

SA-50 BRAND DITHANE M-45<sup>R</sup>  
MATERIAL SAFETY DATA SHEET

Souther Agricultural Insecticides, Inc.  
P.O. Box 218, Palmetto, Fla. 34220

Office 941-722- 3285  
Chemtrec 800-424- 9300  
Medical 215-592- 3000  
Re: Dithane M-45  
Product Code 62433

### I PRODUCT IDENTIFICATION

Product Name; SA--50 BRAND DITHANE<sup>R</sup> M-45 EPA Reg No 829-286  
Chemical Name: Mancozeb; A coordination product of zinc ion and manganese Ethylenebisdithiocarbamate 80%, in which the ingredients are Manganese<sup>++</sup> 16%, Zinc<sup>++</sup> 2%, Ethlenebisdithiocarbamate ion (C<sub>4</sub>H<sub>6</sub>N<sub>2</sub>S<sub>4</sub>) 62%  
DITHANE<sup>R</sup> is a trademark of Rohm and Haas Company or one of its subsidiaries or affiliates.

### II INGREDIENTS

	Cas Reg No.	%/weight	R&H TWA	OSHA PEL
Mancozeb	8018-01-7	80-85	1 mg/m <sup>3</sup>	
Manganese in Mancozeb	7439-96-5			5 mg/m <sup>3</sup> (Mn) Table Z-1
Related reaction products . .	None	15-20	N/A	Not listed
Calcium lignosulfonate	8061-52-7	1	N/A	Not listed

### III HEALTH HAZARDS

Primary Routes of Exposure

Inhalation: inhalation of dust can cause irritation of nose and throat.

Skin Contact :prolonged and repeated skin contact can cause possible skin irritation, dermatitis due to sensitization, delayed effects.

Eye Contact: Direct contact can cause moderate irritation

Delayed effects: Mancozeb at high levels has caused hindleg paralysis in test animals and an increased incidence of retinal degeneration. It has caused thyroid tumors and birth defects in test animals, resulting from ethylenethiourea (ETU) formation. ETU, a trace contaminant and breakdown product of mancozeb, primarily affects the thyroid and liver. It has also caused other endocrine and blood effects, tumors and birth defects in test animals.

#### TOXICOLOGICAL INFORMATION

Acute Data: Oral LD50 - rat: >5000 mg/kg Dermal LD50 - rabbit: >5000 mg/kg

Skin irritation - rabbit: practically non-irritating

Eye Irritation - rabbit: not irritating (EEC Classification) moderately irritating (US Classification)

Inhalation LC50 - rat: >5.14 mg/L for 4 hr

Carcinogenicity:: A two-year feeding study of mancozeb indicated thyroid tumors in rats at a dietary concentration level of 750 ppm. No evidence of carcinogenicity was observed in long-term studies with mice. Two-year feeding studies of ETU indicated thyroid and pituitary tumors in rats at dietary concentrations of 83 ppm or higher and also thyroid, pituitary and liver tumors in mice at dietary concentrations of 330 ppm or higher. Information on the mechanism of these tumors establishes a threshold for the thyroid and pituitary tumors, and indicates that none of these tumor types is relevant for human risk assessment at likely exposure levels.

California (Proposition 65) This product contains trace levels of a component or components known to the state of California to cause cancer and birth defects or other reproductive harm

Ethylene thiourea (CAS#96-45-7) This product contains a component or components known to the state of California to cause cancer:- Mancozab (CAS# 8018-01-7)

### IV FIRST AID MEASURES

Inhalation: Move subject to fresh air. Eye Contact: Flush eyes for 15 minutes with a gentle stream of water, lift upper and lower lids occasionally while flushing. Remove contact lenses while flushing. Get medical attention if irritation persists. Skin Contact Wash affected skin areas thoroughly with soap and water. Remove and wash contaminated clothing seperately from household laundry. Consult a physician if irritation persists..

Ingestion: If swallowed, give 2 glasses of water to drink. Consult a physician. Never give anything by mouth to an unconscious person.

**V . FIRE FIGHTING MEASURES**

Flash Point . . . . . 146°C/295°F Tag Open Cup                      Auto-ignition Temperature                      No Data  
 Lower Explosive Limit . . 0.16 oz/ft3 160.18 g/m3 Upper Explosive Limit . . No Data  
 Unusual Hazards: Mancozeb particulates can become airborne. Dusts at sufficient concentrations can form explosive mixtures with air  
 Combustion generates the following:toxic fumes: - hydrogen sulfide - carbon disulfide - sulfur oxides - nitrogen oxides -carbon oxides  
 The minimum ignition temperature of dust cloud is 310°C/5900F.  
 The minimum ignition temperature of dust layer is 132°C/270°F.  
 .Extinguishing Agents Use carbon dioxide - dry chemical - water spray:  
 Personal Protective Equipment Wear self-contained breathing apparatus (pressure-demand MSHA/NIOSH approved or equivalent) and full protective gear.  
 Special Procedures Contain run-off. Remain upwind. Avoid breathing smoke. Use water spray to cool containers exposed to fire.

**VI ACCIDENTAL RELEASE MEASURES**

Personal Protection: Appropriate protective equipment must be worn when handling a spill of this material. See SECTION 8, Exposure Controls/Personal Protection, for recommendations. If exposed to material during clean-up operations, see SECTION 4, First Aid Measures, for actions to follow.  
 Remove all contaminated clothing promptly. Wash all exposed skin areas with soap and water immediately after exposure.  
 Procedures:Transfer spilled material to suitable containers for recovery or disposal. Keep dust to a minimum.  
 CAUTION: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.

