



**Be Right™**

# SAFETY DATA SHEET

Issue Date 21-Jun-2016

Revision Date  
03-May-2017

Version 2.2

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## 1. IDENTIFICATION

### Product identifier

**Product Name** FerroVer® Iron Reagent

### Other means of identification

**Product Code(s)** 92799

**Safety data sheet number** M00020

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

**Recommended Use** Laboratory reagent. Iron determination.

**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  
(970) 669-3050

#### Emergency telephone number

(303) 623-5716 - 24 Hour Service (515)232-2533 - 8am - 4pm CST

## 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
Acute toxicity - Inhalation (Dusts/Mists)	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

#### **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  
H332 - Harmful if inhaled  
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled  
H335 - May cause respiratory irritation  
EUH031 - Contact with acids liberates toxic gas

**Precautionary statements**

P264 - Wash face, hands and any exposed skin thoroughly after handling  
P270 - Do not eat, drink or smoke when using this product  
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray  
P271 - Use only outdoors or in a well-ventilated area  
P280 - Wear protective gloves/protective clothing/eye protection/face protection  
P284 - Wear respiratory protection  
P304 + P340 - IF INHALED: 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  
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  
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water  
P332 + P313 - If skin irritation occurs: Get medical advice/attention  
P362 - Take off contaminated clothing and wash before reuse  
P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell  
P330 - Rinse mouth  
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed  
P405 - Store locked up  
P501 - Dispose of contents/ container to an approved waste disposal plant

**Other Information**

May be harmful in contact with skin  
Harmful to aquatic life with long lasting effects  
Harmful to aquatic life

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

**Substance**

Not applicable

**Mixture**

**Chemical Family** Mixture.

Percent ranges are used where confidential product information is applicable.

Chemical Name	CAS No	Percent Range	HMRIC #
Sodium metabisulfite	7681-57-4	40 - 50%	-
Sodium dithionite	7775-14-6	20 - 30%	-
1,10-Phenanthroline, mono(4-methylbenzenesulfonate)	92798-16-8	1 - 5%	-

## 4. FIRST AID MEASURES

### Description of first aid measures

<b>General advice</b>	See section 8 for PPE that may be required during handling. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). If no local exhaust use approved fume hood and/or respirator. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician. Remove from exposure, lie down. Immediate medical attention is required. IF IN EYES: Flush eyes for at least 15 minutes. May cause skin irritation.
<b>Eye contact</b>	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.
<b>Skin contact</b>	For minor skin contact, avoid spreading material on unaffected skin. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. Remove and isolate contaminated clothing and shoes. Call a POISON CENTER or doctor if you feel unwell. If skin irritation persists, call a physician.
<b>Inhalation</b>	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell. May cause allergic respiratory reaction. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.
<b>Ingestion</b>	Never give anything by mouth to an unconscious person. Clean mouth with water and drink afterwards plenty of water. Remove from exposure, lie down. Call a POISON CENTER or doctor/physician if you feel unwell. Do not induce vomiting without medical advice.
<b>Self-protection of the first aider</b>	First aider: Pay attention to self-protection. Use personal protective equipment as required. 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.

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

**Symptoms** See Section 11: TOXICOLOGICAL INFORMATION.

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

**Note to physicians** May cause sensitization in susceptible persons.

## 5. FIRE-FIGHTING MEASURES

### Suitable Extinguishing Media

Carbon dioxide. Alcohol foam. Dry chemical.

**Unsuitable extinguishing media** Caution: Use of water spray when fighting fire may be inefficient.

### Flammable properties

Can burn in fire, releasing toxic vapors. Not classified as flammable according to GHS criteria.

### Specific hazards arising from the chemical

May react violently with. Strong oxidizers.

### **Hazardous combustion products**

Sulfur oxides. Sodium oxides. Carbon monoxide, Carbon dioxide.

### Protective equipment and precautions for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

**Special protective equipment for fire-fighters**

Wear self contained breathing apparatus for fire fighting if necessary

## 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.

**EC Notice**

Only persons properly qualified to respond to an emergency involving hazardous substances should respond to a spill involving chemicals. See Section 13, Special Instructions for disposal assistance.

**WHMIS Notice**

Only persons properly qualified to respond to an emergency involving hazardous substances should respond to a spill involving chemicals. See Section 13, Special Instructions for disposal assistance.

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

**Personal precautions**

Evacuate personnel to safe areas. Do not touch or walk through spilled material. Ventilate affected area. Use personal protective equipment as required.

