



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

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

**Kemai**

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## Material Safety Data Sheet

Revision Date: 09/28/2004

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### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** CBS

**MSDS NO.** KEMAI003

**Chemical Name:** N-Cyclohexyl-2-benzothiazolesulfenamide

**Synonyms:** Perkacit CBS; Santocure, CBS; 2-Benzothiazolesulfenamide, N-cyclohexyl-

**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.

**Phone** 0086-22-6334-9929 **FAX** 0086-22-6334-9991

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

**Components/CAS#**

**Percent**

N-Cyclohexyl-2-benzothiazolesulfenamide

95-33-0

96-99

Additive Package

Various

0.5-2.5

2-Mercaptobenzothiazole

149-30-4

0-1

Cyclohexylamine

108-91-8

0-0.5

Mercaptobenzothiazole

Disulfide

120-78-5

0-1

Benzothiazole

95-16-9

0-0.5

### 3. HAZARDS IDENTIFICATION

**Emergency Overview:** WARNING! Combustible dust - explosion potential. This material is irritating to skin, eyes and respiratory tract.

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

**Skin Contact:** Causes mild skin irritation. Mild Skin Irritation: signs/symptoms can include



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redness, swelling, and itching. May cause an allergic skin reaction.

**Inhalation:** May cause mild respiratory irritation. May irritate mouth, nose, and throat. Irritation (upper respiratory): signs/symptoms can include soreness of the nose and throat, coughing and sneezing.

**Ingestion:** Illness may occur after a single swallowing of relatively large quantities of this material.

#### **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:** Remove contaminated clothing. Wash skin with water, using soap if available. Remove contaminated clothing and launder before reuse. Get medical 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:** Provide symptomatic/supportive care as necessary. Treatment based on sound judgment of physician and individual reactions of patient. Observe for signs of respiratory distress.

#### **5. FIRE FIGHTING MEASURES**

**Flash Point (°F/C):** 350°F / 177°C

**Flash Point Method:** Cleveland Open Cup

**Autoignition Temp. (°F/C):** 660°F / 349°C (Dust)

**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.

Combustible dust when in a finely divided and highly suspended state. 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:** Fire fighters should wear full protective clothing, including self-contained breathing equipment.

**Unusual Fire/Explosion Hazards:** Toxic emissions may result if product is involved in a fire. Fire produces carbon monoxide and carbon dioxide gases.

#### **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. Isolate spill and stop leak where safe. Scoop up and remove solids. Do NOT spread spilled product with water.

**CERCLA Reportable Quantity (RQ):** Not Applicable.



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## **7. HANDLING AND STORAGE**

**Handling:** Good hygienic practices should be observed. Work clothes should be washed separately at the end of each work day. Disposable clothing should be discarded with material. Avoid generating or breathing dust. Avoid contact with eyes, skin and clothing. Reclose containers of unused product. Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. 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. Do not store near Crystex Insoluble Sulfur. Slowly degrades and releases irritating vapors under warm, humid conditions.

## **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. All cleanable impervious glove types are acceptable.

**Respiratory Protection:** Appropriate respiratory protection shall be worn when applied engineering controls are not adequate to protect against inhalation exposure. Firefighting: Use a Positive Pressure Demand Full Face Self Contained Breathing Apparatus.

**Ventilation:** General; local exhaust ventilation as necessary to control any air contaminants to within their exposure limits during the use of this product. Adequate ventilation should be provided to keep dust concentrations below acceptable exposure limits. Discharge from the ventilation system should comply with the applicable air pollutions control regulations. Eliminate ignition sources.

**Airborne Exposure Limits:** Nuisance Dust. OSHA PEL/8Hr-TWA = 15 mg/m<sup>3</sup> (Total Dust). OSHA PEL/8-Hr TWA = 0.5 mg/m<sup>3</sup> (Respirable Dust). ACGIH TLV/8-Hr TWA = 10 mg/m<sup>3</sup>. Cyclohexylamine: ACGIH TLV/8Hr TWA = 10 ppm. NIOSH REL/8Hr TWA = 10 ppm.

## **9. PHYSICAL AND CHEMICAL PROPERTIES**

**Appearance:** Off-white powder. White to off-white granules.

**Odor:** MILD AMINE

**pH:** Not Applicable

**Specific Gravity:** 1.3 @ 25°C

**Density:** 1.27

**Bulk Density:** 1280 kg/m<sup>3</sup>

**Melting Point (°F/C):** 97-105°C

**Boiling Point (°F/C):** Decomposes before boiling

**Vapor Pressure:** Negligible

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

**% Volatile by Volume:** <0.5%

**Solubility in Water:** INSOLUBLE; <1 ppm @ 21°C

**Other Solubility:** Soluble in: Acetone Ether Ethanol

**Viscosity:** Not Applicable

**Other Data:** Ash content = 0.3% max.



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**Molecular Weight:** 264.4

**Molecular Formula:** C13-H16-S2-N2

## **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. Stable if protected from heat and exposure to air. Loses potency with time Protect from moisture

**Hazardous Polymerization:** Will not occur

**Conditions to Avoid:** Keep away from heat, sparks and flame.

**Materials to Avoid:** Reducing agents. Contact with acids. Avoid contamination of product with small amounts of water. Do not store near Crystex Insoluble Sulfur.

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

**Additional Guidelines:** Amine vapors can cause insoluble sulfur to revert to soluble form.

## **11. TOXICOLOGICAL INFORMATION**

### **Target Organs**

**Acute Oral LD50 (mg/kg):** 5300 mg/kg (Rat)

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

**Acute Inhalation LC50 (mg/l):** Not Determined

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

**Ingestion:** Illness may occur after a single swallowing of relatively large quantities of this material.

**Skin Contact:** Causes mild skin irritation. Mild Skin Irritation: signs/symptoms can include redness, swelling, and itching. May cause an allergic skin reaction.

