# SAFETY DATA SHEET



## 1. IDENTIFICATION

**Product identifier**
**Product Name** Ammonia ULR TNT Reagent A

**Other means of identification**
**Product Code(s)** TNT830A

**Safety data sheet number** M01878

**UN/ID no** UN3316

**Recommended use of the chemical and restrictions on use**
**Recommended Use** Laboratory reagent. Determination of ammonium nitrogen.
**Uses advised against** Consumer use.
**Restrictions on use** For Laboratory Use Only.

**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

## 2. HAZARDS IDENTIFICATION

**Classification**

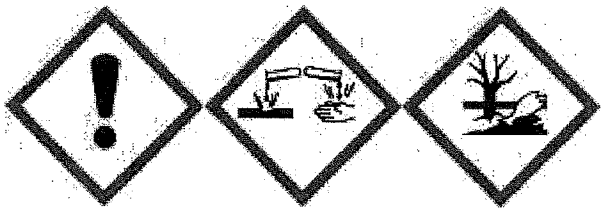
**Regulatory Status**
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

| | |
|---|---|
| Acute toxicity - Oral | Category 4 |
| Skin corrosion/irritation | Category 2 |
| Serious eye damage/eye irritation | Category 1 |
| Chronic aquatic toxicity | Category 2 |

**Hazards not otherwise classified (HNOC)**
Not applicable

**Label elements**

**Signal word**
Danger



**Hazard statements**
H302 - Harmful if swallowed
H315 - Causes skin irritation
H318 - Causes serious eye damage
H411 - Toxic to aquatic life with long lasting effects

**Precautionary statements**
P270 - Do not eat, drink or smoke when using this product
P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
P330 - Rinse mouth
P501 - Dispose of contents/ container to an approved waste disposal plant
P280 - Wear protective gloves, protective clothing, eye protection, and face protection
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P332 + P313 - If skin irritation occurs: Get medical attention
P362 - Take off contaminated clothing and wash before reuse
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/physician
P273 - Avoid release to the environment
P391 - Collect spillage

**Other Hazards Known**
Toxic to aquatic life

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Substance**
Not applicable

**Mixture**

**Chemical Family** Mixture.
**Chemical nature** Mixture of inorganic salts, Mixture of organic compounds.

**Percent ranges are used where confidential product information is applicable.**

| Chemical name | CAS No | Percent Range | HMRIC # |
|---|---|---|---|
| Sodium nitroferricyanide | 14402-89-2 | 10 - 13% | - |
| Dichloroisocyanuric acid, sodium salt | 2893-78-9 | 10 - 13% | - |

## 4. FIRST AID MEASURES

**Description of first aid measures**

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

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

**Eye contact** Get immediate medical advice/attention. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do.

Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area.

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

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

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

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

**Symptoms** Burning sensation.

**Indication of any immediate medical attention and special treatment needed**

**Note to physicians** Treat symptomatically.

## 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.

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

**Hazardous combustion products** Chlorides. Sodium monoxide. Nitrogen oxides. Carbon monoxide, Carbon dioxide. Cyanide compounds.

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

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

**Other Information** Refer to protective measures listed in Sections 7 and 8.

**Environmental precautions**

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

**Methods and material for containment and cleaning up**

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

**Methods for cleaning up** Take up mechanically, placing in appropriate containers for disposal.

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

**Reference to other sections** See section 8 for more information. See section 13 for more information.

## 7. HANDLING AND STORAGE

**Precautions for safe handling**

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

**Conditions for safe storage, including any incompatibilities**

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

**Flammability class** Not applicable

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control parameters**

**Exposure Guidelines**

| Chemical name | ACGIH TLV | OSHA PEL | NIOSH |
|---|---|---|---|
| Sodium nitroferricyanide<br>CAS#: 14402-89-2 | TWA: 1 mg/m³ Fe | TWA: 5 mg/m³<br>(vacated) TWA: 1 mg/m³<br>(vacated) TWA: 5 mg/m³<br>* | IDLH: 25 mg/m³ CN<br>TWA: 1 mg/m³ Fe |

