

**MATERIAL SAFETY DATA SHEET**

**I. GENERAL INFORMATION**

<b>SUBSTANCE:</b> MOLYBDENUM DISULFIDE	<b>TRADE NAME &amp; SYNONYMS:</b> MOLYSULFIDE
<b>CHEMICAL FAMILY:</b> INORGANIC SALT	<b>MOLECULAR FORMULA:</b> MoS <sup>2</sup>
<b>PROPER DOT SHIPPING NAME:</b> MOLYBDENUM DISULFIDE	<b>CYPRUS PHONE #:</b> 1-602-929-4400
<b>MANUFACTURER:</b> 03432 HURON INDUSTRIES, INC.	<b>MANUFACTURER'S PHONE NUMBER:</b> 810-984-4213
<b>MANUFACTURER'S ADDRESS:</b> P.O. BOX 610104/PORT HURON, MI 48061	<b>EMERGENCY RESPONSE PHONE NUMBER:</b> 800-535-5053
<b>PREPARED BY:</b> DEBRA SULLIVAN <i>Debra Sullivan</i>	<b>DATE PREPARED:</b> January 7, 2009

**II. COMPOSITION/INFORMATION ON INGREDIENTS**

COMPONENTS	PERCENTAGE	THRESHOLD LIMIT VALUE (UNITS)
MOLYBDENUM DISULFIDE (CAS NUMBER 1317-33-5)	99+	SEE SECTION VIII

**III. PHYSICAL DATA**

<b>MOLECULAR WEIGHT:</b> 160.06	<b>SPECIFIC GRAVITY:</b> 4.80 @ 14 C
<b>VAPOR PRESSURE :</b> APPROX 0 @ 20 C	<b>MELTING POINT:</b> >599 F (>315 C) (OXIDIZES)
<b>VAPOR DENSITY (AIR = 1):</b> NOT AVAILABLE	<b>SOLVENT SOLUBILITY:</b> SOLUBLE IN HOT SULFURIC ACID, AQUA REGIA, NITRIC ACID; INSOLUBLE IN DILUTE ACID.
<b>WATER SOLUBILITY:</b> INSOLUBLE	<b>APPEARANCE &amp; ODOR:</b> ODORLESS, DARK GRAY TO BLACK POWDER.

**IV. FIRE & EXPLOSION HAZARD DATA**

<b>EMERGENCY OVERVIEW:</b> ODORLESS, BLACK LUSTROUS POWDER. NO SIGNIFICANT TARGET EFFECTS REPORTED.
<b>AUTO IGNITION TEMPERATURE:</b> 554 F (290 C) (LAYER); 1058 F (570 C) (CLOUD)
<b>EXTINGUISHING MEDIA:</b> EXTINGUISH USING AGENT SUITABLE FOR TYPE OF SURROUNDING FIRE.
<b>SPECIAL FIRE FIGHTING PROCEDURES:</b> NO ACUTE HAZARD. MOVE CONTAINER FROM FIRE AREA IF POSSIBLE. AVOID BREATHING VAPORS OR DUSTS; KEEP UPWIND.
<b>FIRE &amp; EXPLOSION HAZARDS:</b> SLIGHT FIRE HAZARD WHEN EXPOSED TO HEAT OR FLAME.
<b>NFPA RATINGS (SCALE 0-4):</b> HEALTH - 1 FLAMMABILITY - 1 REACTIVITY - 0

