Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 05/05/2015 *Reviewed on 05/05/2015*

* 1 Identification

· ***Product identifier***

· ***Trade name: 4.5% Iron***

· ***Relevant identified uses of the substance or mixture and uses advised against***
For agricultural use only. Not for human or animal consumption.

· ***Product description***
A commercial agricultural product used to improve soil and/or plant health and for improved growth.
NPK Values: 4 - 0 - 0 ; 4.5% Iron, 2% Sulfur

· ***Details of the supplier of the safety data sheet***

· ***Manufacturer/Supplier:***
Actagro, LLC
677 W. Palmdon Dr. #108
Fresno, CA 93704
Phone: (559) 369-2222
Fax: (559) 843-2845

· ***Emergency telephone number:*** INFOTRAC: (800) 535-5053

* 2 Hazard(s) identification

2.1 Classification of the substance or mixture

Classification according to 29 CFR 1910.1200

Eye Irritation	Category 2B	H320
Acute Toxicity (Dermal)	Category 5	H313
Acute Toxicity (Oral)	Category 5	H302

2.2 Label elements

Signal word:	WARNING
Hazard Statement:	H320 – Causes eye irritation. H313 – May be harmful in contact with skin. H302 – Harmful if swallowed
Precautionary Statement:	P261 – Avoid breathing dust / fume / gas / mist / vapors / spray P273 - Avoid release to the environment
(Prevention):	P280 - Wear protective gloves and eye / face protection
Precautionary Statement:	P337 + P313 – If eye irritation persists: get medical attention
(Response):	P305 + P351 + P338 – IF IN EYES: Rinse with water for 15 to 20 minutes. Remove contact lenses, if present, and continue rinsing eyes. P302 + P352 – IF ON SKIN: Wash with plenty of water for 15 to 20 minutes
Precautionary Statement: (General):	P101 + P102 + P103 – If medical advice is needed, have product container or label available. Keep out of reach of children. Read label before use

2.3 Other hazards
None known

KEEP OUT OF REACH OF CHILDREN –
Appearance and odor: Black liquid with slight ammonia odor.
WARNING – CATEGORY 2B CAUSES EYE IRRITATION, CATEGORY 5 MAY BE HARMFUL IN CONTACT WITH SKIN, CATEGORY 5 HARMFUL IF SWALLOWED
Potential Health effects

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Routes of exposure	Eye contact, skin contact, inhalation. Avoid breathing spray mist.
Eyes	Causes eye irritation.
Skin	Can cause skin irritation.
Inhalation	May be irritating to respiratory system.
Ingestion	May be irritating to mouth, throat, and stomach.
Target organs	Eyes. Skin. Inhalation.
Signs and symptoms	May be harmful if swallowed, absorbed through skin or inhaled.
Potential environmental effects	This product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have harmful or damaging effect on the environment.

· ***Hazard(s) not otherwise classified (HNOC):*** None known

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3 Composition/information on ingredients

CAS: 7732-18-5 RTECS: ZC 0110000	water, distilled, conductivity or of similar purity	25-50%

· ***Chemical characterization: Mixtures***
· ***Description:*** Mixture of substances listed below with nonhazardous additions.

· ***Dangerous Components:***

CAS: 7782-63-0	Ferrous Sulfate Acute Tox. 4, H302; Skin Irrit. 2, H315; Eye Irrit. 2A, H319	15-35%
CAS: 3012-65-5	Ammonium Citrate dibasic Eye Irrit. 2A, H319; STOT SE 3, H335	15-35%
CAS: 1415-93-6	Leonardite STOT SE 3, H335; Eye Irrit. 2B, H320; Combustible Dust	5-10%
CAS: 631-61-8 RTECS: AF 3675000	Ammonium Acetate Skin Irrit. 2, H315; Eye Irrit. 2A, H319; STOT SE 3, H335	2-12%
CAS: 1309-37-1 RTECS: NO 7400000	Ferric oxide Skin Irrit. 2, H315; Eye Irrit. 2A, H319; STOT SE 3, H335	2-12%

*
4 First-aid measures

· ***Description of first aid measures***
· ***After inhalation:***
Supply fresh air. If required, provide artificial respiration. Consult doctor if symptoms persist.
In case of unconsciousness, place patient securely on side position for transportation.
· ***After skin contact:***
Immediately wash with water and soap and rinse thoroughly.
If skin irritation occurs, consult a doctor.
· ***After eye contact:***
Rinse opened eye for at least 15 minutes under running water. If symptoms persist, consult a doctor.
· ***After swallowing:*** Consume large amounts of water. If symptoms persist, consult a physician.

