



**Be Right™**

# SAFETY DATA SHEET

Issue Date 26-02-2019

Revision Date 26-Sep-2022

Version 3.2

## Section 1: Identification: Product identifier and chemical identity

### Product identifier

**Product Name** SPADNS2 (Arsenic-Free) Fluoride Reagent  
**Product Code(s)** 2947549

### Other means of identification

**Safety data sheet number** M02594

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

**Recommended Use** Water Analysis. Determination of fluoride.

**Uses advised against** No information available

### Details of manufacturer or importer

#### **Manufacturer**

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

#### **Supplier**

HACH Pacific, 26 Brindley Street, Dandenong South, VIC 3175, Australia, Tel: 1300 887 735

### Emergency telephone number

13 11 26

## Section 2: Hazard(s) identification

### GHS Classification

<b>Corrosive to metals</b>	Category 1 - (H290)
<b>Skin corrosion/irritation</b>	Category 1 - (H314)
<b>Serious eye damage/eye irritation</b>	Category 1 - (H318)

### Label elements

Corrosion  
Corrosion



**Signal word** - Danger

### **Hazard statements**

H290 - May be corrosive to metals

H314 - Causes severe skin burns and eye damage

### EU Specific Hazard Statements

Not applicable

### Precautionary statements

P260 - Do not breathe dust/fume/gas/mist/vapors/spray

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

P405 - Store locked up

P501 - Dispose of contents/ container to an approved waste disposal plant

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

P234 - Keep only in original container

P390 - Absorb spillage to prevent material damage

### Other hazards which do not result in classification

None known

## Section 3: Composition and information on ingredients, in accordance with Schedule 8

**Chemical Family** Mixture

### Substance

Not applicable

### Mixture

Chemical name	Formula	CAS No	EC No (EU Index No)	Percent Range
Hydrochloric acid	HCl	7647-01-0	231-595-7	10 - 20%
Zirconium oxychloride	ZrOCl <sub>2</sub>	7699-43-6	231-717-9	<0.1%

## Section 4: FIRST AID MEASURES

### Emergency telephone number

Poisons Information Center, Australia: 13 11 26

Poisons Information Center, New Zealand: 0800 764 766

### Description of necessary first aid measures

<b>General advice</b>	Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.
<b>Inhalation</b>	Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. 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. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur. Get immediate medical advice/attention.
<b>Skin contact</b>	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get immediate medical advice/attention.
<b>Eye contact</b>	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. Get immediate medical advice/attention.

**Ingestion** Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Get immediate medical advice/attention.

**For emergency responders**

**Self-protection of the first aider**

Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8). Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation.

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

**Symptoms** Burning sensation.

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

**Note to physicians** pressure may occur with moist rales, frothy sputum, and high pulse pressure.

## Section 5: Firefighting measures

**Suitable Extinguishing Media**

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

**Unsuitable Extinguishing Media** No information available

**Specific hazards arising from the chemical**

The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors.

**Flammable properties**

During a fire, irritating and highly toxic gases may be generated by thermal decomposition. Not Flammable, but reacts with most metals to form flammable hydrogen gas.

**Explosive properties**

Not classified according to GHS criteria.

**Hazardous combustion products** This material will not burn.

**Specific/special fire-fighting measures**

No information available.

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

Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

## Section 6: ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures**

**Personal precautions**

Evacuate personnel to safe areas. Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Keep people away from and upwind of spill/leak. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Attention! Corrosive material. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

**Other Information**

Use personal protective equipment as required. Refer to protective measures listed in Sections 7 and 8.

**For emergency responders**

Use personal protection recommended in Section 8.

**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. Prevent further leakage or spillage if safe to do so. Should not be released into the environment. Do not allow to enter into soil/subsoil. Prevent product from entering drains.

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

**Methods for containment** Keep out of drains, sewers, ditches and waterways.

**Methods for cleaning up** Place in appropriate chemical waste container. Use personal protective equipment as required.

#### **Precautions to prevent secondary hazards**

Clean contaminated objects and areas thoroughly observing environmental regulations. See section 8 for more information. See section 13 for more information.

