



# EDTA 5% MANGANESE

4-0-4

## FULLY CHELATED MICRONUTRIENT SOLUTION

FOR THE PREVENTION AND CORRECTION OF MANGANESE DEFICIENCIES IN FRUIT, NUT, VEGETABLE, AND FIELD CROPS

### GUARANTEED ANALYSIS

Total Nitrogen (N).....	4.00%
4.00% Ammoniacal Nitrogen	
Soluble Potash (K <sub>2</sub> O).....	4.00%
Manganese (Mn) .....	5.00%
5.00% Chelated Manganese	

DERIVED FROM: Ammonium Hydroxide, Potassium Hydroxide and Manganese EDTA.

## KEEP OUT OF REACH OF CHILDREN PRECAUTION

Do not ingest. Avoid contact with skin, eyes, or clothing. Avoid breathing dust, vapor or mist.

### FIRST AID

In all cases, call a poison control center or doctor for further treatment advice.

**IF SWALLOWED**, call a poison control center or doctor immediately. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to by a poison control center or doctor. Do not give anything to an unconscious person. **IF ON SKIN**, take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. **IF INHALED**, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration. **IF IN EYES**, hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing.

For chemical spills, leaks, fire or exposure, call CHEMTREC: (800) 424-9300.

### STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage, disposal or cleaning of equipment.

Store in a safe manner. Store in original container only and keep tightly sealed when not in use. RNA EDTA 5% MANGANESE may be stored in mild steel (short-term), stainless steel, plastic, fiberglass, polyolefin, polyethylene, or tanks treated with rubber, glass, or epoxy. Dispose of unused product and empty containers in accordance with federal, state and local regulations.

### GENERAL INFORMATION

RNA EDTA 5% MANGANESE is designed for application to the soil or directly to the plant. RNA EDTA 5% MANGANESE is highly effective under adverse soil conditions unlike inorganic iron compounds which are tied-up and unavailable to plants. These adverse soil conditions include: high pH (alkaline), high salinity, clay adsorption, high plant magnesium, calcium or iron, poorly drained soils, low organic matter, and low soil temperatures. RNA EDTA products are water soluble and move well in the soil solution. RNA EDTA products may be applied separately or in combination with fertilizers or pesticides.

### Function of Manganese in the Plant

Manganese is required by the plant for an enzyme catalyst in organic acid and nitrogen metabolism, involved in the breakdown of carbohydrates, essential for the assimilation of carbon dioxide in photosynthesis, and functions in the formulation of riboflavin, ascorbic acid and carotene in plants. Typical annual requirements of manganese by the plant are 0.50 to 1.10 pounds per acre depending upon the crop and yield. The highest use period of manganese by plants is in the first 40 days of development.

### DIRECTIONS FOR USE

RNA EDTA 5% MANGANESE is recommended for application to the following crops and most other vegetable, field, row, nut, and fruit crops:

Alfalfa	Carrots	Grasses	Peaches	Rice
Almonds	Celery	Hops	Peanuts	Safflower
Apples	Cherries	Lettuce	Pears	Soybeans
Apricots	Citrus	Melons	Peas	Spinach
Artichokes	Cole Crops	Milo	Pecans	Strawberries
Asparagus	Corn	Mint	Peppers	Sugar Beets
Avocado	Cotton	Nectarines	Pineapples	Sugar Cane
Barley	Cranberries	Nursery Stock	Pistachios	Sweet Corn
Beans (all)	Cucumbers	Oats	Plums	Tomatoes
Boysenberries	Cucurbits	Olives	Pomegranates	Turgrass
Brassicac	Figs	Onions	Potatoes	Walnuts
Broccoli	Garlic	Ornamentals	Prunes	Watermelons
Brussels Sprouts	Grapes	Pasture/Range Grass	Rape	Wheat

