



MSDS

EXPLANATION OF TERMS USED ON **MATERIAL SAFETY DATA SHEETS**

THIS EXPLANATION IS DESIGNED TO PROVIDE MORE DETAILED INFORMATION ON THE TERMS COMMONLY USED. FREQUENTLY USED ABBREVIATIONS INCLUDE: < = LESS THAN, > = GREATER THAN, C.A. = APPROXIMATELY, F = TEMPERATURE GIVEN IN DEGREE FAHRENHEIT. SPECIFIC TERMS AND ABBREVIATIONS ARE EXPLAINED BELOW.

SECTION 1 CHEMICAL PRODUCT AND COMPANY INFORMATION

PRODUCT NAME: MOST COMMON NAME OR NAME UNDER WHICH THE PRODUCT IS MARKETED.

SYNONYMS: OTHER COMMON CHEMICAL OR COMMERCIAL NAMES (ALIASES) THAT MAY BE USED TO IDENTIFY THE PRODUCT.

CHEMICAL FAMILY: GENERIC CLASSIFICATION OR FAMILY IN WHICH THE PRODUCT BELONGS.

CHEMICAL FORMULA: EMPIRICAL CHEMICAL FORMULA OF THE PRODUCT.

MSDS REVISION DATE: LAST DATE THAT ANY INFORMATION ON THE MSDS WAS SIGNIFICANTLY CHANGED.

EMERGENCY PHONE NUMBERS: 24 HOUR EMERGENCY ASSISTANCE NUMBERS FOR USE IN EVENT OF AN ACCIDENT OR A SPILL.

SECTION 2 COMPOSITION/INFORMATION ON INGREDIENTS

PRODUCT INFORMATION: PROVIDES GENERAL INFORMATION ON THE PRODUCT. THE PRODUCT'S CHEMICAL ABSTRACT SERVICE NUMBER IS GIVEN IF ONE IS AVAILABLE (MOST MIXTURES WILL NOT HAVE PRODUCT CAS NUMBERS.)

COMPONENTS: MAJOR COMPONENTS AND/OR GENERAL COMPOSITION DESCRIPTION OF THE PRODUCT.

MINOR COMPONENTS HAVING POTENTIAL TOXICITY, WHICH WERE CONSIDERED WHEN EVALUATING THE PRODUCT, ARE GIVEN. CHEMICAL ABSTRACT SERVICE NUMBERS (CAS NUMBERS) BY WHICH THE COMPONENTS ARE UNIQUELY IDENTIFIED ARE PROVIDED. INCLUSION OF A COMPONENT IS NOT NECESSARILY BASED ON HAZARD CRITERIA.

EXPOSURE GUIDELINES: THE ESTABLISHED OCCUPATIONAL HEALTH EXPOSURE LIMITS FOR AIRBORNE CONCENTRATIONS OF THE PRODUCT OR COMPONENTS ARE INDICATED IN PARTS CONTAMINANT PER MILLION AIR (PPM) OR MILLIGRAMS CONTAMINANT PER CUBIC METER AIR (MG/M3). WHEN APPLICABLE, THE TWA, CEILING LIMIT OR STEL OF THE PRODUCT AND THE INDIVIDUAL COMPONENTS ARE LISTED. THE TERM TLV REFERS TO THRESHOLD LIMIT VALUE OF WHICH THERE ARE THREE CATEGORIES. TWA IS THE TIME-WEIGHTED AVERAGE CONCENTRATION FOR A NORMAL 8 HOUR WORKDAY AND A 40 HOUR WORK WEEK TO WHICH NEARLY ALL WORKERS MAY BE REPEATEDLY EXPOSED WITHOUT ADVERSE EFFECT. STEL IS A 15 MINUTE TIME-WEIGHTED AVERAGE SHORT TERM EXPOSURE LIMIT WHICH SHOULD NOT BE EXCEEDED AT ANY TIME DURING A WORKDAY AND NOT REPEATED MORE THAN FOUR TIMES A DAY. A CEILING LIMIT IS A CONCENTRATION THAT SHOULD NOT BE EXCEEDED AT ANY TIME DURING THE WORK PERIOD.

SOURCE OF EXPOSURE LIMITS: AGENCIES OR ORGANIZATIONS RESPONSIBLE FOR THE ESTABLISHED EXPOSURE LIMITS INCLUDE: AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS (ACGIH), THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), AND MARATHON OIL COMPANY'S OR MARATHON ASHLAND PETROLEUM LCC'S CORPORATE LIMIT.