### **Section 7: Handling and storage, including how the chemical may be safely used**

#### **Preventive measures for safe handling**

**Advice on safe handling** Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.

#### **Precautions for safe handling**

**General Hygiene Considerations** Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Regular cleaning of equipment, work area and clothing is recommended. Avoid contact with skin, eyes or clothing. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Wash hands before breaks and immediately after handling the product.

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

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

**Incompatible materials** Oxidizing agent. Acids. Bases.

### **Section 8: Exposure controls and personal protection**

#### **Control parameters**

#### **Exposure Limits**

<b>Chemical name</b>	<b>Australia</b>
Hydrochloric acid (10 - 20%) CAS#: 7647-01-0	5 ppm Peak 7.5 mg/m <sup>3</sup> Peak
Zirconium oxychloride (<0.1%) CAS#: 7699-43-6	TWA: 5 mg/m <sup>3</sup> STEL: 10 mg/m <sup>3</sup>

**Legend** See section 16 for terms and abbreviations

#### **Appropriate engineering controls**

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

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

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

<b>Hand Protection</b>	Wear suitable gloves. Impervious gloves.
<b>Eye/face protection</b>	Face protection shield.
<b>Skin and body protection</b>	Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron.
<b>General Hygiene Considerations</b>	Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Regular cleaning of equipment, work area and clothing is recommended. Avoid contact with skin, eyes or clothing. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Wash hands before breaks and immediately after handling the product.
<b>Other Protective Equipment</b>	None.
<b>Environmental exposure controls</b>	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.
<b>Thermal hazards</b>	None under normal processing.

## Section 9: PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

<b>Physical state</b>	Liquid
<b>Appearance</b>	aqueous solution
<b>Color</b>	dark red
<b>Odor</b>	Acidic
<b>Odor threshold</b>	No data available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
<b>Molecular weight</b>	No data available	
<b>pH</b>	< 0.5	
<b>Melting point / freezing point</b>	< -10 °C / 14 °F	
<b>Initial boiling point and boiling range</b>	105 °C / 221 °F	
<b>Evaporation rate</b>	0.97 (water = 1)	
<b>Vapor pressure</b>	21.827 mm Hg / 2.91 kPa at 25 °C / 77 °F	
<b>Relative vapor density</b>	0.67	
<b>Specific Gravity</b>	1.02	
<b>Partition coefficient</b>	Not applicable	
<b>Soil Organic Carbon-Water Partition Coefficient</b>	Not applicable	
<b>Autoignition temperature</b>	No data available	
<b>Decomposition temperature</b>	No data available	
<b>Dynamic viscosity</b>	No data available	
<b>Kinematic viscosity</b>	No data available	

### Solubility(ies)

#### **Water solubility**

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

**Solubility in other solvents**

None reported	No information available	No data available	No information available
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**Other information****Metal Corrosivity**

Classified as corrosive to metal according to GHS criteria

**Steel Corrosion Rate**

No data available

**Aluminum Corrosion Rate**

No data available

**Volatile Organic Compounds (VOC) Content**

Chemical name	CAS No	Volatile organic compounds (VOC) content	CAA (Clean Air Act)
Hydrochloric acid	7647-01-0	Not applicable	-
Zirconium oxychloride	7699-43-6	No data available	-

**Explosive properties****Upper explosion limit**

No data available

**Lower explosion limit**

No data available

**Flammable properties****Flash point**

No data available

**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

**Section 10: STABILITY AND REACTIVITY****Reactivity**

Not applicable. Corrosive to metal.

**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**

None under normal processing.

**Conditions to avoid**

Exposure to air or moisture over prolonged periods.

**Incompatible materials**

Oxidizing agent. Acids. Bases.

**Hazardous decomposition products**

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

## Section 11: TOXICOLOGICAL INFORMATION

**Information on likely routes of exposure**

**Product Information**

<b>Inhalation</b>	Corrosive by inhalation. ate. Inhaled corrosive substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal.
<b>Eye contact</b>	Causes burns. Corrosive to the eyes and may cause severe damage including blindness. Causes serious eye damage. May cause irreversible damage to eyes.
<b>Skin contact</b>	May cause irritation.
<b>Ingestion</b>	Causes burns. Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways.