**Appropriate engineering controls**

**Engineering Controls** Showers
Eyewash stations
Ventilation systems.

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

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

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

**Eye/face protection** Tight sealing safety goggles.

**Skin and body protection** Wear suitable protective clothing. Long sleeved clothing.

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

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

**Thermal hazards** None under normal processing.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Information on basic physical and chemical properties**

| | | | |
|---|---|---|---|
| **Physical state** | Solid | | |
| **Appearance** | pellets | **Color** | white |
| **Odor** | Odorless | **Odor threshold** | Not applicable |

| Property | Values | Remarks • Method |
|---|---|---|
| **Molecular weight** | Not applicable | |
| **pH** | 7 | 5% @ 20°C |
| **Melting point / freezing point** | No data available | |
| **Initial boiling point and boiling range** | No data available | |
| **Evaporation rate** | Not applicable | |
| **Vapor pressure** | Not applicable | |
| **Relative vapor density** | No data available | |
| **Specific Gravity** | No data available | |
| **Partition coefficient** | log $K_{ow}$ ~ 0.08 | |
| **Soil Organic Carbon-Water Partition Coefficient** | log $K_{oc}$ ~ -0.03 | |
| **Autoignition temperature** | No data available | |
| **Decomposition temperature** | No data available | |
| **Dynamic viscosity** | Not applicable | |
| **Kinematic viscosity** | Not applicable | |

**Solubility(ies)**

**Water solubility**

| Water solubility classification | Water solubility | Water Solubility Temperature |
|---|---|---|
| Completely soluble | 160000 mg/L | 20 °C / 68 °F |

**Solubility in other solvents**

| Chemical Name | Solubility classification | Solubility | Solubility Temperature |
|---|---|---|---|
| None reported | No information available | No data available | No information available |

**Other information**

**Metal Corrosivity**

| | |
|---|---|
| **Steel Corrosion Rate** | Not applicable |
| **Aluminum Corrosion Rate** | Not applicable |

**Volatile Organic Compounds (VOC) Content**
Not applicable

| Chemical name | CAS No | Volatile organic compounds (VOC) content | CAA (Clean Air Act) |
|---|---|---|---|
| Sodium nitroferricyanide | 14402-89-2 | No data available | - |
| Dichloroisocyanuric acid, sodium salt | 2893-78-9 | No data available | - |

**Explosive properties**

**Upper explosion limit** No data available
**Lower explosion limit** No data available

**Flammable properties**

**Flash point** Not applicable

**Flammability Limit in Air**
**Upper flammability limit:** No data available
**Lower flammability limit:** No data available

**Oxidizing properties** No data available.

**Bulk density** No data available

## 10. STABILITY AND REACTIVITY

**Reactivity**
Not applicable.

**Chemical stability**
Stable under normal conditions.

**Explosion data**
**Sensitivity to Mechanical Impact** None.
**Sensitivity to Static Discharge** None.

**Possibility of hazardous reactions**
None under normal processing.

**Hazardous polymerization**
Hazardous polymerization does not occur.

**Conditions to avoid**
None known based on information supplied.

**Incompatible materials**
Strong acids. Strong bases. Strong oxidizing agents.

**Hazardous decomposition products**
Cyanide. Nitrogen oxides. Sodium oxides. Carbon dioxide. Carbon monoxide. Chlorides.