SECTION 3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: DESCRIBES THE MATERIAL'S APPEARANCE AND MOST SIGNIFICANT IMMEDIATE CONCERNS FOR EMERGENCY RESPONSE PERSONNEL. ALSO CONTAINS WARNING STATEMENTS THAT ARE REQUIRED TO BE PRESENT ON PRODUCT LABELS AS DEFINED BY THE OSHA FEDERAL HAZARD COMMUNICATION STANDARD.

POTENTIAL HEALTH EFFECTS: POSSIBLE CHANGES IN HEALTH, USUALLY ADVERSE, EITHER CONFIRMED OR SUSPECTED, BASED ON OBSERVATIONS IN HUMANS, ANIMAL STUDIES OR BY COROLLARY WITH A SIMILAR SUBSTANCE. OTHER TERMS COMMONLY ENCOUNTERED IN THIS SECTION INCLUDE:

ACUTE EFFECTS: ABRUPT, RAPIDLY EVIDENT HEALTH EFFECTS DUE TO SINGLE OR SHORT-TERM EXPOSURES USUALLY AT HIGH LEVELS OR CONCENTRATIONS.

CHRONIC EFFECTS: INSIDIOUS, SLOWLY EVIDENT HEALTH EFFECTS DUE TO REPEATED OR LONG-TERM EXPOSURES USUALLY TO LOWER LEVELS OR CONCENTRATIONS THAT PRODUCE ACUTE EFFECTS.

CARCINOGEN LISTING: REFERS TO SUBSTANCES THAT HAD BEEN EVALUATED BY EITHER THE INTERNATIONAL AGENCY FOR RESEARCH ON CANCER (IARC), THE NATIONAL TOXICOLOGY PROGRAM (NTP) OR THE OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) AND HAVE BEEN DETERMINED TO PRODUCE CANCER IN HUMANS OR SUSPECTED OF PRODUCING CANCER BASED ON LIMITED HUMAN OBSERVATIONS OR RESULTS FROM ANIMAL STUDIES.

SECTION 4 FIRST AID MEASURES

EMERGENCY FIRST AID PROCEDURES: IMMEDIATE CARE OR TREATMENT GIVEN TO AN EXPOSED, ILL OR INJURED PERSON USUALLY AT THE SCENE OF THE INCIDENT, POSSIBLY BY NON-MEDICALLY TRAINED PERSONS IN AN ATTEMPT TO SAVE LIVES, TO PREVENT AND/OR RETARD FURTHER ILLNESS OR INJURY.

SECTION 5 FIRE FIGHTING MEASURES

FLASH POINT: MINIMUM TEMPERATURE AT WHICH A LIQUID WILL GIVE OFF ENOUGH FLAMMABLE VAPORS TO FORM AN IGNITABLE MIXTURE WITH AIR.

AUTOIGNITION TEMPERATURE: LOWEST TEMPERATURE AT WHICH THE PRODUCT WILL INITIATE SELF SUSTAINED COMBUSTION IN THE ABSENCE OF A SPARK OR FLAME.

EXPLOSIVE LIMITS: LOWER AND UPPER RANGE OF THE GAS OR VAPOR CONCENTRATION WHICH WILL BURN OR EXPLODE IF AN IGNITION SOURCE IS PRESENT.

EXTINGUISHING MEDIA: FIRE FIGHTING AGENTS THAT CAN BE USED TO EXTINGUISH FIRES.

SPECIAL FIRE FIGHTING INSTRUCTIONS: SPECIAL PROCEDURES OR UNUSUAL FIRE HAZARDS THAT HAVE BEEN IDENTIFIED WITH THIS PRODUCT.

SECTION 6 ACCIDENTAL RELEASE MEASURE

PRECAUTIONS THAT SHOULD BE TAKEN TO CONTAIN THE SPILL, CLEAN-UP PROCEDURES, AND IF APPROPRIATE, EMERGENCY SERVICES AGENCIES THAT NEED TO BE NOTIFIED.

SECTION 7 HANDLING AND STORAGE

SPECIAL PRECAUTIONS OR CONDITIONS TO AVOID IN HANDLING AND STORAGE OF THE MATERIAL.

