


### Safety Data Sheet

NFPA HAZARD RATING				U.S. TRANSPORT SUMMARY	
0	Least				Not regulated by the U.S. DOT as a hazardous material. See Section 14 for additional information.
1	Slight	2	Health		
2	Moderate	0	Flammability		
3	High	0	Reactivity		
4	Severe				

SECTION 1: IDENTIFICATION	
<b>Product Name:</b>	RUFFIN-TUFF™ Granular Crop Mix II
<b>CFIA Registration #:</b>	940025B
<b>Product ID/Unity #:</b>	1415543, 1415560
<b>Common Name:</b>	Granular micronutrient mix
<b>Chemical Description:</b>	Lignosulfonate and humate based micronutrients
<b>Recommended Uses:</b>	Fertilizer product – See product label for full directions for use.
<b>Restrictions for Use:</b>	See product label for any potential restrictions on use.
<b>Manufactured For:</b> WINFIELD SOLUTIONS, LLC P. O. Box 64589 St. Paul, MN 55164-0589	<b>MEDICAL EMERGENCY TELEPHONE NUMBER:</b> 1-877-424-7452 (24hrs)  <b>Non-Emergency Business Inquiries:</b> 1-855-494-6343 Mon – Fri 8am – 5pm (Central Standard Time)
FOR EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT, CALL: CHEMTREC 1-800-424-9300 (24 hours)	

SECTION 2: HAZARDS IDENTIFICATION	
<b>EMERGENCY OVERVIEW:</b> Light to dark brown granules with no noticeable odor. Causes eye and skin irritation.	
<b>POTENTIAL HEALTH EFFECTS:</b> <b>Eyes:</b> Causes moderate but temporary eye irritation. <b>Skin:</b> Cause moderate skin irritation. Harmful if absorbed through the skin. <b>Inhalation:</b> May be harmful if inhaled. <b>Ingestion:</b> May cause gastric discomfort if swallowed. <b>Preexisting Conditions:</b> Preexisting respiratory conditions may be aggravated by exposure to dust. <b>Chronic Health Effects:</b> None known	
<b>Carcinogenicity</b>	NTP: Not listed                      IARC: Not listed                      OSHA: Not listed
<b>OSHA HCS 2012 CLASSIFICATION:</b> Eye Irritation Category 2A; Skin Irritation Category 2; Acute Dermal Toxicity Category 4	
<b>SIGNAL WORD:</b> WARNING	
<b>HAZARD STATEMENTS:</b> Causes serious eye irritation. Causes skin irritation. Harmful in contact with skin.	
<b>Percent of product with unknown toxicity:</b> 0%	
<b>PRECAUTIONARY STATEMENTS:</b> <b>Prevention:</b> Wash hands thoroughly after handling. Wear protective gloves, eye and face protection and protective clothing (See Section 8).	

Continued on next page

## RUFFIN-TUFF™ Granular Crop Mix II

<b>Response:</b>	<b>If in eyes:</b> Rinse cautiously with water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention. <b>If on skin:</b> Wash with plenty of water. Immediately call a poison control center (1-877-424-7452) or doctor for treatment advice. Take off immediately all contaminated clothing and wash it before reuse.
<b>Storage:</b>	See Section 7 for storage information.
<b>Disposal:</b>	Dispose of contents/container in accordance with Federal, state and local regulations.

### SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient	% (wt)	CAS Reg. #
Zinc lignosulfonate/Zinc humate	0.0 – 38.0%	57866-49-6/Not available
Manganese lignosulfonate/Manganese humate	0.0 – 25.0%	68186-83-4/Not available
Copper lignosulfonate/Copper humate	0.0 – 9.5%	61827-83-6/Not available
Sodium tetraborate pentahydrate	0.0 – 11.0%	12179-04-3
Iron lignosulfonate/iron humate	0.0 - 6.0%	62997-05-1/Not available
Ammonium sulfate	9.0 – 11.0%	7783-20-2
*Ingredients not specifically listed are non-hazardous and/or are considered to be confidential business information under 29 CFR 1910.1200(i).		
See Section 8 for exposure limits.		

### SECTION 4: FIRST AID MEASURES

<b>Inhalation:</b>	Remove person from contaminated area to fresh air and assist breathing as needed. Seek medical attention if irritation occurs.
<b>Ingestion:</b>	Seek medical attention or call a poison control center for treatment advice. Do not induce vomiting unless instructed to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.
<b>Eyes:</b>	Flush eyes with clean water for at least 15 minutes. Lift eyelids to facilitate irrigation. If present, remove contact lenses after 5 minutes and continue rinsing. Seek medical attention if irritation persists.
<b>Skin:</b>	Remove contaminated clothing and wash before re-using. Flush skin with water and then wash with soap and water. Seek medical attention if irritation occurs.

