



Be Right™

SAFETY DATA SHEET

Revision Date
21-Sep-2021

Version 4.3

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1. IDENTIFICATION

Product identifier

Product Name FerroZine® Iron Reagent

Other means of identification

Product Code(s) 230424

Safety data sheet number M00237

Recommended use of the chemical and restrictions on use

Recommended Use Laboratory reagent. Indicator for iron.

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

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

Hazards not otherwise classified (HNOC)

Not applicable

Label elements

Signal word

None

Hazard statements

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

Other Hazards Known

None

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance	
Chemical Name	Benzenesulfonic acid, 4,4-[3-(2-pyridinyl)-1,2,4-triazine-5,6-diyl]bis-, monosodium salt
Chemical Family	Salts of Organic Acids.
Formula	C ₂₀ H ₁₃ N ₄ S ₂ O ₆ Na
CAS No	69898-45-9
Alternate CAS Number	28048-33-1
Chemical nature	Organic Compound.

Percent ranges are used where confidential product information is applicable.

Chemical name	CAS No	Percent Range	HMRIC #
Benzenesulfonic acid, 4,4-[3-(2-pyridinyl)-1,2,4-triazine-5,6-diyl]bis-, monosodium salt	69898-45-9	100%	-

4. FIRST AID MEASURES

Description of first aid measures

General advice	No hazards which require special first aid measures. Use first aid treatment according to the nature of the injury.
Inhalation	Remove to fresh air.
Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
Skin contact	Wash skin with soap and water.
Ingestion	Clean mouth with water and drink afterwards plenty of water.

Most important symptoms and effects, both acute and delayed

Symptoms	See Section 11 for additional Toxicological Information.
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Indication of any immediate medical attention and special treatment needed

Note to physicians	Treat symptomatically.
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5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable Extinguishing Media	Caution: Use of water spray when fighting fire may be inefficient.
Specific hazards arising from the chemical	No information available.
Hazardous combustion products	Carbon monoxide, Carbon dioxide. Sodium oxides. Sulfur oxides. Nitrogen oxides.
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 Ensure adequate ventilation.

Environmental precautions

Environmental precautions See Section 12 for additional ecological information.

Methods and material for containment and cleaning up

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

Methods for cleaning up Pick up and transfer to properly labeled containers.

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.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place.

Flammability class Not applicable

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies

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.

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

Skin and body protection	No special protective equipment required.
General Hygiene Considerations	Handle in accordance with good industrial hygiene and safety practice.
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	powder	Color	Bright yellow
Odor	Pungent	Odor threshold	No data available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
Molecular weight	492.46 g/mole	
pH	2.1	5% Solution
Melting point/freezing point	375 °C / 707 °F	
Boiling point / boiling range	No data available	
Evaporation rate	Not applicable	
Vapor pressure	Not applicable	
Relative vapor density	No data available	
Specific gravity (water = 1 / air = 1)	1.58	
Partition Coefficient (n-octanol/water)	log K_{ow} = -5.09	Estimation through KOWWIN v1.68 part of the Estimation Programs Interface (EPI) Suite™
Soil Organic Carbon-Water Partition Coefficient	log K_{oc} = 6.26	Estimation through KOCWIN v2.00 part of the Estimation Programs Interface (EPI) Suite™
Autoignition temperature	No data available	
Decomposition temperature	No data available	
Dynamic viscosity	Not applicable	
Kinematic viscosity	Not applicable	
<u>Solubility(ies)</u>		
Water solubility		

Water solubility classification	Water solubility	Water Solubility Temperature
Insoluble	< 0.1 mg/L	25 °C / 77 °F

Solubility in other solvents

Chemical Name	Solubility classification	Solubility	Solubility Temperature
Acids	Insoluble	< 0.1 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

This Product is by Weight 100% an Individual Pure Chemical Substance

Chemical name	CAS No	Volatile organic compounds (VOC) content	CAA (Clean Air Act)
Benzenesulfonic acid, 4,4-[3-(2-pyridinyl)-1,2,4-triazine-5,6-diyl]bis-, monosodium salt	69898-45-9	Not applicable	-

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 oxidizing agents, strong acids, and strong bases.