**For emergency responders**

Use personal protection recommended in Section 8.

**Environmental precautions**

**Environmental precautions**

Prevent entry into waterways, sewers, basements or confined areas. Do not flush into surface water or sanitary sewer system. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. 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. Cover with plastic sheet to prevent spreading.

**Methods for cleaning up**

Take up mechanically, placing in appropriate containers for disposal. Clean contaminated surface thoroughly. Dispose of in accordance with local, state and federal regulations or laws.

**Emergency Response Guide Number**

Not applicable

## 7. HANDLING AND STORAGE

**Precautions for safe handling**

**Advice on safe handling**

Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Do not breathe dust/fume/gas/mist/vapors/spray.

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

**Storage Conditions**

Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children. Keep containers tightly closed in a cool, well-ventilated place. Keep in properly labeled containers.

**Flammability class**

Not applicable

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control parameters**

**Exposure Guidelines**

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Sodium metabisulfite 40 - 50%	TWA: 5 mg/m <sup>3</sup>	(vacated) TWA: 5 mg/m <sup>3</sup>	TWA: 5 mg/m <sup>3</sup>

Chemical Name	Alberta OEL	British Columbia OEL	Manitoba OEL	New Brunswick OEL	New Foundland & Labrador OEL
Sodium metabisulfite 40 - 50%	TWA: 5 mg/m <sup>3</sup>	TWA: 5 mg/m <sup>3</sup>	TWA: 5 mg/m <sup>3</sup>	TWA: 5 mg/m <sup>3</sup>	TWA: 5 mg/m <sup>3</sup>

Chemical Name	Northwest Territories OEL	Nova Scotia OEL	Nunavut OEL	Ontario TWA	Prince Edward Island OEL
Sodium metabisulfite 40 - 50%	TWA: 5 mg/m <sup>3</sup> STEL: 10 mg/m <sup>3</sup>	TWA: 5 mg/m <sup>3</sup>	TWA: 5 mg/m <sup>3</sup> STEL: 10 mg/m <sup>3</sup>	TWA: 5 mg/m <sup>3</sup>	TWA: 5 mg/m <sup>3</sup>

Chemical Name	Quebec OEL	Saskatchewan OEL	Yukon OEL
Sodium metabisulfite 40 - 50%	TWA: 5 mg/m <sup>3</sup>	TWA: 5 mg/m <sup>3</sup> STEL: 10 mg/m <sup>3</sup>	NDF

**Other Information** Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

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

**Appropriate engineering controls**

**Engineering Controls** If no local exhaust use approved fume hood and/or respirator  
 Showers  
 Eyewash stations

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

**Eye/face protection** Wear tight sealing safety goggles and/or face protection shield. Avoid contact with eyes.

**Skin and body protection** Wear protective gloves and protective clothing.

**Respiratory protection** Do not breathe gas/fumes/vapor/spray. If no local exhaust use approved fume hood and/or respirator. In case of inadequate ventilation wear respiratory protection.

**General Hygiene Considerations** Avoid breathing (dust, vapor, mist, gas). Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Wear suitable gloves and eye/face protection. Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Keep away from food, drink and animal feeding stuffs. Regular cleaning of equipment, work area and clothing is recommended. Handle in accordance with good industrial hygiene and safety practice. Avoid prolonged or repeated contact with skin. Take off all contaminated clothing and wash it before reuse.

**Environmental exposure controls**

Avoid creating dust. Do not allow into any sewer, on the ground or into any body of water. Local authorities should be advised if significant spillages cannot be contained.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

**Information on basic physical and chemical properties**

**Physical state** Solid

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**Gas Under Pressure** Not classified according to GHS criteria

**Appearance** crystalline

**Color** White to yellow

**Odor** Sulfur-like

**Odor threshold** No data available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
<b>Molecular weight</b>	No data available	
<b>pH</b>	5.3	5% Solution
<b>Melting point/freezing point</b>	> 400 °C / 752 °F	
<b>Boiling point / boiling range</b>	No data available	
<b>Evaporation rate</b>	Not applicable	
<b>Vapor pressure</b>	Not applicable	
<b>Vapor density (air = 1)</b>	Not applicable	
<b>Specific gravity (water = 1 / air = 1)</b>	2.21	
<b>Partition Coefficient (n-octanol/water)</b>	No data available	
<b>Soil Organic Carbon-Water Partition Coefficient</b>	No data available	
<b>Autoignition temperature</b>	No data available	
<b>Decomposition temperature</b>	No data available	
<b>Dynamic viscosity</b>	Not applicable	
<b>Kinematic viscosity</b>	Not applicable	