### GENERAL APPLICATION RECOMMENDATIONS FOR TREE FRUIT AND NUT CROPS

Unless stated differently in specific crop recommendations, application of RNA EDTA 5% MANGANESE is preferred as follows:  
**PRE-BLOOM APPLICATIONS:** Ground: Application of RNA EDTA 5% MANGANESE may be made with oil dormant/delayed dormant or with existing fungicide program pre-bloom up to 1½ quarts per 100 gallons of water. Air: Aerial application of RNA EDTA 5% MANGANESE may be made with oil dormant/delayed dormant or with existing fungicide program pre-bloom up to 1½ quarts per acre with sufficient water for thorough coverage. **Caution:** Combined application rates of EDTA chelates may not exceed 1½ quarts per 100 gallons of water by ground application or 1½ quarts per acre with sufficient water for thorough coverage by air. **POST-BLOOM COVER SPRAYS:** Ground: Apply RNA EDTA 5% MANGANESE up to 1 quart per 100 gallons of water with existing spray program. Air: Apply up to 1 quart per acre with sufficient water for thorough coverage. Repeat applications as required by air or ground with existing spray program. **Caution:** Combined application rates of EDTA chelates may not exceed 1½ quarts per 100 gallons of water by ground and 1 quart per acre with sufficient water for thorough coverage by air. **POST-HARVEST AND BEFORE LEAF DROP:** Ground: Apply up to 2 quarts of RNA EDTA 5% MANGANESE per 100 gallons of water or up to 6 quarts per acre. Air: Apply up to 1 gallon per acre with sufficient water for thorough coverage. Correction may not be evident until next growing season. **Caution:** Combined application rates of EDTA chelates may not exceed 1½ gallons per acre with sufficient water for thorough coverage by air or ground application. **SOIL APPLICATIONS:** Foliar applications of EDTA products for deciduous and evergreen trees are preferred over soil applications. Apply 1-3 gallons per acre with pesticides, fertilizers, or irrigation water (emitters, drip, or overhead) during active growing season. Correction may not be evident for several weeks.

### SPECIFIC RECOMMENDATIONS FOR TREE FRUIT AND NUT CROPS

**ALMONDS:** Pre-Bloom Applications: Apply up to 1-1½ quarts per 100 gallons by ground application or ½ quarts per acre by air with oil dormant/delayed dormant or up to pink bud with existing spray program. For post-bloom cover sprays, post-harvest recommendations and soil applications, please consult general recommendations in above text.  
**APPLES AND PEARS:** Pre-Bloom Applications: Apply up to 1 quart per 100 gallons of water by ground application or up to 1½ quarts per acre by air with oil dormant/delayed dormant or up to green tip with existing spray program. For post-bloom cover spray, post-harvest recommendations and soil applications, please consult general recommendations.  
**APRICOTS, PEACHES, AND NECTARINES:** Pre-Bloom Applications: Apply up to 1 quart per 100 gallons of water by ground application or up to 1½ quarts per acre with sufficient water for thorough coverage by air with oil dormant/delayed dormant or up

Information regarding the contents and levels of metals in this product is available on the Internet at <http://www.aapfc.org/metals.html>

to pink bud or early red bud with existing spray program. For post-bloom cover sprays, post-harvest recommendations and soil applications, please consult general recommendation.

**PLUMS:** Pre-Bloom Applications: Apply up to 1 quart per 100 gallons of water by ground application or up to 1½ quarts per acre with sufficient water for thorough coverage by air with oil dormant/delayed dormant up to green cluster with existing fungicide program. **Post-Bloom Cover Sprays/Post-Harvest Cover Sprays:** RNA EDTA 5% MANGANESE should not be applied to plums as a post-bloom or post-harvest cover spray. **Soil Applications:** Please consult general recommendations. Before application please consult with local pest control advisor for varieties extremely sensitive to phytotoxicity from foliar applications of combined products.

**CITRUS:** Pre-Bloom Applications: Apply up to 1-1½ quarts per 100 gallons of water by ground or up to 1½ quarts per acre with sufficient water for thorough coverage by air prior to bloom with existing spray program. For post-bloom recommendations and soil applications, please refer to general recommendations.

**GRAPES:** Pre-Bloom Applications: Apply up to 1½ quarts per 100 gallons of water by ground or up to 1½ quarts per acre with sufficient water for thorough coverage with existing spray program from bud swell to 5% bloom. For cover sprays and soil recommendations please consult general recommendations. **Table Grapes:** Do not apply RNA EDTA 5% MANGANESE as a post-bloom cover spray to table grapes.

### GENERAL RECOMMENDATIONS FOR ROW, FIELD AND VEGETABLE CROPS

Unless stated differently in specific recommendations, application of RNA EDTA 5% MANGANESE is preferred as follows:

Application of RNA EDTA 5% MANGANESE is preferred shortly before or after emergence. Split applications are preferred over a single application. **Soil:** Apply with pesticide, fertilizer, or irrigation water (drip, overhead, or emitter) at 1-6 quarts per acre. RNA EDTA 5% MANGANESE may be applied preplant (as near as possible to planting), during planting (close to the seed), or post-emergence as broadcast, layby, shanked, or banded application. **Foliar:** Apply up to 1 quart per acre per application with existing spray program soon after emergence. Continue applications as required. Foliar applications of RNA EDTA 5% MANGANESE are preferred over soil applications due to the low stability constant of manganese EDTA compounds.

### SPECIFIC RECOMMENDATIONS FOR ROW, FIELD AND VEGETABLE CROPS

**BEANS:** Foliar: Apply up to 2 quarts per acre with sufficient water for thorough coverage soon after emergence. Repeat applications as required. **Soil:** Please refer to general recommendations.