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· ***Information for doctor:***
· ***Most important symptoms and effects, both acute and delayed:*** No further relevant information available.
· ***Indication of any immediate medical attention and special treatment needed***
No further relevant information available.

* 5 Fire-fighting measures

· ***Extinguishing media***
· ***Suitable extinguishing agents:***
CO_2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· ***Special hazards arising from the substance or mixture***
If incinerated, product will release the following toxic fumes: Oxides of Carbon, Iron, Nitrogen (NOx), Silicon, Sodium and Sulfur, and Ammonia.
· ***Advice for firefighters***
· ***Protective equipment:***
As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.

* 6 Accidental release measures

· ***Personal precautions, protective equipment and emergency procedures***
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Material can create slippery conditions.
· ***Environmental precautions:*** Do not allow to enter sewers/ surface or ground water.
· ***Methods and material for containment and cleaning up:***
Absorb with liquid-binding material (ie. sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to section 13.
Ensure adequate ventilation.
Dispose of the collected material according to regulations.
· ***Reference to other sections***
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

* 7 Handling and storage

7.1 PRECAUTIONS FOR SAFE HANDLING:
Advice on Safe Handling: Avoid inhalation of dusts, vapors / spray and contact with eyes, skin and clothing. Do not breathe dusts, mist or vapor. Wear personal protective equipment. Do not use in areas without adequate ventilation. Avoid prolonged exposure. Wash thoroughly after handling. Do not empty into drains. Handle and open container with care. Use care in handling/storage. Wash before eating, drinking and/or smoking.

7.2 CONDITIONS FOR SAFE STORAGE:
Requirements for Storage Areas and Containers: Store above 40°F (4.4°C). Store in original containers only. Keep containers tightly closed when not in use. Store in a cool, dry well-ventilated area, preferably in a locked storage area away from children, feed and food products and seed. Do not contaminate water, food or feed by storage or disposal.

* 8 Exposure controls/personal protection

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8.1 CONTROL PARAMETERS:

OCCUPATIONAL EXPOSURE LIMITS

U.S. Workplace Exposure Level (OSHA) PELs

Components	Type	Value
Ammonia	TWA	35 mg/m^3
(ACGIH® TLVs®)	STEL/CEIL (C)	24 mg/m^3
Iron salts, soluble as Fe	TWA	1 mg/m^3

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Specimen
No listings		

8.2 EXPOSURE CONTROLS:

Engineering Measures

Provide adequate general and local exhaust ventilation. Observe Occupational Exposure Limits and minimize the risk of inhalation of vapors and spray mists. Provide eyewash station and safety shower.

Individual Protection Measures:

Eye / Face Protection: Goggles or shielded safety glasses are recommended.

Skin Protection: Chemical resistant clothing is recommended. Routinely wash work clothing and protective equipment to remove contaminants. The use of chemical-resistant gloves is recommended when handling undiluted product. Be aware that the liquid may penetrate the gloves. Frequent change is advisable.

Respiratory Protection: In case of inadequate ventilation or risk of inhalation of dusts or vapors, use suitable respiratory equipment such as MSHA/NIOSH TC-21C or NIOSH approved respirator with N, R, P or HE filter. Wear respiratory protection during operations where spraying or misting occurs. If respirators are used, a program should be in place to assure compliance with 29 CFR 1910.134, the OSHA Respiratory Protection standard. Wear air supplied respiratory protection if exposure concentrations are unknown.

* 9 Physical and chemical properties

· ***Information on basic physical and chemical properties***

· ***General Information***

· ***Appearance:***

Form: Liquid

Color: Black

· ***Odor:*** Odorless

· ***Odor threshold:*** Not determined.

· ***pH-value @ 20 °C (68 °F):*** 6.8

· ***Change in condition***

Melting point/Melting range: Not determined.

Boiling point/Boiling range: 100 °C (212 °F)

· ***Flash point:*** Not applicable.

· ***Flammability (solid, gaseous):*** Not applicable.

· ***Ignition temperature:***

Decomposition temperature: Not determined.

· ***Auto igniting:*** Product is not self-igniting.

· ***Danger of explosion:*** Product does not present an explosion hazard.