SECTION 8 EXPOSURE CONTROL/PERSONAL PROTECTION

THIS SECTION PROVIDES ADDITIONAL INDUSTRIAL HYGIENE AND OTHER SAFE HANDLING REQUIREMENTS THAT MAY BE REQUIRED UNDER CERTAIN CONDITIONS AND/OR USES OF THE PRODUCT. THESE PROCEDURES SHOULD BE USED IN ADDITION TO GOOD PERSONAL HYGIENE PRACTICES THAT SHOULD ALREADY BE COMMON PRACTICE IN THE WORKPLACE. SOME OF THESE PRACTICES INCLUDE BUT ARE NOT LIMITED TO:

1. NO SMOKING, EATING OR DRINKING IN WORK AREAS.

2. ALWAYS WASH BEFORE EATING, SMOKING OR USING TOILET FACILITIES.

3. WASH HANDS THOROUGHLY WITH SOAP AND WATER AFTER HANDLING ANY CHEMICALS OR CONTAINERS OF CHEMICALS.

4. KEEP YOURSELF AND WORK AREA CLEAN. REMOVE AND LAUNDRER SOILED CLOTHING BEFORE REUSE. 5. READ AND FOLLOW ALL SAFETY PRECAUTIONS AS OUTLINED IN THE MSDS.

VENTILATION: TYPE OF EXHAUST VENTILATION EQUIPMENT REQUIRED.

RESPIRATORY, EYE & SKIN PROTECTION: TYPE OF PROTECTIVE EQUIPMENT THAT IS NECESSARY FOR SAFE HANDLING AND USE OF THE PRODUCT.

SECTION 9 PHYSICAL & CHEMICAL PROPERTIES

BOILING POINT: TEMPERATURE (OR RANGE) AT A PRESSURE OF 760 MMHG, AT WHICH THE SOLID CHANGES TO A VAPOR.

MELTING POINT: TEMPERATURE (OR RANGE) AT A PRESSURE OF 760 MMHG, AT WHICH THE SOLID CHANGES TO A LIQUID.

SPECIFIC GRAVITY: RATIO OF THE WEIGHT OF A VOLUME OF PRODUCT TO THE WEIGHT OF AN EQUAL VOLUME OF WATER AT 39.2 DEGREES FAHRENHEIT.

SOLUBILITY IN WATER: SOLUBILITY OF THE PRODUCT BY WEIGHT IN WATER AT 50 DEGREES FAHRENHEIT. CATEGORIES INCLUDE:

NEGLIGIBLE = <0.1%, SLIGHT = 0.1-1.0%, MODERATE = 1-10%, APPRECIABLE = >10%, COMPLETE.

VAPOR DENSITY: RELATIVE DENSITY OR WEIGHT OF A VAPOR OR GAS COMPARED WITH AN EQUAL VOLUME OF AIR AT AMBIENT TEMPERATURES.

VAPOR PRESSURE: PRESSURE OF SATURATED VAPOR ABOVE A LIQUID PRODUCT IN MMHG.

PH: VALUE GIVEN TO REPRESENT THE ACIDITY OR ALKALINITY OF THE PRODUCT AT THE CONCENTRATION SPECIFIED. STRONG ACIDS GIVE PH'S OF 1-3, WHILE STRONG BASES GIVE PH'S OF 12-13. WATER HAS A PH OF 7.

APPEARANCE: PHYSICAL DESCRIPTION OF THE PRODUCT.

ODOR: SENSORY CHARACTERIZATION OF THE PRODUCT.

SECTION 10 STABILITY & REACTIVITY

STABILITY: INDICATION IF THE PRODUCT IS STABLE OR NOT STABLE UNDER REASONABLY FORSEEABLE CONDITIONS OF STORAGE OR USE. CONDITIONS THAT COULD CAUSE A DANGEROUS REACTION ARE LISTED.

HAZARDOUS DECOMPOSITION PRODUCTS: BREAKDOWN PRODUCTS THAT MAY BE EVOLVED WHEN THIS MATERIAL IS SUBJECTED TO HEAT OR COMBUSTION.

INCOMPATIBLE MATERIALS: THOSE MATERIALS OR CONDITIONS THAT MAY CAUSE THE PRODUCT TO REACT VIOLENTLY, RELEASING LARGE AMOUNTS OF ENERGY OR TOXIC VAPORS.

HAZARDOUS POLYMERIZATION: INDICATION IF THE PRODUCT HAS THE POTENTIAL TO CAUSE A REACTION AT A RATE THAT RELEASES LARGE AMOUNTS OF ENERGY. CONDITIONS THAT COULD CAUSE A POLYMERIZATION REACTION ARE LISTED.

SECTION 11 TOXICOLOGICAL INFORMATION

OTHER SIGNIFICANT POSITIVE TOXICOLOGIC FINDINGS DISCOVERED BY RESEARCH AND/OR ANIMAL TESTING. THE BIOLOGICAL SIGNIFICANCE OF THESE TESTS AS IT RELATES TO POTENTIAL HUMAN HEALTH EFFECTS MAY NOT BE KNOWN. HOWEVER, THESE POSITIVE RESULTS ARE REPORTED AS REQUIRED BY THE OSHA FEDERAL HAZARD COMMUNICATION STANDARD.

