

SAFETY DATA SHEET

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	1. IDENTIFICAT	ION		
Product identifier Product Name	Free Copper Reagent			
Other means of identification Product Code(s)	2118669			
Safety data sheet number	M00093			
Recommended use of the che	mical and restrictions on use			
Recommended Use	Laboratory reagent. Indicator for o	copper.		
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

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
Respiratory sensitization	Category 1
Specific target organ toxicity (single exposure)	Category 3
Chronic aquatic toxicity	Category 3

Hazards not otherwise classified (HNOC)

Not applicable

Label elements

Signal word

Danger

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Hazard statements

- H302 Harmful if swallowed
- H315 Causes skin irritation
- H318 Causes serious eye damage
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled
- H335 May cause respiratory irritation
- H412 Harmful 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
- P261 Avoid breathing dust/fume/gas/mist/vapors/spray
- P285 In case of inadequate ventilation wear respiratory protection
- P304 + P341 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing
- P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician
- P271 Use only outdoors or in a well-ventilated area
- P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing
- P403 + P233 Store in a well-ventilated place. Keep container tightly closed
- P405 Store locked up
- P273 Avoid release to the environment

Other Hazards Known

Harmful 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 chloride	7647-14-5	30 - 40%	-
Sodium metabisulfite	7681-57-4	10 - 20%	-
[2,2-Biquinoline]-4,4-dicarboxylic acid, dipotassium salt	63451-34-3	1 - 5%	-

4. FIRST AID MEASURES

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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. May cause allergic respiratory reaction. If breathing has stopped, give artificial respiration. Get medical attention immediately. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Get immediate medical advice/attention.
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. May cause an allergic skin reaction. In the case of skin irritation or allergic reactions see a physician.
Ingestion	Do NOT induce vomiting. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. May produce an allergic reaction. Get immediate medical advice/attention.
Self-protection of the first aider	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. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation.
Most important symptoms and effe	ects, both acute and delayed
Symptoms	Burning sensation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Coughing and/ or wheezing. Itching. Rashes. Hives.
Indication of any immediate medica	al attention and special treatment needed
Note to physicians	May cause sensitization in susceptible persons. 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	Product is or contains a sensitizer. May cause sensitization by inhalation and skin contact.
Hazardous combustion products	Nitrogen oxides. Sulfur oxides. Sodium monoxide. Carbon monoxide, Carbon dioxide.
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

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Personal precautions	Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Ensure adequate ventilation. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.		
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 containm	ent 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. Ensure adequate ventilation. Provide extract ventilation to points where emissions occur. In case of insufficient ventilation, wear suitable respiratory equipment. Remove contaminated clothing and shoes. Take off contaminated clothing and wash before reuse. Avoid breathing vapors or mists.		
Conditions for safe storage, includ	ing 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 metabisulfite	TWA: 5 mg/m ³	(vacated) TWA: 5 mg/m ³	TWA: 5 mg/m ³
CAS#: 7681-57-4			

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. Barrier creams may help to protect the exposed areas of skin. 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. Avoid contact with eyes, skin and clothing. Wash contaminated clothing before reuse.			
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. Remove and wash contaminated clothing and gloves, including the inside, before re-use.			
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 Appearance Odor	powder Odorless	Solid		Color Odor threshold	White to yellow No data availab	le
Property			Values		Re	marks • Method
Molecular weight	t		No data availal	ble		
рН			5.35		@	20 °C
Melting point / fro	eezing point		203 °C / 39	7.4 °F		
Initial boiling poi	nt and boiling rang	e	No data availal	ble		
Evaporation rate		Not applicable	Not applicable			
Vapor pressure		Not applicable				
Relative vapor density		No data available				
Specific gravity -	VALUE 1		1.969			
Partition coeffici	ent		log Kow ~ -0.75			
Soil Organic Car Coefficient	bon-Water Partition	ı	log K _{oc} ~ 0			
Autoignition tem	perature		No data availal	ble		
Decomposition t	emperature		No data availal	ble		
Dynamic viscosi	ty		Not applicable			
Kinematic viscos	sity		Not applicable			
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	<u>Solubility</u>	Solubility Temperature
Acid	Soluble	> 1000 mg/L	25 °C / 77 °F

Other information

Metal Corrosivity

Steel Corrosion Rate	Not applicable
Aluminum Corrosion Rate	Not applicable

Volatile Organic Compounds (VOC) Content Not applicable

CAS No	Volatile organic compounds (VOC) content	CAA (Clean Air Act)
7647-14-5	Not applicable	-
7681-57-4	Not applicable	-
63451-34-3	No data available	-
	7647-14-5 7681-57-4	(VOC) content7647-14-5Not applicable7681-57-4Not applicable

Explosive properties

Upper explosion limit Lower explosion limit	No data available No data available
Flammable properties	
Flash point	Not applicable
Flammability Limit in Air Upper flammability limit: Lower flammability limit:	No data available No data available
Oxidizing properties	No data available.
Bulk density	No data available

10. STABILITY AND REACTIVITY

Reactivity Not applicable.