**V. HEALTH HAZARD DATA**

<b>CARCINOGEN - OSHA PROGRAM:</b> NO	<b>CARCINOGEN - IARC/NTP PROGRAM:</b> NO
<b>POTENTIAL HEALTH EFFECTS:</b> <b>SHORT TERM EXPOSURE</b> -- MAY CAUSE IRRITATION TO EYES AND SKIN. <b>LONG TERM EFFECTS</b> -- NO INFORMATION ON SIGNIFICANT ADVERSE EFFECTS.	
<b>EMERGENCY FIRST AID:</b> <b>INHALATION</b> -- REMOVE FROM EXPOSURE AREA TO FRESH AIR IMMEDIATELY. IF BREATHING HAS STOPPED, PERFORM ARTIFICIAL RESPIRATION. KEEP PERSON WARM AND AT REST. GET MEDICAL ATTENTION IMMEDIATELY. <b>SKIN CONTACT</b> -- REMOVE CONTAMINATED CLOTHING AND SHOES IMMEDIATELY. WASH AFFECTED AREA WITH SOAP OR MILD DETERGENT AND LARGE AMOUNTS OF WATER UNTIL NO EVIDENCE OF CHEMICAL REMAINS (APPROXIMATELY 15-20 MINUTES). GET MEDICAL ATTENTION. <b>EYE CONTACT</b> -- WASH EYES IMMEDIATELY WITH LARGE AMOUNTS OF WATER OR NORMAL SALINE, OCCASIONALLY LIFTING UPPER AND LOWER LIDS, UNTIL NO EVIDENCE OF CHEMICAL REMAINS (APPROXIMATELY 15-20 MINUTES). GET MEDICAL ATTENTION. <b>INGESTION</b> -- IF VOMITING OCCURS, KEEP HEAD LOWER THAN HIPS TO PREVENT ASPIRATION. GET MEDICAL ATTENTION IF NEEDED.	

**VI. REACTIVITY DATA**

<b>STABILITY</b>     <b>UNSTABLE</b>   X   <b>STABLE</b>	<b>REACTIVITY:</b> STABLE UNDER NORMAL TEMPERATURES AND PRESSURES. <b>CONDITIONS TO AVOID:</b> PREVENT DISPERSION OF DUST IN AIR.
<b>INCOMPATIBILITY MATERIAL TO AVOID:</b>	<b>HYDROGEN PEROXIDE</b> -- VIGOROUS OR VIOLENT REACTION. <b>OXIDIZERS (STRONG)</b> -- FIRE AND EXPLOSION HAZARD. <b>POTASSIUM NITRATE</b> -- FORMS EXPLOSIVE MIXTURE.
<b>HAZARDOUS POLYMERIZATION</b>     <b>MAY OCCUR</b>   X   <b>WILL NOT OCCUR</b>	<b>CONDITIONS TO AVOID:</b> HAZARDOUS POLYMERIZATION HAS NOT BEEN REPORTED TO OCCUR UNDER NORMAL TEMPERATURES AND PRESSURES.
<b>HAZARDOUS DECOMPOSITION PRODUCTS:</b> THERMAL DECOMPOSITION MAY RELEASE TOXIC AND/OR HAZARDOUS GASES.	

**VII. ENVIRONMENTAL PRODUCTION PROCEDURES**

<b>SPILL RESPONSE:</b> <b>OCCUPATIONAL SPILL</b> -- FOR LARGE SPILLS, SWEEP UP WITH A MINIMUM OF DUSTING AND PLACE INTO SUITABLE CLEAN, DRY CONTAINERS FOR RECLAMATION OR LATER DISPOSAL. RESIDUE SHOULD BE CLEANED UP USING A HIGH-EFFICIENCY PARTICULATE FILTER VACUUM.
<b>DISPOSAL METHOD:</b> OBSERVE ALL FEDERAL, STATE AND LOCAL REGULATIONS WHEN DISPOSING OF THIS SUBSTANCE.
<b>PRECAUTIONS FOR SAFE HANDLING AND STORAGE:</b> OBSERVE ALL FEDERAL, STATE AND LOCAL REGULATIONS WHEN STORING OR DISPOSING OF THIS SUBSTANCE. STORE AWAY FROM INCOMPATIBLE SUBSTANCES.

### VIII. SPECIAL PROTECTION INFORMATION

**EYE PROTECTION:** EMPLOYEE MUST WEAR SPLASH-PROOF OR DUST-RESISTANT SAFETY GOGGLES TO PREVENT EYE CONTACT WITH THIS SUBSTANCE. **EMERGENCY EYE WASH** -- WHERE THERE IS ANY POSSIBILITY THAT AN EMPLOYEE'S EYES MAY BE EXPOSED TO THIS SUBSTANCE, THE EMPLOYER SHOULD PROVIDE AN EYE WASH FOUNTAIN WITHIN THE IMMEDIATE WORK AREA FOR EMERGENCY USE.