LETHAL DOSE (LD50): SINGLE ACUTE DOSE OF THE PRODUCT WHICH PRODUCES DEATH IN 50% OF THE ANIMALS TESTED.

DRAIZE IRRITATION INDEX: EMPIRICAL SCORE USED FOR GRADING THE SEVERITY OF EYE AND SKIN IRRITATION IN ANIMAL TESTS.

SENSITIZER: SUBSTANCE WHICH CAN PRODUCE AN ADVERSE REACTION DUE TO AN ALLERGY INDUCED BY PRIOR EXPOSURE TO THE SUBSTANCE, MEDIATED BY ANTIBODIES AND NOT DOSE RELATED.

SECTION 12 ECOLOGICAL INFORMATION

KNOWN TOXIC EFFECTS TO PLANTS, ANIMALS AND THE ENVIRONMENT IF THE PRODUCT IS SPILLED.

SECTION 13 DISPOSAL CONSIDERATIONS

METHODS USED FOR PROPER DISPOSAL OF THE PRODUCT. THESE METHODS VARY ACCORDING TO LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION 14 TRANSPORTATION INFORMATION

THIS SECTION PROVIDES BASIC DEPARTMENT OF TRANSPORTATION CLASSIFICATION AND/OR DESCRIPTION INFORMATION TO HELP A KNOWLEDGEABLE USER SHIP A MATERIAL WITHIN THE UNITED STATES.

SECTION 15 REGULATORY INFORMATION

THIS SECTION PROVIDES INFORMATION ON FEDERAL REGULATIONS THAT MAY AFFECT THE PRODUCT'S MANUFACTURE, USE OR DISTRIBUTION IN COMMERCE. MAJOR REGULATIONS AND/OR LAWS THAT ARE COVERED INCLUDE THE OSHA HAZARD COMMUNICATION STANDARD, SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA TITLE III).

THIS SECTION DOES NOT COVER ENVIRONMENTAL REGULATIONS, I.E., RCRA AND CERCLA OR OSHA SUBSTANCE SPECIFIC HEALTH STANDARDS.

SECTION 16 OTHER INFORMATION

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)/HAZARDOUS MATERIAL IDENTIFICATION SYSTEM (HMIS) CLASSIFICATIONS ARE PROVIDED IN THIS SECTION ALONG WITH ANY ADDITIONAL PRODUCT INFORMATION.

THE FOLLOWING INFORMATION IS FURNISHED SUBJECT TO THE DISCLAIMER ON THE BOTTOM OF THIS FORM

1. CHEMICAL PRODUCT AND COMPANY INFORMATION

PRODUCT MANUFACTURER / DISTRIBUTOR:

NAME: UPG PROPANE POBOX 2450 PADUCAH KY 42001 SYNONYMS: LIQUIFIED PETROLEUM GAS, PROPANE;
 ODORIZED PROPANE; PROPANE HD-5; EMERGENCY PHONE NUMBERS: PROPANE, UPG (800)782-7743 OR (270) 441-
 2332

CHEMICAL FAMILY: ALIPHATIC HYDROCARBON MSDS CHEMICAL FORMULA: CH3CH2CH3
 PRODUCT CODE: NONE MSDS REVISION DATE: 03/19/2003

INFORMATION SUPPLIED BY: CRAIG T. SMALL
 VP-MANAGER, TOXICOLOGY AND PRODUCT SAFETY

2. COMPOSITION / INFORMATION ON INGREDIENTS

PRODUCT INFORMATION:

UPG PROPANE (CAS I 74-98-6) IS A/AN ALIPHATIC PETROLEUM HYDROCARBON.

ETHYL MERCAPTAN (15-25 PPM) IS ADDED AS AN ODORANT. THE ODOR THRESHOLD OF THE MERCAPTAN IS 1 PPB.

