, mist, gas). Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Wear suitable gloves and eye/face protection. Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Keep away from food, drink and animal feeding stuffs. Regular cleaning of equipment, work area and clothing is recommended. Handle in accordance with good industrial hygiene and safety practice. Avoid prolonged or repeated contact with skin. Take off all contaminated clothing and wash it before reuse.

Environmental exposure controls

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Liquid		
Gas Under Pressure	Not classified according to GHS criteria		
Appearance	aqueous solution	Color	Dark red to orange
Odor	Ammonia	Odor threshold	No data available

Property	Values	Remarks • Method
Molecular weight	No data available	
pH	8.0	
Melting point/freezing point	No data available	
Boiling point / boiling range	101 °C / 214 °F	
Evaporation rate	0.25 (water = 1)	
Vapor pressure	No data available	
Vapor density (air = 1)	No data available	
Specific gravity (water = 1 / air = 1)	1.044	
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

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

Solubility in other solvents

Chemical Name	Solubility classification	Solubility	Solubility Temperature
Acid	Soluble	> 1000 mg/L	25 °C / 77 °F

Other Information

Metal Corrosivity Not classified as corrosive to metal according to GHS criteria

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Steel Corrosion Rate	No data available
Aluminum Corrosion Rate	No data available
Bulk density	Not applicable
Explosive properties	Not classified according to GHS criteria.
Explosion data	Can burn in fire, releasing toxic vapors.
Upper explosion limit	No data available
Lower explosion limit	No data available
Flammable properties	Can burn in fire, releasing toxic vapors.
Flammability Limit in Air	
Upper flammability limit:	No data available
Lower flammability limit:	No data available
Flash point	> 94 °C / 201 °F
Method	CC (closed cup)
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.

10. STABILITY AND REACTIVITY

Reactivity properties

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

Chemical stability

Stable under recommended storage conditions.

Special dangers of the product

None reported

Possibility of Hazardous Reactions

None under normal processing.

Hazardous polymerization

Hazardous polymerization does not occur.

Conditions to avoid

Extremes of temperature and direct sunlight. Incompatible materials.

Incompatible materials

Strong oxidizing agents. Strong acids. Strong bases.

Hazardous Decomposition Products

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Nitrogen oxides. Carbon dioxide. Carbon monoxide.

Explosive properties

Not classified according to GHS criteria. Can burn in fire, releasing toxic vapors.

Upper explosion limit No data available

Lower explosion limit No data available

Autoignition temperature

No data available

Sensitivity to Static Discharge

None reported

Sensitivity to Mechanical Impact

None reported

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Product Information	Corrosive to eyes. Causes mild skin irritation. MAY BE HARMFUL IF ABSORBED THROUGH SKIN.
Inhalation	No known effect based on information supplied.
Eye contact	Corrosive to the eyes and may cause severe damage including blindness.
Skin contact	Causes mild skin irritation. May be harmful in contact with skin.
Ingestion	No known effect based on information supplied.
Aggravated Medical Conditions	Eye disorders.
Toxicologically synergistic products	Exposure to and/or consumption of alcohol may increase toxic effects of this product.
Toxicokinetics, metabolism and distribution	No information available.

Product Acute Toxicity Data

Oral Exposure Route	No data available
Dermal Exposure Route	No data available
Inhalation (Dust/Mist) Exposure Route	No data available
Inhalation (Vapor) Exposure Route	No data available
Inhalation (Gas) Exposure Route	No data available

Acute Toxicity Estimations (ATE)

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	6,391.00 mg/kg
ATEmix (dermal)	4,073.00 mg/kg
ATEmix (inhalation-dust/mist)	5.60 mg/L
ATEmix (inhalation-vapor)	41.00 mg/L

Ingredient Acute Toxicity Data

Oral Exposure Route

If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
N,N-Dimethylformamide (20 - 30%) CAS#: 68-12-2	Rat LD ₅₀	2800 mg/kg	None reported	None reported	IUCLID (The International Uniform Chemical Information Database)
Octylphenol	Rat	1700 mg/kg	None	None reported	No information available

ethoxylate (7 - 13%) CAS#: 9036-19-5	LD ₅₀		reported		
Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Octylphenol ethoxylate (7 - 13%) CAS#: 9036-19-5	Rat LD ₅₀	4190 mg/kg	None reported	None reported	RTECS (Registry of Toxic Effects of Chemical Substances)

Dermal Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
N,N-Dimethylformamide (20 - 30%) CAS#: 68-12-2	Rat LD ₅₀	1100 mg/kg	None reported	None reported	IUCLID (The International Uniform Chemical Information Database)
Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Octylphenol ethoxylate (7 - 13%) CAS#: 9036-19-5	Rabbit LD ₅₀	> 3000 mg/kg	None reported	None reported	Vendor SDS