**SKIN PROTECTION:** PROTECTIVE CLOTHING NOT REQUIRED. AVOID REPEATED OR PROLONGED CONTACT WITH HIS SUBSTANCE.  
**GLOVES** -- PROTECTIVE GLOVES NOT REQUIRED BUT RECOMMENDED.

**EXPOSURE LIMITS --- MOLYBDENUM, INSOLUBLE COMPOUNDS (AS Mo) :**  
10 mg/m<sup>3</sup> I ACGIH TWA, 3 mg/m<sup>3</sup> R ACGIH TWA.

**VENTILATION RECOMMENDED:** PROVIDE LOCAL EXHAUST VENTILATION AND/OR GENERAL DILUTION VENTILATION TO MEET PUBLISHED EXPOSURE LIMITS.

**RESPIRATOR:** THE FOLLOWING RESPIRATORS ARE RECOMMENDED BASED ON INFORMATION FOUND IN THE PHYSICAL DATA, TOXICITY AND HEALTH EFFECTS SECTIONS. THEY ARE RANKED IN ORDER FROM MINIMUM TO MAXIMUM RESPIRATORY PROTECTION. THE SPECIFIC RESPIRATOR SELECTED MUST BE BASED ON CONTAMINATION LEVELS FOUND IN THE WORK PLACE, MUST BE BASED ON THE SPECIFIC OPERATION, MUST NOT EXCEED THE WORKING LIMITS OF THE RESPIRATOR AND MUST BE JOINTLY APPROVED BY THE NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH AND THE MINE SAFETY AND HEALTH ADMINISTRATION (NIOSH-MSHA).

- ANY DUST, MIST, AND FUME RESPIRATOR.
- ANY CHEMICAL CARTRIDGE RESPIRATOR WITH A DUST, MIST, AND FUME FILTER.
- ANY POWERED AIR-PURIFYING RESPIRATOR WITH A DUST, MIST, AND FUME FILTER.
- ANY TYPE 'C' SUPPLIED-AIR RESPIRATOR WITH A FULL FACE PIECE OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE OR WITH A FULL FACE PIECE, HELMET OR HOOD OPERATED IN CONTINUOUS-FLOW MODE.
- ANY SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACE PIECE. OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE.

**FIREFIGHTING PROTECTIVE EQUIPMENT:** FULL FIREFIGHTING TURN-OUT GEAR (BUNKER GEAR), ANY SUPPLIED-AIR RESPIRATOR WITH FULL FACE PIECE AND OPERATED IN A PRESSURE-DEMAND OR OTHER POSITIVE-PRESSURE MODE IN COMBINATION WITH A SEPARATE ESCAPE SUPPLY. ANY SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACE PIECE.

### IX. REGULATORY INFORMATION

U.S. REGULATIONS		SARA HAZARD CATEGORIES, SARA SECTIONS 311/312 (40 CFR 370.21):	
TSCA INVENTORY STATUS:	Y	ACUTE HAZARD:	N
TSCA 12 (b) EXPORT NOTIFICATION:	NOT LISTED	CHRONIC HAZARD:	N
CERCLA SECTION 103 (40 CFR 302.4):	N	FIRE HAZARD:	N
SARA SECTION 302 (40 CFR 355.30):	N	REACTIVITY HAZARD:	N
SARA SECTION 304 (40 CFR 355.40):	N	SUDDEN RELEASE HAZARD:	N
SARA SECTION 313 (40 CFR 372.65):	N		
OSHA PROCESS SAFETY (29 CFR 1910.119):	N		
STATE REGULATIONS			
CALIFORNIA PROPOSITION 65:	N		

