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Version 1

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier

Product Name FeRROMEC® AC Liquid Iron 15-0-0

Other means of identification

Product Code PBI FP 970-6

Recommended use of the chemical and restrictions on use

Recommended Use Fertilizers.

Uses advised against No information available.

Details of the supplier of the safety data sheet

Supplier

PBI Gordon Corporation
 1217 West 12th Street
 Kansas City, MO 64101

Company Name

PBI Gordon Corporation
 1217 West 12th Street
 Kansas City, MO 64101

Company Name

PBI-Gordon Corporation
 P.O. Box 860350
 Shawnee, KS 66286

Emergency telephone number

Emergency Telephone Chemtrec 1-800-424-9300

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute Oral Toxicity	Category 4
Skin Corrosion/Irritation Category	Category 2
Serious eye damage/eye irritation	Category 2A

Label elements

Emergency Overview

Warning

Hazard statements

Harmful if swallowed. Causes skin irritation. Causes serious eye irritation.



Appearance Liquid

Physical state Liquid

Odor No discernible odor

Precautionary Statements - Prevention

- Do not eat, drink or smoke when using this product
- Wash face, hands and any exposed skin thoroughly after handling
- Wear protective gloves/eye protection/face protection

Precautionary Statements - Response

- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
- If eye irritation persists: Get medical advice/attention
- IF ON SKIN: Wash with plenty of water and soap
- If skin irritation occurs: Get medical advice/attention
- Take off contaminated clothing and wash it before reuse
- IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell
- Rinse mouth

Precautionary Statements - Disposal

- Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

Have the product label with you when calling a poison control center or doctor or going in for treatment. You may also contact 1-877-800-5556 for emergency medical treatment advice.

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Other information**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Chemical name	CAS-No	Weight-%
Trade Secret	Proprietary	30 - 40%
Ferrous sulfate heptahydrate	7782-63-0	29.83

* The exact percentage (concentration) of composition has been withheld as a trade secret

4. FIRST AID MEASURES**Description of first aid measures****General advice**

If symptoms persist, call a physician. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Immediate medical attention is required.

Eye contact

Keep eye wide open while rinsing. Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. If symptoms persist, call a physician. Immediate medical attention is required. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin Contact

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Consult a physician if necessary.

Inhalation

Remove to fresh air. Call a physician. If breathing is irregular or stopped, administer artificial respiration. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician or poison control center immediately.

Ingestion

Drink plenty of water. Do NOT induce vomiting. Rinse mouth. If symptoms persist, call a physician. Immediate medical attention is required. Remove from exposure, lie down. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.

Self-protection of the first aider

Use personal protective equipment as required.

Most important symptoms and effects, both acute and delayed**Symptoms**

No information available.

Indication of any immediate medical attention and special treatment needed

Note to physicians

Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure. Treat symptomatically.

5. FIRE-FIGHTING MEASURES**Suitable extinguishing media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Specific hazards arising from the chemical

The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating and toxic gases and vapors. In the event of fire and/or explosion do not breathe fumes.

Explosion data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES**Personal precautions, protective equipment and emergency procedures****Personal precautions**

Use personal protective equipment as required. Avoid contact with eyes and skin. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

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. Avoid release to the environment. Collect spillage. Dispose of contents/container to an approved waste disposal plant. 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

Cover liquid spill with sand, earth or other non-combustible absorbent material. Use personal protective equipment as required. Dam up. Take up mechanically, placing in appropriate containers for disposal. Clean contaminated surface thoroughly. After cleaning, flush away traces with water.

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. Wash contaminated clothing before reuse. Do not breathe dust/fume/gas/mist/vapors/spray. Do not eat, drink or smoke when using this product. In case of insufficient ventilation, wear suitable respiratory equipment. Use only with adequate ventilation and in closed systems.

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

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

Incompatible materials Strong bases. Incompatible with oxidizing agents. Incompatible with strong acids and bases.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Ferrous sulfate heptahydrate 7782-63-0	TWA: 1 mg/m ³ Fe	(vacated) TWA: 1 mg/m ³ Fe	TWA: 1 mg/m ³ Fe

NIOSH IDLH *Immediately Dangerous to Life or Health*

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

Appropriate engineering controls

Engineering Controls Local and General Ventilation.

Individual protection measures, such as personal protective equipment

Eye/face protection Tight sealing safety goggles. Face protection shield.

Skin and body protection Wear protective gloves and protective clothing. Wear long-sleeved shirt, long pants, socks and shoes.

Respiratory protection If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

General Hygiene Considerations When using do not eat, drink or smoke. Wash contaminated clothing before reuse. Keep away from food, drink and animal feeding stuffs. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Avoid contact with skin, eyes or clothing. Take off all contaminated clothing and wash it before reuse. Wear suitable gloves and eye/face protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Liquid	Odor	No discernible odor
Appearance	Liquid	Odor threshold	No information available
Color	Green		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	2.0-2.5	
Melting point/freezing point	-5 °C / 23 °F	
Boiling point / boiling range	> 121 °C / 250 °F	
Flash point	> 96 °C / > 205 °F	
Evaporation rate	< 1	
Flammability (solid, gas)	No information available	
Flammability Limit in Air		
Upper flammability limit:	No information available	
Lower flammability limit:	No information available	
Vapor pressure	<17 mm Hg	
Vapor density	>1	
Specific Gravity	1.32	
Water solubility	Soluble in water	
Solubility in other solvents	No information available	
Partition coefficient	No information available	

Autoignition temperature No information available
Decomposition temperature No information available
Oxidizing properties No information available

Other Information

Liquid Density 11.0 pounds/gallon

10. STABILITY AND REACTIVITY**Reactivity****Chemical stability**

Stable.

