MATERIAL SAFETY DATA SHEET

I. GENERAL INFORMATION

CHEMICAL NAME & SYNONYMS: MOLYBDENUM DISULFIDE IN ISOPROPANOL LUBRICATING OIL, MOL	**TRADE NAME & SYNONYMS:** LUBRICANT, MOLYBDENUM DISULFIDE IN ISOPROPANOL
CHEMICAL FAMILY: ALCOHOLS	**FORMULA:** (CH 3)2 CHOH
PROPER DOT SHIPPING NAME: ISOPROPANOL	**HAZARD CLASS:** 3
PACKING GROUP: II	**UN NUMBER:** UN 1219
MANUFACTURER: 03432 HURON INDUSTRIES, INC.	**MANUFACTURER'S PHONE NUMBER:** 810-984-4213
MANUFACTURER'S ADDRESS: P.O. BOX 610104/PORT HURON, MI 48061	**EMERGENCY RESPONSE PHONE NUMBER:** 800-535-5053
NSN: 1HM 9150-01-206-3627 X3	**CONTRACT NUMBER:** N00104-06-P-BS32
PREPARED BY: DEBRA SULLIVAN	**DATE PREPARED:** January 7, 2008

Debra Sullivan

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

II. INGREDIENTS

PRINCIPAL HAZARDOUS COMPONENTS	PERCENT	THRESHOLD LIMIT VALUE (UNITS)
MOLYBDENUM DISULFIDE (CAS NUMBER 1317-33-5)	Greater Than 65%	SEE SECTION VIII
ISOPROPYL ALCOHOL (67-63-0)	Less Than 35%	200 PPM (TWA & ACGIH) 400 PPM (STEL, OSHA, TWA & ACGIH)

THERE IS NO SPECIFIC QUALIFIER (I.E. AEROSOL) LISTED IN THE FORM COLUMN FOR A PARTICULAR LIMIT, THE LISTED LIMIT INCLUDES ALL AIRBORNE FORMS OF THE SUBSTANCE THAT CAN BE INHALED. EXPOSURE BY THE CUTANEOUS (SKIN) ROUTE IS NOT A POTENTIAL SIGNIFICANT CONTRIBUTOR TO OVERALL EXPOSURE.

III. PHYSICAL DATA

BOILING POINT, 760 mm Hg: 82°C (180°F)	**SPECIFIC GRAVITY (H20 = 1):** 1.84
VAPOR PRESSURE at 20°C: 33 mmHg	**PERCENT VOLATILES (by weight):** 100
VAPOR DENSITY (AIR = 1): 2.1	**EVAPORATION RATE (Butyl Acetate = 1):** 2.9
SOLUBILITY IN WATER by WT: INSOLUBLE	**OCTANOL/WATER PARTITION COEFFICIENT - MEASURED:** 0.14
APPEARANCE & ODOR: ; DARK GRAY TO BLACK & SLIGHT ETHANOL/ACETONE-LIKE	**LIQUID DENSITY:** 0.785 g/cm^3
SOLVENT SOLUBILITY: SOLUBLE IN HOT SULFURIC ACID, AQUA REGIA, NITRIC ACID; INSOLUBLE IN DILUTE ACID	**MELTING POINT:** >599 F (>315 C) (OXIDIZES)
FREEZING POINT: -89°C (-127°F)	**PHYSICAL STATE:** LIQUID

IV. FIRE & EXPLOSION HAZARD DATA

FLASH POINT (TEST METHOD): 53°F (12°C) T.C.C. ASTM D 56	**AUTO IGNITION TEMPERATURE:** NO TEST DATA AVAILABLE	
FLAMMABLE LIMITS IN AIR: % BY VOLUME LOWER: 2.0 UPPER: 12.7 @ 200°F (93°C)	**LEL:** 2.0	**UEL:** 12.7

EXTINGUISHING MEDIA: WATER FOG OR FINE SPRAY. DRY CHEMICAL FIRE EXTINGUISHERS. CARBON DIOXIDE FIRE EXTINGUISHERS. FOAM. DO NOT USE DIRECT WATER STREAM. STRAIGHT OR DIRECT WATER STREAMS MAY NOT BE EFFECTIVE TO EXTINGUISH FIRE. ALCOHOL RESISTANT FOAMS (ATC TYPE) ARE PREFERRED. GENERAL PURPOSE SYNTHETIC FOAMS (INCLUDING AFFF) OR PROTEIN FOAMS MAY FUNCTION, BUT WILL BE LESS EFFECTIVE.