· ***Explosion limits:***

Lower: 0.0 Vol %

Upper: 0.0 Vol %

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· ***Vapor pressure @ 20 °C (68 °F):***	23 hPa (17 mm Hg)
· ***Density @ 20 °C (68 °F):***	1.26 g/cm³ (10.515 lbs/gal)
· ***Relative density***	Not determined.
· ***Vapor density***	Not determined.
· ***Evaporation rate***	Not determined.
· ***Solubility in / Miscibility with Water:***	Soluble.
· ***Partition coefficient (n-octanol/water):***	Not determined.
· ***Viscosity:***	
Dynamic:	Not determined.
Kinematic:	Not determined.
· ***Solvent content:***	
Organic solvents:	0.0 %
Water:	32.8 %
· ***Other information***	No further relevant information available.

* 10 Stability and reactivity

10.1 REACTIVITY
Stable
10.2 CHEMICAL STABILITY
Stable under normal temperature conditions
10.3 POSSIBILITY OF HAZARDOUS REACTIONS
No reactions known under normal use conditions. Will not polymerize.
10.4 CONDITIONS TO AVOID
None known.
10.5 INCOMPATIBILE MATERIALS
None known.
10.6 HAZARDOUS DECOMPOSITION PRODUCTS
None known.

* 11 Toxicological information

11.1 LIKELY ROUTES OF EXPOSURE
Eye contact, skin contact.
LC_{50} (rat) No data available for product
LD_{50} Oral (rat): 1,520 mg/kg (Ferrous Sulfate)
LD_{50} Dermal (rat): No data available for product
Acute Toxicity Estimates: No data available for product
Skin Irritation (rabbit): No data available for product
Eye Irritation (rabbit): No data available for product
Specific Target Organ Toxicity: Single exposure: No data available for product.
Aspiration: No data available for product
Skin Sensitization (guinea pig): Not a sensitizer
Carcinogenicity: No data available for product
Germ Cell Mutagenicity: No data available for product
Interactive Effects: None known

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* 12 Ecological information

12.1 ECOTOXICITY

The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment. This product is not intended for use in aquatic settings.

Ecotoxicological Data

Components		Species	Test Results
Anhydrous Ammonia (CAS: 7664-41-7)			
Aquatic			
Crustacea	EC_{50}	Daphnia magna	2.9 mg/l un-ionized ammonia, 48 hours
	NOEC	Daphnia magna	0.163 – 0.42 mg/l un-ionized ammonia 21d-76wk
Fish	LC_{50}	Fish, various	0.09 - 3.51 mg/l un-ionized ammonia, 96 hours
	NOEC	Fish, various	0.025 – 1.2 mg/l un-ionized ammonia 12d-5yr

Drift or runoff may adversely affect non-target plants.
Do not apply directly to water.
Do not contaminate water when disposing of equipment wash water.
Do not apply when weather conditions favor drift from target area.

12.2 PERSISTENCE AND DEGRADABILITY

Biodegradability: No data available

12.3 BIOACCUMULATIVE POTENTIAL

Bioaccumulation: No data available.

12.4 MOBILITY IN SOIL

No data available.

12.5 OTHER ADVERSE EFFECTS

Assessment: No data available.

* 13 Disposal considerations

· ***Waste treatment methods***

· ***Recommendation:***

Small amounts may be diluted with plenty of water and washed away. Dispose of bigger amounts in accordance with Local Authority requirements.

Observe all federal, state and local environmental regulations when disposing of this material.

· ***Uncleaned packagings:***

· ***Recommendation:***

Dispose of as unused product.

Disposal must be made according to official regulations.

* 14 Transport information

14.1 LAND TRANSPORT

DOT Shipping Description: NOT REGULATED.

U.S. Surface Freight Classification: FERTILIZING COMPOUNDS (MANUFACTURED FERTILIZERS), NOI, LIQUID (NMFC 68140, SUB 6; CLASS 70)

* 15 Regulatory information

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16 Other information

The information and recommendations in this safety data sheet are, to the best of our knowledge, accurate as of the date of issue. Nothing herein shall be deemed to create warranty, expressed or implied and shall not establish a legally valid contractual relationship. It is the responsibility of the user to determine applicability of this information and the suitability of the material or product for any particular purpose.

· ***Date of preparation / last revision*** 05/05/2015 / -

· ***Abbreviations and acronyms:***

ADR: The European Agreement concerning the International Carriage of Dangerous Goods by Road
ADN: The European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
Acute Tox. 4: Acute toxicity, Hazard Category 4
Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
Eye Irrit. 2A: Serious eye damage/eye irritation, Hazard Category 2A
Eye Irrit. 2B: Serious eye damage/eye irritation, Hazard Category 2B
STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3

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