## 11. TOXICOLOGICAL INFORMATION

**Information on likely routes of exposure**

**Product Information**

**Inhalation** May cause irritation of respiratory tract.

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

**Skin contact** Causes skin irritation.

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

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

**Acute toxicity**
Harmful if swallowed

**Mixture**
No data available.

**Ingredient Acute Toxicity Data**
Test data reported below.

**Oral Exposure Route**

| Chemical name | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
|---|---|---|---|---|---|
| Sodium nitroferricyanide (10 - 13%) CAS#: 14402-89-2 | Rat $LD_{50}$ | 99 mg/kg | None reported | None reported | LOLI |
| Dichloroisocyanuric acid, sodium salt (10 - 13%) CAS#: 2893-78-9 | Rat $LD_{50}$ | 750 mg/kg | None reported | None reported | ERMA HSDB |

**Dermal Exposure Route**

| Chemical name | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
|---|---|---|---|---|---|
| Dichloroisocyanuric acid, sodium salt (10 - 13%) CAS#: 2893-78-9 | Rabbit $LD_{50}$ | > 10000 mg/kg | None reported | None reported | No information available |

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

| Chemical name | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
|---|---|---|---|---|---|
| Dichloroisocyanuric acid, sodium salt (10 - 13%) CAS#: 2893-78-9 | Rat $LC_{50}$ | 1.17 mg/L | 4 hours | None reported | IUCLID |

**Unknown Acute Toxicity**
0% of the mixture consists of ingredient(s) of unknown toxicity.

**Acute Toxicity Estimations (ATE)**

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

| | |
|---|---|
| **ATEmix (oral)** | 839.20 mg/kg |
| **ATEmix (dermal)** | No information available |
| **ATEmix (inhalation-dust/mist)** | 11.45 mg/l |

| | |
|---|---|
| **ATEmix (inhalation-vapor)** | No information available |
| **ATEmix (inhalation-gas)** | No information available |

**Skin corrosion/irritation**
Classification based on data available for ingredients. Irritating to skin.

**Mixture**
No data available.

**Ingredient Skin Corrosion/Irritation Data**
Test data reported below.

| Chemical name | Test method | Species | Reported dose | Exposure time | Results | Key literature references and sources for data |
|---|---|---|---|---|---|---|
| Dichloroisocyanuric acid, sodium salt (10 - 13%) CAS#: 2893-78-9 | Existing human experience | Human | None reported | None reported | Skin irritant | HSDB |

**Serious eye damage/irritation**
Classification based on data available for ingredients. Causes burns. Risk of serious damage to eyes.

**Mixture**
No data available.

**Ingredient Eye Damage/Eye Irritation Data**
Test data reported below.

| Chemical name | Test method | Species | Reported dose | Exposure time | Results | Key literature references and sources for data |
|---|---|---|---|---|---|---|
| Dichloroisocyanuric acid, sodium salt (10 - 13%) CAS#: 2893-78-9 | Existing human experience | Human | None reported | None reported | Corrosive to eyes | HSDB |

**Respiratory or skin sensitization**
Based on available data, the classification criteria are not met.

**Mixture**
No data available.

**Ingredient Sensitization Data**
No data available.

**STOT - single exposure**
Based on available data, the classification criteria are not met.

**Mixture**
No data available.

**Ingredient Specific Target Organ Toxicity Single Exposure Data**
No data available.

**STOT - repeated exposure**
Based on available data, the classification criteria are not met.

**Mixture**
No data available.

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

No data available.

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

**Mixture**
No data available.

**Ingredient Carcinogenicity Data**
No data available.

| Chemical name | CAS No | ACGIH | IARC | NTP | OSHA |
|---|---|---|---|---|---|
| Sodium nitroferricyanide | 14402-89-2 | - | - | - | - |
| Dichloroisocyanuric acid, sodium salt | 2893-78-9 | - | - | - | - |

**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** | Does not apply |

**Germ cell mutagenicity**
Based on available data, the classification criteria are not met.

**Mixture *invitro* Data**
No data available.

**Substance *invitro* Data**
No data available.

**Mixture *invivo* Data**
No data available.

**Substance *invivo* Data**
No data available.

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

**Mixture**
No data available.

**Ingredient Reproductive Toxicity Data**
Test data reported below.

**Oral Exposure Route**

| Chemical name | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
|---|---|---|---|---|---|
| Dichloroisocyanuric acid, sodium salt (10 - 13%) CAS#: 2893-78-9 | Mouse $TD_{Lo}$ | 4000 mg/kg | 9 days | **Effects on Newborn** Growth statistics (e.g. % reduced weight gain) Physical **Specific Developmental Abnormalities** Musculoskeletal system | RTECS |

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

## 12. ECOLOGICAL INFORMATION

This product contains a chemical which is listed as a marine pollutant according to DOT.

