



# Bonide Garden Rich Liquid Iron plus Micronutrients

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

Product name : Bonide Garden Rich Liquid Iron plus Micronutrients  
Product code : 299

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Fertilizer

#### 1.3. Details of the supplier of the safety data sheet

Bonide Products, Inc.  
6301 Sutliff Road  
Oriskany, NY 13424  
T (315) 736-8231  
[www.bonide.com](http://www.bonide.com)

#### 1.4. Emergency telephone number

Emergency number : CHEMTREC - 1 (800) 424-9300 and/or 1 (703) 527-3887

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### Classification (GHS-US)

Skin Irrit. 2 H315  
Eye Irrit. 2A H319

#### 2.2. Label elements

##### GHS-US labeling

Signal word (GHS-US) : Warning  
Hazard statements (GHS-US) : H315 - Causes skin irritation  
H319 - Causes serious eye irritation  
Precautionary statements (GHS-US) : P264 - Wash hands thoroughly after handling  
P280 - Wear protective gloves and eye protection  
P302+P352 - IF ON SKIN: Wash with plenty of soap and water  
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P321 - Specific treatment (see First Aid on this label)  
P332+P313 - If skin irritation occurs: Get medical advice/attention  
P337+P313 - If eye irritation persists: Get medical advice/attention  
P362 - Take off contaminated clothing and wash before reuse

#### 2.3. Other hazards

No additional information available

#### 2.4. Unknown acute toxicity (GHS-US)

No data available

### SECTION 3: Composition/information on ingredients

#### Mixture

Name	Product identifier	%	Classification (GHS-US)
Ferrous Sulfate	(CAS No) 7782-63-0	25	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315
Zinc sulfate	(CAS No) 7733-02-0	1.4	Acute Tox. 4 (Oral), H302 Eye Dam. 1, H318 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Copper Sulfate	(CAS No) 7758-98-7	1	Acute Tox. 3 (Oral), H301 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Manganese Sulfate	(CAS No) 7785-87-7	0.75	STOT RE 2, H373 Aquatic Chronic 2, H411

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Name	Product identifier	%	Classification (GHS-US)
Magnesium sulfate	(CAS No) 7487-88-9	0.6	Not classified
Sodium Borate	(CAS No) 1330-43-4	0.1	Not classified

### SECTION 4: First aid measures

#### 4.1. Description of first aid measures

- First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
- First-aid measures after inhalation : Assure fresh air breathing. Allow the person to rest.
- First-aid measures after skin contact : Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation occurs: wash thoroughly with soap and water. Get medical advice/attention.
- First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists get medical attention.
- First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

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

- Symptoms/injuries after skin contact : Causes skin irritation.
- Symptoms/injuries after eye contact : Causes serious eye irritation.

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

No additional information available

### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

- Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray. Sand.
- Unsuitable extinguishing media : Do not use a heavy water stream.

#### 5.2. Special hazards arising from the substance or mixture

No additional information available

#### 5.3. Advice for firefighters

- Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Avoid (reject) fire-fighting water to enter environment.
- Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

##### 6.1.1. For non-emergency personnel

- Emergency procedures : Evacuate unnecessary personnel.

##### 6.1.2. For emergency responders

- Protective equipment : Equip cleanup crew with proper protection.
- Emergency procedures : Ventilate area.

#### 6.2. Environmental precautions

Prevent entry to sewers and public waters.

#### 6.3. Methods and material for containment and cleaning up

- Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

#### 6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

- Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eat, drink or smoke and when leaving work. Clean contaminated clothing.
- Hygiene measures : Wash Hands thoroughly after handling.

#### 7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Store in original container. Keep container closed when not in use.
- Incompatible products : Strong bases. strong acids.

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Incompatible materials : Sources of ignition.

### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

Ferrous Sulfate (7782-63-0)		
USA ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup>

  

Manganese Sulfate (7785-87-7)		
USA ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	0.1 mg/m <sup>3</sup>

  

Sodium Borate (1330-43-4)		
USA ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	2 mg/m <sup>3</sup>
USA ACGIH	ACGIH STEL (mg/m <sup>3</sup> )	6 mg/m <sup>3</sup>

### 8.2. Exposure controls

Personal protective equipment : Avoid all unnecessary exposure.  
Hand protection : Wear protective gloves.  
Eye protection : Chemical goggles or safety glasses.  
Skin and body protection : Wear suitable protective clothing.  
Respiratory protection : Wear approved mask.  
Other information : When using, do not eat, drink or smoke.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state : Liquid  
Appearance : Green Liquid.  
Color : Green.  
Odor : Characteristic.  
Odor threshold : No data available  
pH : 2 - 2.5  
Relative evaporation rate (butyl acetate=1) : No data available  
Melting point : No data available  
Freezing point : No data available  
Boiling point : 250 °F  
Flash point : No data available  
Self ignition temperature : No data available  
Decomposition temperature : No data available  
Flammability (solid, gas) : No data available  
Vapor pressure : No data available  
Relative vapor density at 20 °C : No data available  
Relative density : 1.32  
Solubility : Soluble in water.  
Log Pow : No data available  
Log Kow : No data available  
Viscosity, kinematic : No data available  
Viscosity, dynamic : No data available  
Explosive properties : No data available  
Oxidizing properties : No data available  
Explosive limits : No data available

### 9.2. Other information

No additional information available

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### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

No additional information available

#### 10.2. Chemical stability

Stable under normal conditions.