<u>COMPONENTS:</u>	<u>PERCENT RANGE</u>	<u>CAS NUMBER</u>
PROPANE	> 90.00	74-98-6
I-PROPENE	< 5.00	115-07-1
BUTANE & HEAVIER	< 2.50	
ETHANE	0.50- 3.00	74-84-0
SULFUR	< 0.01	7704-34-9

<u>EXPOSURE GUIDELINES</u>	<u>LIMIT</u>	<u>TYPE</u>	<u>SOURCE</u>
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PRODUCT:

UPG PROPANE (CONSIDERED A SIMPLE ASPHYXIAN T BY ACGIH.)	1000.00 PPM	8 HR TWA	OSHA
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COMPONENTS:

PROPANE (CONSIDERED A SIMPLE ASPHYXIAN T BY ACGIH)	1000.00 PPM	8 HR TWA	OSHA
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2. COMPOSITION / INFORMATION ON INGREDIENTS (CON'T)

<u>EXPOSURE GUIDELINES</u> <u>SOURCE</u>	<u>LIMIT</u>	<u>TYPE</u>
I-PROPENE	NONE ESTABLISHED	
BUTANE & HEAVIER	NONE ESTABLISHED	
ETHANE (CONSIDERED A SIMPLE ASPHYXIAN T BY ACGIH)	NONE ESTABLISHED	
SULFUR	NONE ESTABLISHED	

3. HAZARDS IDENTIFICATION

----- **EMERGENCY OVERVIEW** -----

PROPANE IS A COLORLESS GAS OR LIQUID STENCHED WITH A FOUL SULFUR SMELLING ODORANT. IT IS SHIPPED AS A LIQUIFIED GAS UNDER PRESSURE. PROPANE IS EXTREMELY FLAMMABLE AND EXPLOSIVE. AT HIGH CONCENTRATIONS THIS PRODUCT IS A SIMPLE ASPHYXIAN T, WHICH DISPLACES OXYGEN FROM THE BREATHING ATMOSPHERE. LIQUID CONTACT WITH SKIN OR EYES WILL CAUSE FROSTBITE. LARGE RELEASES CAN CREATE A FLAMMABLE VAPOR CLOUD.

OSHA WARNING LABEL:

DANGER!
EXTREMELY FLAMMABLE
LIQUID AND GAS UNDER PRESSURE
LIQUID CAN CAUSE FROST BURNS

POTENTIAL HEALTH EFFECTS

EYE:

PROPANE VAPOR IS GENERALLY NON-IRRITATING TO EYES. DIRECT CONTACT WITH LIQUIFIED PRODUCT CAN CAUSE "COLD BURN" OR FROSTBITE.

SKIN:

PROPANE VAPOR IS GENERALLY NON-IRRITATING TO SKIN. DIRECT CONTACT WITH LIQUIFIED PRODUCT CAN CAUSE "COLD BURN" OR FROSTBITE.

INHALATION:

PROPANE IS AN ANESTHETIC AT HIGH CONCENTRATIONS, PRODUCING DIZZINESS, HEADACHE, INCOORDINATION AND NARCOSIS; EXTREMELY HIGH CONCENTRATIONS CAN CAUSE ASPHYXIATION AND DEATH BY DISPLACEMENT OF OXYGEN FROM THE BREATHING ATMOSPHERE.

3. HAZARDS IDENTIFICATION (CON'T)

INGESTION:

INGESTION NOT LIKELY.

CARCINOGEN LISTING:

NO DATA AVAILABLE.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

INHALATION OF HIGH VAPOR CONCENTRATIONS OF PROPANE COMPONENTS IN ANIMALS HAS PRODUCED CARDIAC SENSITIZATION. SUCH SENSITIZATION MAY CAUSE CHANGES IN HEART RHYTHMS. THIS LATTER EFFECT WAS SHOWN TO BE ENHANCED BY OXYGEN DEFICIENCY OR THE INJECTION OF ADRENALIN-LIKE AGENTS.

4. FIRST AID MEASURES

EYE:

LIQUID: FLUSH WITH LARGE AMOUNTS OF TEPID WATER FOR AT LEAST 15 MINUTES. IMMEDIATELY CALL A PHYSICIAN.

GAS: CALL A PHYSICIAN IF SYMPTOMS OR IRRITATION OCCUR.

SKIN:

REMOVE CONTAMINATED CLOTHING. THAW FROSTBITTEN AREAS SLOWLY WITH LUKEWARM WATER OR BY WRAPPING AFFECTED AREAS WITH BLANKETS. DO NOT RUB AFFECTED AREAS. LET CIRCULATION REESTABLISH ITSELF NATURALLY, EXERCISING AREA IF POSSIBLE. CALL A PHYSICIAN.

INHALATION:

IF AFFECTED, MOVE PERSON TO FRESH AIR. IF BREATHING IS DIFFICULT, ADMINISTER OXYGEN. IF NOT BREATHING OR IF NO HEARTBEAT, GIVE ARTIFICIAL RESPIRATION OR CARDIOPULMONARY RESUSCITATION (CPR). IMMEDIATELY CALL A PHYSICIAN.