### X. TOXICOLOGY INFORMATION

<b>CARCINOGEN STATUS:</b> NONE	<b>ACUTE TOXICITY LEVEL AND TARGET EFFECTS:</b> NO DATA AVAILABLE
<b>INHALATION HEALTH EFFECTS</b> <b>ACUTE EXPOSURE:</b> NO SPECIFIC DATA AVAILABLE. INSOLUBLE MOLYBDENUM COMPOUNDS ARE CHARACTERIZED BY LOW TOXICITY.	<b>CHRONIC EXPOSURE:</b> 25 ONE-HOUR EXPOSURES TO 490 mg/m <sup>3</sup> CAUSED NO EFFECTS IN ALL ANIMALS TESTED EXCEPT ONE WHICH DIED AFTER THE THIRD EXPOSURE.
<b>SKIN CONTACT HEALTH EFFECTS</b> <b>ACUTE EXPOSURE:</b> DERMATITIS HAS NOT BEEN REPORTED IN EXPOSED WORKERS.	<b>CHRONIC EXPOSURE:</b> NO DATA AVAILABLE.
<b>EYE CONTACT HEALTH EFFECTS</b> <b>ACUTE EXPOSER:</b> NO SPECIFIC DATA AVAILABLE. SOME INSOLUBLE MOLYBDENUM COMPOUNDS ARE IRRITATING TO THE EYES.	<b>CHRONIC EXPOSURE:</b> NO DATA AVAILABLE.
<b>INGESTION HEALTH EFFECTS</b> <b>ACUTE EXPOSURE:</b> NO DATA AVAILABLE.	<b>CHRONIC EXPOSURE:</b> RATS FED UP TO 500 mg DAILY FOR 44 DAYS SHOWED NO TOXIC SIGNS AND ALL GAINED WEIGHT.

### XI. ECOLOGICAL INFORMATION

**ACUTE AQUATIC TOXICITY:** TEST CONDUCTED IN 1990 AT LEVELS UP TO 750 mg/l POWDERED MoS<sub>2</sub> RESULTED IN 0 MORTALITY TO RAINBOW TROUT (SALMO GAIARDNERI)

THIS PRODUCT IS PURCHASED FROM CLIMAX MOLYBDENUM COMPANY. THIS MATERIAL SAFETY DATA SHEET AND THE INFORMATION IT CONTAINS IS OFFERED TO YOU IN GOOD FAITH AS ACCURATE. WE HAVE REVIEWED ANY INFORMATION CONTAINED IN THIS DATA SHEET WHICH WE RECEIVED FROM SOURCES OUTSIDE OUR COMPANY. WE BELIEVE THAT INFORMATION TO BE CORRECT BUT CANNOT GUARANTEE ITS ACCURACY OR COMPLETENESS. HEALTH AND SAFETY PRECAUTIONS IN THIS DATA SHEET MAY NOT BE ADEQUATE FOR ALL INDIVIDUALS AND/OR SITUATIONS. IT IS THE USER'S OBLIGATION TO EVALUATE AND USE THIS PRODUCT SAFELY AND TO COMPLY WITH ALL APPLICABLE LAWS AND REGULATIONS. NO STATEMENT MADE IN THIS DATA SHEET SHALL BE CONSTRUED AS A PERMISSION OR RECOMMENDATION FOR THE USE OF ANY PRODUCT IN A MANNER THAT MIGHT INFRINGE EXISTING PATENTS. NO WARRANTY IS MADE, EITHER EXPRESS OR IMPLIED.

# MATERIAL SAFETY DATA SHEET

## I. GENERAL INFORMATION

<b>CHEMICAL NAME &amp; SYNONYMS:</b> 2-PROPANOL	<b>TRADE NAME &amp; SYNONYMS:</b> ISOPROPANOL / ISOPROPYL ALCOHOL 99%
<b>CHEMICAL FAMILY:</b> ALCOHOLS	<b>FORMULA:</b> C <sub>3</sub> H <sub>8</sub> O
<b>PROPER DOT SHIPPING NAME:</b> ISOPROPANOL	<b>HAZARD CLASS:</b> 3
<b>PACKING GROUP:</b> II	<b>UN NUMBER:</b> UN 1219
<b>MANUFACTURER:</b> 03432 HURON INDUSTRIES, INC.	<b>MANUFACTURER'S PHONE NUMBER:</b> 810-984-4213
<b>MANUFACTURER'S ADDRESS:</b> P.O. BOX 610104/PORT HURON, MI 48061	<b>EMERGENCY RESPONSE PHONE NUMBER:</b> 800-535-5053
<b>PREPARED BY:</b> DEBRA SULLIVAN	<b>DATE PREPARED:</b> April 23, 2009

*Debra Sullivan*

**UN1219, ISOPROPANOL, 3, II  
ERG GUIDE 129 - FLAMMABLE LIQUID**

## II. INGREDIENTS

PRINCIPAL HAZARDOUS COMPONENTS	WEIGHT PERCENT
ISOPROPYL ALCOHOL (67-63-0)	100%

TYPICAL COMPOSITION IS GIVEN, AND IT MAY VARY.