**Ecotoxicity** Toxic to aquatic life with long lasting effects.

**Unknown aquatic toxicity** 0% of the mixture consists of components(s) of unknown hazards to the aquatic environment.

**Mixture**

**Aquatic Acute Toxicity**
No data available.

**Aquatic Chronic Toxicity**
No data available.

**Substance**

**Aquatic Acute Toxicity**
Test data reported below.

**Fish**

| Chemical name | Exposure time | Species | Endpoint type | Reported dose | Key literature references and sources for data |
|---|---|---|---|---|---|
| Dichloroisocyanuric acid, sodium salt (10 - 13%) CAS#: 2893-78-9 | 96 hours | *Oncorhynchus mykiss* | $LC_{50}$ | 0.25 mg/L | PEEN |

**Crustacea**

| Chemical name | Exposure time | Species | Endpoint type | Reported dose | Key literature references and sources for data |
|---|---|---|---|---|---|
| Dichloroisocyanuric acid, sodium salt (10 - 13%) CAS#: 2893-78-9 | 48 Hours | *Daphnia magna* | $LC_{50}$ | 0.28 mg/L | ECHA<br>PEEN |

**Aquatic Chronic Toxicity**
No data available.

**Persistence and degradability**

**Mixture**
No data available.

Bioaccumulation
MATERIAL DOES NOT BIOACCUMULATE
**Mixture**
No data available.

**Partition coefficient** log $K_{ow}$ ~ 0.08

**Mobility**

**Soil Organic Carbon-Water Partition Coefficient** log $K_{oc}$ ~ -0.03

**Other adverse effects**

No information available

| Chemical name | EU - Endocrine Disrupters Candidate List | EU - Endocrine Disrupters - Evaluated Substances | Endocrine disrupting potential |
|---|---|---|---|
| Sodium nitroferricyanide (10 - 13%) CAS#: 14402-89-2 | Group III Chemical | - | - |
| Dichloroisocyanuric acid, sodium salt (10 - 13%) CAS#: 2893-78-9 | Group III Chemical | - | - |

## 13. DISPOSAL CONSIDERATIONS

**Waste treatment methods**

**Waste from residues/unused products** Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

**Contaminated packaging** Do not reuse empty containers.

**US EPA Waste Number** Not applicable

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

## 14. TRANSPORT INFORMATION

**DOT**

**UN/ID no** UN3316
**Proper shipping name** CHEMICAL KIT
**Transport hazard class(es)** 9
**Marine pollutant** This product contains a chemical which is listed as a marine pollutant according to DOT.
**Description** UN3316, CHEMICAL KIT, 9, Marine pollutant
**Emergency Response Guide Number** 171

**TDG**

**UN/ID no** UN3316
**Proper shipping name** CHEMICAL KIT
**Transport hazard class(es)** 9
**Marine pollutant** This product contains a chemical which is listed as a marine pollutant according to TDG.
**Description** UN3316, CHEMICAL KIT, 9

**IATA**

**UN number or ID number** UN3316
**Proper shipping name** Chemical kit
**Transport hazard class(es)** 9
**Packing group** II
**ERG Code** 9L
**Description** UN3316, Chemical kit, 9

**IMDG**

**UN number or ID number** UN3316
**Proper shipping name** CHEMICAL KIT
**Transport hazard class(es)** 9
**EmS-No** F-A, S-P
**Special precautions for user** 251, 340
**Marine pollutant** This material meets the definition of a marine pollutant This product contains a chemical which is listed as a marine pollutant according to IMDG/IMO
**Description** UN3316, CHEMICAL KIT, 9, Marine pollutant