<u>Chemical stability</u> Stable under normal conditions.

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

Possibility of hazardous reactions None under normal processing.

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Hazardous polymerization

None under normal processing.

Conditions to avoid

None known based on information supplied.

Incompatible materials

Strong acids. Strong bases. Strong oxidizing agents.

Hazardous decomposition products

Sulfur oxides. Chlorides. Nitrogen oxides. Sodium oxides. Carbon dioxide. Carbon monoxide.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation	May cause sensitization in susceptible persons. 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	Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. Causes skin irritation.
Ingestion	Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. May cause additional affects as listed under "Inhalation". Harmful if swallowed.
Symptoms	Redness. Burning. May cause blindness. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain, or flushing. Coughing and/ or wheezing. May cause redness and tearing of the eyes.
Acute toxicity	

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 chloride (30 - 40%) CAS#: 7647-14-5	Rat LD ₅₀	3000 mg/kg	None reported	None reported	IUCLID
Sodium metabisulfite (10 - 20%) CAS#: 7681-57-4	Rat LD ₅₀	500 mg/kg	None reported	None reported	No information available

Dermal Exposure Route

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sodium metabisulfite (10 - 20%)	Rat LD₅₀	> 2000 mg/kg	None reported	None reported	LOLI

	CAS#: 7681-57-4					
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Inhalation (Dust/Mist) Exposure Route

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sodium metabisulfite (10 - 20%) CAS#: 7681-57-4	Rat LC ₅₀	> 5.5 mg/L	4 hours	None reported	RTECS

Unknown Acute Toxicity

0.01% 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)	1,913.30 mg/kg
ATEmix (dermal)	No information available
ATEmix (inhalation-dust/mist)	No information available
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
Sodium chloride (30 - 40%) CAS#: 7647-14-5	Standard Draize Test	Rabbit	500 mg	24 hours	Mild skin irritant	RTECS

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
Sodium chloride (30 - 40%) CAS#: 7647-14-5	Standard Draize Test	Rabbit	100 mg	None reported	Mild eye irritant	RTECS
Sodium metabisulfite (10 - 20%) CAS#: 7681-57-4	Standard Draize Test	Rabbit	107 mg	None reported	Corrosive to eyes	RTECS

Respiratory or skin sensitization

May cause sensitization by inhalation.

Mixture

No data available.

Ingredient Sensitization Data

Test data reported below.

Respiratory Sensitization Exposure Route

Chemical name	Test method	Species	Results	Key literature references and sources for data
Sodium metabisulfite (10 - 20%) CAS#: 7681-57-4	Based on human experience	Human	Confirmed to be a respiratory sensitizer	GESTIS

STOT - single exposure

May cause respiratory irritation.

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

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 metabisulfite (10 - 20%) CAS#: 7681-57-4	Rat TD⊾₀	75 mg/kg	15 days	Biochemical Enzyme inhibition, induction, or change in blood or tissue levels (phosphatases and dehydrogenases) Kidney, Ureter, or Bladder Other changes in urine composition	

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 chloride	7647-14-5	-	-	-	-
Sodium metabisulfite	7681-57-4	-	Group 3	-	-
[2,2-Biquinoline]-4,4-dicarb oxylic acid, dipotassium salt	63451-34-3	-	-	-	-

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	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

Test data reported below.

Chemical name	Test	Cell Strain	Reported dose	Exposure time	Results	Key literature references and sources for data
Sodium metabisulfite (10 - 20%) CAS#: 7681-57-4	Cytogenetic analysis	Hamster ovary	0.18 mg/L	None reported	Positive test result for mutagenicity	RTECS

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
Sodium metabisulfite	Rat	20000 mg/kg	None reported	Effects on Newborn	RTECS
(10 - 20%)	TDLo		-	Stillbirth	
CAS#: 7681-57-4					

Aspiration hazard

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

12. ECOLOGICAL INFORMATION

Ecotoxicity	Harmful to aquatic life with long lasting effects.
Unknown aquatic toxicity	0.01% of the mixture consists of components(s) of unknown hazards to the aquatic environment.
<u>Mixture</u>	

Aquatic Acute Toxicity

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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
Sodium metabisulfite (10 - 20%) CAS#: 7681-57-4	96 hours	Salmo gairdneri	LC50	15 mg/L	IUCLID
[2,2-Biquinoline]-4,4- dicarboxylic acid, dipotassium salt (1 - 5%) CAS#: 63451-34-3	96 hours	None reported	LC50	658 mg/L	ECOSARS

