

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) 2947553

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

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

Label elements

Corrosion Corrosion



Signal word - Danger

Hazard statements

H290 - May be corrosive to metals

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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

<u>Mixture</u>

Chemical name	Formula	CAS No	EC No (EU Index No)	Percent Range
Hydrochloric acid	HCI	7647-01-0	231-595-7	10 - 20%
Zirconium oxychloride	ZrOCl ₂	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

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

required.

Inhalation 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.

Skin contactWash off immediately with soap and plenty of water while removing all contaminated clothes

and shoes. Get immediate medical advice/attention.

Eye contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

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Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Cot immediate medical advise/ettention.

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.

Sections 7 and 8.

For emergency responders Use personal protection recommended in Section 8.

Environmental precautions

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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

Chemical name	Australia
Hydrochloric acid	5 ppm Peak
(10 - 20%)	7.5 mg/m³ Peak
CAS#: 7647-01-0	-
Zirconium oxychloride	TWA: 5 mg/m ³
(<0.1%)	STEL: 10 mg/m ³
CAS#: 7699-43-6	

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.

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Hand Protection Wear suitable gloves. Impervious gloves.

Eye/face protection Face protection shield.

Skin and body protection Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron.

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.

Other Protective Equipment None.

Environmental exposure controls Local authorities should be advised if significant spillages cannot be contained. Do not allow

into any sewer, on the ground or into any body of water.

Thermal hazards None under normal processing.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state

Liquid

Appearance

aqueous solution

Color

dark red

Odor Acidic

Odor threshold No data available

<u>Property</u> <u>Values</u> <u>Remarks • Method</u>

Molecular weight No data available

pH < 0.5

Melting point / freezing point < -10 °C / 14 °F

Initial boiling point and boiling range 105 °C / 221 °F

Evaporation rate 0.97 (water = 1)

Vapor pressure 21.827 mm Hg / 2.91 kPa at 25 °C / 77 °F

Relative vapor density 0.67

Specific Gravity 1.02

Partition coefficient Not applicable

Soil Organic Carbon-Water Partition

Autoignition temperature

Coefficient

Not applicable

No data available

Decomposition temperatureNo 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

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Solubility in other solvents

None reported	No information available	No data available	No information available

Other information

Metal Corrosivity

Classified as corrosive to metal according to GHS criteria

Steel Corrosion Rate
Aluminum Corrosion Rate

No data available 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 limitNo data availableLower explosion limitNo data available

Flammable properties

Flash point No data available

Flammability Limit in Air

Upper flammability limit:No data availableLower 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

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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

Inhalation Corrosive by inhalation. ate. Inhaled corrosive substances can lead to a toxic edema of the

lungs. Pulmonary edema can be fatal.

Eye contact Causes burns. Corrosive to the eyes and may cause severe damage including blindness.

Causes serious eye damage. May cause irreversible damage to eyes.

Skin contact May cause irritation.

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

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)

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

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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⊾₀	2.857 mg/kg	None reported	Vascular BP lowering not characterized in autonomic section Lungs, Thorax, or Respiration Respiratory depression Gastrointestinal 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∟₀	0.05 mg/L	None reported	Lungs, Thorax, or Respiration	RTECS

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CAS#: 764	7-01-0		Coug	h	

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	Rat	0.000685	84 days	Behavioral	RTECS
(10 - 20%)	TCLo	mg/L		Muscle contraction or spasticity	
CAS#: 7647-01-0				Biochemical	
				Enzyme inhibition, induction, or	
				change in blood or tissue levels	
				(true cholinesterase)	
				Kidney, Ureter, or Bladder	
				Other changes in urine	
				composition	

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

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
NTP (National Toxicology Program)	Does not apply
OSHA	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	
Zirconium oxychloride (<0.1%) CAS#: 7699-43-6	Mutation in microorganisms	Salmonella typhimurium	None reported	None reported	Negative	HSDB

Mixture invivo Data

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No data available.

Substance invivo 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∟₀	0.450 mg/L	1 hours	Effects on Embryo or Fetus Fetotoxicity (except death e.g. stunted fetus) Specific Developmental Abnormalities 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

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No information available

Section 13: DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues/unused

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

with local regulations.

Do not reuse empty containers. Contaminated packaging

Section 14: TRANSPORT INFORMATION

ADG

products

UN1789 **UN Number**

Proper shipping name Hydrochloric acid solution

Transport hazard class(es)

Packing group

Description UN1789, Hydrochloric acid solution, 8, II

IATA

UN number or ID number UN1789

Proper shipping name Hydrochloric acid solution

Transport hazard class(es) Packing group Ш **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) **Packing Group**

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

INOHSC: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

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

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 (American Conference of Governmental Industrial Hygienists)
ATSDR (Agency for Toxic Substances and Disease Registry)
CCRIS (Chemical Carcinogenesis Research Information System)

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)

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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 (Hazardous Substances Data Bank)

INERIS
INERIS (The National Industrial Environment and Risks Institute)
IPCS INCHEM
IPCS INCHEM (International Programme on Chemical Safety)
IUCLID (The International Uniform Chemical Information Database)
NITE Japan National Institute of Technology and Evaluation (NITE)

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 (Occupational Safety and Health Administration of the US Department of Labor)

PEEN (Pan European Ecological Network)

RTECS (Registry of Toxic Effects of Chemical Substances)
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 (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

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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

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End of Safety Data Sheet

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