INGESTION:

INGESTION NOT LIKELY. IF SWALLOWED, IMMEDIATELY CALL A PHYSICIAN.

4. FIRST AID MEASURES (CON'T)

NOTES TO PHYSICIAN:

NO DATA AVAILABLE.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

FLASH POINT: -156 F

AUTOIGNITION TEMP: 871 F

EXPLOSIVE LIMITS (% BY VOLUME IN AIR)

LOWER: 2.1 UPPER: 9.5

FIRE AND EXPLOSION HAZARDS:

THIS PRODUCT HAS BEEN DETERMINED TO BE A FLAMMABLE GAS/LIQUID AND SHOULD BE HANDLED ACCORDINGLY. FOR ADDITIONAL FIRE RELATED INFORMATION SEE NFPA 30 OR NORTH AMERICAN EMERGENCY RESPONSE GUIDE 115.

EXTINGUISHING MEDIA:

CLASS B FIRE EXTINGUISHING MEDIA SUCH AS CO2 OR DRY CHEMICAL CAN BE USED FOR SMALL FIRES. FIRE FIGHTING SHOULD BE ATTEMPTED ONLY BY THOSE WHO ARE ADEQUATELY TRAINED AND EQUIPPED WITH PROPER PROTECTIVE EQUIPMENT. FOR LARGE FIRES, USE WATER SPRAY OR FOG.

SPECIAL FIRE FIGHTING INSTRUCTIONS:

BLEVE'S (BOILING LIQUID EXPANDING VAPOR EXPLOSIONS) CAN OCCUR WHEN A LIQUID IN A PRESSURIZED CONTAINER IN CLOSE PROXIMITY TO A FIRE REACHES A TEMPERATURE WELL ABOVE ITS BOILING POINT. ITS EFFECT COULD LEAD TO A CATASTROPHIC FAILURE OF THE VESSEL RESULTING IN FLYING EQUIPMENT FRAGMENTS, A SHOCK WAVE AND A FIREBALL CAUSING SERIOUS DAMAGE AND DEATH. USE EXTREME CAUTION WHEN FIGHTING LIQUEFIED PETROLEUM GAS FIRES.

ISOLATE HAZARD AREA. IF SAFE TO DO SO, STOP THE FLOW OF GAS AND ALLOW FIRE TO BURN OUT. EXTINGUISHING THE FLAME BEFORE SHUTTING OFF THE SUPPLY CAN CAUSE THE FORMATION OF EXPLOSIVE MIXTURES. IN SOME CASES IT MAY BE PREFERRED TO ALLOW THE FLAME TO CONTINUE TO BURN. KEEP SURROUNDING AREA COOL WITH WATER SPRAY FROM A DISTANCE AND PREVENT FURTHER IGNITION OF COMBUSTIBLE MATERIAL. AVOID USE OF SOLID WATER STREAMS. CONTACT WITH WATER AND LIQUIFIED PRODUCT CAN CAUSE INCREASED VAPORIZATION.

6. ACCIDENTAL RELEASE MEASURES

ISOLATE AND EVACUATE AREA. SHUT OFF SOURCE IF SAFE TO DO SO. LEAKING CONTAINERS SHOULD BE MOVED OUTDOORS OR TO WELL-VENTILATED AREA AND CONTENTS TRANSFERRED TO A SUITABLE CONTAINER. PROPANE VAPOR IS HEAVIER THAN AIR AND CAN COLLECT IN LOW AREAS THAT ARE WITHOUT SUFFICIENT VENTILATION. ADVISE AUTHORITIES AND NATIONAL RESPONSE CENTER (800-424-8802) IF SUBSTANCE HAS ENTERED A WATERCOURSE OR SEWER.

7. HANDLING AND STORAGE

PROPANE IS STORED AS A LIQUID BUT USED IN THE GASEOUS STATE. COMPLY WITH ALL APPLICABLE OSHA, NFPA AND CONSISTENT LOCAL REQUIREMENTS. USE APPROPRIATE GROUNDING AND BONDING PRACTICES. STORE IN PROPERLY CLOSED CONTAINERS THAT ARE APPROPRIATELY LABELED AND IN A WELL-VENTILATED AREA. DO NOT EXPOSE TO HEAT, OPEN FLAME, STRONG OXIDIZERS OR OTHER SOURCES OF IGNITION. AVOID OVERPRESSURIZING OR OVERFILLING CYLINDERS. DO NOT CUT, DRILL, GRIND, OR WELD ON EMPTY CONTAINERS SINCE THEY MAY CONTAIN EXPLOSIVE RESIDUES. AVOID REPEATED AND PROLONGED SKIN CONTACT. EXERCISE GOOD PERSONAL HYGIENE INCLUDING REMOVAL OF SOILED CLOTHING AND PROMPT WASHING WITH SOAP AND WATER.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

ENGINEERING CONTROLS:

LOCAL OR GENERAL EXHAUST REQUIRED IN AN ENCLOSED AREA OR WITH INADEQUATE VENTILATION.