**VII HANDLING AND STORAGE**

Storage Conditions: Do not store this material near food or feed and out of reach of children and domestic animals Store in a cool, dry, well ventilated area. DO NOT allow DITHANE<sup>R</sup> to become wet or overheated in storage; decomposition, impaired activity or fire may result. Material is combustible; Do not ignite.. Decomposition produces a foul odor. Check for hot containers and immediately remove to open areas for disposal.  
 Handling Procedures: Do not allow material or spray mist to contact unprotected persons. Avoid high concentrations of dust in air and accumulation of dust on equipment. An airborne dust of this material can create a dust explosion. When handling local exhaust ventilation may be required to control dust and reduce exposure to vapors.

**VIII SPECIAL PROTECTION**

Respiratory: Type/Conditions. Avoid breathing dust. or spray mist. When exposure limits would be exceeded, wear a NIOSH approved respirator with pesticide cartridge.  
 Ventilation: General. Handle with good ventilation. Handle to produce a minimum of dust. Do not exceed indicated indicated exposure limits.  
 Gloves: Rubber gloves when contact with hands is frequent and/or extended. Wash gloves inside and out with soap and water after each use.  
 Eye Protection: Safety glasses. Other protective equipment: Clean, freshly laundered, body covering, work clothing. Do not wear contaminated clothing. Launder separately.

**IX PHYSICAL AND CHEMICAL PROPERTIES**

Color . . . . . Yellow State . . . . . Powdered solid  
 Odor Characteristic . Musty odor                      pH . . . Not Applicable  
 Viscosity . . . . . Not Applicable Vapor Pressure . . . . . No Data  
 Specific Gravity (Water = 1) 0.35 to 0.50 g./cc. Bulk Density  
 Vapor Density (Air = 1) . . Not Applicable  
 Melting Point . . . . . 192oC to 204oC/378oF to 399oF                      Not Applicable—Decomposes  
 Boiling Point . . . . . Not Applicable                      Solubility in Water . . . Dispersible  
 Percent Volatility . . . 1X Water                      Evaporation Rate (BAC = 1) Not Applicable  
 See SECTION 5, Fire Fighting Measures

**X STABILITY AND REACTIVITY**

Instability: This material is considered stable. However, keep away from moisture, heat or flame.

Hazardous Decomposition Products: Thermal decomposition may yield:- carbon disulfide - hydrogen sulfide

Hazardous Polymerization Will not undergo polymerization.

Incompatibility: Avoid contact with - oxidizing agents - acids

**XI PHYSICAL AND CHEMICAL PROPERTIES**

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Vapor Density (Air = 1) . . Not Applicable

Melting Point . . . . 192oC to 204oC/378oF to 399oF Not Applicable—Decomposes

Boiling Point . . . . Not Applicable Solubility in Water: . . . Dispersible

Percent Volatility: negligible Evaporation Rate (BAc = 1) Not Applicable See SECTION 5.

**XII DISPOSAL**

Material that can not be used according to label instructions should be disposed according to local, state, and federal regulations. Homeowners should follow label instructions.

**XIII TRANSPORTATION AND SELECTED REGULATORY INFORMATION**

US DOT Hazard Class . . . NONREGULATED This classification is used when shipping in non-bulk packages for domestic surface transportation only.

This product is considered hazardous under the OSHA Hazard Communication Standard (29CFR 1910.1200).

SARA TITLE 3: Section 311/312 This product is a hazardous chemical under categorized as a delayed health hazard.

SARA TITLE 3: Section 313 This product contains a chemical which is listed in Section 313 at or above de minimis concentrations. The following listed chemicals are present: (Quantity present is found elsewhere on this MSDS.)Mancozeb (8018-01-7) as manganese/zinc compound and as ethylenebisdithiocarbamic acid, salts and esters

CERCLA Information(40CFR 302.4 or nondesignated RCRA ICR substance(s).releases in excess of the RQ are reportable to National Response Center (1-800-424-8802) and to the appropriate state and local emergency response organizations.

Ethylenebisdithiocarbamic acid, salts & esters (111-54-6) 5000 lbs. as Mancozab (8018-01-7)

When a decision is made to discard this material as supplied, it is classified as a RCRA hazardous waste, hazardous waste number: U114 (40 CFR 261).

**XIII OTHER INFORMATION:**

Ratings are based on Rohm and Haas guidelines, and are intended for internal use.

Toxicity = 1 Fire = 1 Reactivity = 0 Special = -

Scale: 0=insignificant 1=SLIGHT 2=MODERATE 3=HIGH 4=EXTREME

The information contained herein relates only to the specific material identified. Southern Agricultural Insecticides, Inc.believes that such information is accurate and reliable as of the date of this material safety data sheet, but no representation, guarantee or warranty, express or implied, is made as to the accuracy, reliability, or completeness of the information. Southern Agricultural Insecticides, Inc.urges persons receiving this information to make their own determination as to the information's suitability and completeness for their particular application.

REF: Rohm & Haas MSDS 10/16/95 CFR 29 7/95 CFR 40 1/95 CFR49 parts 171-172-173, 5/97  
JJKeller Regulatory Cross Ref 10/94