Flexsys America L.P.

Material Safety Data Sheet

Draft Date: 2/11/00
MSDS Number: FLXP0085
CRYSTEX HS OT 10

Section 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product: **CRYSTEX HS OT 10**

MSDS Number: FLXP0085
Chemical Name: Polymerized Sulfur with a naphthenic dedusting oil
Synonyms: Insoluble, High-Stability Sulfur

Supplying Company: Flexsys America L.P.
260 Springside Drive
Akron, Ohio 44333 USA

EMERGENCY NUMBERS: CHEMTREC 800-424-9300 TOLL FREE [USA and TERRITORIES]
703-527-3887 ELSEWHERE [COLLECT CALLS ACCEPTED]
CANUTEC 613-996-6666 [Canada] SETIQ 91-800-00-214 [Mexico]

Section 2. COMPOSITION/INFORMATION ON INGREDIENTS

Component:	CAS Number:	Usage Percentage:
Polymeric Sulfur *	9035-99-8	81
Sulfur *	7704-34-9	9
Naphthenic Oils *	Various	10

*This material is identified as a hazardous chemical under the criteria of OSHA Hazard Communication Standard (29 CFR 1910.1200)and the Hazardous Products Act (Canada)

Section 3. HAZARDS IDENTIFICATION

WARNING!

Emergency Overview: BURNING SULFUR EMITS HIGHLY TOXIC GASES
DUST SUSPENDED IN AIR IGNITES EASILY
MAY CAUSE EYE IRRITATION
MAY CAUSE RESPIRATORY IRRITATION

Potential Routes of Exposure:

Eye Contact: May cause eye discomfort and physical irritation.

Skin Contact: Repeated or prolonged contact may cause mild skin irritation.

Inhalation: Exposure to a high concentration of the dust may cause respiratory tract irritation, coughing, sneezing and tears.

Ingestion: This material is considered practically non-toxic if swallowed.

Section 4. FIRST AID MEASURES

IN EYES: Flush promptly with large quantities of running water for at least 15 minutes. Remove contact lenses if worn. Hold eyelids apart to ensure complete rinsing of entire eye surfaces. DO NOT let victim rub eyes. Get medical attention.

ON SKIN: Wash all affected areas thoroughly with soap and water, remove clothing and equipment. Obtain medical attention if irritation occurs. Launder contaminated clothing and clean shoes before reuse.

INHALED: Remove the victim to fresh air. If not breathing, give artificial respiration. If breathing becomes difficult, oxygen may be given, preferably under a physician's direction. Get medical attention.

SWALLOWED: If the victim is conscious and alert,immediately give several glasses of water and induce vomiting. Keep victim's head below the hips to avoid aspiration of vomitus. Give fluids until the vomitus is clear. Get medical attention. If the victim is unconscious, monitor pulse, breathing and the airway. If breathing stops, begin artificial respiration. If the heart stops, begin cardiopulmonary resuscitation (CPR) and get immediate medical attention. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS OR CONVULSING PERSON.

MEDICAL CONDITIONS AGGRAVATED: Persons with pre-existing lung disease may be at an increased risk should this material be inhaled.

NOTE TO PHYSICIAN: No specific antidote is known. Treat the patient symptomatically.

Section 5. FIRE FIGHTING MEASURES

Yellow powder

Flash Point °F/°C:	405°F Sulfur / 207.22°C Sulfur
Autoignition Temp °F/°C:	450°F Sulfur / 232.22°C Sulfur
Flash Method:	Closed Cup
Extinguishing Method:	Use water fog, dry powder, foam or carbon dioxide extinguishing agents. Use of a direct high pressure water stream may disperse dust clouds and possibly cause an explosion.
Procedures and Equipment:	As in any fire, prevent human exposures to fire, smoke, fumes or the products of combustion. Evacuate non-essential persons from the fire area. Firefighters and other emergency responders should wear full-face positive pressure/pressure demand self-contained breathing apparatus, impervious protective clothing and boots. If possible to do safely, remove containers from the fire area. HIGH-PRESSURE WATER MAY DISPERSE DUST CLOUDS IN AIR WHICH COULD CAUSE A DUST EXPLOSION. USE ONLY A FINE WATER FOG to extinguish fires involving this material. Wet down thoroughly to prevent reignition. Reignition can occur at temperatures above 428°F (220°C). Dike fire water for later disposal. Do not allow contaminated water to enter storm drains, watersheds or waterways. Thoroughly decontaminate all equipment after use.
Hazardous Products:	Sulfur dioxide gas -- HIGHLY TOXIC -- Extreme exposures can cause pulmonary edema and death.
Fire & Explosion Hazards:	Potential for a dust explosion may exist. Sulfur dust is considered flammable and a fire hazard. Dust that is suspended