#### 10.3. Possibility of hazardous reactions

Not established.

#### 10.4. Conditions to avoid

Extremely high or low temperatures.

#### 10.5. Incompatible materials

Strong acids. Strong bases.

#### 10.6. Hazardous decomposition products

Carbon monoxide. Carbon dioxide.

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

Acute toxicity : Not classified

<b>Ferrous Sulfate (7782-63-0)</b>	
LD50 oral rat	1480 mg/kg (Rat)

<b>Copper Sulfate (7758-98-7)</b>	
LD50 oral rat	300 mg/kg (Rat)
LD50 dermal rabbit	> 1000 mg/kg (Rabbit)

<b>Magnesium sulfate (7487-88-9)</b>	
LD50 oral rat	> 4000 mg/kg (Rat)
LD50 dermal rat	> 2000 mg/kg (Rat)

<b>Manganese Sulfate (7785-87-7)</b>	
LD50 oral rat	2150 mg/kg (Rat; Experimental value)

<b>Zinc sulfate (7733-02-0)</b>	
LD50 oral rat	1000 - 2000 mg/kg (Rat)

<b>Sodium Borate (1330-43-4)</b>	
LD50 oral rat	> 2000 mg/kg (Rat)
LD50 dermal rabbit	> 2000 mg/kg (Rabbit)

Skin corrosion/irritation : Causes skin irritation.  
pH: 2 - 2.5

Serious eye damage/irritation : Causes serious eye irritation.  
pH: 2 - 2.5

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.

Symptoms/injuries after skin contact : Causes skin irritation.

Symptoms/injuries after eye contact : Causes serious eye irritation.

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### SECTION 12: Ecological information

#### 12.1. Toxicity

<b>Ferrous Sulfate (7782-63-0)</b>	
LC50 fish 1	925 mg/l (96 h; <i>Poecilia reticulata</i> )
EC50 Daphnia 1	7.2 mg/l (48 h; <i>Daphnia magna</i> ; Metal ion)
LC50 fish 2	> 200 mg/l (48 h; <i>Leuciscus idus</i> )
EC50 Daphnia 2	152 mg/l (48 h; <i>Daphnia magna</i> ; Anhydrous form)

<b>Copper Sulfate (7758-98-7)</b>	
LC50 fish 1	0.0199 mg/l (96 h; <i>Salmo gairdneri</i> ( <i>Oncorhynchus mykiss</i> ); Soft water)
EC50 Daphnia 1	0.01 mg/l (48 h; <i>Daphnia magna</i> ; Soft water)
LC50 fish 2	0.298 mg/l (96 h; <i>Salmo gairdneri</i> ( <i>Oncorhynchus mykiss</i> ); Hard water)
EC50 Daphnia 2	0.2 mg/l (48 h; <i>Daphnia magna</i> ; Hard water)
TLM fish 1	3.8 ppm 24 h; <i>Salmo gairdneri</i> ( <i>Oncorhynchus mykiss</i> )
Threshold limit algae 2	1.1 mg/l ( <i>Scenedesmus quadricauda</i> )

<b>Magnesium sulfate (7487-88-9)</b>	
LC50 fish 1	14000 mg/l (48 h; <i>Leuciscus idus</i> )
EC50 Daphnia 1	1700 mg/l (24 h; <i>Daphnia magna</i> )
LC50 fish 2	15500 mg/l (96 h; <i>Gambusia affinis</i> )
Threshold limit other aquatic organisms 1	27.4 g/l (0.5 h; <i>Photobacterium phosphoreum</i> )
Threshold limit algae 2	220 mg/l (72 h; <i>Scenedesmus subspicatus</i> ; Biomass)

<b>Manganese Sulfate (7785-87-7)</b>	
LC50 fish 1	2850 mg/l (96 h; <i>Colisa fasciatus</i> ; Manganese ion)
EC50 Daphnia 1	8.28 mg/l (48 h; <i>Daphnia magna</i> )
LC50 fish 2	33.8 mg/l (96 h; <i>Pimephales promelas</i> )
EC50 Daphnia 2	10 mg/l (24 h; <i>Daphnia magna</i> )
Threshold limit algae 1	25.7 mg/l ( <i>Phaeodactylum</i> ; Growth)
Threshold limit algae 2	61 mg/l (72 h; <i>Desmodesmus subspicatus</i> ; GLP)