#### 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**

<u>Chemical Name</u>	<u>Solubility classification</u>	<u>Solubility</u>	<u>Solubility Temperature</u>
Acid	Soluble	> 1000 mg/L	25 °C / 77 °F

#### Other Information

**Metal Corrosivity** Not classified as corrosive to metal according to GHS criteria

**Steel Corrosion Rate** 2.06 mm/yr / 0.08 in/yr

**Aluminum Corrosion Rate** 0.25 mm/yr / 0.01 in/yr

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

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<b>Bulk density</b>	No data available
<b>Explosive properties</b>	Not classified according to GHS criteria.
<b>Explosion data</b>	No data available
<b>Upper explosion limit</b>	No data available
<b>Lower explosion limit</b>	No data available
<b>Flammable properties</b>	Can burn in fire, releasing toxic vapors. Not classified as flammable according to GHS criteria.
<b>Flammability Limit in Air</b>	
<b>Upper flammability limit:</b>	No data available
<b>Lower flammability limit:</b>	No data available
<b>Flash point</b>	Not applicable
<b>Method</b>	No information available
<b>Oxidizing properties</b>	Not classified according to GHS criteria.
<b>Reactivity properties</b>	Not classified as self-reactive, pyrophoric, self-heating or emitting flammable gases in contact with water according to GHS criteria.

## 10. STABILITY AND REACTIVITY

### **Reactivity properties**

Not classified as self-reactive, pyrophoric, self-heating or emitting flammable gases in contact with water according to GHS criteria

### **Chemical stability**

Stable under recommended storage conditions.

### **Special dangers of the product**

None reported

### **Possibility of Hazardous Reactions**

None under normal processing.

#### **Hazardous polymerization**

Hazardous polymerization does not occur.

### **Conditions to avoid**

Extremes of temperature and direct sunlight. Incompatible materials.

### **Incompatible materials**

Strong oxidizing agents. Strong acids. Strong bases.

### **Hazardous Decomposition Products**

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

### **Explosive properties**

Not classified according to GHS criteria.

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**Upper explosion limit** No data available

**Lower explosion limit** No data available

**Autoignition temperature**

No data available

**Sensitivity to Static Discharge**

None reported

**Sensitivity to Mechanical Impact**

None reported

**11. TOXICOLOGICAL INFORMATION**

**NIOSH (RTECS) Number** None reported

**Information on Likely Routes of Exposure**

<b>Product Information</b>	Corrosive to eyes. Respiratory sensitizer. May cause respiratory irritation. Causes skin irritation. Harmful if swallowed. Harmful by inhalation. MAY BE HARMFUL IF ABSORBED THROUGH SKIN. May be harmful in contact with skin.
<b>Inhalation</b>	May cause sensitization by inhalation. Avoid breathing dust/fume/gas/mist/vapors/spray. Inhalation of dust in high concentration may cause irritation of respiratory system. Harmful by inhalation. May cause irritation of respiratory tract.
<b>Eye contact</b>	Corrosive to the eyes and may cause severe damage including blindness.
<b>Skin contact</b>	Causes skin irritation. May be harmful in contact with skin.
<b>Ingestion</b>	Harmful if swallowed. Ingestion may cause irritation to mucous membranes.
<b>Aggravated Medical Conditions</b>	Skin disorders. Eye disorders. Respiratory disorders.
<b>Toxicologically synergistic products</b>	None known.
<b>Toxicokinetics, metabolism and distribution</b>	See ingredients information below.

<b>Chemical Name</b>	<b>Toxicokinetics, metabolism and distribution</b>
Sodium metabisulfite (40 - 50%) CAS#: 7681-57-4	Can trigger bronchoconstriction in asthma patients. The allergic origin of the reaction was not proven.
Sodium dithionite (20 - 30%) CAS#: 7775-14-6	Under physiological condition, it is expected that sodium dithionite will rapidly convert to related sulfite species: sodium sulfite, sodium hydrogen sulfite, and sodium metabisulfite. Toxicity data for these compounds should be considered.