in air will ignite easily and result in an explosion in confined areas. Ignition can be caused by heat sources, friction and static electricity generated by the movement of the dust in air. Avoid possibility of dry powder plus friction causing static electricity in the presence of flammables.

LOWER EXPLOSIVE LIMIT (LEL) 35 g/m3
UPPER EXPLOSIVE LIMIT (UEL) 400 g/m3

Section 6. ACCIDENTAL RELEASE MEASURES

SPILL OR LEAK:
Wear dust-tight goggles, gloves, and use respiratory protection if ventilation is inadequate. Avoid breathing the dust of this material. Remove or turn off any ignition sources in the area.

Stop the source of the spill. Using a hand broom and non-sparking tools, sweep up spilled material being careful not to creat dust. Vacuuming SHOULD NOT be used because of static electricity and sparking. Return sweepings to stock or, if contaminated, place into a clean, dry chemical waste container for disposal.

CERCLA REPORTABLE QUANTITY (RQ) : Not Applicable

Section 7. HANDLING AND STORAGE

Handling: Keep away from all sources of heat, flame and sparks.
Avoid contact with eyes.
Avoid generating dust clouds in handling, transfer and cleanup.
Keep container closed until ready for use.
Wash thoroughly with soap and water after handling.
This material is corrosive to copper and copper alloys. When wet, sulfur will attack steel.
Carbon steel and nickle alloys are the prefered materials of construction for process equipment.

Storage: Store closed containers in a cool (below 30°C), dry, well-ventilated area.
Store away from oxidizing agents, amines and strong bases.
Avoid exposure to direct sunlight.

Section 8. EXPOSURE CONTROL/PERSONAL PROTECTION

EYE PROTECTON:
Dust tight goggles are recommended when handling this material.

SKIN PROTECTION:
Wear chemical resistant gloves and clothing to prevent skin contact. Consult glove manufacturer for appropriate glove type. Wash contaminated skin promptly with plenty of soap and water. Launder contaminated clothing and clean protective equipment before reuse.

RESPIRATORY PROTECTION:
Avoid breathing the dust of this material. Use NIOSH/MSHA approved respiratory protection equipment when airborn exposure is excessive. Observe respirator use limitations specified by NIOSH/MSHA or the manufacturer. Respiratory protection programs must comply with 29 CFR 1910.134.

VENTILATION:
General plant ventilation should be adequate in most conditions. Avoid the accumulation and circulation of dust in the air. If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment.

OTHER PROTECTION:
All food and smoking materials should be kept in a separate area away from the storage/use location. Eating, drinking, smoking and the application of cosmetics should be prohibited in areas where there is a potential for significant exposure to this material. Before eating, drinking, smoking or applying cosmetics, the hands, face and exposed skin should be thoroughly washed.

AIRBORNE EXPOSURE LIMITS

Product: Sulfur with naphthenic dedusting oil

OSHA PEL/8-hour TWA:	15 mg/m3 (Total Dust)
OSHA PEL/8-hour TWA:	5 mg/m3 (Respirable Dust)
ACGIH TLV/8-hour TWA:	10 mg/m3

Possible decomposition product: Sulfuric Acid

OSHA PEL/8-hour TWA:	1 mg/m3
NIOSH REL/8-hour TWA:	1 mg/m3
ACGIH TLV/8-hour TWA:	1 mg/m3
ACGIH STEL	3 mg/m3

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Yellow powder	
Odor:	Slight, characteristic	
Specific Gravity:	1.8 @ 68°F (20°C)	
Water Solubility:	Insoluble	
Other Solubility:	Partially soluble in organic solvents	
Density:	300kg/m3 (Bulk)	
Note:	Vapor Pressure:	<0.001 mm Hg @68°F
	Boiling Point:	832°F / 444.44°C
	Melting Point:	236°F / 113.33°C
	Mean particle size:	Less than 30 microns

Section 10. STABILITY AND REACTIVITY

Stability: This material is stable at ambient temperatures and atmospheric pressures. It is not self reactive and is not sensitive to physical impact. Reversion to soluble sulfur begins around 100°C.

