



# MATERIAL SAFETY DATA SHEET

## SECTION 1 – PRODUCT IDENTIFICATION AND USE

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| <b>PRODUCT IDENTIFIER:</b>                   | VITAL MANGANESE (Mn)                                     |
| <b>PRODUCT USE:</b>                          | Chelating agent, plant nutrient<br>Supplements           |
| <b>SUPPLIER'S NAME:</b>                      | Agrisol Manufacturing Inc                                |
| <b>ADDRESS:</b>                              | 220 – 7565, 132 Street,<br>Surrey, BC, V3Z 1K7<br>Canada |
| <b>IN CASE OF EMERGENCY:</b> 1(604) 805-2417 |  |

## SECTION 2 – HAZARDOUS INGREDIENTS

| HAZARDOUS INGREDIENTS | CAS #       | LD <sub>50</sub> OF INGREDIENT<br>(SPECIFY SPECIES & ROUTE) |
|-----------------------|-------------|---|
| Manganese (Mn) EDTA   | 158375-84-5 | LD <sub>50</sub> ( rat, oral) greater than 2000 mg/kg       |

## SECTION 3 – PHYSICAL DATA

|                                |        |                                 |                   |
|--------------------------------|--------|---------------------------------|-------------------|
| <b>PHYSICAL STATE:</b>         | Liquid | <b>ODOUR &amp; APPEARANCE</b>   | Dark brown liquid |
| <b>ODOUR THRESHOLD (ppm):</b>  | NAV    | <b>VAPOUR PRESSURE (mmHg):</b>  | NAV               |
| <b>VAPOUR DENSITY (air=1):</b> | NAP    | <b>SPECIFIC GRAVITY:</b>        | 1.15 g/ml         |
| <b>pH:</b>                     | 6.5    | <b>MELTING POINT RANGE (°C)</b> | NAP               |
| <b>FREEZING POINT (°C)</b>     | NAV    | <b>EVAPORATION RATE:</b>        | NAP               |
| <b>COEFF. WATER/OIL DIST</b>   | NAV    | <b>SOLUBILITY (in water):</b>   | Soluble           |

## SECTION 4 – FIRE AND EXPLOSION DATA

|   |   |  |  |  |  |  |
|---|---|--|--|--|--|--|
| <b>FLAMMABLE:</b>   | Not flammable or combustible.   |  |  |  |  |  |
| <b>IF YES, UNDER WHAT CONDITIONS?</b>   | Product is stable at room temperature & atmospheric pressure. When involve in fire, it does not contribute any unusual hazards. |  |  |  |  |  |
| <b>MEANS OF EXTINCTION:</b>   | Use water dry chemical, fog, foam, CO <sub>2</sub> .  |  |  |  |  |  |
| <b>FIRE FIGHTING</b> In case of fire prevents human exposure to fire, smoke, fumes or products of combustion. Fire fighters <b>PROCEDURES:</b> should use appropriate protective equipment and evacuate non-essential personnel from fire area. |   |  |  |  |  |  |
|   |   |  |  |  |  |  |

|   |                 |   |             |
|---|-----------------|---|-------------|
| <b>DECOMPOSITION TEMPERATURE (°C) :</b>     | > 260°C (500°F) | <b>AUTOIGNITION TEMPERATURE (°C)</b>        | NAV         |
| <b>LOWER FLAMMABLE LIMIT (% by volume):</b> | NAP             | <b>UPPER FLAMMABLE LIMIT (% by volume):</b> | NAP         |
| <b>SENSITIVITY TO IMPACT:</b>               | No evidence     | <b>SENSITIVITY TO STATIC DISCHARGE:</b>     | No evidence |

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|                                       |     |                                 |   |
|---------------------------------------|-----|---------------------------------|---|
| <b>HAZARDOUS COMBUSTION PRODUCTS:</b> | NAV | <b>HAZARDOUS POLYMERIZATION</b> | Hazardous polymerization is not expected to occur under normal temperatures and procedures. |
|---------------------------------------|-----|---------------------------------|---|

## SECTION 5 – REACTIVITY DATA

|  |  |                             |     |
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| <b>CHEMICAL STABILITY:</b>                   | Stable under normal conditions. Not self reacting and is not sensitive to physical impact.                                 |                             |     |
| <b>INCOMPATIBILITY:</b>                      | Strong oxidizers and aluminum. Layered on hot surface might cause glow. Avoid prolonged storage at high temperatures.      | <b>CORROSIVE BEHAVIOUR:</b> | NAV |
| <b>REACTIVITY AND UNDER WHAT CONDITIONS:</b> | This product is stable at ambient temperatures and atmospheric pressures.  |                             |     |
| <b>HAZARDOUS DECOMPOSITION PRODUCTS:</b>     | Under fire conditions may support combustion and decomposes to give CO, CO <sub>2</sub> , nitrogen oxides and water vapor. |                             |     |