Inhalation (Dust/Mist) Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
N,N-Dimethylformamide (20 - 30%) CAS#: 68-12-2	Rat LC ₅₀	> 5.9 mg/L	4 hours	None reported	IUCLID (The International Uniform Chemical Information Database)

Inhalation (Vapor) Exposure Route If available, see data below

Inhalation (Gas) Exposure Route If available, see data below

Product Specific Target Organ Toxicity Single Exposure Data

Oral Exposure Route	No data available
Dermal Exposure Route	No data available
Inhalation (Dust/Mist) Exposure Route	No data available
Inhalation (Vapor) Exposure Route	No data available
Inhalation (Gas) Exposure Route	No data available

Ingredient Specific Target Organ Toxicity Single Exposure Data

Oral Exposure Route	If available, see data below
Dermal Exposure Route	If available, see data below
Inhalation (Dust/Mist) Exposure Route	If available, see data below
Inhalation (Vapor) Exposure Route	If available, see data below
Inhalation (Gas) Exposure Route	If available, see data below

Aspiration toxicity

No data available

Product Skin Corrosion/Irritation Data

Test data reported below.

Test method	Species	Reported dose	Exposure time	Results
Standard Draize Test	Human	None reported	24 hours	Mild skin irritant

Ingredient Skin Corrosion/Irritation Data

If available, see data below

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
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N,N-Dimethylformamide (20 - 30%) CAS#: 68-12-2	Standard Draize Test	Human	1000 mg	None reported	Mild skin irritant	RTECS (Registry of Toxic Effects of Chemical Substances)
Octylphenol ethoxylate (7 - 13%) CAS#: 9036-19-5	Existing human experience	Human	None reported	None reported	Not corrosive or irritating to skin	Vendor SDS

Product Serious Eye Damage/Eye Irritation Data

No data available.

<u>Species</u>

Ingredient Eye Damage/Eye Irritation Data

If available, see data below

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
N,N-Dimethylformamide (20 - 30%) CAS#: 68-12-2	Rinse Test	Rabbit	100 mg	None reported	Corrosive to eyes	RTECS (Registry of Toxic Effects of Chemical Substances)
Octylphenol ethoxylate (7 - 13%) CAS#: 9036-19-5	Standard Draize Test	Rabbit	100 mg	None reported	Corrosive to eyes	RTECS (Registry of Toxic Effects of Chemical Substances)

Sensitization Information

Product Sensitization Data

Skin Sensitization Exposure Route

No data available.

Respiratory Sensitization Exposure Route

No data available.

Ingredient Sensitization Data

Skin Sensitization Exposure Route

If available, see data below.

Chemical name	Test method	Species	Results	Key literature references and sources for data
N,N-Dimethylformamide (20 - 30%) CAS#: 68-12-2	OECD Test No. 406: Skin Sensitization	Guinea pig	Not confirmed to be a skin sensitizer	IUCLID (The International Uniform Chemical Information Database)

Respiratory Sensitization Exposure Route

If available, see data below.

Chronic Toxicity Information

Product Specific Target Organ Toxicity Repeat Dose Data

Oral Exposure Route

No data available.

Dermal Exposure Route

No data available.

Inhalation (Dust/Mist) Exposure Route

No data available.

Inhalation (Vapor) Exposure Route

No data available.

Inhalation (Gas) Exposure Route

No data available.

Ingredient Specific Target Organ Toxicity Repeat Exposure Data

Oral Exposure Route

If available, see data below

Dermal Exposure Route

If available, see data below

Inhalation (Dust/Mist) Exposure Route

If available, see data below

Inhalation (Vapor) Exposure Route

If available, see data below

Inhalation (Gas) Exposure Route

If available, see data below

Product Carcinogenicity Data

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Oral Exposure Route	No data available
Dermal Exposure Route	No data available
Inhalation (Dust/Mist) Exposure Route	No data available
Inhalation (Vapor) Exposure Route	No data available
Inhalation (Gas) Exposure Route	No data available

Ingredient Carcinogenicity Data

Chemical name	CAS No.	ACGIH	IARC	NTP	OSHA
N,N-Dimethylformamide	68-12-2	-	Group 2A	-	X
Ammonium acetate	631-61-8	-	-	-	-
Octylphenol ethoxylate	9036-19-5	-	-	-	-

Legend

ACGIH (American Conference of Governmental Industrial Hygienists)	Does not apply
IARC (International Agency for Research on Cancer)	Group 3 - Not classifiable as a human carcinogen Group 2A - Probably Carcinogenic to Humans
NTP (National Toxicology Program)	Does not apply
OSHA (Occupational Safety and Health Administration of the US Department of Labor)	X - Present

Oral Exposure Route	If available, see data below
Dermal Exposure Route	If available, see data below
Inhalation (Dust/Mist) Exposure Route	If available, see data below
Inhalation (Vapor) Exposure Route	If available, see data below
Inhalation (Gas) Exposure Route	If available, see data below

Product Germ Cell Mutagenicity Data
No data available.