PERSONAL PROTECTIVE EQUIPMENT:

RESPIRATORY PROTECTION:

USE ATMOSPHERE SUPPLYING RESPIRATORS IN THE EVENT OF OXYGEN DEFICIENCY, WHEN MATERIAL PRODUCES VAPORS THAT EXCEED PERMISSIBLE LIMITS OR WHEN EXCESSIVE VAPORS ARE GENERATED. OBSERVE RESPIRATOR PROTECTION FACTOR CRITERIA CITED IN ANSI Z88.2. SELF-CONTAINED BREATHING APPARATUS SHOULD BE USED FOR FIRE FIGHTING.

SKIN PROTECTION:

WEAR INSULATED GLOVES TO PREVENT SKIN CONTACT AND FROSTBITE.

EYE PROTECTION:

GOGGLES OR FACESHIELD.

8. EXPOSURE CONTROL / PERSONAL PROTECTION (CON'T)

OTHER PROTECTIVE EQUIPMENT:

WEAR IMPERVIOUS THERMAL CLOTHING TO PREVENT SKIN CONTACT AND FROSTBITE. USE MECHANICAL VENTILATION EQUIPMENT THAT IS EXPLOSION-PROOF.

9. PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT: -43.7 F
MELTING POINT: -305.8 F
SPECIFIC GRAVITY (H2O=1): .51 LIQUID
PACKING DENSITY (KG/M3): NO DATA AVAILABLE
% SOLUBILITY IN WATER: MODERATE 6.5%
VAPOR DENSITY (AIR=I): 1.56
VAPOR PRESSURE: 7600 MMHG @ 80 F 147 PSI @ 80 F
PH INFORMATION: NO DATA AVAILABLE
% VOLATILES BY VOL: NO DATA AVAILABLE
EVAPORATION RATE: NO DATA AVAILABLE
APPEARANCE: COLORLESS LIQUIFIED GAS
ODOR: FOUL SULFUR SMELL
ODOR THRESHOLD (PPM): 5,000-20,000

ADDITIONAL PROPERTIES:

DENSITY: 4.40 POUNDS/GALLON @ 32 DEGREES F

AVERAGE MOLECULAR WEIGHT: 44

10. STABILITY AND REACTIVITY

STABILITY:

THE MATERIAL IS STABLE AT 70 F, 760 MM PRESSURE.

CONDITIONS TO AVOID:

SOURCES OF HEAT OR IGNITION.

HAZARDOUS DECOMPOSITION PRODUCTS:

CARBON MONOXIDE.

INCOMPATIBLE MATERIALS:

STRONG OXIDIZERS SUCH AS NITRATES, PERCHLORATES, CHLORINE, FLUORINE.

10. STABILITY AND REACTIVITY (CON'T)

HAZARDOUS POLYMERIZATION:

WILL NOT OCCUR.

CONDITIONS TO AVOID:

NO DATA AVAILABLE.

ADDITIONAL COMMENTS:

THE EFFECTIVENESS OF ETHYL MERCAPTAN AS AN ODORANT CAN BE LIMITED BECAUSE THE ODOR TENDS TO FADE OVER TIME, IS MASKED BY THE PRESENCE OF OTHER ODORS. AND PEOPLE VARY IN THEIR ABILITY TO RECOGNIZE ODORS.

11. TOXICOLOGICAL INFORMATION

AT EXTREMELY HIGH CONCENTRATIONS AND EXCESSIVE EXPOSURE CONDITIONS PROPANE MAY PRODUCE CARDIAC SENSITIZATION.

12. ECOLOGICAL INFORMATION

THE AQUATIC TLM 96 IS >100 PPM. PROPANE IS NOT TOXIC TO AQUATIC LIFE OR WATERFOWL AND DOES NOT CONCENTRATE IN THE FOOD CHAIN.

13. DISPOSAL CONSIDERATIONS

THIS PRODUCT AS PRODUCED IS NOT SPECIFICALLY LISTED AS AN EPA RCRA HAZARDOUS WASTE ACCORDING TO FEDERAL REGULATIONS (40 CFR 261). HOWEVER, WHEN DISCARDED OR DISPOSED OF, IT MAY MEET THE CRITERIA OF AN "IGNITABLE" HAZARDOUS WASTE. THE MATERIAL COULD ALSO BECOME A HAZARDOUS WASTE IF MIXED OR CONTAMINATED WITH A LISTED HAZARDOUS WASTE. IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE IF DISPOSAL MATERIAL IS HAZARDOUS ACCORDING TO FEDERAL, STATE AND LOCAL REGULATIONS.