## SECTION 6 – TOXICOLOGICAL PROPERTIES

|  |   |                         |     |                        |   |                    |     |                   |     |
|--|---|-------------------------|-----|------------------------|---|--------------------|-----|-------------------|-----|
| <b>ROUTES OF ENTRY:</b>  |   |                         |     |                        |   |                    |     |                   |     |
| <b>SKIN CONTACT:</b>   | Yes   | <b>SKIN ABSORPTION:</b> | Yes | <b>EYE CONTACT:</b>    | Yes   | <b>INHALATION:</b> | Yes | <b>INGESTION:</b> | Yes |
| <b>EFFECTS OF ACUTE EXPOSURE TO PRODUCT:</b>   |   |                         |     |                        |   |                    |     |                   |     |
| <b>INGESTION:</b>  | Excessive ingestion must occur before any health hazard results. Effects of over-exposure may include nausea, vomiting, diarrhea, weakness or convulsions. Seek medical help immediately.   |                         |     |                        |   |                    |     |                   |     |
| <b>INHALATION:</b>   | Avoid inhalation. Exposure to an excessive concentration of dust may cause respiratory track irritation.  |                         |     |                        |   |                    |     |                   |     |
| <b>EYE CONTACT:</b>  | May cause eye irritation. Flush eyes with plenty of running water. Seek medical attention if irritation persists.   |                         |     |                        |   |                    |     |                   |     |
| <b>SKIN CONTACT:</b>   | Avoid prolonged or repeated skin contact. May cause skin irritation and possible skin sensitization.  |                         |     |                        |   |                    |     |                   |     |
| <b>OTHERS:</b>   | Excessive exposure to Manganese (Mn) by ingestion or inhalation can lead Manganese (Mn) accumulation in specific portion of the brain and a central nervous syndrome called " <i>MANGANISM</i> ", which has clinical signs similar to those of Parkinson's disease. |                         |     |                        |   |                    |     |                   |     |
| <b>EFFECTS OF CHRONIC EXPOSURE:</b> Based on some animal data material contain in the product may cause target organ damage. |   |                         |     |                        |   |                    |     |                   |     |
| <b>CARCINOGENICITY:</b>  | Not classify as carcinogen or suspected carcinogen.   |                         |     | <b>MUTAGEN CITY:</b>   | No evidence                                       |                    |     |                   |     |
| <b>REPRODUCTIVE HAZARD:</b>  | No known significant effects  |                         |     | <b>TERATOGENICITY:</b> | No known significant effects or critical hazards. |                    |     |                   |     |
| <b>IRRITANCY:</b>  | Yes   |                         |     | <b>SENSITIZATION:</b>  | Yes   |                    |     |                   |     |
| <b>SYNERGISTIC PRODUCTS:</b>   | NAV   |                         |     |                        |   |                    |     |                   |     |

## SECTION 7 – PREVENTIVE MEASURES

|                                       |  |
|---------------------------------------|--|
| <b>PERSONAL PROTECTIVE EQUIPMENT:</b> | <b>Hands:</b> Wear chemical resistant impervious gloves. Wear chemical safety goggles and face shield if dust generation is possible.<br><b>Eyes:</b> Wear safety eyewear with approved standard when a risk of splashes or dust generation is possible.<br><b>Foot Wear:</b> Impervious safety boots.<br><b>Clothing's:</b> Wear coveralls with an impervious apron to protect street clothing.<br><b>Respirator:</b> A NIOSH or MSHA approved respirator should be worn when dust levels exceed 15 mg/m <sup>3</sup> . |
|---------------------------------------|--|

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| <b>ENGINEERING CONTROLS:</b>     | Ventilate to control dust. Keep good housekeeping.   |
| <b>HANDLING PROCEDURES:</b>      | Use containment whenever possible and personal protective equipment where splashing or potential for contact exists. Workers should wash hand and face before eating, drinking or smoking.   |
| <b>STORAGE REQUIREMENTS:</b>     | Keep containers close and store in cool, dry place away from heat sources. Isolate from strong oxidizers and avoid contact with aluminum. Avoid direct and prolonged contact with skin. Keep separate from incompatible materials. |
| <b>LEAK AND SPILL PROCEDURE:</b> | Sweep, shovel or vacuum into sealable waste containers. Flush area with plenty of water. Prevent contamination of sewers, streams, lakes, ponds and domestic waterways. Ventilate area of spill or leak.                           |
| <b>WASTE DISPOSAL:</b>           | Dispose in compliance with government requirements and local disposal regulations.   |

## SECTION 8 – FIRST AID MEASURES

|                      |   |
|----------------------|---|
| <b>INHALATION:</b>   | Move victim to fresh air. Oxygen may be given under doctor's advice. If victim has irregular or difficulty or under respiratory arrest seek medical attention immediately. If other conditions or symptoms develop contact a physician. |
| <b>SKIN CONTACT:</b> | Remove contaminated clothing. Wash affected area with water for fifteen (15) minutes. Do not attempt to neutralize with chemical agents. Obtain medical attention if irritation or redness persists.                                    |
| <b>EYE CONTACT:</b>  | Flush eyes thoroughly while holding upper and lower eye lids for a minimum of 15 minutes. Obtain medical attention if symptoms or condition persists. DO NOT let victim rub eyes.   |
| <b>INGESTION:</b>    | Call physician immediately. If victim is conscious, rinse mouth and give water to drink. Never give anything by mouth to an unconscious person. Only induce vomiting on the instructions of doctor.                                     |

## SECTION 9 – DEPARTMENT OF TRANSPORTATION

### SHIPPING INFORMATION

**US and Canada:** Not regulated

**International Shipping:** Not regulated

**TDG:** Not regulated.

**IATA:** Not regulated

## SECTION 10 – PREPARATION DATE OF MSDS

|  |   |
|--|---|
| <b>PREPARED BY:</b> Agrisol Manufacturing Inc.<br>220 – 7565, 132 Street,<br>Surrey, BC, V3Z 1K7<br>Canada | <b>ADDITIONAL INFORMATION:</b><br>At the time of preparation, the information and data contained in this MSDS are believed to be accurate and have been compiled from sources that are believed to be reliable. |
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**BUSINESS NUMBER:** 604-805-2417

**DATE:** October, 2015