FëRROMEC® AC

LIQUID IRON 15-0-0

Fast, dependable green-up without unwanted growth.

Ferromec® AC Liquid Iron is a sprayable product containing iron combined with nitrogen and sulfur designed to produce a rapid turf green-up.

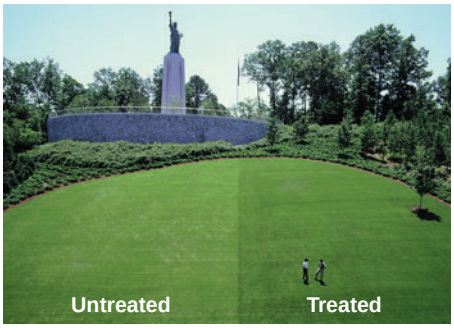
Regular applications of Ferromec AC ensure a continuous supply of iron to help prevent of correct chlorosis resulting from iron deficiencies. Several conditions may result in iron chlorosis. Sandy soils, soils low in organic matter, soils low in available iron, highly alkaline soils, low soil temperatures or an imbalance of nutrients (copper, zinc, manganese) can account for inadequate iron uptake.

The urea in Ferromec AC carries the iron sulfate into the plant quickly and efficiently. Although stable in solution, the urea and iron sulfate quickly break down after being absorbed by the plant to produce rapid green-up.

Ferromec AC can be applied repeatedly to enhance the dark green color in turf without encouraging the excessive growth associated with heavy use of nitrogen. Three to five applications per year beginning in early spring are recommended for established turf.

The "AC" designates "amine compatibility" – a formulation buffered to avoid problems when herbicides or fertilizers are tank-mixed with Ferromec AC.

Look at the difference Ferromec AC makes – in 24 to 48 hours!



- ***Plant green-up in just 12 to 48 hours***
- ***Speeds up recovery from dormancy***
- ***Corrects chlorosis due to unavailability of iron to the plant***
- ***Nitrogen/Sulfur/Iron combination for plant vigor***
- ***Economical***
- ***In liquid form – easy to apply***
- ***Foliar absorbed***
- ***Compatible with amine formulations of herbicides. Compatible with most insecticides***
- ***Non-burning when used at recommended levelss***

RECOMMENDATIONS

For fast green-up of turf sites or ornamentals.

GUARANTEED ANALYSIS:

Total Nitrogen (N) 15%
15% Urea Nitrogen
Sulfur (S). 3%
3% Combined Sulfur
Iron (Fe) 6%

Plant Nutrient Sources:
low biuret urea and ferrous sulfate heptahydrate

PACKAGING:

2 X 2.5 gallons per case:
shipping weight. . . . . 63 lbs.
30-gallon drums: shipping weight . . 375 lbs.
55-gallon drums: shipping weight . . 680 lbs.

READ LABEL BEFORE USE

The literature contained herein is not intended to be used as a substitute for the information contained on the label of the product container. Specimen labels and other literature are subject to revision. Before using this product, read and follow all label instructions on the container/package.

pbigordon.com/ferromec

pbi/gordon corporation
An Employee-Owned Company
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KANSAS CITY, MISSOURI 64101-0090
816.421.4070 • FAX 816.474.0462
800.821.7925

Not all products listed are available for purchase or authorized for use in every state. In addition, some states, counties and cities may require special licensing and training to sell, purchase or apply some of the products presented in this product literature. It is the responsibility of the distributor, retailer or professional applicator to verify, before product sale/purchase, that the product is approved for the use intended in their state, county and city.

GORDON'S PROFESSIONAL TURF & ORNAMENTAL PRODUCTS

FeRROMEC® AC

LIQUID IRON 15-0-0

Promotes Rapid Turf Green-Up and Dark Green Color Compatible with Most Turf Care Products

FeRROMEC LIQUID IRON SPRAYABLE

GUARANTEED ANALYSIS:

Total Nitrogen (N) 15%
15% Urea Nitrogen

Sulfur (S) 3%
3% Combined Sulfur

Iron (Fe) 6%

Plant Nutrient Sources:
low biuret urea and ferrous sulfate heptahydrate

GENERAL INFORMATION

FeRROMEC® AC is designed to enhance long term stability with amine based herbicides and fertilizers. Its unique formulation provides extra compatibility which enhances its mixing ability with products like Trimec® turf herbicides.

FeRROMEC AC will mix with most commonly used herbicides, pesticides, fertilizers, and fungicides. Tank mixture compatibilities may vary because of changes in formulations, water sources, temperature, and spray volumes. Always conduct a jar test for compatibility before tank mixing.

FeRROMEC AC is most effective when turf is growing rapidly and least effective when dormant or suffering from stress.