Crustacea

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
[2,2-Biquinoline]-4,4- dicarboxylic acid, dipotassium salt (1 - 5%) CAS#: 63451-34-3	48 Hours	None reported	LC ₅₀	442 mg/L	ECOSARS

Algae

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Sodium metabisulfite (10 - 20%) CAS#: 7681-57-4	96 hours	Scenedesmus subspicatus	EC50	40 mg/L	IUCLID
[2,2-Biquinoline]-4,4- dicarboxylic acid, dipotassium salt (1 - 5%) CAS#: 63451-34-3	96 hours	None reported	EC50	659 mg/L	ECOSARS

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 Kow ~ -0.75

Mobility

Soil Organic Carbon-Water Partition Coefficient

Other adverse effects

No information available

Waste treatment methods

13. DISPOSAL CONSIDERATIONS

log Koc ~ 0

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.

Special instructions for disposal Dilute material with excess water making a weaker than 5% solution. 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

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

ENCSDoes not complyIECSCCompliesKECLCompliesPICCSDoes not complyTCSICompliesAICSDoes not comply	EINECS/ELINCS	Complies
KECLCompliesPICCSDoes not complyTCSIComplies	ENCS	Does not comply
PICCSDoes not complyTCSIComplies	IECSC	Complies
TCSI Complies	KECL	Complies
	PICCS	Does not comply
AICS Does not comply	TCSI	Complies
	AICS	Does not comply
NZIOC Complies	NZIoC	Complies

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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	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)

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

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 metabisulfite	Х	X	Х
7681-57-4			

U.S. EPA Label Information

Chemical name	FIFRA	FDA
Sodium chloride	180.0950	21 CFR 182.70,21 CFR 182.90
Sodium metabisulfite	-	21 CFR 182.3766

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

Special Comments

None

Additional information

EN / AGHS

Global Automotive Declarable Substance List (GADSL)

Chemical name	Global Automotive Declarable Substance List Classifications	Global Automotive Declarable Substance List Thersholds
Sodium metabisulfite	Declarable Substance (LR)	None reported
7681-57-4	Prohibited Substance (LR)	

NFPA and HMIS Classifications

NFPA	Health hazards - 3	Flammability - 0	Instability - 0	Physical and chemical properties -
HMIS	Health hazards - 2 - *	Flammability - 0	Physical hazards - 0	Personal protection - X - I

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

ACGIH ATSDR		n Conference of Govern for Toxic Substances a	nmental Industrial Hygienists) and Disease Registry)
CCRIS			arch Information System)
CDC	CDC (Center for I		
CEPA		Environmental Protect	
CICAD	CICAD (Concise	International Chemical	Assessment Documents)
ECHA		pean Chemicals Agence	cy)
EEA		invironment Agency)	
EPA		ntal Protection Agency)	
ERMA	ERMA (New Zeal	ands Environmental Ri	isk Management Authority)
ECOSARS	Estimation throug	h ECOSARS v1.11 pai	rt of the Estimation Programs Interface (EPI) Suite™
FDA	FDA (Food & Dru	g Administration)	
GESTIS	GESTIS (Informa	ation System on Hazar	dous Substances of the German Social Accident
	Insurance)	-	
HSDB	HSDB (Hazardou	s Substances Data Ba	nk)
INERIS	INERIS (The Nati	onal Industrial Environ	ment and Risks Institute)
IPCS INCHEM	IPCS INCHEM (Ir	nternational Programm	e on Chemical Safety)
IUCLID	IUCLID (The Inter	national Uniform Cher	nical Information Database)
NITE	Japan National In	stitute of Technology a	and Evaluation (NITE)
NIH	NIH (National Inst	titutes of Health)	
NIOSH		Institute for Occupation	
LOLI	LOLI (List of Lists	- An International Che	emical Regulatory Database)
NDF	no data		
NICNAS	Australia National	Industrial Chemicals	Notification and Assessment Scheme (NICNAS)
NIOSH IDLH	Immediately Dang	gerous to Life or Health	1
OSHA			Administration of the US Department of Labor)
PEEN		pean Ecological Netwo	
RTECS		of Toxic Effects of Che	
SIDS			or High Volume Chemicals
SYKE		onment Institute (SYK	
USDA		ates Department of Ag	
USDC		ates Department of Co	mmerce)
WHO	WHO (World Hea	Ith Organization)	
Legend - Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION			
TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
1 4 4 / 1		UILL	

IWA	I WA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
MAC	Maximum Allowable Concentration	Ceiling	Ceiling Limit Value
Х	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

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reference purposes only. Please note that some reference state regulations of these "liberated" exposure limits in their state regulations.

SKN* RSP+ C M	Skin designation Respiratory sensitization Carcinogen mutagen	SKN+ ** R	Skin sensitization Hazard Designation Reproductive toxicant
Prepared By	Hach Pro	duct Compliance Department	
Issue Date	26-09-20	19	
Revision Date	26-Jan-20	024	
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