## III. PHYSICAL DATA

<b>BOILING POINT:</b> 82°C (180°F)	<b>SPECIFIC GRAVITY (20° C):</b> 0.786
<b>VAPOR PRESSURE at 20°C:</b> 43.3 mbar	<b>VISCOSITY (20° C):</b> 2.38 mPa.s
<b>VAPOR DENSITY:</b> 2.1	<b>EVAPORATION RATE (N-Butyl Acetate = 1):</b> 1.7
<b>SOLUBILITY IN WATER:</b> COMPLETE	<b>Octanol/Water Partition Coefficient: P:</b> 1.4; <b>Log P:</b> 0.14
<b>APPEARANCE &amp; ODOR:</b> COLORLESS; ALCOHOL	<b>ODOR THRESHOLD:</b> 22 ppm
<b>MELTING POINT:</b> -90°C (-130°F)	<b>PHYSICAL FORM:</b> LIQUID
<b>THERMAL DECOMPOSITION TEMPERATURE:</b> (HPDTA) NO ISOTHERM TO BOILING (AT 150 psig)	

## IV. FIRE & EXPLOSION HAZARD DATA

<b>FLASH POINT:</b> 13°C (55.4°F) T.C.C.	<b>AUTOIGNITION TEMPERATURE:</b> 432°F (809.6°C) ASTM D2155
<b>EXTINGUISHING MEDIA:</b> WATER SPRAY, DRY CHEMICAL, CARBON DIOXIDE, ALCOHOL FOAM.	
<b>GENERAL HAZARD:</b> AVOID CONTACT WITH EYES AND PROLONGED OR REPEATED CONTACT WITH SKIN. DO NOT TASTE OR SWALLOW. USE ONLY WITH ADEQUATE VENTILATION. WASH THOROUGHLY AFTER HANDLING.	
<b>FIRE FIGHTING:</b> WEAR SELF-CONTAINED BREATHING APPARATUS (SCBA) AND PROTECTIVE CLOTHING. FIGHT FIRE FROM A PROTECTED LOCATION. WATER MAY BE INEFFECTIVE IN FIGHTING THE FIRE. USE WATER SPRAY TO KEEP FIRE-EXPOSED CONTAINERS COOL.	
<b>HAZARDOUS COMBUSTION PRODUCTS:</b> CARBON MONOXIDE, CARBON DIOXIDE.	

**SPECIAL FIRE & EXPLOSION HAZARDS:** VAPORS MAY CAUSE A FLASH FIRE OR IGNITE EXPLOSIVELY. VAPORS MAY TRAVEL CONSIDERABLE DISTANCE TO A SOURCE OF IGNITION AND FLASH BACK. PREVENT BUILDUP OF VAPORS OR GASES TO EXPLOSIVE CONCENTRATIONS. FORMS EXPLOSIVE PEROXIDES WHICH MY BE SHOCK SENSITIVE.

**HMIS RATINGS:** HEALTH - 2 FLAMMABILITY - 3 REACTIVITY - 1 PERSONAL PROTECTION - H

#### V. HEALTH HAZARD DATA

**THRESHOLD LIMIT VALUE:** SEE BELOW

**OSHA THRESHOLD LIMIT VALUE:** SEE BELOW

**ACGIH THRESHOLD LIMIT VALUE:** SEE BELOW

**WARNING!** FLAMMABLE LIQUID AND VAPOR. CAUSES EYE IRRITATION, HIGH VAPOR CONCENTRATIONS MAY CAUSE DROWSINESS AND IRRITATION OF THE EYES OR RESPIRATORY TRACT. PROLONGED OR REPEATED SKIN CONTACT MAY CAUSE DRYING, CRACKING, OR IRRITATION FORMS EXPLOSIVE PEROXIDES. AVOID BREATHING HIGH VAPOR CONCENTRATIONS.