GENERAL HAZARD: KEEP PEOPLE AWAY. ISOLATE FIRE AND DENY UNNECESSARY ENTRY. STAY UPWIND. KEEP OUT OF LOW AREAS WHERE GASES (FUMES) CAN ACCUMULATE. WATER MAY NOT BE EFFECTIVE IN EXTINGUISHING FIRE. USE WATER SPRAY TO COOL FIRE EXPOSED CONTAINERS AND FIRE AFFECTED ZONE UNTIL FIRE IS OUT AND DANGER OF REIGNITION HAS PASSED. BURNING LIQUIDS MAY BE EXTINGUISHED BY DILUTION WITH WATER. DO NOT USE DIRECT WATER STREAM. MAY SPREAD FIRE. ELIMINATE SOURCES OF IGNITION. MOVE CONTAINER FROM FIRE AREA IF THIS IS POSSIBLE WITHOUT HAZARD. BURNING LIQUIDS MAY BE MOVED BY FLUSHING WITH WATER TO PROTECT PERSONNEL AND MINIMIZE PROPERTY DAMAGE. USE CAUTION AND TEST IF MATERIAL IS BURNING BEFORE ENTERING AREA. MATERIAL BURNS WITH INVISIBLE FLAME.

FIRE FIGHTING: WEAR POSITIVE-PRESSURE SELF-CONTAINED BREATHING APPARATUS (SCBA) AND PROTECTIVE FIRE FIGHTING CLOTHING (INCLUDES FIRE FIGHTING HELMET, COAT, PANTS, BOOTS, AND GLOVES). AVOID CONTACT WITH THIS MATERIAL DURING FIRE FIGHTING OPERATIONS. IF CONTACT IS LIKELY, CHANGE TO FULL CHEMICAL RESISTANT FIRE FIGHTING CLOTHING WITH SCBA . IF THIS IS NOT AVAILABLE, WEAR FULL CHEMICAL RESISTANT CLOTHING WITH SCBA AND FIGHT FIRE FROM A REMOTE LOCATION. FOR PROTECTIVE EQUIPMENT IN POST-FIRE OR NON-FIRE CLEAN UP SITUATIONS, REFER TO THE RELEVANT SECTIONS.

SPECIAL FIRE & EXPLOSION HAZARDS: ELECTRONICALLY BOND AND GROUND ALL EQUIPMENT. FLAMMABLE MIXTURES OF THIS PRODUCT ARE READILY IGNITED EVEN BY STATIC DISCHARGE. VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL A LONG DISTANCE AND ACCUMULATE IN LOW LYING AREAS. IGNITION AND/OR FLASH BACK MAY OCCUR. FLAMMABLE MIXTURES MAY EXIST WITHIN THE VAPOR SPACE OF CONTAINERS AT ROOM TEMPERATURE, VAPORS FORM FROM THIS PRODUCT AND MAY TRAVEL OR BE MOVED BY AIR CURRENTS AND IGNITED BY PILOT LIGHTS, OTHER FLAMES, SMOKING, SPARKS, HEATERS, ELECTRICAL EQUIPMENT, STATIC DISCHARGES OR OTHER IGNITION SOURCES AT LOCATIONS DISTANT FORM PRODUCT HANDLING POINT. STATIC IGNITION HAZARD CAN RESULT FORM HANDLING AND USE. ELECTRICALLY BOND AND GROUND ALL CONTAINERS, PERSONNEL AND EQUIPMENT BEFORE TRANSFER OR USE OF MATERIAL. SPECIAL PRECAUTIONS MAY BE NECESSARY TO DISSIPATE STATIC ELECTRICITY FOR NON-CONDUCTIVE CONTAINERS. AVOID SPLASH FILLING OF CONTAINERS WHEN HANDLING THIS FLAMMABLE LIQUID BECAUSE STATIC ELECTRICITY MAY BE GENERATED. USE PROPER BONDING AND GROUNDING DURING PRODUCT TRANSFER AS DESCRIBED IN NATIONAL FIRE PROTECTION ASSOCIATION DOCUMENT NFPA 77. WHEN PRODUCT IS STORED IN CLOSED CONTAINERS, A FLAMMABLE ATMOSPHERE CAN DEVELOP. FLAMMABLE CONCENTRATIONS OF VAPOR CAN ACCUMULATE AT TEMPERATURES ABOVE FLASH POINT. FLAME MAY BE INVISIBLE. APPROACH FIRE WITH CAUTION.