**Additional information**
This product forms part of a kit. Information in this section relates to the kit as a whole.
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 - Existing substances** | 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 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 nitroferricyanide (CAS #: 14402-89-2) | 1.0 |

**SARA 311/312 Hazard Categories**

| | |
|---|---|
| **Acute health hazard** | Yes |
| **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)

| Chemical name | CWA - Reportable Quantities | CWA - Toxic Pollutants | CWA - Priority Pollutants | CWA - Hazardous Substances |
|---|---|---|---|---|
| Sodium nitroferricyanide 14402-89-2 | - | X | 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

## US State Regulations

### California Proposition 65

This product does not contain any Proposition 65 chemicals

**IMERC:** Not applicable

### U.S. State Right-to-Know Regulations

This product may contain substances regulated by state right-to-know regulations.

| Chemical name | New Jersey | Massachusetts | Pennsylvania |
|---|---|---|---|
| Sodium nitroferricyanide<br>14402-89-2 | X | - | X |
| Dichloroisocyanuric acid, sodium salt<br>2893-78-9 | X | X | X |

### U.S. EPA Label Information

| Chemical name | FIFRA | FDA |
|---|---|---|
| Dichloroisocyanuric acid, sodium salt | 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 Thersholds |
|---|---|---|
| Dichloroisocyanuric acid, sodium salt<br>2893-78-9 | Declarable Substance (LR)<br>Prohibited Substance (LR) | None reported |

### 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 - I |

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

| | |
|---|---|
| ACGIH | ACGIH (American Conference of Governmental Industrial Hygienists) |
| ATSDR | ATSDR (Agency for Toxic Substances and Disease Registry) |
| CCRIS | CCRIS (Chemical Carcinogenesis Research Information System) |
| CDC | CDC (Center for Disease Control) |
| CEPA | CEPA (Canadian Environmental Protection Agency) |
| CICAD | CICAD (Concise International Chemical Assessment Documents) |
| ECHA | ECHA (The European Chemicals Agency) |

| | |
|---|---|
| EEA | EEA (European Environment Agency) |
| EPA | EPA (Environmental Protection Agency) |
| ERMA | ERMA (New Zealands Environmental Risk Management Authority) |
| ECOSARS | Estimation through ECOSARS v1.11 part of the Estimation Programs Interface (EPI) Suite™ |
| FDA | FDA (Food & Drug Administration) |
| GESTIS | GESTIS (Information System on Hazardous Substances of the German Social Accident Insurance) |
| HSDB | HSDB (Hazardous Substances Data Bank) |
| INERIS | INERIS (The National Industrial Environment and Risks Institute) |
| IPCS INCHEM | IPCS INCHEM (International Programme on Chemical Safety) |
| IUCLID | IUCLID (The International Uniform Chemical Information Database) |
| NITE | Japan National Institute of Technology and Evaluation (NITE) |
| NIH | NIH (National Institutes of Health) |
| NIOSH | NIOSH (National Institute for Occupational Safety and Health) |
| LOLI | LOLI (List of Lists - An International Chemical Regulatory Database) |
| NDF | no data |
| NICNAS | Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS) |
| NIOSH IDLH | Immediately Dangerous to Life or Health |
| OSHA | OSHA (Occupational Safety and Health Administration of the US Department of Labor) |
| PEEN | PEEN (Pan European Ecological Network) |
| RTECS | RTECS (Registry of Toxic Effects of Chemical Substances) |
| SIDS | SIDS (Screening Information Dataset) for High Volume Chemicals |
| SYKE | The Finnish Environment Institute (SYKE) |
| USDA | USDA (United States Department of Agriculture) |
| USDC | USDC (United States Department of Commerce) |
| WHO | WHO (World Health Organization) |

**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** | 18-Nov-2020 |
| **Revision Date** | 08-Feb-2023 |
| **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.**

End of Safety Data Sheet