



**Kemai(Tianjin) Chemical Technical Co.,Ltd.**

Gongnong Village, Gulin Street, Dagang Dist, Tianjin 300272, China

**Kemai**

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## Material Safety Data Sheet

**KEMAI006**

Revision Date: 05/13/2005

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### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** TMTD

**MSDS NO.** KEMAI006

**Chemical Name:** Tetramethylthiuram Disulfide

**Synonyms:** THIURAD; THIRAM; Bis(dimethyldithiocarbamoyl)disulfide; Thioperoxydicarbonic diamide, tetramethyl-

**Use:** Accelerator.

**Manufactured By:** Kemai(Tianjin) Chemical Technical Co.,Ltd.

**Emergency Telephone: CHEMTREC:** 0086-22-6334-9929 **FAX** 0086-22-6334-9991

**Prepared By:** Kemai(Tianjin) Chemical Technical Co.,Ltd.

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### 2. COMPOSITION/INFORMATION ON INGREDIENTS

**Components/CAS#**

**Percent**

Tetramethylthiuram Disulfide

137-26-8

97-100

Dedusting Oil [in pdr-d only]

Various 0-2

### 3. HAZARDS IDENTIFICATION

**Emergency Overview:** WARNING! Dust may be irritating to eyes and upper respiratory tract. Fine dust clouds may form explosive mixtures with air. Highly toxic to fish and aquatic invertebrates. May cause sensitization by skin contact. May cause alcohol intolerance.

**Eye Contact:** Causes mild eye irritation. Mild Eye Irritation: signs/symptoms can include redness, swelling, pain and tearing.

**Skin Contact:** May cause an allergic skin reaction. May be absorbed through the skin and product effects similar to those caused by inhalation and/or ingestion.

**Inhalation:** Exposure to dust particles generated from this material may cause irritation of the respiratory tract. Inhalation may cause alcohol intolerance

**Ingestion:** May cause alcohol intolerance (Antabuse Effect) May cause headache, dizziness, nausea, vomiting, gastrointestinal irritation.

### 4. FIRST AID MEASURES

**In Eyes:** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

**On Skin:** In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes.

Get medical attention. Remove contaminated clothing and launder before reuse. Get medical



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attention if irritation persists.

**Inhaled:** Remove person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, get immediate medical attention.

**Swallowed:** If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician.

Never give anything by mouth to an unconscious person.

**Notes To Physician:** Treat symptomatically. Exposure by ingestion, inhalation or skin absorption may cause alcohol intolerance (Antabuse Effect)

## **5. FIRE FIGHTING MEASURES**

**Flash Point (°F/C):** 280°F / 138°C

**Flash Point Method:** Pensky-Martens Open Cup

**Autoignition Temp. (°F/C):** Not determined.

**Lower Explosion Limit in Air (LEL):** Not determined.

**Upper Explosion Limit in Air (UEL):** Not determined.

**Extinguishing Media:** Water fog, carbon dioxide, foam, dry chemical.

**Special Exposure Hazards:** Fight fire from a safe distance and from a protected location. Use water spray to cool fire exposed surfaces. Decomposition in fire may produce toxic gases. Do not allow runoff to enter waterways.

**Special Protective Equipment:** Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

**Unusual Fire/Explosion Hazards:** Toxic emissions may result if product is involved in a fire.

## **6. ACCIDENTAL RELEASE MEASURES**

**Spill Procedures:** Wear protective equipment specified. Avoid the generation of dust. Sweep, vacuum, or shovel and place into closable container for disposal.

**Procedure for Cleaning/Absorption:** Isolate area and remove sources of friction, impact, heat, low level electrical current, and RF energy. Scoop up and remove solids. Do NOT spread spilled product with water.

**CERCLA Reportable Quantity (RQ):** 10 Pounds [USA]

## **7. HANDLING AND STORAGE**

**Handling:** Avoid contact with eyes, skin and clothing. Avoid generating or breathing dust. Wash thoroughly with soap and water after handling. Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Reclose containers of unused product. Keep containers tightly closed when not in use. Do not reuse this container.

**Storage:** Store closed containers in a cool, dry, well-ventilated area. Store away from strong oxidizing materials.

Avoid exposure to direct sunlight.

## **8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Eye Protection:** Wear safety glasses or goggles to protect against exposure.

**Skin Protection:** Normal work coveralls. Launder contaminated clothing before reuse.

**Gloves:** Use gloves as a standard industrial handling procedure. Appropriate chemical resistant gloves should be worn.