Ingredient Germ Cell Mutagenicity Data

If available, see data below

Chemical name	Test	Cell Strain	Reported dose	Exposure time	Results	Key literature references and sources for data
N,N-Dimethylformamide (20 - 30%) CAS#: 68-12-2	Mutation in microorganisms	<i>Salmonella typhimurium</i>	None reported	None reported	Negative test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)
Octylphenol ethoxylate (7 - 13%) CAS#: 9036-19-5	DNA inhibition	Human lymphocyte	5 mg/L	None reported	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical name	Test	Cell Strain	Reported dose	Exposure time	Results	Key literature references and sources for data
Octylphenol ethoxylate (7 - 13%) CAS#: 9036-19-5	DNA inhibition	Mouse cells - not specified	10 mg/L	None reported	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)

Product Germ Cell Mutagenicity Data

Oral Exposure Route	No data available
Dermal Exposure Route	No data available
Inhalation (Dust/Mist) Exposure Route	No data available
Inhalation (Vapor) Exposure Route	No data available
Inhalation (Gas) Exposure Route	No data available

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Ingredient Germ Cell Mutagenicity Data

Oral Exposure Route

If available, see data below

Chemical name	Test	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Octylphenol ethoxylate (7 - 13%) CAS#: 9036-19-5	None reported	Rat	10200 mg/kg	None reported	Positive test result for mutagenicity	Vendor SDS

Dermal Exposure Route

If available, see data below

Inhalation (Dust/Mist) Exposure Route

If available, see data below

Inhalation (Vapor) Exposure Route

If available, see data below

Inhalation (Gas) Exposure Route

If available, see data below

Product Reproductive Toxicity Data

Oral Exposure Route

No data available

Dermal Exposure Route

No data available

Inhalation (Dust/Mist) Exposure Route

No data available

Inhalation (Vapor) Exposure Route

No data available

Inhalation (Gas) Exposure Route

No data available

Ingredient Reproductive Toxicity Data

Oral Exposure Route

If available, see data below

Inhalation (Dust/Mist) Exposure Route

If available, see data below

Inhalation (Vapor) Exposure Route

If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
N,N-Dimethylformamide (20 - 30%) CAS#: 68-12-2	Mouse TD _{Lo}	50 mg/L	6 hours	Paternal Effects Spermatogenesis (including genetic material, sperm morphology, motility, and count)	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Gas) Exposure Route

If available, see data below

12. ECOLOGICAL INFORMATION

Ecotoxicity

Very toxic to aquatic life with long lasting effects.

Product Ecological Data

Aquatic toxicity

Fish

No data available

Crustacea

No data available

Algae

No data available

Ingredient Ecological Data

Aquatic toxicity

Fish

If available, see ingredient data below

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
N,N-Dimethylformamide (20 - 30%) CAS#: 68-12-2	96 hours	<i>Lepomis macrochirus</i>	LC ₅₀	7100 mg/L	PEEN (Pan European Ecological Network)
Octylphenol ethoxylate (7 - 13%) CAS#: 9036-19-5	96 hours	<i>Lepomis macrochirus</i>	LC ₅₀	> 10 mg/L	Vendor SDS

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Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Octylphenol ethoxylate (7 - 13%) CAS#: 9036-19-5	7 days	<i>Oncorhynchus mykiss</i>	NOEC	0.004 mg/L	EPA (United States Environmental Protection Agency)

Crustacea If available, see ingredient data below

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
N,N-Dimethylformamide (20 - 30%) CAS#: 68-12-2	48 Hours	<i>Daphnia magna</i>	EC ₅₀	7500 mg/L	PEEN (Pan European Ecological Network)
Octylphenol ethoxylate (7 - 13%) CAS#: 9036-19-5	48 Hours	<i>Daphnia magna</i>	EC ₅₀	>= 18 mg/L	ERMA (New Zealand's Environmental Risk Management Authority)

Algae If available, see ingredient data below

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
N,N-Dimethylformamide (20 - 30%) CAS#: 68-12-2	96 hours	<i>Scenedesmus subspicatus</i>	EC ₅₀	> 500 mg/L	PEEN (Pan European Ecological Network)
Octylphenol ethoxylate (7 - 13%) CAS#: 9036-19-5	96 hours	<i>Selenastrum sp.</i>	EC ₅₀	0.21 mg/L	Vendor SDS

Other Information

Persistence and degradability

Product Biodegradability Data

If available, see ingredient data below.