HAZARDOUS COMBUSTION PRODUCTS: DURING A FIRE, SMOKE MAY CONTAIN THE ORIGINAL MATERIAL IN ADDITION TO COMBUSTION PRODUCTS OF VARYING COMPOSITION WHICH MAY BE TOXIC AND/OR IRRITATING. COMBUSTION PRODUCTS MAY INCLUDE AND ARE NOT LIMITED TO : CARBON MONOXIDE, CARBON DIOXIDE.

ESTIMATED HMIS RATINGS: HEALTH - 2 FLAMMABILITY - 3 REACTIVITY - 0 PERSONAL PROTECTION - H

ESTIMATED NFPA RATINGS: HEALTH - 2 FLAMMABILITY - 3 REACTIVITY - 0 SPECIFIC HAZARD - N/A

V. HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: SEE SECTION II	**OSHA THRESHOLD LIMIT VALUE:** SEE SECTION II	**ACGIH THRESHOLD LIMIT VALUE:** SEE SECTION II

CARCINOGEN - NTP PROGRAM: NO	**CARCINOGEN-IARC PROGRAM:** NO

NATURE OF HAZARD: EYE - MAY CAUSE PAIN DISPROPORTIONATE TO THE LEVEL OF IRRITATION TO EYE TISSUES. MAY CAUSE MODERATE EYE IRRITATION, MODERATE CORNEAL INJURY. VAPOR MAY CAUSE EYE IRRITATION AND REDNESS, LACRIMATION (TEARS). 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. **SKIN** - PROLONGED EXPOSURE NOT LIKELY TO CAUSE SIGNIFICANT SKIN IRRITATION. REPEATED CONTACT MAY CAUSE DRYING OR FLAKING OF SKIN. PROLONGED SKIN CONTACT IS UNLIKELY TO RESULT IN ABSORPTION OF HARMFUL AMOUNTS. 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. **INHALATION** - IN CONFINED OR POORLY VENTILATED AREAS, VAPORS CAN READILY ACCUMULATE AND CAN CAUSE UNCONSCIOUSNESS AND DEATH. EXCESSIVE EXPOSURE (400 PPM) TO ISOPROPANOL MAY CAUSE EYE, NOSE AND THROAT IRRITATION. IN COORDINATION, CONFUSION, HYPOTENSION, HYPOTHERMIA, CIRCULATORY COLLAPSE, RESPIRATORY ARREST AND DEATH MAY FOLLOW A LONGER DURATION OR HIGHER LEVELS. 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. **INGESTION** - LOW TOXICITY IF SWALLOWED. SMALL AMOUNTS SWALLOWED INCIDENTALLY AS A RESULT OF NORMAL HANDLING OPERATIONS ARE NOT LIKELY TO CAUSE INJURY; HOWEVER, SWALLOWING LARGER AMOUNTS MAY CAUSE INJURY. ASPIRATION INTO THE LUNGS MAY OCCUR DURING INGESTION OR VOMITING, CAUSING LUNG DAMAGE OR EVEN DEATH DUE TO CHEMICAL PNEUMONIA. MAY CAUSE CENTRAL NERVOUS SYSTEM EFFECTS. MAY CAUSE NAUSEA OR VOMITING. EXCESSIVE EXPOSURE MAY CAUSE FACIAL FLUSHING, LOW BLOOD PRESSURE, AND SLOW HEARTBEAT. EXCESSIVE EXPOSURE MAY CAUSE KIDNEY EFFECTS. THS SINGLE LETHAL DOSE FOR A HUMAN ADULT FOR 70% ISOPROPYL ALCOHOL IS ABOUT 250 ml ALTHOUGH AS LITTLE AS 100 ml CAN BE FATAL. IF VOMITING OCCURS, KEEP HEAD LOWER THAN HIPS TO PREVENT ASPIRATION. GET MEDICAL ATTENTION IF NEEDED.