BLEEDING OFF SMALL AMOUNTS INTO THE ATMOSPHERE OR CONTROLLED INCINERATION OF LARGE AMOUNTS ARE POTENTIAL DISPOSAL METHODS PROVIDED ALL REGULATORY REQUIREMENTS ARE MET.

14. TRANSPORTATION INFORMATION

49 CFR 172.101:

PROPER SHIPPING NAME: PROPANE

DOT CLASSIFICATION: 2.1

DOT IDENTIFICATION NUMBER: UN 1978

15. REGULATORY INFORMATION

THE FOLLOWING REGULATIONS APPLY TO THIS PRODUCT:

OSHA HAZARD COMMUNICATION (29 CFR 1910.1200):

THIS PRODUCT HAS BEEN EVALUATED AND DETERMINED TO BE HAZARDOUS AS DEFINED IN OSHA'S HAZARD COMMUNICATION STANDARD.

EPA TOXIC SUBSTANCES CONTROL ACT (40 CFR PART 710):

THIS PRODUCT AND/OR ITS COMPONENTS ARE LISTED ON THE TSCA INVENTORY.

EPA SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT) - SECTIONS 302, 304, 311, 312 AND 313.

SECTION 302 -EXTREMELY HAZARDOUS SUBSTANCES (40 CFR PART 355): NONE.

SECTION 304 -EMERGENCY RELEASE NOTIFICATIONS (40 CFR PART 355): NONE.

SECTIONS 311 AND 312 -MATERIAL SAFETY DATA SHEET REQUIREMENTS (40 CFR PART 370):

THE FOLLOWING EPA HAZARD CATEGORIES APPLY TO THIS PRODUCT:

- IMMEDIATE (ACUTE) HEALTH HAZARD
- FIRE HAZARD
- SUDDEN RELEASE OF PRESSURE HAZARD

MSDS'S OR A LIST OF MSDS'S AND THEIR HAZARDS (SEE EPA HAZARD CATEGORIES ABOVE) MAY BE REQUIRED TO BE SUBMITTED TO THE STATE EMERGENCY RESPONSE COMMISSION (SERC), LOCAL EMERGENCY PLANNING COMMITTEE (LEPC) AND LOCAL FIRE DEPARTMENT (LFD) PER SECTION 311 REQUIREMENTS.

PER SECTION 312 REQUIREMENTS, A TIER II OR TIER I FORM MAY BE REQUIRED TO BE SUBMITTED ANNUALLY TO THE SERC, LEPC AND LFD IF APPLICABLE THRESHOLD REPORTING QUANTITIES ARE EXCEEDED. CURRENT FEDERAL THRESHOLDS ARE:

- 10,000 POUNDS OR MORE OF AN OSHA HAZARDOUS SUBSTANCE OR
- 500 POUNDS OR THE THRESHOLD PLANNING QUANTITY, WHICHEVER IS LESS, OF AN EXTREMELY HAZARDOUS SUBSTANCE.

NOTE: THRESHOLDS MAY VARY ACCORDING TO LOCAL AND STATE REGULATIONS.

SECTION 313 -TOXIC CHEMICAL RELEASE REPORTING (40 CFR PART 372):

THIS PRODUCT CONTAINS THE FOLLOWING COMPONENT(S) (AT A LEVEL OF 1% OR GREATER IF HAZARDOUS; 0.1% OR GREATER IF CARCINOGENIC) THAT IS/ARE IDENTIFIED ON THE SECTION 313 TOXIC CHEMICAL LIST:

---COMPONENT--- ---CAS NUMBER---

PROPYLENE 115-07-1

16. OTHER INFORMATION

NFPA CLASSIFICATION

HEALTH: 1
FIRE: 4
REACTIVITY: 0
OTHER: -

HMS CLASSIFICATION

HEALTH: 1
FIRE: 4
REACTIVITY: 0
PERSONAL PROTECTION: *

HAZARD RATING

0 -LEAST
1 -SLIGHT
2 -MODERATE
3 -HIGH
4 -EXTREME

COMMENTS:

* SEE SECTION 8 FOR GUIDANCE IN SELECTION OF PERSONAL PROTECTIVE EQUIPMENT.

*** DISCLAIMER ***

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