**Symptoms** Redness. Burning. May cause blindness. Coughing and/ or wheezing.

**Acute toxicity**

Based on available data, the classification criteria are not met

**Mixture**

No data available.

**Ingredient Acute Toxicity Data**

No data available.

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Zirconium oxychloride (<0.1%) CAS#: 7699-43-6	Rat LD <sub>50</sub>	2950 mg/kg	None reported	None reported	RTECS

**Unknown Acute Toxicity**

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

- 0 % of the mixture consists of ingredient(s) of unknown acute oral toxicity
- 0 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity
- 0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)
- 0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)
- 0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)

**Acute Toxicity Estimations (ATE)**

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

**Skin corrosion/irritation**

May cause skin irritation.

**Mixture**

No data available.

**Ingredient Skin Corrosion/Irritation Data**

No data available.

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Hydrochloric acid (10 - 20%) CAS#: 7647-01-0	Existing human experience	Human	None reported	None reported	Corrosive to skin	RTECS

**Serious eye damage/eye 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**

No data available.

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Hydrochloric acid (10 - 20%) CAS#: 7647-01-0	Existing human experience	Human	None reported	None reported	Corrosive to eyes	RTECS

**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**

Substances known to be carcinogenic to man.

**Mixture**

No data available.

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

No data available.

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Hydrochloric acid (10 - 20%) CAS#: 7647-01-0	Man LD <sub>Lo</sub>	2.857 mg/kg	None reported	<b>Vascular</b> BP lowering not characterized in autonomic section <b>Lungs, Thorax, or Respiration</b> Respiratory depression <b>Gastrointestinal</b> Other changes	RTECS
Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Hydrochloric acid (10 - 20%)	Human TC <sub>Lo</sub>	0.05 mg/L	None reported	<b>Lungs, Thorax, or Respiration</b>	RTECS



CAS#: 7647-01-0				Cough	
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**STOT - repeated exposure**

Substances known to be carcinogenic to man.

**Mixture**

No data available.

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

No data available.

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Hydrochloric acid (10 - 20%) CAS#: 7647-01-0	Rat TC <sub>Lo</sub>	0.000685 mg/L	84 days	<b>Behavioral</b> Muscle contraction or spasticity <b>Biochemical</b> Enzyme inhibition, induction, or change in blood or tissue levels (true cholinesterase) <b>Kidney, Ureter, or Bladder</b> Other changes in urine composition	RTECS

**Carcinogenicity**

Substances known to be carcinogenic to man.

**Mixture**

No data available.

**Ingredient Carcinogenicity Data**

No data available.

Chemical name	CAS No	ACGIH	IARC	NTP	OSHA
Hydrochloric acid	7647-01-0	-	Group 3	-	X
Zirconium oxychloride	7699-43-6	-	-	-	-

**Legend**

<b>ACGIH (American Conference of Governmental Industrial Hygienists)</b>	Does not apply
<b>IARC (International Agency for Research on Cancer)</b>	Group 3 - Not classifiable as a human carcinogen
<b>NTP (National Toxicology Program)</b>	Does not apply
<b>OSHA</b>	X - Present

**Mutagenicity**

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

**Mixture invitro Data**

No data available.

**Substance invitro Data**

No data available.

Chemical name	Test	Cell Strain	Reported dose	Exposure time	Results	Key literature references and sources for data
Hydrochloric acid (10 - 20%) CAS#: 7647-01-0	Cytogenetic analysis	Hamster lung	30 mmol/L	None reported	Positive test result for mutagenicity	RTECS
Zirconium oxychloride (<0.1%) CAS#: 7699-43-6	Mutation in microorganisms	<i>Salmonella typhimurium</i>	None reported	None reported	Negative	HSDB

**Mixture invivo Data**

No data available.

**Substance in vivo Data**

No data available.

**Reproductive toxicity**

Substances known to be carcinogenic to man.

**Mixture**

No data available.

**Ingredient Reproductive Toxicity Data**

No data available.