FIRST AID: EYE - IMMEDIATELY FLUSH EYES WITH WATER; REMOVE CONTACT LENSES, IF PRESENT, AFTER THE FIRST 5 MINUTES, THEN CONTINUE FLUSHING EYES FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION WITHOUT DELAY, PREFERABLY FROM AN OPHTHALMOLOGIST. **SKIN** - WASH WITH PLENTY OF SOAP AND WATER. **INHALATION** - REMOVE TO FRESH AIR. GIVE ARTIFICIAL RESPIRATION IF NOT BREATHING. IF BREATHING IS DIFFICULT, OXYGEN MAY BE GIVEN BY QUALIFIED PERSONNEL. OBTAIN MEDICAL ATTENTION. **INGESTION** - DO NOT INDUCE VOMITING. CALL A PHYSICIAN AND/OR TRANSPORT TO EMERGENCY FACILITY IMMEDIATELY. **NOTE TO PHYSICIAN** - THE DECISION OF WEATHER TO INDUCE VOMITING OR NOT SHOULD BE MADE BY A PHYSICIAN. IF LAVAGE IS PERFORMED, SUGGEST ENDOTRACHEAL AND/OR ESOPHAGEAL CONTROL. DANGER FROM LUNG ASPIRATION MUST BE WEIGHED AGAINST TOXICITY WHEN CONSIDERING EMPTYING THE STOMACH. HEMODIALYSIS MAY BE OF BENEFIT IF SUBSTANTIAL AMOUNTS HAVE BEEN INGESTED AND THE PATIENT IS SHOWING SIGNS OF INTOXICATION. CONSIDER HEMODIALYSIS FOR PATIENTS WITH PERSISTENT HYPOTENSION OR COMA UNRESPONSIVE TO STANDARD THERAPY (ISOPROPANOL LEVELS >400 - 500 mg/dl). (GOLDFRANK 1998, KIN ET AL, 1970). SKIN CONTACT MAY AGGRAVATE PREEXISTING DERMATITIS. NO SPECIFIC ANTIDOTE. TREATMENT OF EXPOSURE SHOULD BE DIRECTED AT THE CONTROL OF SYMPTOMS AND THE CLINICAL CONDITION OF THE PATIENT.

PERSONAL PROTECTION: EYE: USE CHEMICAL GOGGLES. IF EXPOSURE CAUSES EYE DISCOMFORT, USE A FULL-FACE RESPIRATOR. **EMERGENCY EYE WASH** -- IF THERE IS ANY POSSIBILITY THAT AN EMPLOYEE'S EYES MAY BE EXPOSED, THE EMPLOYER SHOULD PROVIDE AN EYE WASH FOUNTAIN WITHIN THE IMMEDIATE WORK AREA. **SKIN:** USE GLOVES CHEMICALLY RESISTANT TO THIS MATERIAL WHEN PROLONGED OR FREQUENTLY REPEATED CONTACT COULD OCCUR. EXAMPLES OF PREFERRED GLOVE BARRIER MATERIALS: CHLORINATED POLYETHYLENE, NATURAL RUBBER (LATEX), NEOPRENE, NITRILE/BUTADIENE RUBBER (NITRILE OR NBR), POLYETHYLENE, ETHYL VINYL ALCOHOL LAMINATE (EVAL), POLYVINYL CHLORIDE (PVC OR VINYL). AVOID GLOVES MADE OF: POLYVINYL ALCOHOL (PVA). NOTICE: THE SELECTION OF A SPECIFIC GLOVE FOR A PARTICULAR APPLICATION AND DURATION OF USE IN A WORKPLACE SHOULD ALSO TAKE INTO ACCOUNT ALL RELEVANT WORKPLACE FACTORS SUCH AS, BUT NOT LIMITED TO: OTHER CHEMICALS WHICH MAY BE HANDLED, PHYSICAL REQUIREMENTS (CUT/PUNCTURE PROTECTION, DEXTERITY, THERMAL PROTECTION), POTENTIAL BODY REACTIONS TO GLOVE MATERIALS, AS WELL AS THE INSTRUCTIONS/SPECIFICATIONS PROVIDED BY THE GLOVE SUPPLIER. **INHALATION:** ATMOSPHERIC LEVELS SHOULD BE MAINTAINED BELOW THE EXPOSURE GUIDELINE. WHEN RESPIRATORY PROTECTION IS REQUIRED, USE AN APPROVED AIR-PURIFYING OR POSITIVE-PRESSURE SUPPLIED-AIR RESPIRATOR DEPENDING ON THE POTENTIAL AIRBORNE CONCENTRATION. FOR EMERGENCY AND OTHER CONDITIONS WHERE THE EXPOSURE GUIDELINE MAY BE EXCEEDED OR IN A CONFINED PR POORLY VENTILATED AREA, USE AN APPROVED POSITIVE-PRESSURE SELF-CONTAINED BREATHING APPARATUS OR POSITIVE-PRESSURE AIRLINE WITH AUXILIARY SELF-CONTAINED AIR SUPPLY. PROVIDE LOCAL EXHAUST VENTILATION AND/OR GENERAL DILUTION VENTILATION TO MEET PUBLISHED EXPOSURE LIMITS. **VENTILATION:** PROVIDE GENERAL AND/OR LOCAL EXHAUST VENTILATION TO CONTROL AIRBORNE LEVELS BELOW THE EXPOSURE GUIDELINES. LETHAL CONCENTRATIONS MAY EXIST IN AREAS WITH POOR VENTILATION.