### SECTION 5: FIRE FIGHTING MEASURES

<b>Suitable Extinguishing Media:</b> Chemical type foam, Carbon dioxide, Dry chemical, Water fog or spray
<b>Unsuitable Extinguishing Media:</b> Water jet
<b>Special Fire Fighting Procedures:</b> Wear NIOSH/MSHA approved self-contained breathing apparatus and full bunker gear. Dike area to prevent runoff and contamination of water sources. Dispose of fire control water later. Avoid breathing vapors; keep upwind.
<b>Hazardous Combustion Products:</b> Carbon oxides, nitrogen oxides, sulfur oxides, ammonia and some metal oxides
<b>Unusual Fire and Explosion Hazards:</b> None known

### SECTION 6: ACCIDENTAL RELEASE MEASURES

<b>Personal Precautions:</b> Refer to Section 8 for personal protective equipment to be worn during containment and clean-up of a spill involving this product.
<b>Environmental Precautions:</b> Keep spilled product and any rinse water from entering sewers or waterways.
<b>Methods for Containment:</b> Contain spilled product by sweeping up if a small spill or by diking area with sand or earth if a large spill.
<b>Methods for Clean-up:</b> Avoid dust formation. Vacuum, scoop or sweep up material and place in a container for disposal. If product is uncontaminated, spilled material may be applied at the rate recommended on the label. Never return spills to original containers for re-use. After removal of spilled product, flush contaminated area thoroughly with water.
<b>Other Information:</b> None known

## RUFFIN-TUFF™ Granular Crop Mix II

### SECTION 7: HANDLING AND STORAGE

**Handling:** Avoid excessive generation of dust. Avoid unnecessary exposure to the atmosphere to prevent moisture pick up, which makes the material difficult to handle. Avoid breathing dust. Use only outdoors or in a well-ventilated area. Immediately clean up spills that occur during handling. Keep containers closed when not in use. Practice good hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

**Storage:** Store in a cool, dry area away from children, feed and food products. Protect packaging from physical damage. Protect from exposure to heat and fire conditions.

**Minimum Storage Temperature:** Store under conditions that will avoid breakdown by thermal cycling (wide variation in temperature). The product should not be stored in direct sunlight to avoid physical breakdown due to thermal cycling.

**Other Precautions:** Consult Federal, state and local laws and regulations pertaining to storage.

### SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Exposure Guidelines

Component:	OSHA PEL	ACGIH TLV	NIOSH REL
Particulates not otherwise classified	15 mg/m <sup>3</sup> (total dust) 5 mg/m <sup>3</sup> (respirable)		
Copper lignosulfonate & Copper humate (as Copper)	1 mg/m <sup>3</sup> inhalation (TWA)	1 mg/m <sup>3</sup> inhalation TWA	1 mg/m <sup>3</sup> inhalation TWA
Iron lignosulfonate & Iron humate (as Iron)		1 mg/m <sup>3</sup> (TWA)	1 mg/m <sup>3</sup> (TWA) as Fe
Manganese lignosulfonate & Manganese humate (as Manganese)	5 mg/m <sup>3</sup> CEIL	0.2 mg/m <sup>3</sup> TWA	1 mg/m <sup>3</sup> TWA

**Respiratory Protection:** If dust concentration exceeds permissible levels, wear NIOSH approved air-purifying respirator with cartridges/canisters approved for general particulates.

**Engineering Controls:** **Local Exhaust:** Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs or other specified exposure limits. Local exhaust ventilation is preferred.

**Protective Gloves:** Wear chemically protective gloves to prevent exposure to skin.

**Eye Protection:** Wear chemical goggles or safety glasses and full face shield. Contact lenses are not eye protective devices. An emergency eyewash or water supply should be readily available to the work area.

**Other Protective Clothing or Equipment:** Wear long-sleeve shirt, long pants and shoes plus socks to prevent skin contact.

**Work/Hygienic Practices:** Never eat, drink, nor use tobacco in work areas. Practice good hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

### SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical State:</b>	Solid	<b>Specific Gravity (H<sub>2</sub>O=1):</b>	0.905 – 0.934
<b>Vapor Pressure (mm Hg):</b>	Not applicable	<b>Bulk Density:</b>	56 – 59 lbs/ft <sup>3</sup>
<b>Vapor Density (Air=1):</b>	Not applicable	<b>Melting Point/Freezing Point:</b>	Not determined
<b>Solubility in Water (wt %):</b>	100%	<b>Boiling Point/Range:</b>	Not determined
<b>Viscosity:</b>	Not applicable	<b>pH (1% solution):</b>	Not determined
<b>Appearance and odor:</b>	Light to dark brown granules with no noticeable odor	<b>Flash Point:</b>	Not applicable

### SECTION 10: STABILITY AND REACTIVITY

**Reactivity:** None known

**Chemical Stability:** Product is stable at ambient temperature and pressure, under normal storage and handling conditions.

