



*Rooted in Science*

## SAFETY DATA SHEET

### SECTION 1: IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

#### 1.1 Product Identifier

**Trade Name** Spike  
**SDS Date** October 22, 2015

#### 1.2 Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

**Product Use:** Soil Nutrient  
**Uses Advised Against:** To be used only where there is a recognized need. Do not exceed the appropriate dose rates.

#### 1.3 Details of the Supplier of the Substance or Mixture

**Manufacturer:** Floratine Products Group, Inc.  
355 East South Street  
Collierville, TN 38017  
+1 901-853-2898

#### 1.4 Emergency Telephone Number

**Emergency Spill Information** 1(800) 424-9300 for US and Canada (CHEMTREC)  
+1(703) 527-3887 for International Calls (call CHEMTREC collect)

**Other Product Information:** [cs@floratine.com](mailto:cs@floratine.com)

### SECTION 2: HAZARDS IDENTIFICATION

#### 2.1 Classification of the Substance or Mixture

##### CLP/GHS Classification (1272/2008):

Eye Damage Category 1  
Skin Irritation Category 2  
Specific Target Organ Toxicity – Repeat Exposure Category 2

#### 2.2 Label Elements

**Danger!**



Contains Manganese Compound

##### Hazard Phrases

H318 Causes serious eye damage.  
H315 Causes skin irritation.  
H373 May cause damage to organs through prolonged or repeated exposure.

## Precautionary Phrases:

P264 Wash thoroughly after handling.

P280 Wear protective gloves, eye protection and face protection.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337 + P313 If eye irritation persists: Get medical attention.

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P332 + P313 If skin irritation occurs: Get medical attention.

P362 + P364 Take off contaminated clothing and wash it before reuse.

P260 Do not breathe mist, vapors or spray.

P314 Get medical attention if you feel unwell.

P501 Dispose of contents and container in accordance with local and national regulations.

**2.3 Other Hazards:** None**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

Chemical Name	CAS Number / EINECS Number / REACH Reg. Number	% (w/w)	CLP/GHS Classification (1272/2008)
Iron Compound	7720-78-7 / 231-753-5	5-15%	Met. Corr. 1 (H290) Acute Tox. 4 (H302) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319)
Manganese Compound	7785-87-7 / 232-089-9	1-5%	Eye Dam. 1 (H318) STOT RE 2 (H373)
Malic Acid	6915-15-7 / 230-022-8	5-20%	Xi R36

See Section 16 for full text of GHS and EU Classifications.

**SECTION 4: FIRST AID MEASURES****4.1 Description of First Aid Measures****First Aid**

**Eye contact:** In case of contact with eyes, flush immediately with water for at least 15 minutes while lifting the upper and lower lids. Get immediate medical attention.

**Skin contact:** Wash with soap and water. Get medical attention if irritation develops or persists.

**Inhalation:** Remove victim to fresh air. Get medical attention if irritation develops or persists.

**Ingestion:** Do not induce vomiting unless directed to do so by medical personnel. If the person is alert, have them rinse their mouth with water and sip one glass of water. Call a poison center or physician for advice. Never give anything by mouth to an unconscious or drowsy person.

**See Section 11 for more detailed information on health effects.**

**4.2 Most important symptoms and effects, both acute and delayed:** Causes severe eye irritation or damage. May cause skin irritation on prolonged or repeated use. Swallowing may cause nausea and diarrhea. Prolonged overexposure to manganese compounds may cause headache, apathy, muscle weakness and neurological effects such as euphoria, impulsiveness and insomnia.

**4.3 Indication of any immediate medical attention and special treatment needed:** If eye contact occurs, get immediate medical attention.

## SECTION 5: FIREFIGHTING MEASURES

**5.1 Extinguishing Media:** Use media appropriate for the surrounding fire. Cool fire exposed containers with water.

### 5.2 Special Hazards Arising from the Substance or Mixture

**Unusual Fire and Explosion Hazards:** None

**Combustion Products:** Oxides of carbon, sulfur, manganese and iron.

**5.3 Advice for Fire-Fighters:** Self-contained breathing apparatus and protective clothing should be worn in fighting fires involving chemicals. Determine the need to evacuate or isolate the area according to your local emergency plan. Use water spray to keep fire exposed containers cool.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### 6.1 Personal Precautions, Protective Equipment and Emergency Procedures:

Wear appropriate protective equipment. Avoid direct contact with spilled material.

### 6.2 Environmental Precautions:

Prevent entry in storm sewers and waterways. Report spill as required by local and national regulations.

### 6.3 Methods and Material for Containment and Cleaning Up:

Collect with an inert absorbent material and place in an appropriate container for disposal. Wash spill site with water. Contain large spills and collect as much liquid as possible into containers for use.

### 6.4 Reference to Other Sections:

Refer to Section 8 for personal protective equipment and Section 13 for disposal information.