PRODUCT SPECIFICATIONS

Weight per gallon . . . . . .11.5 lbs./gallon
Freezing Temperature . . . . . .23°F.
Potential Acidity . . . . . .98 lbs. Calcium Carbonate per Ton

NOTE: Undiluted FeRROMEC AC is corrosive to mild steel, aluminum, and brass and must be stored and/or shipped in fiberglass, polypropylene, or stainless steel. Use only stainless steel or PVC fittings.

WHAT TO DO IN CASE OF CONTACT: Harmful if swallowed. Avoid contact with eyes, skin, and clothing. Avoid breathing spray mist. In case of contact with eyes, flush eyes with plenty of water and get medical attention. In case of contact with skin, wash thoroughly with soap and water.

Do not apply to any area not specified on label. Avoid contact with unfinished wood products, painted surfaces, or concrete as this product may cause staining.

STORAGE: Store in a cool place. Store in original container in a locked storage area inaccessible to children and pets.

CONTAINER DISPOSAL: Do not reuse container. Rinse thoroughly before discarding in trash.

MIXING INSTRUCTIONS

Add one-half of the required amount of water to tank. Add FeRROMEC AC and agitate while adding the balance of the water. Add urea or other fertilizers, pesticides, or fungicides. Add amine herbicides last and continue to agitate tank contents. Spray contents as soon as possible. FeRROMEC AC tank mixes are generally stable, however, agitate well before spraying if the mixture has been standing for over 24 hours.

TURF

SPRAY VOLUMES FOR TURFGRASS: Spray volumes can range from 0.5-4 gallons per 1,000 sq. ft. for adequate coverage. For FeRROMEC AC tank mixtures containing amine formulations of herbicides, spray volumes greater than 2 gallons per 1,000 sq. ft. are recommended.

Bahiagrass, Bentgrass, Centipedegrass, Tall Fescue, St. Augustinegrass, and Zoysiagrass: Apply 2-8 fl. oz. of FeRROMEC AC per 1,000 sq. ft. with sufficient water for good coverage. Three to five applications per growing season usually produce the best results.

For bentgrass, do not exceed 5 fl. oz. of FeRROMEC AC/1,000 sq. ft. per application.

When temperatures can exceed 90°F, do not apply more than 3 fl. oz. of FeRROMEC AC/1,000 sq. ft. to centipedegrass if applied with other fertilizers, pesticides, or specialty products.

Bermudagrass: Apply 4-10 fl. oz. FeRROMEC AC per 1,000 sq. ft. with sufficient water for good coverage. Three to five applications per growing season usually produce the best results.

Bluegrass, perennial ryegrass and other northern grasses: Apply 2-8 fl. oz. of FeRROMEC AC per 1,000 sq. ft. with sufficient water for good coverage. Three to five applications per growing season usually produce the best results.

NOTE: A lawn will typically utilize 1-4 lbs. of nitrogen per 1,000 sq. ft. each growing season. Use this product in conjunction with an additional fertilization program to provide at least 1 lb. of nitrogen per 1,000 sq. ft. each growing season. Consult your local Agricultural Extension Agent for the proper amount of nitrogen to be applied in your area.

Injection System: Inject at rate of 50-100 ppm monthly.

ORNAMENTALS

FeRROMEC AC should supplement a sound fertilizer program for ornamentals, and applications should be made as a thorough cover spray. Do not apply FeRROMEC AC to any flower buds or blossoms of flowers, shrubs, and trees.

HERBACEOUS PLANTS: Hardy Aster, Alyssum, Canna, Carnation, Chrysanthemum, Coleus, Dahlia, Daylily, Dieffenbachia, Fern, Geranium, Gladiolus, Honeysuckle, Hosta, Iris, Larkspur, Marigold, Nasturtium, Ornamental Cabbage, Pampasgrass, Petunia, Portulaca (Moss Rose), Salvia, Sweet Pea, Verbena, Zinnia.

Refer to Table 1 for the rate recommendation for these herbaceous plants.

SHRUBS: Azalea, Barberry, Burningbush, Camellia, Common Periwinkle, Cherry Laurel, Crepe Myrtle, Euonymus, Forsythia, Flowering Quince, Gardenia, Hibiscus, Honeysuckle, Hydrangea, Indian Hawthorn, Japanese/Southern Yew, Ligustrum, Lilac, Mock Orange, Oleander, Pittosporum, Primrose, Privet, Purple Sand Cherry, Pyracantha, Rhododendron, Rose, Spirea and Viburnum.

Refer to Table 1 for the rate recommendation for these shrubs.

TREES: Catalpa, Chinese Arborvitae, Flowering Crabapple, Cypress, Dogwood, Elm (American, Chinese), Ginkgo, Italian Cypress, Hickory, Juniper, Locust (Common/Black, Honey), Lombardy Poplar, Magnolia, Maple (Hard/Sugar, Silver), Mimosa, Mulberry, Pin Oak, Pine (Mountain/Mugo, Australian/Norfolk Island, White), Russian Olive, Spruce, Sweet Gum, and Sycamore.