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Hydrochloric acid (10 - 20%) CAS#: 7647-01-0	Rat TC <sub>Lo</sub>	0.450 mg/L	1 hours	<b>Effects on Embryo or Fetus</b> Fetotoxicity (except death e.g. stunted fetus) <b>Specific</b> <b>Developmental Abnormalities</b> Homeostasis	RTECS

**Aspiration hazard**

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

## Section 12: ECOLOGICAL INFORMATION

**Ecotoxicity****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**

No data available.

**Aquatic Chronic Toxicity**

No data available.

**Persistence and degradability****Mixture**

No data available.

**Mixture**

No data available.

**Partition coefficient**

Not applicable

**Mobility****Soil Organic Carbon-Water Partition Coefficient**

Not applicable

**Other adverse effects**

No information available

### Section 13: DISPOSAL CONSIDERATIONS

#### Disposal methods

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

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

### Section 14: TRANSPORT INFORMATION

#### ADG

**UN Number** UN1789  
**Proper shipping name** Hydrochloric acid solution  
**Transport hazard class(es)** 8  
**Packing group** II  
**Description** UN1789, Hydrochloric acid solution, 8, II

#### IATA

**UN number or ID number** UN1789  
**Proper shipping name** Hydrochloric acid solution  
**Transport hazard class(es)** 8  
**Packing group** II  
**ERG Code** 8L  
**Special precautions for user** A3, A803

#### IMDG

**UN number or ID number** UN1789  
**Proper shipping name** Hydrochloric acid solution  
**Transport hazard class(es)** 8  
**Packing Group** II  
**EmS-No** F-A, S-B

#### **Additional information**

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

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

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

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

### Section 15: REGULATORY INFORMATION

#### Regulatory information

##### National regulations

##### Australia

See section 8 for national exposure control parameters

Model Work Health and Safety Regulations

[NOHSC:2011(2003) National Code of Practice for the Preparation of Material Safety Data Sheets

Labelling of Workplace Hazardous Chemicals Code of Practice

##### **Major hazard (accident/incident planning) regulation**

Chemical name	Named dangerous substances per Seveso Directive
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	(2012/18/EU)
Hydrochloric acid - 7647-01-0	250 tonne TQ anhydrous 250 tonne TQ refrigerated liquid

**National pollutant inventory**

Subject to reporting requirement

Chemical name	National pollutant inventory
Hydrochloric acid - 7647-01-0	10 tonne/yr Threshold category 1 400 tonne/yr Threshold category 2a 1 tonne/h Threshold category 2a 2000 tonne/yr Threshold category 2b 60000 MWH Threshold category 2b 20 MW Threshold category 2b

**Banned and/or restricted**

No Products Listed.

**International Inventories**

<b>TSCA</b>	Complies
<b>DSL/NDSL</b>	Complies
<b>EINECS/ELINCS</b>	Complies
<b>ENCS</b>	Does not comply
<b>IECSC</b>	Complies
<b>KECL - Existing substances</b>	Complies
<b>PICCS</b>	Complies
<b>TCSI</b>	Complies
<b>AICS</b>	Complies
<b>NZIoC</b>	Complies

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances**ENCS** - Japan Existing and New Chemical Substances**IECSC** - China Inventory of Existing Chemical Substances**KECL** - Korean Existing and Evaluated Chemical Substances**PICCS** - Philippines Inventory of Chemicals and Chemical Substances**TCSI** - Taiwan Chemical Substances Inventory**AICS** - Australian Inventory of Chemical Substances**NZIoC** - New Zealand Inventory of Chemicals**International Regulations****The Montreal Protocol on Substances that Deplete the Ozone Layer** Not applicable**The Stockholm Convention on Persistent Organic Pollutants** Not applicable**The Rotterdam Convention** Not applicable**Section 16: Any other relevant information****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 Zealand's 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)
Ceiling	Ceiling Limit Value	MAC	Maximum Allowable Concentration
X	Listed	Vacated	These values have no official status. The only binding levels of contaminants are those listed in the final OSHA PEL. These lists are for reference purposes only. Please note that some reference state regulations of these "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** 26-02-2019

**Revision Date** 26-Sep-2022

**Revision Note**

16  
(M)SDS sections updated

**Reference Sources for Section 11**

See Section 11: TOXICOLOGICAL INFORMATION

**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©2022

**End of Safety Data Sheet**