Ingredient Biodegradability Data

Test data reported below

Chemical name	Test method	Biodegradation	Exposure time	Results
Octylphenol ethoxylate (7 - 13%) CAS#: 9036-19-5	OECD Test No. 301D: Ready Biodegradability: Closed Bottle Test (TG 301 D)	None reported	None reported	Readily biodegradable

Bioaccumulation

Product Bioaccumulation Data

No data available.

Partition Coefficient (n-octanol/water)

Not applicable

Ingredient Bioaccumulation Data

No data available

Chemical name	Partition Coefficient (n-octanol/water)	Method
N,N-Dimethylformamide (20 - 30%) CAS#: 68-12-2	log K _{ow} = 0.75	No information available
Octylphenol ethoxylate	log K _{ow} = 2.7	No information available

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(7 - 13%) CAS#: 9036-19-5		
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Mobility

Product Information

Soil Organic Carbon-Water Partition Coefficient Not applicable

Water solubility

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

Ingredient Information

Chemical name	Water solubility classification	Water solubility	Water solubility temperature °C	Water solubility temperature °F
N,N-Dimethylformamide CAS#: 68-12-2	Soluble	> 1000 mg/L	25 °C	77 °F
Ammonium acetate CAS#: 631-61-8	Soluble	> 1000 mg/L	25 °C	77 °F
Octylphenol ethoxylate CAS#: 9036-19-5	Soluble	> 1000 mg/L	25 °C	77 °F

Other adverse effects

Contains a substance with an endocrine-disrupting potential.

Chemical name	EU - Endocrine Disruptors Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Endocrine disrupting potential
N,N-Dimethylformamide (20 - 30%) CAS#: 68-12-2	Group III Chemical	-	-
Octylphenol ethoxylate (7 - 13%) CAS#: 9036-19-5	Group III Chemical	-	-

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes Disposal should be in accordance with applicable regional, national, and local laws and regulations.

Contaminated packaging Disposal should be in accordance with applicable regional, national, and local laws and regulations.

Special instructions for disposal Dispose of material in an E.P.A. approved hazardous waste facility.

14. TRANSPORT INFORMATION

U.S. DOT Not regulated

TDG Not regulated

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IATA Not regulated

IMDG Not regulated
Marine pollutant This material meets the definition of a marine pollutant

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.

15. REGULATORY INFORMATION

National Inventories

TSCA Complies
DSL/NDSL Complies

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

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

International Inventories

EINECS/ELINCS Complies
ENCS Does not comply
IECSC Complies
KECL Does not comply
PICCS Does not comply
TCSI Complies
AICS Complies
NZIoC Complies

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

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical name	SARA 313 - Threshold Values %
N,N-Dimethylformamide (CAS #: 68-12-2)	1.0
Ammonium acetate (CAS #: 631-61-8)	1.0

SARA 311/312 Hazard Categories

Acute health hazard	Yes
Chronic Health Hazard	Yes
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

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This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Ammonium acetate 631-61-8	5000 lb	-	-	X

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

Chemical name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
N,N-Dimethylformamide 68-12-2	100 lb	-	RQ 100 lb final RQ RQ 45.4 kg final RQ
Ammonium acetate 631-61-8	5000 lb	-	RQ 5000 lb final RQ RQ 2270 kg final RQ

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
N,N-Dimethylformamide 68-12-2	X	X	X
Ammonium acetate 631-61-8	X	X	X

U.S. EPA Label Information

Chemical name	FIFRA	FDA
Octylphenol ethoxylate	180.0940	-

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

Special Comments

None

Additional information

Global Automotive Declarable Substance List (GADSL)

Chemical name	Global Automotive Declarable Substance List Classifications	Global Automotive Declarable Substance List Thresholds
N,N-Dimethylformamide 68-12-2	Declarable Substance (LR)	0.1 %

NFPA and HMIS Classifications

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NFPA	Health hazards - 3	Flammability - 1	Instability - 0	Physical and Chemical Properties -
HMIS	Health hazards - 3	Flammability - 1	Physical Hazards - 0	Personal protection - X - See section 8 for more information

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

NIOSH IDLH	<i>Immediately Dangerous to Life or Health</i>
ACGIH	ACGIH (American Conference of Governmental Industrial Hygienists)
NDF	<i>no data</i>

Legend - Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
MAC	Maximum Allowable Concentration	Ceiling	Ceiling Limit Value
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 "liberated" exposure limits in their state regulations.
SKN*	Skin designation	SKN+	Skin sensitization
RSP+	Respiratory sensitization	**	Hazard Designation
C	Carcinogen	R	Reproductive toxicant
M	mutagen		

Prepared By Hach Product Compliance Department

Issue Date 22-Jun-2016

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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.

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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End of Safety Data Sheet