COUNTRY SPECIFIC EXPOSURE LIMITS HAVE NOT BEEN ESTABLISHED OR ARE NOT APPLICABLE UNLESS LISTED BELOW.

##### ISOPROPYL ALCOHOL

US. NIOSH: POCKET GUIDE TO CHEMICAL HAZARDS

RECOMMENDED EXPOSURE LIMIT (REL): 400 ppm, 980 mg/m<sup>3</sup>

SHORT TERM EXPOSURE LIMIT (STEL): 500 ppm, 1,225 mg/m<sup>3</sup>

US. OSHA TABLE Z-1 LIMITS FOR AIR CONTAMINANTS (29 CFR 1910.1000)

PEL: 400 ppm, 980 mg/m<sup>3</sup>

US. ACGIH NOTICE OF INTENDED CHANGES (NIC) TO THRESHOLD LIMIT VALUES

TIME WEIGHTED AVERAGE (TWA): 200 ppm

SHORT TERM EXPOSURE LIMIT (STEL): 400 ppm

##### ISOPROPANOL (ISOPROPYL ALCOHOL) AND 2-PROPANOL

US. ACGIH NOTICE OF INTENDED CHANGES (NIC) TO THRESHOLD LIMIT VALUES

TIME WEIGHTED AVERAGE (TWA): 200 ppm

SHORT TERM EXPOSURE LIMIT (STEL): 400 ppm

**FIRST AID:** **EYE** - IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. IF EASY TO DO, REMOVE CONTACT LENSES. GET MEDICAL ATTENTION. IN CASE OF IRRITATION FORM AIRBORNE EXPOSURE, MOVE TO FRESH AIR. **SKIN** - WASH WITH SOAP AND WATER. REMOVE CONTAMINATED CLOTHING AND SHOES. GET MEDICAL ATTENTION IF SYMPTOMS OCCUR. WASH CONTAMINATED CLOTHING AND THOROUGHLY CLEAN SHOES BEFORE REUSE. **INHALATION** - MOVE TO FRESH AIR. TREAT SYMPTOMATICALLY. **INGESTION** - SEEK MEDICAL ADVICE. **WITH ANY EXPOSURE GET MEDICAL ATTENTION IF SYMPTOMS PERSIST!**

**PERSONAL PROTECTION:** **EYE:** WEAR SAFETY GLASSES WITH SIDE SHIELDS (OR GOGGLES). WEAR A FULL-FACE RESPIRATOR, IF NEEDED. **SKIN:** FOR OPERATIONS WHERE PROLONGED OR REPEATED SKIN CONTACT MAY OCCUR, CHEMICAL-RESISTANT GLOVES SHOULD BE WORN. CONTACT HEALTH AND SAFETY PROFESSIONAL OR MANUFACTURER FOR SPECIFIC INFORMATION. **INHALATION:** IF ENGINEERING CONTROLS DO NOT MAINTAIN AIRBORNE CONCENTRATIONS BELOW RECOMMENDED EXPOSURE LIMITS (WHERE APPLICABLE) OR TO AN ACCEPTABLE LEVEL (IN COUNTRIES WHERE EXPOSURE LIMITS HAVE NOT BEEN ESTABLISHED), AN APPROVED RESPIRATOR MUST BE WORN. IN THE UNITED STATES OF AMERICA, IF RESPIRATORS ARE USED, A PROGRAM SHOULD BE INSTITUTED TO ASSURE COMPLIANCE WITH OSHA STANDARD 63 FR 1152, JANUARY 8, 1998. RESPIRATOR TYPE: AIR-PURIFYING RESPIRATOR WITH AN APPROPRIATE, GOVERNMENT APPROVED (WHERE APPLICABLE), AIR-PURIFYING FILTER, CARTRIDGE OR CANISTER. CONTACT HEALTH AND SAFETY PROFESSIONAL OR MANUFACTURER FOR SPECIFIC INFORMATION. **RECOMMENDED DECONTAMINATION FACILITIES:** EYE BATH, WASHING FACILITIES, SAFETY SHOWER.