**Product Acute Toxicity Data**

Test data reported below

**Oral Exposure Route**



<u>Endpoint type</u>	<u>Toxicological effects</u>	<u>Key literature references and sources for data</u>
Rat LD <sub>50</sub>	<b>Behavioral</b> Chewing motion Coma Flaccid muscle tone Lethargy Prostration Sedation Tonic convulsions Tremor Twitching <b>Chronic</b> Death <b>Eye</b> Ptosis <b>Gastrointestinal</b> Diarrhea Enteritis of the intestines Gas Inflammation of the small and large intestine Inflammation of the stomach <b>Kidney, Ureter, or Bladder</b> Abnormalities of the kidneys <b>Lungs, Thorax, or Respiration</b> Congestion of the lungs Respiratory depression Hemorrhagic lungs <b>Nutritional and Gross Metabolic</b> Wetness of the anogenital area <b>Reproductive</b> <b>Skin and Appendages</b> Piloerection	Outside testing

Dermal Exposure Route No data available

Inhalation (Dust/Mist) Exposure Route No data available

Inhalation (Vapor) Exposure Route No data available

Inhalation (Gas) Exposure Route No data available

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

ATEmix (dermal)	4,626.00 mg/kg
ATEmix (inhalation-dust/mist)	4.65 mg/L

Ingredient Acute Toxicity Data

**Oral Exposure Route**

If available, see data below

Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sodium metabisulfite (40 - 50%) CAS#: 7681-57-4	Rat LD <sub>50</sub>	500 mg/kg	None reported	None reported	Vendor SDS
Sodium dithionite (20 - 30%) CAS#: 7775-14-6	Mouse LD <sub>50</sub>	1500 mg/kg	None reported	None reported	ERMA (New Zealand Environmental Risk Management Authority)
1,10-Phenanthroline, mono(4-methylbenzenesulfonate) (1 - 5%) CAS#: 92798-16-8	Rat LD <sub>50</sub>	245.6 mg/kg	None reported	None reported	Internal Data
Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sodium dithionite (20 - 30%) CAS#: 7775-14-6	Rat LD <sub>50</sub>	2500 mg/kg	None reported	None reported	ERMA (New Zealand Environmental Risk Management Authority)

**Dermal Exposure Route**

If available, see data below

Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sodium metabisulfite (40 - 50%) CAS#: 7681-57-4	Rat LD <sub>50</sub>	2000 mg/kg	None reported	None reported	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sodium metabisulfite (40 - 50%) CAS#: 7681-57-4	Guinea pig LD <sub>50</sub>	> 1000 mg/kg	None reported	None reported	RTECS (Registry of Toxic Effects of Chemical Substances)

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

If available, see data below

Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sodium metabisulfite (40 - 50%) CAS#: 7681-57-4	Rat LC <sub>50</sub>	2.01 mg/L	4 hours	None reported	ERMA (New Zealand Environmental Risk Management Authority)

**Inhalation (Vapor) Exposure Route**

No data available

**Inhalation (Gas) Exposure Route**

No data available

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

**Oral Exposure Route**

**Dermal Exposure Route**

No data available

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

No data available

**Inhalation (Vapor) Exposure Route**

No data available

**Inhalation (Gas) Exposure Route**

No data available

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

**Oral Exposure Route**

If available, see data below

**Dermal Exposure Route**

If available, see data below

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

If available, see data below

**Inhalation (Vapor) Exposure Route**

No data available

**Inhalation (Gas) Exposure Route**

No data available

**Aspiration toxicity**

No data available

**Kinematic viscosity**

Not applicable

**Product Skin Corrosion/Irritation Data**

No data available.

**Ingredient Skin Corrosion/Irritation Data**

If available, see data below

Chemical Name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Sodium metabisulfite (40 - 50%) CAS#: 7681-57-4	Standard Draize Test	Rabbit	0.5 mL	4 hours	Not corrosive or irritating to skin	RTECS (Registry of Toxic Effects of Chemical Substances)
Sodium dithionite (20 - 30%) CAS#: 7775-14-6	Standard Draize Test	Rabbit	800 mg	None reported	Mild skin irritant	IUCLID (The International Uniform Chemical Information Database)

**Product Serious Eye Damage/Eye Irritation Data**

No data available.

**Ingredient Eye Damage/Eye Irritation Data**

If available, see data below

Chemical Name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Sodium metabisulfite (40 - 50%) CAS#: 7681-57-4	Standard Draize Test	Rabbit	107 mg	None reported	Corrosive to eyes	RTECS (Registry of Toxic Effects of Chemical Substances)
Sodium dithionite (20 - 30%) CAS#: 7775-14-6	Standard Draize Test	Rabbit	100 mg	None reported	Eye irritant	IUCLID (The International Uniform Chemical Information Database)
Chemical Name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Sodium dithionite (20 - 30%) CAS#: 7775-14-6	Standard Draize Test	Rabbit	97 mg	24 hours	Eye irritant	ECHA (The European Chemicals Agency)

**Sensitization Information**

**Product Sensitization Data**

**Skin Sensitization Exposure Route**

No data available.