Materials to Avoid: Keep this material from contact with strong oxidizers, strong bases and amines.

Decomposition: Polymeric sulfur decomposes to rhombic sulfur if heated or on contact with strong bases or amines.

Hazardous polymerization: Not expected to occur.

Section 11. TOXICOLOGICAL INFORMATION

Target Organs: Respiratory System, eyes, skin

Oral LD50 (rat):	>4000 mg/kg	Practically Non-Toxic
Dermal LD50 (rabbit):	>2000 mg/kg	Practically Non-Toxic
Eye Irritation (rabbit):		Moderately Irritating
Skin Irritation (rabbit):		Practically Non-Irritating

Skin: Single dose contact was non-irritating in animal tests. Prolonged or repeated skin contact may cause dermatitis and irritation. Sensitive individuals may have allergic reactions.

Eye: This material caused moderate irritation in animal tests.

Ingestion: Repeated ingestion may result in metabolic acidosis and production of hydrogen sulfide.

Inhalation: Short-term studies indicate inhalation of sulfur dust produces respiratory tract irritation and breathing difficulty. Prolonged or repeated inhalation may cause respiratory tract irritation and changes in pulmonary ventilation.

Carcinogenicity/mutagenicity: Negative in standard tests using bacteria and yeast cells. Not considered to be carinogenic by the IARC, NTP, OSHA or ACGIH.

Reproductive Effects: Not known
Neurotoxicity: Not known

Other toxic effects: This material is classified as a nuisance dust.

Section 12. ECOLOGICAL INFORMATION

Acute aquatic toxicity:

95Hr LC50 Bluegill:	>1000 mg/l	Practically Non-Toxic
95Hr LC50 Rainbow Trout:	>1000 mg/l	Practically non-Toxic
48Hr LC50 Daphnia magna:	>1000 mg/l	Practically Non-Toxic

Section 13. DISPOSAL CONSIDERATIONS

When discarded, this material is not a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA), 40 CFR Part 261.

Material that can not be used or chemically reprocessed should be burned in an approved incinerator equipped with a scrubber and afterburner, or landfilled in a secure landfill in accordance with all applicable federal, state and local regulations.

Empty containers retain product residue. Clean containers before disposal in accordance with all applicable local, state and federal regulations.

Section 14. TRANSPORT INFORMATION

Not regulated in transport.
Not controlled under TDG (Canada).

NOTE: Crystex mixtures containing at least 10% oil have very poor burning properties and self-extinguish shortly after ignition. As indicated in paragraph 5.3.1.3 of the IMDG

Code, mixtures which no longer exhibit the characteristics of a hazard class of a component (sulfur) should be classified as "non-hazardous" in transport.

Section 15. REGULATORY INFORMATION

Worldwide chemical inventories: ALL components of this mixture appear on the following:
TSCA (USA)
DSL (Canada)
EINECS (European Economic Community)
AICS (Australia)
ECL (Korea)
ENCS (Japan)

RCRA: Not Regulated
CERCLA: Not Applicable
DOT: Not Regulated - see Section 14
FDA: Not Regulated For Use in 21 CFR (due to naphthenic oil content)

SARA Hazard Notifications
Hazard Categories under Title III Rules: Immediate
Title III Section 313 Toxic Chemicals: None

WHMIS Classification: Not Controlled

Component "Sulfur" appears on the following:
Massachusetts Substance List
New Jersey Right-To-Know Hazardous Substance
Pennsylvania Hazardous Substance List

Component "Naphthenic Oil" appears on the following:
Massachusetts Substance List

Naphthenic oils used in this product may consist of one or more of the following CAS#:
64742-52-5 64742-53-6 64742-65-0

Hazard Rating	Health	Flammability	Reactivity	Other
HMIS	1	1	0	N/A
NFPA	1	1	0	N/A

Section 16. OTHER INFORMATION

Product use: Vulcanizing Agent
Last Revision: Add CANUTEC and SETIQ phone numbers (Section 1)

FOR NON-EMERGENCY INFORMATION: FLEXSYS AMERICAS PRODUCT SAFETY (330) 668-8281