Possibility of Hazardous Reactions

None under normal processing.

Hazardous polymerization

Will not occur.

Conditions to avoid

(Store below 110 degrees F). Exposure to air over prolonged periods. Exposure to air or moisture over prolonged periods.

Incompatible materials

Strong bases. Incompatible with oxidizing agents. Incompatible with strong acids and bases.

Hazardous decomposition products

Thermal decomposition can lead to release of irritating and toxic gases and vapors.

11. TOXICOLOGICAL INFORMATION**Information on likely routes of exposure****Product Information**

Inhalation May cause irritation.
Eye contact May cause irritation. May cause burns.
Skin Contact May cause irritation.
Ingestion May cause irritation. May be harmful if swallowed.

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Trade Secret	> 90 mL/kg (Rat)	-	-

Information on toxicological effects

Symptoms No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization No information available.
Germ cell mutagenicity No information available.
Carcinogenicity No information available.
Reproductive toxicity No information available.
STOT - single exposure No information available.
STOT - repeated exposure No information available.
Chronic toxicity Chronic exposure to corrosive fumes/gases may cause erosion of the teeth followed by jaw necrosis. Bronchial irritation with chronic cough and frequent attacks of pneumonia are common. Gastrointestinal disturbances may also be seen. Avoid repeated exposure.

Target Organ Effects	Possible risk of irreversible effects. May cause adverse liver effects.
Aspiration hazard	Teeth, Liver, Respiratory system, Eyes, Skin, Gastrointestinal tract (GI). No information available.

Numerical measures of toxicity - Product Information

Unknown Toxicity	0 % of the mixture consists of ingredient(s) of unknown toxicity
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The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	1535 mg/kg
ATEmix (dermal)	40526 mg/kg
ATEmix (inhalation-dust/mist)	2.9 mg/L

12. ECOLOGICAL INFORMATION**Ecotoxicity**

Toxic to aquatic life

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

Persistence and degradability

No information available.

Bioaccumulation

No information available.

Other adverse effects

No information available

13. DISPOSAL CONSIDERATIONS**Waste treatment methods**

Disposal of wastes	Disposal should be in accordance with applicable regional, national and local laws and regulations. This material, as supplied, is a hazardous waste according to federal regulations (40 CFR 261).
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Contaminated packaging	Do not reuse container, unless specified by the manufacturer.
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14. TRANSPORT INFORMATION

Note:	Products under 305 gallons not regulated by DOT. Below are designations for products over 305 gallons. See RQ
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<u>DOT</u>	Not regulated
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<u>TDG</u>	Not regulated
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<u>MEX</u>	Not regulated
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<u>ICAO (air)</u>	Not regulated
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<u>IATA</u>	Not regulated
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<u>IMDG</u>	Limited quantity applies with an inner packaging less than 5kg or less.
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15. REGULATORY INFORMATION**U.S. EPA Label Information**

EPA Pesticide Registration Number Not applicable

International Inventories

TSCA	Listed
DSL/NDL	Not Listed
EINECS/ELINCS	Not Listed
ENCS	Listed
IECSC	Listed
KECL	Not Listed
PICCS	Listed
AICS	Listed

Legend:**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances**ENCS** - Japan Existing and New Chemical Substances**IECSC** - China Inventory of Existing Chemical Substances**KECL** - Korean Existing and Evaluated Chemical Substances**PICCS** - Philippines Inventory of Chemicals and Chemical Substances**AICS** - Australian Inventory of Chemical Substances

Chemical name	TSCA	DSL	NDL	EINECS	ELINCS	ENCS	IECSC	KECL	PICCS	AICS
Trade Secret	X	X	X	X		X	X	X	X	X
Ferrous sulfate heptahydrate						X	X		X	X

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 contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Ferrous sulfate heptahydrate 7782-63-0				X

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	Reportable Quantity (RQ)
Ferrous sulfate heptahydrate 7782-63-0	1000 lb		RQ 1000 lb final RQ RQ 454 kg final RQ

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

Chemical name	New Jersey	Massachusetts	Pennsylvania
Trade Secret			X

Ferrous sulfate heptahydrate 7782-63-0		X	X
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International Regulations**Mexico - Grade**

Slight risk, Grade 1

Chemical name	Mexico	Exposure Limits
Ferrous sulfate heptahydrate		Mexico: TWA 1 mg/m ³

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

16. OTHER INFORMATION

NFPA	Health hazards 3	Flammability 1	Instability 0	Physical and Chemical Properties -
HMIS	Health hazards 3	Flammability 1	Physical hazards 0	Personal protection X

Disclaimer

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End of Safety Data Sheet