Refer to Table 1 for the rate recommendation for these trees.

Table 1. Quick mix instructions for preparing 1 and 100 gallons of FeRROMEC AC with water for foliar applications to herbaceous plants, shrubs and trees.

	Amounts of FeRROMEC AC required for:	
Type of Ornamental	**1 Gallon**	**100 Gallons**
Herbaceous Plants	2 teaspoons	1.0 quart
Shrubs	2 fl. oz. (4 tablespoons)	1½ gallons
Trees	1¼ fl. oz. (2½ tablespoons)	1.0 gallon
Equal measures: 1 fl. oz. = 6 teaspoons = 2 tablespoons 1 gallon = 128 fl. oz. = 4 quarts		

LIMITED WARRANTY AND DISCLAIMER

The manufacturer warrants only that the composition of this product conforms to the guaranteed analysis given on the label, and that the product is reasonably suited for the labeled use when applied according to the directions on the label.

THE MANUFACTURER NEITHER MAKES NOR INTENDS ANY OTHER EXPRESS OR IMPLIED WARRANTIES, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE EXPRESSLY DISCLAIMED. This limited warranty does not extend to the use of the product inconsistent with label instructions, warnings or cautions, or to use of the product under abnormal conditions such as drought, excessive rainfall, tornadoes, hurricanes, etc. These factors are beyond the control of the manufacturer or the seller. Any damages arising from a breach of the manufacturer's warranty shall be limited to direct damages, and shall not include indirect or consequential damages such as loss of profits or values, except as otherwise provided by law.

The terms of this Limited Warranty and Disclaimer cannot be varied by any written or verbal statements or agreements. No employee or agent of the seller is authorized to vary or exceed the terms of this Limited Warranty and Disclaimer in any manner.

Information regarding the contents and levels of metals in this product is available on the internet at:
http://www.aapfco.org/metals.htm

970/7-2009 FL #987

Information about the contents of this product may be obtained by writing to:

pbi/gordon corporation
An Employee-Owned Company
P.O. Box 014090
Kansas City, MO 64101-0090

Material Safety Data Sheet

Product Name: FERROMEC AC Liquid Iron 15-0-0

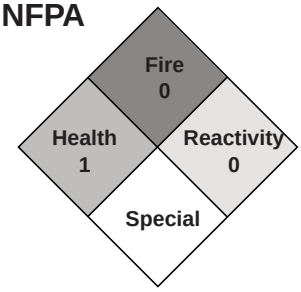
MSDS No.: 970-6 **Version No.: 014** **EPA Registration No.: N/A**

1. Basic Information:

Manufacturer:	PBI/Gordon Corporation
Address:	1217 West 12th Street
City, State, Zip:	Kansas City, MO 64101
Contact:	Environmental, Health & Safety Dept.
Information Telephone Number:	(816) 421-4070
Emergency Contact:	Chemtrec
Emergency Telephone Number:	(800) 424-9300
Last Update:	10/02/2000

Chemical State: ☒ Liquid ☐ Gas ☐ Solid
Chemical Type: ☐ Pure ☒ Mixture

NFPA



1	Health
0	Flammability
0	Reactivity
B	Pers. Protection

2. Ingredients:

☐ **Trade Secret**

CAS No.	Chemical Name	% Range	EHS	NTP	IARC	SUB Z	SARA 313	OSHA PEL	ACGIH TLV	Other Limits
7720787	Ferrous sulfate	16.3	N	N	N	N	N	1mg/m3Fe	1mg/m3Fe	1mg/m3Fe
7664939	Sulfuric acid	<6	Y	N	N	Y	N	1 mg/m3	1 mg/m3	1 mg/m3
57136	Total nitrogen (from urea)	32.6	N	N	N	N	N	NI	NI	NI

3. Hazardous Identification:

Hazard Category:
☒ Acute ☒ Chronic ☐ Fire ☐ Pressure ☐ Reactive

Hazardous Identification Information: NI

4. First Aid Measures:

Route(s) of Entry:
Contact, Inhalation, Ingestion.

Health Hazards (Acute and Chronic):
EYES: May cause irritation and burns to the eyes.

SKIN: Contact may cause irritation.

INHALATION: May irritate respiratory tract.

INGESTION: May irritate gastrointestinal tract; may be harmful if swallowed.

Signs and Symptoms: NI

Medical Conditions Generally Aggravated by Exposure: NI

Emergency and First Aid Procedures:
EYES: Flush eyes with large quantities of clean water for 10-15 minutes holding lids open. If irritation persists, seek medical attention.