## SECTION 7: HANDLING and STORAGE

### 7.1 Precautions for Safe Handling:

Prevent contact with eyes. Avoid contact with skin and clothing. Use with adequate ventilation. Use reasonable care in handling. Do not eat, drink or smoke while using product. Wash thoroughly with soap and water after handling.

### 7.2 Conditions for Safe Storage, Including any Incompatibilities:

Protect containers from physical damage. Keep from freezing. Keep containers closed. Empty containers retain product residues. Follow all SDS precautions in handling empty containers. Store away from food and feed.

### 7.3 Specific end use(s):

**Industrial uses:** None identified

**Professional uses:** Soil Nutrient

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control Parameters:

Chemical Name	US OEL	EU IOEL	UK OEL	Biological Limit Value
Iron Compound	None Established	None Established	None Established	None Established
Manganese Compound	0.2 mg/m <sup>3</sup> TWA (as Mn) ACGIH TLV 5 mg/m <sup>3</sup> Ceiling (as Mn) OSHA PEL	None Established	0.5 mg/m <sup>3</sup> TWA (as Mn)	None Established
Malic Acid	None Established	None Established	None Established	None Established

### 8.2 Exposure Controls:

**Recommended Monitoring Procedures:** None established.

**Appropriate Engineering Controls:** Good outdoor ventilation should be adequate under normal conditions of use.

**Personal Protective Measurers**

**Eye/face Protection:** Chemical goggles recommended to prevent eye contact.

**Skin Protection:** Impervious clothing is recommended if needed to avoid skin contact.

**Hands:** Impervious gloves are recommended if needed to avoid skin contact.

**Respiratory Protection:** None needed under normal use conditions with adequate ventilation. If mists are excessive, an approved particulate respirator can be used. Use respirators in accordance with local and national regulations.

**Other protection:** Suitable washing facilities should be available in the work area.

<b>SECTION 9: PHYSICAL and CHEMICAL PROPERTIES</b>
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**9.1 Information on basic Physical and Chemical Properties**

**Appearance:** Black Liquid

**Odor Threshold:** Not available

**Melting/Freezing Point:** Not determined

**Flash Point:** Not flammable

**Lower Flammability Limit:** Not applicable

**Upper Flammability Limit:** Not applicable

**Vapor Density(Air=1):** Not applicable

**Solubility:** Complete

**Autoignition Temperature:** None

**Viscosity:** Not applicable

**Oxidizing Properties:** None

**Molecular Formula:** Mixture

**Odor:** Slight ammonia odor.

**pH:** 5.10

**Boiling Point:** 104-110°C

**Evaporation Rate:** Not applicable

**Vapor Pressure:** Greater than 1

**Relative Density:** 1.22

**Octanol/Water Partition Coefficient:** Not determined

**Decomposition Temperature:** Not determined

**Explosive Properties:** None

**Specific Gravity (H<sub>2</sub>O= 1):** 1.22

**Molecular Weight:** Mixture

**9.2 Other Information:** None available

<b>SECTION 10: STABILITY and REACTIVITY</b>
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**10.1 Reactivity:** Not reactive under normal conditions.

**10.2 Chemical Stability:** Stable.

**10.3 Possibility of Hazardous Reactions:** None known.

**10.4 Conditions to Avoid:** Avoid excessive heat and freezing.

**10.5 Incompatible Materials:** Incompatible with oxidizing agents.

**10.6 Hazardous Decomposition Products:** Decomposition may produce oxides of carbon, sulfur, manganese and iron.

<b>SECTION 11: TOXICOLOGICAL INFORMATION</b>
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**11.1 Information on Toxicological Effects:**
**Potential Health Effects:**

**Eye Contact:** Causes irritation with redness, tearing and stinging. Eye damage may occur.

**Skin contact:** Skin contact may cause irritation.

**Inhalation:** Excessive inhalation of dust may cause upper respiratory tract irritation.

**Ingestion:** Swallowing may cause gastrointestinal effects including abdominal cramps, nausea and diarrhea.

**Acute toxicity:** No acute toxicity data available for the product. Calculated ATE for the mixture: Oral 2554 mg/kg t

Iron Compound: Oral rat LD50 319 mg/kg; Dermal rat LD50 >2000 mg/kg

Manganese Compound: Oral rat LD50 2150 mg/kg, Inhalation rat LC50 >4.45 mg/L/4 hr,

Malic Acid: Oral rat LD50 >2000 mg/kg

**Skin corrosion/irritation:** Manganese Compound and Malic Acid are not irritating based on data from structurally similar chemicals. Iron Compound is irritating to rabbit skin.

**Eye damage/ irritation:** Manganese Compound has been shown to cause irreversible eye irritation in rabbit eyes. Iron Compound is not irritating to rabbit eyes. Malic Acid is not irritating to eyes based on data from a structurally similar chemical.