**Respiratory Sensitization Exposure Route**

No data available.

**Ingredient Sensitization Data**

**Skin Sensitization Exposure Route**

If available, see data below.

Chemical Name	Test method	Species	Results	Key literature references and sources for data
Sodium dithionite (20 - 30%) CAS#: 7775-14-6	Based on human experience	Human	Not confirmed to be a skin sensitizer	OECD (Organization for Economic Co-operation and Development)

**Respiratory Sensitization Exposure Route**

If available, see data below.

Chemical Name	Test method	Species	Results	Key literature references and sources for data
Sodium metabisulfite (40 - 50%) CAS#: 7681-57-4	Based on human experience	Human	Confirmed to be a respiratory sensitizer	GESTIS (Information System on Hazardous Substances of the German Social Accident Insurance)

**Chronic Toxicity Information**

**Product Specific Target Organ Toxicity Repeat Dose Data**

**Oral Exposure Route** No data available.

**Dermal Exposure Route** No data available.

**Inhalation (Dust/Mist) Exposure Route** No data available.

**Inhalation (Vapor) Exposure Route** No data available.

**Inhalation (Gas) Exposure Route** No data available.

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

**Oral Exposure Route**

If available, see data below

Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sodium metabisulfite (40 - 50%) CAS#: 7681-57-4	Rat TD <sub>Lo</sub>	75 mg/kg	15 days	<b>Biochemical</b> Enzyme inhibition, induction, or change in blood or tissue levels (phosphatases and dehydrogenases) <b>Kidney, Ureter, or Bladder</b> Other changes in urine composition	RTECS (Registry of Toxic Effects of Chemical Substances)
Sodium dithionite (20 - 30%) CAS#: 7775-14-6	Rat NOAEL	217 mg/kg	None reported	None reported	OECD (Organization for Economic Co-operation and Development)
Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sodium metabisulfite (40 - 50%) CAS#: 7681-57-4	Rat TD <sub>Lo</sub>	1050 mg/kg	6 weeks	<b>Brain and Coverings</b> Recordings from specific areas of CNS <b>Eye</b> Other effects Pigmentary deposition Retinal changes Retinitis	RTECS (Registry of Toxic Effects of Chemical Substances)

**Dermal Exposure Route** No data available

**Inhalation (Dust/Mist) Exposure Route** No data available

**Inhalation (Vapor) Exposure Route** No data available

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**Inhalation (Gas) Exposure Route**

No data available

Chemical Name	CAS No	ACGIH	IARC	NTP	OSHA
Sodium metabisulfite	7681-57-4	-	Group 3	-	-
Sodium dithionite	7775-14-6	-	-	-	-
1,10-Phenanthroline, mono(4-methylbenzenesulfonate)	92798-16-8	-	-	-	-

**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 (Occupational Safety and Health Administration of the US Department of Labor)</b>	Does not apply

**Product Carcinogenicity Data**

No data available

**Oral Exposure Route**

No data available

**Dermal Exposure Route**

No data available

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

No data available

**Inhalation (Vapor) Exposure Route**

No data available

**Inhalation (Gas) Exposure Route**

No data available

**Ingredient Carcinogenicity Data**

**Oral Exposure Route**

If available, see data below

Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sodium dithionite (20 - 30%) CAS#: 7775-14-6	None reported	942 mg/kg	2 years	Negative results for carcinogenicity	No information available

**Dermal Exposure Route**

No data available

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

No data available

**Inhalation (Vapor) Exposure Route**

No data available

**Inhalation (Gas) Exposure Route**

No data available

**Product Germ Cell Mutagenicity *invitro* Data**

No data available.

**Ingredient Germ Cell Mutagenicity *invitro* Data**

If available, see data below

Chemical Name	Test	Cell Strain	Reported dose	Exposure time	Results	Key literature references and sources for data
Sodium metabisulfite (40 - 50%)	Cytogenetic analysis	Hamster ovary	0.18 mg/L	None reported	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of