Hazardous decomposition products

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

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation	No known effect based on information supplied.
Eye contact	No known effect based on information supplied.
Skin contact	No known effect based on information supplied.
Ingestion	No known effect based on information supplied.

Symptoms No information available.

Acute toxicity

Based on available data, the classification criteria are not met

Product Acute Toxicity Data

If available, see ingredient data below.

Oral Exposure Route

Endpoint type	Reported dose	Toxicological effects	Key literature references and sources for data
Rat LD ₅₀	> 5000 mg/kg	Nutritional and Gross Metabolic Sedation Ptosis Loose stool	Outside testing

Inhalation (Gas) Exposure Route

Ingredient Acute Toxicity Data

No data available.

Unknown Acute Toxicity

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

Acute Toxicity Estimations (ATE)

Not applicable

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

Skin corrosion/irritation

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

Product Skin Corrosion/Irritation Data

If available, see ingredient data below.

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
Benzenesulfonic acid, 4,4-[3-(2-pyridinyl)-1,2,4-triazine-5,6-diyl]bis-, monosodium salt (100%) CAS#: 69898-45-9	QSAR (Quantitative Structure Activity Relationship Models)	None reported	None reported	None reported	Not corrosive or irritating to skin	Toxtree (Ideaconsult, Ltd)

Serious eye damage/irritation

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

Product Serious Eye Damage/Eye Irritation Data

If available, see ingredient data below.

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
Benzenesulfonic acid, 4,4-[3-(2-pyridinyl)-1,2,4-triazine-5,6-diyl]bis-, monosodium salt (100%) CAS#: 69898-45-9	QSAR (Quantitative Structure Activity Relationship Models)	None reported	None reported	None reported	Not corrosive or irritating to eyes	Toxtree (Ideaconsult, Ltd)

Respiratory or skin sensitization

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

Product Sensitization Data

If available, see ingredient data below.

Ingredient Sensitization Data

No data available.

STOT - single exposure

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

Product Specific Target Organ Toxicity Single Exposure Data

If available, see ingredient data below.

Ingredient Specific Target Organ Toxicity Single Exposure Data

No data available.

STOT - repeated exposure

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

Product Specific Target Organ Toxicity Repeat Dose Data

If available, see ingredient data below.

Ingredient Specific Target Organ Toxicity Repeat Exposure Data

No data available.

Carcinogenicity

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

Product Carcinogenicity Data

If available, see ingredient data below.

Ingredient Carcinogenicity Data

No data available.

Chemical name	CAS No	ACGIH	IARC	NTP	OSHA
Benzenesulfonic acid, 4,4-[3-(2-pyridinyl)-1,2,4-triazine-5,6-diyl]bis-, monosodium salt	69898-45-9	-	-	-	-

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 (Occupational Safety and Health Administration of the US Department of Labor)	Does not apply

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Benzenesulfonic acid, 4,4-[3-(2-pyridinyl)-1,2,4-triazine-5,6-diyl]bis-, monosodium salt (100%) CAS#: 69898-45-9	QSAR (Quantitative Structure Activity Relationship Models)	None reported	None reported	Not Carcinogenic	Toxtree (Ideaconult, Ltd)

Germ cell mutagenicity

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

Product Germ Cell Mutagenicity invitro Data

If available, see ingredient data below.

Ingredient Germ Cell Mutagenicity invitro Data

No data available.

Product Germ Cell Mutagenicity invivo Data

If available, see ingredient data below.

Ingredient Germ Cell Mutagenicity invivo Data

No data available.

Reproductive toxicity

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

Product Reproductive Toxicity Data

No data available.

Ingredient Reproductive Toxicity Data

No data available.

Aspiration hazard

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

12. ECOLOGICAL INFORMATION

Ecotoxicity

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

Unknown aquatic toxicity

0 % of the mixture consists of component(s) of unknown hazards to the aquatic environment.

Product Ecological Data

Aquatic Acute Toxicity

If available, see ingredient data below.

Aquatic Chronic Toxicity

If available, see ingredient data below.

Ingredient Ecological Data

Aquatic Acute Toxicity

No data available.