CHRONIC EFFECTS: IN ANIMALS, EFFECTS HAVE BEEN REPORTED ON THE FOLLOWING ORGANS: LIVER. OBSERVATIONS IN ANIMALS INCLUDE: LETHARGY. KIDNEY EFFECTS AND/OR TUMORS HAVE BEEN OBSERVED IN MALES RATS. THESE EFFECTS ARE BELIEVED TO BE SPECIES SPECIFIC AND UNLIKELY TO OCCUR IN HUMANS. ISOPROPANOL HAS BEEN TOXIC TO THE FETUS IN LABORATORY ANIMALS AT DOSES TOXIC TO THE MOTHER. IN ANIMAL STUDIES, DID NOT INTERFERE WITH REPRODUCTION. **ACUTE EFFECTS:** MAY CAUSE IRRITATION TO EYES AND SKIN.

VENTILATION: PROVIDE GENERAL AND/OR LOCAL EXHAUST VENTILATION TO CONTROL AIRBORNE LEVELS BELOW THE EXPOSURE GUIDELINES. LETHAL CONCENTRATIONS MAY EXIST IN AREAS WITH POOR VENTILATION. **ENGINEERING CONTROLS:** PROCESS HAZARD; SUDDEN RELEASE OF HOT ORGANIC CHEMICAL VAPOR OR MISTS FROM PROCESS EQUIPMENT OPERATING AT ELEVATED TEMPERATURE AND PRESSURE, OR SUDDEN INGRESS OF AIR INTO HOT EQUIPMENT UNDER A VACUUM, MAY RESULT IN IGNITIONS WITHOUT THE PRESENCE OF OBVIOUS IGNITION SOURCES. PUBLISHED "AUTO-IGNITION" OF "IGNITION" TEMPERATURE VALUES CANNOT BE TREATED AS SAFE OPERATING TEMPERATURES IN CHEMICAL PROCESSES WITHOUT ANALYSIS OF THE ACTUAL PROCESS CONDITIONS. **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 (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 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 POSITIVE PRESSURE MODE.

VI. REACTIVITY DATA

STABILITY | | **UNSTABLE** | X | **STABLE**	**CONDITIONS TO AVOID:** EXPOSURE TO ELEVATED TEMPERATURES CAN CAUSE PRODUCT TO DECOMPOSE. AVOID STATIC DISCHARGE.
INCOMPATIBILITY MATERIALS	**MATERIAL TO AVOID:** ALDEHYDES, STRONG OXIDIZERS, HALOGENS, STRONG ACIDS. **HYDROGEN PEROXIDE** - VIGOROUS OR VIOLENT REACTION. **OXIDIZERS (STRONG)** - FIRE AND EXPLOSION HAZARD. **POTASSIUM NITRATE** - FORMS EXPLOSIVE MIXTURE.
HAZARDOUS POLYMERIZATION | | **MAY OCCUR** | X | **WILL NOT OCCUR**	**CONDITIONS TO AVOID: CONDITIONS TO AVOID:** HAZARDOUS POLYMERIZATION HAS NOT BEEN REPORTED TO OCCUR UNDER NORMAL TEMPERATURES AND PRESSURES.
HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS:	DECOMPOSITION PRODUCTS DEPEND UPON TEMPERATURE, AIR SUPPLY AND THE PRESENCE OF OTHER MATERIALS. THERMAL DECOMPOSITION MAY RELEASE TOXIC AND/OR HAZARDOUS GASES.