**VENTILATION:** GOOD GENERAL VENTILATION (TYPICALLY 10 AIR CHANGES PER HOUR) SHOULD BE USED. VENTILATION RATES SHOULD BE MATCHED TO CONDITIONS. IF APPLICABLE, USE PROCESS ENCLOSURES, LOCAL EXHAUST VENTILATION, OR OTHER ENGINEERING CONTROLS TO MAINTAIN AIRBORNE LEVELS BELOW RECOMMENDED EXPOSURE LIMITS. IF EXPOSURE LIMITS HAVE NOT BEEN ESTABLISHED, MAINTAIN AIRBORNE LEVELS TO AN ACCEPTABLE LEVEL.

#### VI. REACTIVITY DATA

**STABILITY** | | **UNSTABLE**  
| X | **STABLE**

**CONDITIONS TO AVOID:** FORMS EXPLOSIVE PEROXIDE ON CONCENTRATION.

**INCOMPATIBILITY**

**MATERIAL TO AVOID:** REACTS VIOLENTLY WITH STRONG OXIDIZING AGENTS, CROTONALDEHYDE.

**HAZARDOUS POLMERIZATION**

CONDITIONS TO AVOID: NONE KNOWN

| | MAY OCCUR

| X | WILL NOT OCCUR

**VII. ENVIRONMENTAL PRODUCTION PROCEDURES**

**PERSONAL PRECAUTIONS:** USE PERSONAL PROTECTIVE EQUIPMENT. ELIMINATE ALL IGNITION SOURCES. ABSORB SPILL WITH VERMICULITE OR OTHER INERT MATERIAL, THEN PLACE IN A CONTAINER FOR CHEMICAL WASTE.

**FOR LARGE SPILLS:** USE WATER SPRAY TO DISPERSE VAPORS AND DILUTE SPILL TO A NONFLAMMABLE MIXTURE. PREVENT RUNOFF FROM ENTERING DRAINS, SEWERS, OR STREAMS. DIKE FOR LATER DISPOSAL.

**WASTE DISPOSAL METHODS:** DISCHARGE, TREATMENT, OR DISPOSAL MAY BE SUBJECT TO NATIONAL, STATE, OR LOCAL LAWS. INCINERATE. SINCE EMPTIED CONTAINERS RETAIN PRODUCT RESIDUE, FOLLOW LABEL WARNINGS EVEN AFTER CONTAINER IS EMPTIED. RESIDUAL VAPORS MAY EXPLODE ON IGNITION; DO NOT CUT, DRILL, GRIND, OR WELD ON OR NEAR THIS CONTAINER.

**VIII. SPECIAL PROTECTION INFORMATION**

**HANDLING:** KEEP AWAY FROM HEAT, SPARKS, AND FLAME. KEEP FROM CONTACT WITH OXIDIZING MATERIALS. USE ONLY WITH ADEQUATE VENTILATION. COMPLY WITH ALL NATIONAL, STATE, AND LOCAL CODES PERTAINING TO THE STORAGE, HANDLING, DISPENSING, AND DISPOSAL OF FLAMMABLE LIQUIDS. DO NOT EXPOSE TO AIR. AFTER OPENING, PURGE CONTAINER WITH NITROGEN BEFORE RECLOSING. PERIODICALLY TEST FOR PEROXIDE FORMATION ON LONG-TERM STORAGE. IF PEROXIDE FORMATION IS SUSPECTED, DO NOT OPEN OR MOVE CONTAINER. DO NOT ALLOW TO EVAPORATE TO NEAR DRYNESS. DISTILL WITH CAUTION. ADDITION OF WATER OR APPROPRIATE REDUCING MATERIALS WILL LESSEN PEROXIDE FORMATION.