<b>Zinc sulfate (7733-02-0)</b>	
LC50 fish 1	1.7 mg/l (96 h; <i>Poecilia reticulata</i> )
EC50 Daphnia 1	1 mg/l (24 h; <i>Daphnia magna</i> )
LC50 fish 2	2.4 mg/l 96 h; <i>Salmo gairdneri</i> ( <i>Oncorhynchus mykiss</i> )
EC50 Daphnia 2	0.56 mg/l (48 h; <i>Daphnia magna</i> )
Threshold limit algae 1	136 µg/l (72 h; <i>Selenastrum capricornutum</i> ; Growth rate)
Threshold limit algae 2	24 µg/l (3 days; <i>Selenastrum capricornutum</i> ; Growth rate)

<b>Sodium Borate (1330-43-4)</b>	
LC50 fish 1	100 - 1000 mg/l (96 h; Pisces)
LC50 other aquatic organisms 1	100 - 100 mg/l (96 h)
EC50 Daphnia 1	340 mg/l (24 h; <i>Daphnia magna</i> )
LC50 fish 2	807 mg/l ( <i>Leuciscus idus</i> )
TLM fish 1	8200 ppm (48 h; <i>Gambusia affinis</i> )
Threshold limit other aquatic organisms 1	100 - 100,96 h; Protozoa
Threshold limit other aquatic organisms 2	1 mg/l (72 h)
Threshold limit algae 1	47 mg/l (96 h; <i>Scenedesmus subspicatus</i> ; Growth)
Threshold limit algae 2	0.58 mg/l ( <i>Scenedesmus quadricauda</i> )

#### 12.2. Persistence and degradability

<b>Bonide Garden Rich Liquid Iron plus Micronutrients</b>	
Persistence and degradability	Not established.

<b>Ferrous Sulfate (7782-63-0)</b>	
Persistence and degradability	Biodegradability in water: no data available. Biodegradability in soil: no data available. Adsorbs into the soil.

<b>Copper Sulfate (7758-98-7)</b>	
Biochemical oxygen demand (BOD)	Not applicable

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<b>Copper Sulfate (7758-98-7)</b>	
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

<b>Magnesium sulfate (7487-88-9)</b>	
Persistence and degradability	Biodegradability: not applicable.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

<b>Manganese Sulfate (7785-87-7)</b>	
Persistence and degradability	Biodegradability: not applicable. No (test) data on mobility of the substance available.
ThOD	Not applicable (inorganic)

<b>Zinc sulfate (7733-02-0)</b>	
Persistence and degradability	Biodegradability: not applicable.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

<b>Sodium Borate (1330-43-4)</b>	
Persistence and degradability	Biodegradability: not applicable. Biodegradability in soil: not applicable. Adsorbs into the soil.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

### 12.3. Bioaccumulative potential

<b>Bonide Garden Rich Liquid Iron plus Micronutrients</b>	
Bioaccumulative potential	Not established.

<b>Ferrous Sulfate (7782-63-0)</b>	
Bioaccumulative potential	Not bioaccumulative.

<b>Copper Sulfate (7758-98-7)</b>	
Bioaccumulative potential	Bioaccumable.

<b>Magnesium sulfate (7487-88-9)</b>	
Bioaccumulative potential	No bioaccumulation data available.

<b>Manganese Sulfate (7785-87-7)</b>	
Bioaccumulative potential	No bioaccumulation data available.

<b>Zinc sulfate (7733-02-0)</b>	
BCF fish 1	59 - 242 (Cyprinus carpio; Test duration: 8 weeks)
Bioaccumulative potential	Bioaccumable.

<b>Sodium Borate (1330-43-4)</b>	
Bioaccumulative potential	Not bioaccumulative.

### 12.4. Mobility in soil

<b>Copper Sulfate (7758-98-7)</b>	
Ecology - soil	Toxic to flora.

<b>Sodium Borate (1330-43-4)</b>	
Ecology - soil	May be harmful to plant growth, blooming and fruit formation.

### 12.5. Other adverse effects

Other information : Avoid release to the environment.

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### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.  
Ecology - waste materials : Avoid release to the environment.

### SECTION 14: Transport information

In accordance with DOT  
No dangerous good in sense of transport regulations

#### Additional information

Other information : No supplementary information available.

### SECTION 15: Regulatory information

#### 15.1. US Federal regulations

##### Bonide Garden Rich Liquid Iron plus Micronutrients

Not listed on the United States TSCA (Toxic Substances Control Act) inventory

#### 15.2. International regulations

No additional information available

#### 15.3. US State regulations

No additional information available

### SECTION 16: Other information

Other information : None.

Full text of H-phrases: see section 16:

Acute Tox. 3 (Oral)	Acute toxicity (oral) Category 3
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment - Chronic Hazard Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment - Chronic Hazard Category 2
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
STOT RE 2	Specific target organ toxicity (repeated exposure) Category 2
H301	Toxic if swallowed
H302	Harmful if swallowed
H318	Causes serious eye damage
H319	Causes serious eye irritation
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H411	Toxic to aquatic life with long lasting effects

SDS US (GHS HazCom 2012) - Pesticides

*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.*