VII. ENVIRONMENTAL PRODUCTION PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: CONTAIN SPILLED MATERIAL IF POSSIBLE. GROUND AND BOND ALL CONTAINERS AND HANDLING EQUIPMENT. APPLY VAPOR SUPPRESSION FOAMS UNTIL SPILL CAN BE CLEANED UP. COLLECT IN SUITABLE AND PROPERLY LABELED OPEN CONTAINERS. PUMP WITH EXPLOSION-PROOF EQUIPMENT. IF AVAILABLE, USE FOAM SMOTHER OR SUPPRESS. 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.
ENVIRONMENTAL PRECAUTIONS: PREVENT FROM ENTERING INTO SOIL, DITCHES, SEWERS, WATERWAYS AND/OR GROUNDWATER.

PERSONAL PRECAUTIONS: KEEP UNNECESSARY AND UNPROTECTED PERSONNEL FROM ENTERING THE AREA. KEEP PERSONNEL OUT OF LOW AREAS. KEEP UPWIND OF SPILL. VAPOR EXPLOSION HAZARD. KEEP OUT OF SEWERS. ELIMINATE ALL SOURCES OF IGNITION IN VICINITY OF SPILL OR RELEASE VAPOR TO AVOID FIRE OR EXPLOSION. GROUND AND BOND ALL CONTAINERS AND HANDLING EQUIPMENT. FOR LARGE SPILLS, WARN PUBLIC OF DOWNWIND EXPLOSION HAZARD. CHECK AREA WITH COMBUSTIBLE GAS DETECTOR BEFORE REENTERING AREA. NO SMOKING IN AREA. USE APPROPRIATE SAFETY EQUIPMENT. SEE SECTION V AND SECTION VIII FOR ADDITIONAL DATA.

WASTE DISPOSAL METHODS: DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. ALL DISPOSAL PRACTICES MUST BE IN COMPLIANCE WITH ALL FEDERAL, STATE/PROVINCIAL AND LOCAL LAWS AND REGULATIONS. REGULATIONS MAY VARY IN DIFFERENT LOCATIONS. WASTE CHARACTERIZATIONS AND COMPLIANCE WITH APPLICABLE LAWS ARE THE RESPONSIBILITY SOLELY OF THE WASTE GENERATOR. HURON INDUSTRIES, INC. HAS NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION II. FOR UNUSED & UNCONTAMINATED PRODUCT, THE PREFERRED OPTIONS INCLUDE SENDING TO A LICENSED, PERMITTED: INCINERATOR OR OTHER THERMAL DESTRUCTION DEVICE. AS A SERVICE TO ITS CUSTOMERS. DOW CAN PROVIDE NAMES OF INFORMATION RESOURCES TO HELP IDENTIFY WASTE MANAGEMENT COMPANIES AND OTHER FACILITIES WHICH RECYCLE, REPROCESS OR MANAGE CHEMICALS OR PLASTICS, AND THAT MANAGE USED DRUMS. TELEPHONE DOW'S CUSTOMER INFORMATION GROUP AT 1-800-258-2436 OR 1-989=832-1556 (US), OR 1-800-331-6451 (CANADA) FOR FURTHER DETAILS.

VIII. SPECIAL PROTECTION INFORMATION

HANDLING: KEEP AWAY FROM HEAT, SPARKS AND FLAME. VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL A LONG DISTANCE AND ACCUMULATE IN LOW LYING AREAS. IGNITION AND/OR FLASH BACK MAY OCCUR. IGNITION SOURCES CAN INCLUDE AND ARE NOT LIMITED TO PILOT LIGHTS, FLAMES, SMOKING, SPARKS, HEATERS, ELECTRICAL EQUIPMENT, AND STATIC DISCHARGES. AVOID CONTACT WITH EYES AND BREATHING VAPOR. DO NOT SWALLOW. KEEP CONTAINER CLOSED. USE WITH ADEQUATE VENTILATION. WASH THOROUGHLY AFTER HANDLING. NO SMOKING, OPEN FLAMES OR SOURCES OF IGNITION IN HANDLING AND STORAGE AREA. ELECTRICALLY GROUND AND BOND ALL EQUIPMENT. NEVER USE AIR PRESSURE FOR TRANSFERRING PRODUCT. USE OF NON-SPARKING OR EXPLOSION-PROOF EQUIPMENT MAY BE NECESSARY, DEPENDING UPON THE TYPE OF OPERATION. CONTAINERS, EVEN THOSE THAT HAVE BEEN EMPTIED, CAN CONTAIN VAPORS. DO NOT CUT, DRILL, GRIND, WELD, OR PERFORM SIMILAR OPERATIONS ON OR NEAR EMPTY CONTAINERS. SEE SECTION V. HEALTH HAZARD DATA. **STORAGE:** SMALL QUANTITIES OF PEROXIDES CAN FORM ON PROLONGED STORAGE. EXPOSURE TO LIGHT AND/OR AIR SIGNIFICANTLY INCREASES THE RATE OF PEROXIDE FORMATION. IF EVAPORATED TO A RESIDUE, THE MIXTURE OF PEROXIDES AND ISOPROPANOL MAY EXPLODE WHEN EXPOSED TO HEAT OR SHOCK. MINIMIZE SOURCES OF IGNITION, SUCH AS STATIC BUILD UP, HEAT, SPARK OR FLAME.