**Respiratory Irritation:** No data available. Expected to cause only temporary irritation.

**Respiratory Sensitization:** No data available.

**Skin Sensitization:** Iron Compound were negative in a mouse local lymph node assay.

**Germ Cell Mutagenicity:** Manganese Compound was negative in an in vitro mammalian chromosome aberration test with a structurally similar material. Iron Compound was negative in an in vitro mammalian chromosome aberration test and in an in vivo chromosome aberration assay.

**Carcinogenicity:** No data available. None of the components of this product are listed as carcinogens by IARC or the EU Dangerous Substances Directive.

**Reproductive Toxicity:** Malic Acid is not toxic to reproduction based on studies with structurally similar chemicals.

**Specific Target Organ Toxicity:**

Single Exposure: No data available.

Repeat Exposure: Overexposure to manganese compounds have been shown to cause headache, apathy, muscle weakness and neurological effects such as euphoria, impulsiveness and insomnia.

**SECTION 12: ECOLOGICAL INFORMATION**

**12.1 Toxicity:** No toxicity data available for the product.

Iron Compound: No toxicity data available

Manganese Compound: 48 hr LC50 daphnia magna 6.8 mg/L, 72 hr LC50 Desmodesmus subspicatus 61 mg/L

**12.2 Persistence and degradability:** Biodegradation is not applicable to inorganic substances such as Manganese Compound and Iron Compound.

**12.3 Bioaccumulative Potential:** No data available.

**12.4 Mobility in Soil:** In the soil, product follows natural cycle to provide plant nutrients.

**12.5 Results of PVT and vPvB assessment:** Not required.

**12.6 Other Adverse Effects:** No data available.

**SECTION 13: DISPOSAL CONSIDERATIONS**

**13.1 Waste Treatment Methods:**

Dispose in accordance with local/ and national regulations.

**SECTION 14: TRANSPORTATION INFORMATION**

	14.1 UN Number	14.2 UN Proper Shipping Name	14.3 Hazard Class(s)	14.4 Packing Group	14.5 Environmental Hazards
US DOT		Not Regulated			
IMDG		Not Regulated			
IATA/ICAO		Not Regulated			

**14.6 Special Precautions for User:** None

**14.7 Transport in Bulk According to Annex III MARPOL 73/78 and the IBC Code:** Not determined.

**SECTION 15: REGULATORY INFORMATION**

**15.1 Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture**

**US Regulations**

**CERCLA Section 103:** The normal application of fertilizers is exempt from CERCLA reporting. If an accidental release occurs, contact Floratine Products Group for information.

**SARA Hazard Category (311/312):** Acute Health Hazard, Chronic Health Hazard

**SARA 313:** Products used in routine agricultural operations and fertilizers held for resale by retailers is excluded from SARA 313 reporting. Contact Floratine Products Group for additional information.

**California Proposition 65:** This product contains the following substances known to the State of California to cause cancer and/or reproductive harm (birth defects): Diethanolamine (111-42-2) 0.2% (cancer), formaldehyde (50-00-0) 30 ppm,

**Canada:**

**Canadian WHMIS Classification:** Class D2, Subdivision B

This MSDS has been prepared according to the criteria of the Controlled Products Regulation (CPR) and the MSDS contains all of the information required by the CPR.

**International Chemical Inventories**

**US EPA Toxic Substances Control Act (TSCA) Status:** All of the components of this product are listed on the TSCA inventory or exempt.

<b>SECTION 16: OTHER INFORMATION</b>
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CLP/GHS Classification and H Phrases for Reference (See Section 3)

Acute Tox. 4 Acute Toxicity Category 4

STOT RE 2 Specific Target Organ Toxicity – Repeat Exposure Category 2

Eye Dam 1 Eye Damage Category 1

Eye Irrit. 2 Eye Irritation Category 2

Skin Irrit. 2 Skin Irritation Category 2

Met. Corr. 1 Metal Corrosive Category 1

H290 May be corrosive to metals

H302 Harmful if swallowed

H315 Causes skin irritation

H318 Causes serious eye damage.

H319 Causes serious eye irritation.

H373 May cause damage to organs through prolonged or repeated exposure.

This safety data sheet provides health and safety information. The product is to be used in applications consistent with best farming practice. Individuals handling this product should be informed under COSHH of the recommended safety precautions and should have access to this information. The product information data sheet is to the best of Floratine's knowledge correct as at the date of publication. Neither the Floratine, importer or local supplier accepts liability for any loss or damage resulting from reliance on this information. Further information on this product may be obtained from the supplier whose name, address and telephone number will be found on the product container. The information provided herein is offered solely for your consideration, investigation and verification. This information herein is provided by Floratine in good faith as accurate at the time of writing but without guarantee. This information includes information which has been generated by other parties and provided to Floratine and which Floratine has not independently verified. The information provided herein relates only to the specific product designated and may not be valid if the product is used in combination with any other materials or in any process