SKIN: Bathe and shampoo with soap and water to remove chemical from skin and hair. If irritation persists, seek medical attention. Launder contaminated clothing separately, prior to reuse.

4. First Aid Measures (cont.):

INHALATION: Remove victim to fresh air. Apply artificial respiration if needed. Seek medical attention.

INGESTION: Do not induce vomiting. Call a physician or Poison Control Center.

Other Health Warnings: NI

5. Fire Fighting Measures:

Flash Point: >205°F

Lower Explosive Limit: NI

Upper Explosive Limit: NI

F.P. Method:

Fire Extinguishing Media:
The low flash point of this product is due to a minor component in the mixture. Based on independent laboratory testing of similar products, this product would not sustain combustion as specified in DOT Regulation 49 CFR 173 Appendix H, and, therefore, would not be classified as a combustible liquid. Foam, CO_2, dry chemical, or water may be used on a fire in the same area as this product.

Special Fire Fighting Procedures: None.

Unusual Fire and Explosion: None.

6. Accidental Release Measures:

Steps to be Taken in Case Material is Released or Spilled:
See Section 8 for Personal Protective Equipment. Contain spill with absorbent; collect into drums for proper disposal. Cover and label the drums. Flush area with water, if possible.

7. Handling and Storage:

Precautions to be Taken:
Store in original container in a locked area inaccessible to children and pets. Avoid storage at temperatures of 110°F or higher. Keep from freezing.

Corrosive to steel, aluminum, brass. Use with stainless steel or PVC fittings.

Product may stain unfinished wood, painted surfaces or concrete.

Do not reuse container; rinse thoroughly before discarding.

Other Precautions: NI

8. Exposure Controls/Personal Protection:

Ventilation Requirements:
Good local ventilation.

Personal Protective Equipment:
RESPIRATORY PROTECTION: If exposure limits may be exceeded, wear a dust/mist filtering respirator (MSHA/NIOSH approval number prefix TC-21C), or a NIOSH approved respirator with any N, R, P or HE filter.

PROTECTIVE CLOTHING: Long sleeves and pants; chemical-resistant gloves and shoes.

EYE PROTECTION: Safety glasses or goggles.

9. Physical and Chemical Properties:

Boiling Point: 250°F

Melting Point: NI

Evaporation Rate: <1

Evaporation Rate (Butyl Acetate = 1): <1

Vapor Pressure (mm Hg.): <17@25°C

Specific Gravity (H20 = 1): 1.36000

Vapor Density (AIR = 1): >1

Solubility In Water: Infitely soluble.

Appearance and Odor: Green liquid, no discernible odor.

Other Information: pH: 2.1-2.5
Density: 11.5 pounds/gallon
Viscosity: 1cp at 25°C
Freezing point: 23°F

10. Stability and Reactivity:

Stability:
Stable.

Incompatibility (Materials to Avoid):
Contact with strong bases may ruin this product.

Decomposition/By-Products: NI

Hazardous Polymerization:
Will not occur.

11. Toxicological Information:

No toxicological data available.

12. Ecological Information:

NI

13. Disposal Considerations:

Container Disposal: Do not reuse container. Rinse thoroughly before discarding in trash.

14. Transport Information:

The following guidelines apply for domestic ground transport. If shipping by air or ocean, please contact our Transportation Dept.

Freight Class: Fertilizing Compounds, NOI - NMFC #68140, sub 6

In our current available sizes, this product does not qualify as a Hazardous Material.

15. Regulatory Information:

OSHA STATUS: This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

TSCA STATUS: All the ingredients in this mixture are on the TSCA Chemical Substances Inventory.

CERCLA REPORTABLE QUANTITY: 6135 pounds of the formulation which contains 1000 pounds of Ferrous Sulfate.

SARA TITLE III:
SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES: Sulfuric Acid
SECTION 311/312 HAZARD CATEGORIES: Immediate Health Hazard, Delayed Health Hazard
SECTION 313 TOXIC CHEMICALS: Sulfuric Acid CAS# 7664-93-9

RCRA STATUS: If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

16. Other Information:

REASON FOR ISSUE: To revise MSDS to the ANSI Z400.1-1998 format

NOTE: NI means not indicated.

The information and statements in this Material Safety Data Sheet are believed to accurately reflect the scientific evidence used in making the hazard determination, but is not to be construed as a warranty or representation for which we assume legal responsibility. Additional information may be necessary or desirable depending on particular, exceptional or variable conditions or circumstances of use or storage or because of locally applicable laws or government regulations. Therefore, you should use this information only as a supplement to other information available to you and must make independent determinations of the suitability of the information for your particular circumstances or conditions and of the completeness of the information available from all sources to assure both the proper use of the material described herein and the safety and health of employees.

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