**Possibility of Hazardous Reactions:** Will not occur

**Conditions to Avoid:** Excessive heat, dust generation and damp areas

**Incompatible Materials:** Strong acids and bases

**Hazardous Decomposition Products:** When exposed to excessive heat, Carbon oxides, Sulfur oxides, some metallic oxides, and ammonia may be formed.

SECTION 11: TOXICOLOGICAL INFORMATION	
<b>ACUTE TOXICITY</b>	
Eye Effects:	Exposure to dust is expected to cause moderate but reversible eye irritation.
Skin Effects:	Moderate skin irritation is likely. Harmful if absorbed through skin. Estimated LD50 1,283 – 1,998 mg/kg
Acute Inhalation Effects:	Not determined
Acute Oral Effects:	Estimated LD50 2,770 – 3,378 mg/kg
Specific Target Organ Toxicity:	None known
<b>CHRONIC TOXICITY</b>	
Chronic Effects:	None known
Carcinogenicity:	No component is anticipated to have carcinogenic effects.
Mutagenicity:	No component is anticipated to have mutagenic effects.
Teratogenicity:	No component is anticipated to have teratogenic effects.
Reproductive Toxicity:	No component is anticipated to have effects on the reproductive system.
<b>POTENTIAL HEALTH EFFECTS:</b>	
Eyes:	Causes moderate but temporary eye irritation.
Skin:	Cause moderate skin irritation. Harmful if absorbed through the skin.
Inhalation:	May be harmful if inhaled.
Ingestion:	May cause gastric discomfort if swallowed.

SECTION 12: ECOLOGICAL INFORMATION	
<b>ENVIRONMENTAL SUMMARY:</b> Not determined	
<b>ECOTOXICITY DATA:</b>	
Fish Acute and Prolonged Toxicity:	Not determined
Aquatic Invertebrate Acute Toxicity:	Not determined
Aquatic Plant Toxicity:	Not determined
Bird Acute and Prolonged Toxicity:	Not determined
Honeybee Toxicity:	Not determined
<b>ENVIRONMENTAL EFFECTS:</b>	
Soil Absorption/Mobility:	Not determined
Persistence and degradability:	Not determined
Bioaccumulative Potential:	Not determined
Other adverse effects:	Not determined

SECTION 13: DISPOSAL CONSIDERATIONS	
<b>Waste:</b> Dispose of in accordance with applicable Federal, state and local laws and regulations.	
<b>Container:</b> Ensure all product has been emptied from the sack/bag. Dispose of emptied container in accordance with applicable Federal, state and local laws and regulations.	
<b>RCRA Characteristics:</b> It is the responsibility of the individual disposing of this product to determine the RCRA classification and hazard status of the waste.	

SECTION 14: TRANSPORT INFORMATION	
<b>DOT:</b> (Ground)	This product is not regulated by the U.S. Department of Transportation as a hazardous substance.
<b>IMDG:</b> (Sea)	Not determined
<b>IATA:</b> (Air)	Not determined
<b>TDG:</b> (Canada)	This product is not regulated by TDG as a hazardous substance.

**SECTION 15: REGULATORY INFORMATION**

**TSCA Inventory:** All components are listed or exempt from listing on the TSCA inventory.

**SARA Title III Information:**

**Section 302 - Extremely hazardous substances:** None listed

**Section 311/312 – Hazard Categories:** Immediate (Acute)

**Section 313 –** The following chemicals are subject to the reporting requirements of Section 313 of Title III, Superfund Amendments and Reauthorization Act of 1986 and 40 CFR 372:

Copper compounds (6.0 – 9.5%); Manganese compounds (19.0 – 25.0%); Zinc compounds (31.0 – 38.0%)

**CERCLA -** This product contains the following chemicals which have a reportable quantity (RQ) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA):

Copper compounds, Manganese compounds and Zinc compounds are all considered to be CERCLA hazardous substances though no RQ has been established.

**California Proposition 65:** This product does not contain chemicals known to the state of California to cause cancer and/or reproductive harm.

**U.S. State Worker and Community Right-To-Know (RTK) Information (CT, IL, MA, MN, NH, NJ, PA, RI):**

Chemical Name	CAS #	State(s)
Copper compounds	61827-83-6	NJ, PA
Manganese compounds	68186-83-4	IL, MN, NJ, RI
Zinc compounds	57866-49-6	IL, NJ

**WHMIS Classification:** D2B

**SECTION 16: OTHER**

**Disclaimer:** The information presented herein is based on available data from reliable sources and is correct to the best of WinField Solutions' knowledge. WinField Solutions, LLC makes no warranty, express nor implied, regarding the accuracy of the data or the results obtained from the use of this product. Nothing herein may be construed as recommending any practice or any product in violation of any law or regulations. The user is solely responsible for determining the suitability of any material or product for a specific purpose and for adopting any appropriate safety precautions. We disclaim all liability for injury or damage stemming from any improper use of the material or product described herein.

**Revision Date:** November 03, 2015      **Supersedes document dated:** February 13, 2008

**Sections Revised:** All