CAS#: 7681-57-4						Chemical Substances)
Sodium dithionite (20 - 30%) CAS#: 7775-14-6	Mutation in microorganisms	<i>Salmonella typhimurium</i>	None reported	None reported	Negative test result for mutagenicity	IUCLID (The International Uniform Chemical Information Database)
<b>Chemical Name</b>	<b>Test</b>	<b>Cell Strain</b>	<b>Reported dose</b>	<b>Exposure time</b>	<b>Results</b>	<b>Key literature references and sources for data</b>
Sodium metabisulfite (40 - 50%) CAS#: 7681-57-4	Mutation in microorganisms	<i>Salmonella typhimurium</i>	100 mmol/L	None reported	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)
Sodium dithionite (20 - 30%) CAS#: 7775-14-6	Mutation in microorganisms	Bacteria - not specified	None reported	None reported	Negative test result for mutagenicity	IUCLID (The International Uniform Chemical Information Database)
<b>Chemical Name</b>	<b>Test</b>	<b>Cell Strain</b>	<b>Reported dose</b>	<b>Exposure time</b>	<b>Results</b>	<b>Key literature references and sources for data</b>
Sodium metabisulfite (40 - 50%) CAS#: 7681-57-4	Sister chromatid exchange	Hamster ovary	0.2 mg/L	None reported	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)

Oral Exposure Route No data available

Dermal Exposure Route No data available

Inhalation (Dust/Mist) Exposure Route No data available

Inhalation (Vapor) Exposure Route No data available

Inhalation (Gas) Exposure Route No data available

**Ingredient Germ Cell Mutagenicity *in vivo* Data**

Oral Exposure Route If available, see data below

<b>Chemical Name</b>	<b>Test</b>	<b>Species</b>	<b>Reported dose</b>	<b>Exposure time</b>	<b>Results</b>	<b>Key literature references and sources for data</b>
Sodium dithionite (20 - 30%) CAS#: 7775-14-6	Cytogenetic analysis	Rat	1200 mg/kg	None reported	Negative test result for mutagenicity	IUCLID (The International Uniform Chemical Information Database)

Dermal Exposure Route No data available

Inhalation (Dust/Mist) Exposure Route No data available

Inhalation (Vapor) Exposure Route No data available

Inhalation (Gas) Exposure Route No data available

Oral Exposure Route No data available

Dermal Exposure Route No data available

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Inhalation (Dust/Mist) Exposure Route No data available

Inhalation (Vapor) Exposure Route No data available

Inhalation (Gas) Exposure Route No data available

**Ingredient Reproductive Toxicity Data**

Oral Exposure Route If available, see data below

Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sodium metabisulfite (40 - 50%) CAS#: 7681-57-4	Rat TD <sub>Lo</sub>	20000 mg/kg	None reported	<b>Effects on Newborn</b> Stillbirth	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical Name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sodium metabisulfite (40 - 50%) CAS#: 7681-57-4	Rat TD <sub>Lo</sub>	40000 mg/kg	None reported	<b>Effects on Newborn</b> Weaning or lactation index (e.g. # alive at weaning per # alive at day 4)	RTECS (Registry of Toxic Effects of Chemical Substances)

Dermal Exposure Route No data available

Inhalation (Dust/Mist) Exposure Route No data available

Inhalation (Vapor) Exposure Route No data available

Inhalation (Gas) Exposure Route No data available

**12. ECOLOGICAL INFORMATION**

Ecotoxicity Harmful to aquatic life with long lasting effects.

**Product Ecological Data**

**Aquatic toxicity**

Fish No data available

Crustacea No data available

Algae No data available

**Terrestrial toxicity**

Soil No data available

Vertebrates No data available

Invertebrates No data available

**Ingredient Ecological Data**

**Aquatic toxicity**

Fish If available, see ingredient data below

Chemical Name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Sodium metabisulfite (40 - 50%) CAS#: 7681-57-4	96 hours	<i>Salmo gairdneri</i>	LC <sub>50</sub>	15 mg/L	OECD (Organization for Economic Co-operation and Development)

Sodium dithionite (20 - 30%) CAS#: 7775-14-6	96 hours	<i>Leuciscus idus</i>	LC <sub>50</sub>	>= 46 mg/L	IUCLID (The International Uniform Chemical Information Database)
1,10-Phenanthroline, mono(4-methylbenzenesulfonate) (1 - 5%) CAS#: 92798-16-8	96 hours	None reported	LC <sub>50</sub>	1353 mg/L	Estimation through ECOSARS v1.11 part of the Estimation Programs Interface (EPI) Suite™
<b>Chemical Name</b>	<b>Exposure time</b>	<b>Species</b>	<b>Endpoint type</b>	<b>Reported dose</b>	<b>Key literature references and sources for data</b>
Sodium metabisulfite (40 - 50%) CAS#: 7681-57-4	96 hours	<i>Lepomis macrochirus</i>	LC <sub>50</sub>	32 mg/L	OECD (Organization for Economic Co-operation and Development)