**STORAGE:** KEEP CONTAINER TIGHTLY CLOSED AND IN A WELL-VENTILATED PLACE. STORE AWAY FROM HEAT AND LIGHT.

**IX. TOXICOLOGICAL INFORMATION**

**ACUTE TOXICITY: SKIN:** THIS MATERIAL HAS A LOW POTENTIAL TO CAUSE ALLERGIC SKIN REACTIONS; HOWEVER, CAUSES OF HUMAN SKIN SENSITIZATION HAVE BEEN REPORTED. ACUTE TOXICITY DATA, IF AVAILABLE, ARE LISTED BELOW.

ORAL LD-50: (RAT)	5,800 mg/kg	INHALATION LC-50: (RAT)	8 H: 12000 ppm
ORAL LD-50: (RABBIT)	7,900 mg/kg	SKIN IRRITATION (RABBIT)	SLIGHT
ORAL LD-50: (DOG)	6,200 mg/kg	EYE IRRITATION (RABBIT)	MODERATE

**X. ECOLOGICAL INFORMATION**

**ENVIRONMENTAL FATE:** ACUTE TOXICITY DATA, IF AVAILABLE, ARE LISTED BELOW.

<b>OXYGEN DEMAND DATA:</b>	BOD-5: 1,190 - 1,720 mg/g	BOS-20: 1,680 mg/g
	COD (CHEMICAL ON DEMAND): 2,230 mg/g	ThBOD: 2,400 mg/g

**ECOTOXICITY: ACUTE AQUATIC EFFECTS DATA:** 96 h LC-50 (FATHEAD MINNOW): >1,000 U1/L  
48 h LC-50 (GOLDEN ORFE): 8,70 - 9,80 mg/L  
96 h LC-50 (DAPHNIA): >1,000 u1/L

**XI. REGULATORY INFORMATION**

**SARA 311-312 HAZARD CLASSIFICATION(S):** IMMEDIATE (ACUTE) HEALTH HAZARD FIRE HAZARD.

**SARA 311:** NONE, UNLESS LISTED BELOW.

**CARCINOGENICITY CLASSIFICATION (COMPONENTS PRESENT AT 0.1% OR MORE):** NONE, UNLESS LISTED BELOW.  
**TSCA (US TOXIC SUBSTANCE CONTROL ACT):** THIS PRODUCT IS LISTED ON THE TSCA INVENTORY. ANY IMPURITIES PRESENT IN THIS PRODUCT ARE EXEMPT FROM LISTING.

**DSL (CANADIAN DOMESTIC SUBSTANCE LIST) AND CEPA (CANADIAN ENVIRONMENTAL PROTECTION ACT):** THIS PRODUCT IS LISTED ON THE DSL. ANY IMPURITIES PRESENT IN THIS PRODUCT ARE EXEMPT FROM LISTING.

**EINECS (EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICAL SUBSTANCES):** THIS PRODUCT IS LISTED ON EINECS OR OTHERWISE COMPLIES WITH EINECS REQUIREMENTS. EINECS NUMBER: 200-661-7

**AICS/NICNAS (AUSTRALIAN INVENTORY OF CHEMICAL SUBSTANCES/NATIONAL INDUSTRIAL CHEMICALS NOTIFICATION AND ASSESSMENT SCHEME):** THIS PRODUCT IS LISTED ON AICS OR OTHERWISE COMPLIES WITH NICNAS.

**MITI (JAPANESE HANDBOOK OF EXISTING AND NEW CHEMICAL SUBSTANCES):** THIS PRODUCT IS LISTED IN THE HANDBOOK OR HAS BEEN APPROVED IN JAPAN BY NEW SUBSTANCE NOTIFICATION.

**ECL (KOREAN TOXIC SUBSTANCES CONTROL ACT):** THIS PRODUCT IS LISTED ON THE KOREAN INVENTORY OR OTHERWISE COMPLIES WITH THE KOREAN TOXIC SUBSTANCES CONTROL ACT.

**PICCS (PHILIPPINES INVENTORY):** THIS PRODUCT IS LISTED ON PICCS OR OTHERWISE COMPLIES WITH PICCS.

**IECSC (INVENTORY OF EXISTING CHEMICAL SUBSTANCES IN CHINA):** ALL COMPONENTS OF THIS PRODUCT ARE LISTED ON THE IECSC.