IX. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY: PERORAL - RAT; LD50 (4700 -5800) mg/kg. PERCUTANEOUS - RABBIT; LD50 (13000) mg/kg. INHALATION - VAPOR STUDY LCD0 RAT; MALE; (8 h) = 22500 ppm. VAPOR STUDY LC50 RAT; FEMALE; (8 h) = 19000 ppm.
DEVELOPMENTAL TOXICITY: ISOPROPANOL HAS BEEN TOXIC TO THE FETUS IN LABORATORY ANIMALS AT DOSES TOXIC TO THE MOTHER. IN ANIMAL STUDIES, DID NOT INTERFERE WITH REPRODUCTION. DID NOT CAUSE CANCER IN LABORATORY ANIMALS.

GENETIC TOXICOLOGY: IN VITRO AND IN VIVO WERE NEGATIVE.

SIGNIFICANT DATA WITH POSSIBLE RELEVANCE TO HUMANS: IN ANIMALS, EFFECTS HAVE BEEN REPORTED ON THE FOLLOWING ORGANS: LIVER. OBSERVATIONS IN ANIMALS INCLUDE: LETHERGY. KIDNEY EFFECTS AND/OR TUMORS HAVE BEEN OBSERVED IN MALE RATS. THESE EFFECTS ARE BELIEVED TO BE SPECIES SPECIFIC AND UNLIKELY TO OCCUR IN HUMANS.

X. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE: MATERIAL IS READILY BIODEGRADABLE. PASSES OECD TEST(S) FOR READY BIODEGRADABILITY. BIODEGRADATION REACHED IN MODIFIED OECD SCREENING TEST (OECD TEST NO. 301 E) AFTER 28 DAYS: 95%. INHIBITORY CONCENTRATION (IC50) IN OECD ACTIVATED SLUDGE RESPIRATION INHIBITION TEST (OECD TEST NO. 209) IS: >1000 mg/l. MEAN DEGRADATION REACHED IN CONTINUOUS ACTIVATED SLUDGE ASSAY (OECD TEST NO. 303 A): 99.9%.
BOD (% OXYGEN CONSUMPTION): DAY 5 = 20 - 72% — DAY 20 = 78 - 86%. CLOSED BOTTLE TEST (OECD 301D)(% OXYGEN CONSUMPTION): DAY 28 = 84%.

ECOTOXICITY: MATERIAL IS PRACTICALLY NON-TOXIC TO AQUATIC ORGANISMS ON AN ACUTE BASIS (LC50/EC50 >100 mg/l IN THE MOST SENSITIVE SPECIES TESTED).
TOXICITY TO AQUATIC INVERTEBRATES: WATER FLEA (DAPHNIA MAGNA); ACUTE LC50, RESULT VALUE = 9500 mg/l / ACUTE IMMOBILIZATION EC50, RESULT VALUE = 7550 - 9714.
TOXICITY TO FISH: FATHEAD MINNOW (PIMEPHALES PROMELAS); ACUTE LC50, RESULT VALUE = 8300 - 9200 mg/l – MOSQUITO FISH (GAMBUSIA AFFINIS); ACUTE LC50, RESULT VALUE = >1400 mg/l – BLUEGILL (LEPOMIS MACROCHIRUS); ACUTE LC50, RESULT VALUE = >1400 mg/l – GOLDEN ORLE (LEUCISCUS IDUS); ACUTE LC50, RESULT VALUE = 9100 mg/l – GOLDFISH (CARASSIUS AURATUS); ACUTE LC50, RESULT VALUE = >500 mg/l.
ACUTE AQUATIC TOXICITY: TEST CONDUCTED IN 1990 AT LEVELS UP TO 750 mg/l POWDERED MoS^2 RESULTED IN 0 MORTALITY TO RAINBOW TROUT (SALMO GAIRDNERI)