**SORGHUM AND MILO:** Foliar: Apply up to 2 quarts per acre early after emergence. Repeat applications as required. **Soil:** Please consult general recommendations.

**CEREAL GRAINS:** Foliar: Apply up to 1 quart per acre with sufficient water for thorough coverage with existing spray program. Repeat applications as required. **Soil:** Please consult general recommendations.

**STRAWBERRIES:** Foliar: Apply up to 1 quart per acre with sufficient water for thorough coverage with existing spray program. Preferred applications are shortly after emergence or transplant. Continue applications as required. **Soil:** Please consult general recommendations.

**GREENHOUSE OR FIELD GROWN ORNAMENTALS AND FLOWERS:** Soil: Apply to the soil as often as required as directed under general recommendations. **Foliar:** RNA EDTA 5% MANGANESE is not recommended for foliar application to greenhouse or field grown ornamentals and flowers.

**TURFGRASS:** Foliar: Apply on a regular basis with existing spray program up to 2 quarts per acre. **Soil:** Please consult general recommendations.

**VEGETABLE CROPS:** Foliar: Apply up to 1 quart per acre with sufficient water for thorough coverage with existing spray program after emergence. Repeat applications as required. **Soil:** Please consult general recommendations.

**FIELD AND SWEET CORN:** Foliar: Apply up to 2 quarts per acre with sufficient water for thorough coverage with existing crop protection program soon after emergence. Repeat applications as required. **Soil:** Please consult general recommendations.

**COTTON:** Foliar: Apply up to 2 quarts per acre with sufficient water for thorough coverage with existing crop protection program soon after emergence. Repeat applications as required. **Soil:** Please consult general recommendations.

**POTATOES:** Foliar: Apply up to 2 quarts per acre with sufficient water for thorough coverage. Preferred applications are shortly after emergence and/or up to 100% bloom with current crop protection program or overhead irrigation water. Repeat applications post-bloom as required. **Soil:** Please consult general recommendations.

**RICE:** Foliar: Apply up to 2 quarts per acre with sufficient water for thorough coverage. Apply post-emergence on drained field or after emergence out of the water with current crop protection program. Repeat as required. **Soil:** Apply broadcast, banded, or shanked with fertilizer or preplant fertilizer at 1-3 gallons per acre.

**TOMATOES:** Foliar: Apply up to 2 quarts per acre with sufficient water for thorough coverage. Preferred applications are shortly after emergence or transplant. Repeat applications as required with current crop protection treatment. **Soil:** Consult general recommendations for soil application.

### COMPATIBILITY

**FERTILIZER COMPATIBILITY:** RNA EDTA 5% MANGANESE is compatible with most slightly acidic to moderately alkaline fertilizers (pH range of 3.0-11.0). RNA EDTA 5% MANGANESE is not compatible with acid-based fertilizers such as combinations of phosphoric, sulfuric, and urea-phosphoric acid solutions. **PESTICIDE COMPATIBILITY:** RNA EDTA 5% MANGANESE is compatible with most pesticides including: insecticides, herbicides, fungicides, acaricides, and other foliar nutrients. RNA EDTA 5% MANGANESE may be incorporated into an existing spray program. Please add RNA EDTA 5% MANGANESE before adding the pesticide to the spray solution. Always jar test new combinations for compatibility prior to field mixing.

Conditions of Sale and Limitation of Warranty and Liability:

**NOTICE:** Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of the product should be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness, or other unintended consequences may result because of many different factors including, without limitation, manner of use or application, weather, combination with other products, or crop conditions. All such risks shall be assumed by Buyer and User, and Buyer and User agree to hold Manufacturer and Seller harmless from any claims relating to such factors.

**Seller warrants that this product conforms to the chemical description on the label. EXCEPT FOR THIS WARRANTY, THE PRODUCT IS FURNISHED "AS-IS," AND NEITHER SELLER NOR MANUFACTURER MAKES ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, WITH RESPECT TO THE SELECTION, PURCHASE OR USE OF THIS PRODUCT; SELLER AND MANUFACTURER SPECIFICALLY DISCLAIM ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Buyer and User accept all risks arising from any use of this product, including without limitation uses contrary to label instructions, under abnormal conditions, or under conditions not reasonably foreseeable to (or beyond the control of) Seller or Manufacturer.**

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These Conditions of Sale and Limitation of Warranty and Liability shall be interpreted in accordance with the laws of the State of California, excluding its conflicts of laws rules, and may not be amended by any oral or written agreement. K-031717

Manufactured by: RNA • 22312 Railroad Avenue, San Joaquin, CA 93660

DO NOT STORE BELOW 25 DEGREES FAHRENHEIT

NET CONTENTS: GALLONS/Liters • WEIGHT PER GALLON: 10.46 POUNDS at 68°F