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Benzenesulfonic acid, 4,4-[3-(2-pyridinyl)-1,2,4-triazine-5,6-diyl]biss-, monosodium salt (100%) CAS#: 69898-45-9	96 hours	None reported	LC ₅₀	22900 mg/L	Estimation through ECOSARS v1.11 part of the Estimation Programs Interface (EPI) Suite™
Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Benzenesulfonic acid, 4,4-[3-(2-pyridinyl)-1,2,4-triazine-5,6-diyl]biss-, monosodium salt (100%) CAS#: 69898-45-9	48 Hours	None reported	EC ₅₀	97900 mg/L	Estimation through ECOSARS v1.11 part of the Estimation Programs Interface (EPI) Suite™
Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Benzenesulfonic acid, 4,4-[3-(2-pyridinyl)-1,2,4-triazine-5,6-diyl]biss-, monosodium salt (100%) CAS#: 69898-45-9	96 hours	None reported	EC ₅₀	22400 mg/L	Estimation through ECOSARS v1.11 part of the Estimation Programs Interface (EPI) Suite™

Aquatic Chronic Toxicity

No data available.

Persistence and degradability

Product Biodegradability Data

No data available.

Bioaccumulation

MATERIAL DOES NOT BIOACCUMULATE

Product Bioaccumulation Data

No data available.

Partition Coefficient (n-octanol/water)

log K_{ow} = -5.09

Mobility

Soil Organic Carbon-Water Partition Coefficient

log K_{oc} = 6.26

Other adverse effects

No information available

Chemical name	EU - Endocrine Disrupters Candidate List	EU - Endocrine Disrupters - Evaluated Substances	Endocrine disrupting potential
Benzenesulfonic acid, 4,4-[3-(2-pyridinyl)-1,2,4-triazine-5,6-diyl]bis-, monosodium salt (100%) CAS#: 69898-45-9	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

Adjust to a pH between 6 and 9 with an alkali, such as soda ash or sodium bicarbonate. Allow cold water to run for 5 minutes to completely flush the system. Check with local municipal and state authorities and waste contractors for pertinent local information regarding the proper disposal of chemicals. If permitted by regulation. Open cold water tap completely, slowly pour the reacted material to the drain. Dilute to 3 to 5 times the volume with cold water.

14. TRANSPORT INFORMATION

DOT

Proper shipping name

Acetal

TDG

Proper shipping name

Not regulated
Acetal

IATA

Proper shipping name

Not regulated
Acetal

IMDG

Proper shipping name

Not regulated
Acetal

Note:

No special precautions necessary.

Additional information

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

If the item is part of a reagent set or kit the classification would change to the following:
UN3316 Chemical Kit, Hazard Class 9, Packing Group II or III.
If the item is not regulated, the Chemical Kit classification does not apply.

15. REGULATORY INFORMATION

National Inventories

TSCA Complies
DSL/NDSL Complies

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

International Inventories

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

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
TCSI - Taiwan Chemical Substances Inventory
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals

US Federal Regulations

SARA 313

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

SARA 311/312 Hazard Categories

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

CWA (Clean Water Act)

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

CERCLA

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

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 does not contain any substances regulated by state right-to-know regulations.

U.S. EPA Label Information

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

Special Comments

None

Additional information

Global Automotive Declarable Substance List (GADSL)

Not applicable

NFPA and HMIS Classifications

NFPA	Health hazards - 0	Flammability - 0	Instability - 0	Physical and chemical properties -
HMIS	Health hazards - 0	Flammability - 0	Physical hazards - 0	Personal protection - X -1

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

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

Legend - Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
MAC	Maximum Allowable Concentration	Ceiling	Ceiling Limit Value
X	Listed	Vacated	These values have no official status. The only binding levels of contaminants are those listed in the final OSHA PEL. These lists are for reference purposes only. Please note that some reference state regulations of these "liberated" exposure limits in their state regulations.
SKN*	Skin designation	SKN+	Skin sensitization
RSP+	Respiratory sensitization	**	Hazard Designation
C	Carcinogen	R	Reproductive toxicant
M	mutagen		

Prepared By Hach Product Compliance Department

Revision Date 21-Sep-2021

Revision Note None

Disclaimer

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site

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safety programs in accordance with applicable hazard communication standards and regulations.

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End of Safety Data Sheet