#### Crustacea

If available, see ingredient data below

<b>Chemical Name</b>	<b>Exposure time</b>	<b>Species</b>	<b>Endpoint type</b>	<b>Reported dose</b>	<b>Key literature references and sources for data</b>
Sodium dithionite (20 - 30%) CAS#: 7775-14-6	48 Hours	<i>Daphnia magna</i>	EC <sub>50</sub>	98 mg/L	IUCLID (The International Uniform Chemical Information Database)
1,10-Phenanthroline, mono(4-methylbenzenesulfonate) (1 - 5%) CAS#: 92798-16-8	48 Hours	None reported	LC <sub>50</sub>	717 mg/L	Estimation through ECOSARS v1.11 part of the Estimation Programs Interface (EPI) Suite™
<b>Chemical Name</b>	<b>Exposure time</b>	<b>Species</b>	<b>Endpoint type</b>	<b>Reported dose</b>	<b>Key literature references and sources for data</b>
Sodium metabisulfite (40 - 50%) CAS#: 7681-57-4	24 hours	<i>Daphnia magna</i>	EC <sub>50</sub>	89 mg/L	OECD (Organization for Economic Co-operation and Development)

#### Algae

If available, see ingredient data below

<b>Chemical Name</b>	<b>Exposure time</b>	<b>Species</b>	<b>Endpoint type</b>	<b>Reported dose</b>	<b>Key literature references and sources for data</b>
Sodium metabisulfite (40 - 50%) CAS#: 7681-57-4	96 hours	<i>Scenedesmus subspicatus</i>	EC <sub>50</sub>	40 mg/L	OECD (Organization for Economic Co-operation and Development)
1,10-Phenanthroline, mono(4-methylbenzenesulfonate) (1 - 5%) CAS#: 92798-16-8	96 hours	None reported	EC <sub>50</sub>	402 mg/L	Estimation through ECOSARS v1.11 part of the Estimation Programs Interface (EPI) Suite™

#### Terrestrial toxicity

##### Soil

No data available

##### Vertebrates

No data available

##### Invertebrates

No data available

#### Other Information

##### Persistence and degradability

None known.

##### Product Biodegradability Data

If available, see ingredient data below.



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**Ingredient Biodegradability Data**

Test data reported below

Chemical Name	Test method	Biodegradation	Exposure time	Results
Sodium metabisulfite (40 - 50%) CAS#: 7681-57-4	Inorganic Salt	None reported	None reported	Not readily biodegradable
Sodium dithionite (20 - 30%) CAS#: 7775-14-6	Inorganic Salt	None reported	None reported	Not readily biodegradable
1,10-Phenanthroline, mono(4-methylbenzenesulfonate) (1 - 5%) CAS#: 92798-16-8	OECD Test No. 303: Simulation Test - Aerobic Sewage Treatment -- A: Activated Sludge Units; B: Biofilms	None reported	None reported	Not readily biodegradable

**Bioaccumulation**

If available, see ingredient data below.

**Product Bioaccumulation Data** No data available.

**Ingredient Bioaccumulation Data** No data available

**Additional information**

**Product Information** No data available

**Partition Coefficient (n-octanol/water)** No data available

**Ingredient Information**

Chemical Name	Partition Coefficient (n-octanol/water)	Method
Sodium metabisulfite (40 - 50%) CAS#: 7681-57-4	Not applicable	No information available
Sodium dithionite (20 - 30%) CAS#: 7775-14-6	log K <sub>ow</sub> < -7.53	Estimation through KOWWIN v1.68 part of the Estimation Programs Interface (EPI) Suite™
1,10-Phenanthroline, mono(4-methylbenzenesulfonate) (1 - 5%) CAS#: 92798-16-8	log K <sub>ow</sub> = 1.25	Estimation through KOWWIN v1.68 part of the Estimation Programs Interface (EPI) Suite™

**Mobility**

Mobility in soil: Moderate to high mobility. If available, see ingredient data below.