**Inhalation:** May cause mild respiratory irritation. May irritate mouth, nose, and throat. Irritation (upper respiratory): signs/symptoms can include soreness of the nose and throat, coughing and sneezing.

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

**Aggravated Conditions:** Pulmonary disorders. Dermal ailments. Eye, skin, respiratory, blood, liver and/or kidney ailments. This material or its emissions may cause an allergic or sensitization reaction and thereby aggravate systemic disease.

**Carcinogenicity Comment:** This product or one of its ingredients present 0.1% or more is NOT listed as a carcinogen or suspected carcinogen by NTP, IARC or OSHA.

**Other:** Decomposition products and fumes from vulcanization and cross-linking may cause eye, skin and respiratory sensitization. May be a skin sensitizer. Product releases amine vapors during cure.

**Primary Irritation Effect:** Slightly irritating to skin and eyes. Possible sensitizer. Similar compounds have at least some potential for allergic skin reactions in humans after prolonged and repeated exposures.

**Carcinogenicity:** Negative in standard tests using bacteria and/or yeast cells.

**Genotoxicity:** Negative for genetic activity - in vitro tests. Negative for genetic activity - in vivo tests.



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#### **Reproductive/Developmental**

##### **Toxicity:**

No evidence of teratogenicity in animal studies using rats, mice and/or hamsters.

#### **12. ECOLOGICAL INFORMATION**

**Acute Fish Toxicity:** 96Hr LC50 Rainbow Trout = 5.4 mg/l. 96Hr LC50 Bluegill Sunfish = 7.9 mg/l. 96Hr LC50 Fathead Minnow = >1000 mg/l.

**Acute Crustaceans Toxicity:** 48Hr LC50 Daphnia Magna = 18.0 mg/l

**Acute Algae Toxicity:** 96Hr EC50 Algae (chlorophyll) = 1.1 ppm. 96Hr EC50 Algae (cell count) = 0.9 ppm.

**Octanol/Water Coefficient:** 4.93 log P

**Chemical Fate Information:** Biodegradability: 4% CO<sub>2</sub> evolution. Rapid degradation via photolysis and hydrolysis.

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

#### **13. DISPOSAL CONSIDERATIONS**

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

This material is not a RCRA hazardous waste. Bury in a licensed landfill or burn in an approved incinerator according to federal, state, and local regulations. Empty containers should be handled in a manner not to cause dusting during collection, transportation and disposal.

##### **Contaminated Packaging:**

If empty container retains product residues, all label precautions must be observed. Store away from ignition sources.

Transport with all closures in place. Return for reuse or dispose according to national or local regulations. Dispose of container according to national or local regulations.

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

**DOT:DOT Status:** Not Regulated

**DOT Shipping Name:** NONE

**DOT Reportable Quantity (lbs):** None

**ICAO/IATA:Status:** NOT REGULATED FOR TRANSPORTATION

**Proper Shipping Name:** None

**UN/NA Number:** NONE

**IMDG:Status:** Not Regulated

**Proper Shipping Name:** None

**TDG (Canada):Status:** Not Regulated

**Proper Shipping Name:** None

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

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

**TSCA (USA):** Listed

**Canadian DSL:** Listed

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

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



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**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:** None Found

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

**SARA 313 Chemical:** Component 2-Mercaptobenzothiazole.

**RCRA Status:** Not a RCRA waste.

**Other Regulations:**

**California Proposition 65:** NONE

**New Jersey Right-to-Know List:** Component 2-Mercaptobenzothiazole: New Jersey Substance ID# 3710.

Component Cyclohexylamine: New Jersey Substance ID# 0567.

**Pennsylvania Right to Know List:** Component Cyclohexylamine.

**Florida Right to Know:** Not Applicable.

**Minnesota Right to Know:** Component Cyclohexylamine.

**MA Right to Know Law:** Component Cyclohexylamine: Threshold 1 ppm.

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

Articles Intended for Repeated Use in Food Contact.

**Canadian Regulations**

**WHMIS Hazard Class:** D2B TOXIC MATERIALS / Materials Causing Other Toxic Effects

**NPRI:** Component 2-Mercaptobenzothiazole: NPRI Part 1, Group 1, ID# 148, minimum concentration 1%.

## **16. OTHER INFORMATION**

**Hazard Rating Systems:**

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

**NFPA Rating:** HEALTH 2, FLAMMABILITY 1, REACTIVITY 0

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

The Emergency Overview statement has changed for the product. (See Section 3). The eye and skin hazards of this

material have been reviewed and the hazard classification has been revised.

**Additional Information:** The Additive package for this product may contain some of the following at levels up to

1%: Butyl Oleate CAS# 142-77-8. White Mineral Oil CAS# 8042-47-5. Methylcellulose

CAS# 9004-67-5. Vegetable Oil (non-peanut) CAS# 8013-07-8. Component 2-

Mercaptobenzothiazole Disulfide appears on the WHMIS Ingredient Disclosure List

[Canada]. WHMIS Concentration threshold = 1%. Component Cyclohexylamine appears

on the WHMIS Ingredient Disclosure List. Concentration threshold = 0.1%. For



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component Cyclohexylamine: Clean Air Act Volatile Organic Compound (VOC). Listed as a Hazardous Chemical in CN, IL, LA, NY, NC and RI. Canadian Workplace OELs apply in Alberta, British Columbia, Ontario and Quebec. Mexican Workplace OELs apply.

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