**Respiratory Protection:** Use in a well ventilated area. Use approved NIOSH respiratory



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protection if TLV exceeded or if overexposure is likely. Appropriate respiratory protection shall be worn when applied engineering controls are not adequate to protect against inhalation exposure.

**Ventilation:** General; local exhaust ventilation as necessary to control any air contaminants to within their exposure limits during the use of this product.

**Airborne Exposure Limits:** Tetramethylthiuram Disulfide OSHA PEL/8-Hr TWA = 5 mg/m<sup>3</sup>  
ACGIH TLV/8-Hr TWA = 1 mg/m<sup>3</sup>

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** White powder or granules

**Odor:** SLIGHT

**pH:** Not Applicable

**Specific Gravity:** 1.43 @20°C

**Density:** 1.4

**Bulk Density:** 1425 kg.m<sup>3</sup> @20°C

**Melting Point (°F/C):** 142-157°C

**Boiling Point (°F/C):** Not Determined

**Vapor Pressure:** 1.725 x 10<sup>(-5)</sup> mmHg @ 25°C

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

**% Volatile by Volume:** Less than 0.5% by weight

**Solubility in Water:** 30 mg/l @25°C

**Other Solubility:** Soluble in: Acetone Organic liquids, including fats and oils Carbon Disulfide

**Viscosity:** Not Applicable

**Other Data:** Ash content = 0.3% max. Additive content in dedusted powder [-pdr-d] = 1.0-2.0%

**Molecular Weight:** 240.44

**Molecular Formula:** C<sub>6</sub>H<sub>12</sub>N<sub>2</sub>S<sub>4</sub>

## 10. STABILITY AND REACTIVITY

**Chemical Stability:** Stable when stored at room temperature in closed, original container. Stable under normal conditions of handling, use and transportation.

**Hazardous Polymerization:** WILL NOT OCCUR

**Conditions to Avoid:** Not determined.

**Materials to Avoid:** Avoid contact with acidic, basic or oxidizing agents.

**Hazardous Decomposition Products:** Carbon monoxide. Oxides of nitrogen. Oxides of sulfur.

**Additional Guidelines:** Not Applicable

## 11. TOXICOLOGICAL INFORMATION

**Target Organs**

**Acute Oral LD50 (mg/kg):** 1080 mg/kg (Rat)

**Acute Dermal LD50 (mg/kg):** >7940 mg/kg (Rabbit)

**Acute Inhalation LC50 (mg/l):** 500 mg/m<sup>3</sup> (Rat)

**Principle Routes of Exposure:** Dermal - skin. Inhalation.

**Ingestion:** May cause alcohol intolerance (Antabuse Effect) May cause headache, dizziness, nausea, vomiting, gastrointestinal irritation.



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**Skin Contact:** May cause an allergic skin reaction. May be absorbed through the skin and product effects similar to those caused by inhalation and/or ingestion.

**Inhalation:** Exposure to dust particles generated from this material may cause irritation of the respiratory tract. Inhalation may cause alcohol intolerance

**Eye Contact:** Causes mild eye irritation. Mild Eye Irritation: signs/symptoms can include redness, swelling, pain and tearing.

**Aggravated Conditions:** Alcohol consumption problems. Dermal ailments.

**Carcinogenicity Comment:** This product, or one of its ingredients present at 0.1% or more, is NOT listed as a carcinogen or suspected carcinogen by NTP, IARC or OSHA. NOTE: May react with nitrosating agents during rubber vulcanization to form nitrosamines. Some nitrosamines are suspect human carcinogens.

**Other:** Ingestion, inhalation or skin absorption may cause alcohol intolerance [Antabuse effect].

**Primary Irritation Effect:** Practically non-irritating to skin and eyes. Probable skin sensitizer.

**Carcinogenicity:** Both negative and positive results have been found in standard tests using bacteria. Negative, positive and equivocal results in have been found in standard in vitro and in vivo tests using animals, animal and bacterial cells.

**Genotoxicity:** Both positive and negative effects have been reported in standard tests using animals and animal cells.

#### **Reproductive/Developmental**

##### **Toxicity:**

Animal studies have shown some adverse effects - low birth weight of pups, maternal toxicity - on female animals. Chronic animal studies have shown this material to cause reproductive effects, blood effects and organ weight changes.

Some animal studies have shown adverse effects on fetal development.