**Product Information** No data available

**Soil Organic Carbon-Water Partition Coefficient** No data available

**Ingredient Information**

Chemical Name	Soil Organic Carbon-Water Partition Coefficient	Method
Sodium metabisulfite (40 - 50%)	Not applicable	Estimation through KOCWIN v2.00 part of the Estimation Programs Interface

CAS#: 7681-57-4		(EPI) Suite™
Sodium dithionite (20 - 30%) CAS#: 7775-14-6	log K <sub>oc</sub> < -0.62	No information available
1,10-Phenanthroline, mono(4-methylbenzenesulfonate) (1 - 5%) CAS#: 92798-16-8	log K <sub>oc</sub> = 5.58	Estimation through KOCWIN v2.00 part of the Estimation Programs Interface (EPI) Suite™

#### Additional information

#### Water solubility

#### Product Information

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

#### Ingredient Information

Chemical Name	Water solubility classification	Water solubility	Water solubility temperature °C	Water solubility temperature °F
Sodium metabisulfite CAS#: 7681-57-4	Completely soluble	600000 mg/L	20 °C	68 °F
Sodium dithionite CAS#: 7775-14-6	Completely soluble	250000 mg/L	20 °C	68 °F
1,10-Phenanthroline, mono(4-methylbenzenesulfonate) CAS#: 92798-16-8	Soluble	> 1000 mg/L	25 °C	77 °F

#### Other adverse effects

Contains a substance with an endocrine-disrupting potential.

### 13. DISPOSAL CONSIDERATIONS

#### Waste treatment methods

#### Disposal of wastes

Disposal should be in accordance with applicable regional, national, and local laws and regulations.

#### Contaminated packaging

Working in a well-ventilated area. Rinse three times with an appropriate solvent. Collect rinsate and dispose of according to local, state, or federal regulations. Dispose of empty container as normal trash. In the US, rinsate from empty containers is classified as hazardous waste and should be disposed of at an E.P.A. approved facility. Rinsate from empty containers may contain sufficient product to require disposal as hazardous waste in countries other than the US. Improper disposal or reuse of this container may be dangerous and illegal. Disposal should be in accordance with applicable regional, national, and local laws and regulations.

#### Special instructions for disposal

Work in an approved fume hood. Working in a large container, cautiously add small portions of the material to cold water with agitation. Adjust to a pH between 6 and 9 with an alkali, such as soda ash or sodium bicarbonate. If permitted by regulation. 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. Check with national, local municipal and state authorities and waste contractors for pertinent local information on the disposal of this article.

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## 14. TRANSPORT INFORMATION

<b>U.S. DOT</b>	Not regulated
<b>Special Provisions</b>	Contact with acids liberates toxic gas, sulfur dioxide.
<b>TDG</b>	Not regulated
<b>IATA</b>	Not regulated
<b>IMDG</b>	Not regulated
<b>Note:</b>	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

<b>TSCA</b>	Complies
<b>DSL/NDSL</b>	Complies

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

### International Inventories

<b>EINECS/ELINCS</b>	Complies
<b>ENCS</b>	Does not comply
<b>IECSC</b>	Complies
<b>KECL</b>	Complies
<b>PICCS</b>	Does not comply
<b>TCSI</b>	Complies
<b>AICS</b>	Does not comply
<b>NZIoC</b>	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**

<b>Acute health hazard</b>	Yes
<b>Chronic Health Hazard</b>	No
<b>Fire hazard</b>	No

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**Sudden release of pressure hazard**  
**Reactive Hazard**

No  
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

**U.S. - Department of Homeland Security - Chemical Facility Anti-Terrorism Standards (CFATS) - Security Issues**

Chemical Name	U.S. - Department of Homeland Security - Chemical Facility Anti-Terrorism Standards (CFATS) - Security Issues
Sodium dithionite (20 - 30%) CAS#: 7775-14-6	Sabotage/Contamination

**US State Regulations**

**California Proposition 65**

This product does not contain any Proposition 65 chemicals

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

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Sodium metabisulfite 7681-57-4	X	X	X
Sodium dithionite 7775-14-6	X	X	X

**U.S. EPA Label Information**

**EPA Pesticide Registration Number** Not applicable

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

**Special Comments**

None

**Additional information**

**Global Automotive Declarable Substance List (GADSL)**

Chemical Name	Global Automotive Declarable Substance List Classifications	Global Automotive Declarable Substance List Thersholds
Sodium metabisulfite 7681-57-4	Declarable Substance (LR) Prohibited Substance (LR)	0.0 %

**NFPA and HMIS Classifications**

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<b>NFPA</b>	<b>Health hazards - 3</b>	<b>Flammability - 0</b>	<b>Instability - 0</b>	<b>Physical and Chemical Properties -</b>
<b>HMIS</b>	<b>Health hazards - 3</b>	<b>Flammability - 0</b>	<b>Physical Hazards - 0</b>	<b>Personal protection - X</b> - See section 8 for more information

**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  
**Issue Date** 21-Jun-2016  
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**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**