FURTHER INFORMATION: BIOCONCENTRATION POTENTIAL IS LOW (BCF <100 OR LOG POW <3). HENRY'S LAW CONSTANT (H) IS ESTIMATED TO BE: 3.38E-06 atm-m3/mol. POTENTIAL FOR MOBILITY IN SOIL IS VERY HIGH (Koc BETWEEN 0 AND 50). SOIL ORGANIC CARBON/WATER PARTITION COEFFICIENT (Koc) IS ESTIMATED TO BE: 1.1. THEORETICAL OXYGEN DEMAND (THOD) - CALCULATED: 2.40 mg/mg. OCTANOL/WATER PARTITION COEFFICIENT - MEASURED: 0.14

XI. REGULATORY INFORMATION

FEDERAL / NATIONAL:
OSHA - THIS PRODUCT IS A HAZARD CHEMICAL AS DEFINED BY THE OSHA HAZARD COMMUNICATION STANDARD, 29 CFR 1910.1200.
CERCLA - THIS PRODUCT CONTAINS THE FOLLOWING SUBSTANCES WHICH ARE SUBJECT TO CERCLA SECTION 103 REPORTING REQUIREMENTS AND WHICH ARE LISTED IN 40 CFR 302.4.

COMPONENT	CAS#	AMOUNT
ACETONE	67-64-1	<=0.0020%
METHANOL	67-56-1	<=0.0005%
CYCLOHEXANE	110-82-7	<=0.0002%

SARA TITLE III -
SECTION 302 & 313: TO BEST OF OUR KNOWLEDGE THIS PRODUCT DOES NOT CONTAIN CHEMICALS AT LEVELS WHICH REQUIRE REPORTING UNDER THESE STATUTES.
SECTION 311 & 312: DELAYED (CHRONIC) HEALTH HAZARD - YES
FIRE HAZARD - YES
IMMEDIATE (ACUTE) HEALTH HAZARD - YES
SUDDEN RELEASE OF PRESSURE HAZARD - NO
TSCA - ALL COMPONENTS OF THIS PRODUCT ARE ON THE TSCA INVENTORY UNDER 40 CFR 720.30.
EINECS - THE COMPONENTS OF THIS PRODUCT ARE ON THE EINECS INVENTORY OR ARE EXEMPT FROM EINECS INVENTORY REQUIREMENTS.
CEPA - ALL SUBSTANCES CONTAINED IN THIS PRODUCT ARE LISTED ON THE CANADIAN DOMESTIC SUBSTANCES LIST (DSL) OR ARE NOT REQUIRED TO BE LISTED.

STATE / LOCAL:
PENNSYLVANIA HAZARDOUS SUBSTANCES LIST AND/OR PENNSYLVANIA ENVIRONMENTAL HAZARDOUS SUBSTANCE LIST -
THE FOLLOWING PRODUCT COMPONENTS ARE CITED IN THE PENNSYLVANIA HAZARDOUS SUBSTANCE LIST AND/OR THE PENNSYLVANIA ENVIRONMENTAL SUBSTANCE LIST, AND ARE PRESENT AT LEVELS WHICH REQUIRE REPORTING.

COMPONENT	CAS#	AMOUNT
ISOPROPANOL	67-63-0	<=99.9900%

PENNSYLVANIA SPECIAL HAZARDOUS SUBSTANCES LIST -
TO THE BEST OF OUR KNOWLEDGE THIS PRODUCT DOES NOT CONTAIN CHEMICALS AT LEVELS WHICH REQUIRE REPORTING UNDER THIS STATUE.
CALIFORNIA PROPOSITION 65 (SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986) -
THIS PRODUCT CONTAINS NO LISTED SUBSTANCES KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM, AT LEVELS WHICH WOULD REQUIRE A WARNING UNDER THE STATUE.
CALIFORNIA SCAQMD RULE 443.1 (SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT RULE 443.1 LABELING OF MATERIALS CONTAINING ORGANIC SOLVENTS) -
VOC: 785 g/l VAPOR PRESSURE 33 mmHg @ 20°C
THIS SECTION PROVIDES SELECTED REGULATORY INFORMATION ON THIS PRODUCT INCLUDING ITS COMPONENTS. THIS IS NOT INTENDED TO INCLUDE ALL REGULATIONS. IT IS THE RESPONSIBILITY OF THE USER TO KNOW AND COMPLY WITH ALL APPLICABLE RULES, REGULATIONS AND LAWS RELATING TO THE PRODUCT BEING USED.