## **12. ECOLOGICAL INFORMATION**

**Acute Fish Toxicity:** 96Hr LC50 Rainbow Trout 0.13 mg/l 96Hr LC50 Bluegill Sunfish 0.13 mg/l 96Hr LC50 Guppy 0.27 mg/l

**Acute Crustaceans Toxicity:** 48Hr LC50 Daphnia Magna 0.21 mg/l

**Acute Algae Toxicity:** 96Hr EC50 1.00 mg/l

**Octanol/Water Coefficient:** 1.82 log P

**Chemical Fate Information:** Hydrolysis Half-life: 9.5 hrs @ pH 3.5 108 hrs @ pH 5.7 1123 hrs @ pH 7.0 3316 hrs @ pH 8.0

**Other Information:** Tests indicate this material will not bioaccumulate or persist in the environment.

## **13. DISPOSAL CONSIDERATIONS**

### **Disposal of Waste Method:**

This product, if disposed as received, is a listed hazardous waste. Bury in a licensed landfill or burn in an approved incinerator according to federal, state, and local regulations. Treatment, storage, reuse and disposal of the waste material must conform to all applicable federal, state and local laws and regulations.

### **Contaminated Packaging:**



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This bag may contain residue of a hazardous material. Some authorities may regulate such containers as hazardous

waste. Dispose of container according to national or local regulations.

#### **14. TRANSPORT INFORMATION**

**DOT:DOT Status:** REGULATED.

**DOT Shipping Name:** Environmentally Hazardous Substance, solid, n.o.s., (Tetramethylthiuram Disulfide), 9, UN3077, III, RQ (Thiram)

**DOT Reportable Quantity (lbs):** 10 pounds

**ICAO/IATA:Status:** REGULATED. See DOT

**Proper Shipping Name:** See DOT

**UN/NA Number:** UN3077

**IMDG:Status:** Environmentally Hazardous Substance, solid, n.o.s., (Tetramethylthiuram Disulfide), 9, UN3077, III, RQ (Thiram), MARINE POLLUTANT

**Proper Shipping Name:** See DOT

**TDG (Canada):Status:** REGULATED. See DOT.

**Proper Shipping Name:** See DOT

#### **15. REGULATORY INFORMATION**

##### **Worldwide Inventory Status**

**TSCA (USA):** Listed

**Canadian DSL:** Listed

**Canadian NDSL:** Not Applicable. Listed on the DSL.

**EINECS/ELINCS (Europe):** Listed

**Japanese Inventory (ENCS):** Listed

**Korean Chemical Inventory (ECL):** Listed

**Australian Chemical Inventories (AICS):** Listed

**New Zealand (NZ):** Listed

**Phillipines (PICCS) Inventory:** Listed

**China (CLECS):** Listed

##### **US Regulatory Rules**

**SARA Section 302:** Not Applicable / None

**SARA 311/312 Hazard Categories:** Immediate Delayed

**SARA 313 Chemical:** Listed as "Thiram"

**RCRA Status:** RCRA Hazardous Waste U244

##### **Other Regulations:**

**California Proposition 65:** NONE

**New Jersey Right-to-Know List:** Listed NJ Substance ID #1854.

**Pennsylvania Right to Know List:** Listed

**Florida Right to Know:** Listed

**Minnesota Right to Know:** Listed

**MA Right to Know Law:** Listed Massachusetts Reportable Quantity (RQ) = 5 POUNDS.

**FDA Status 21 CFR:** Regulated for Use under the following sections of 21 CFR: 177.2600 Rubber



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Articles Intended for Repeated Use in Food Contact. 175.105 Components of Adhesives.

**Canadian Regulations**

**WHMIS Hazard Class:** D2A VERY TOXIC MATERIALS D2B TOXIC MATERIALS / Materials Causing

Other Toxic Effects

**NPRI:** Not Listed. [Canada]

**16. OTHER INFORMATION**

**Hazard Rating Systems:**

**HMIS Classification:** HEALTH 2, FLAMMABILITY 1, REACTIVITY 0

**NFPA Rating:** HEALTH 1, FLAMMABILITY 1, REACTIVITY 0

**The following has been revised since the last issue of this MSDS:**

Periodic worldwide chemical regulatory status review. Add toxicology information. Change in 'Additive Package' information. Add/change in Airborne Exposure Limits. Addition of USA State-specific Right-to-Know information. Add Canadian province-specific information. Add Mexico OEL information.

**Additional Information:** WHMIS Ingredient Disclosure List (Canada): WHMIS Concentration threshold = 1%. The dedusting oil used in the -pdr-d product form may be CAS# 37205-87-1 OR 68439-50-9. Canadian Workplace OELs apply in Alberta, British Columbia, Ontario and Quebec. Mexican Workplace OELs apply.

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**\*\*\*END OF MSDS\*\*\***