MATERIALS SAFETY DATA SHEETS

M.S.D.S

COOPER Tools

PROPANE

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

COMMON NAME: Liquified Petroleum Gas (LPG) - Propane

CHEMICAL NAME: Liquified Petroleum Gas (LPG) - Propane

FORMULA: Not Applicable - Mixture

PRODUCT CAS NO.: Mixture

SUPPLIER: Cooper Industries/Cooper Hand Tools/Sycamore Plant (Weller/Turner)

ADDRESS: 821 Park Avenue, Sycamore, IL 60178

PHONE: (815)895-4545 Emergency Phone: CHEMTREC 800-424-9300

2. INGREDIENTS: COMPOSITION/INFORMATION

INGREDIENT	% WEIGHT	PEL-OSHA	TLV-ACGIH	LD 50/LC 50 ROUTE/SPECIES
Propane CAS No.: 74-98-6 RTECS: TX2275000	> 90	1000 ppm	Simple Asphyxiant	No Data
Propylene CAS No.: 115-07-1 RTECS: UC6740000	< 5	None Established	Simple Asphyxiant	> 86 g/m3/4 H inhalation/rat
n-Butane CAS No.: 106-97-8 RTECS: EJ4200000	< 2.5	None Established 800 ppm*	800 ppm	280,000 ppm/4 H inhalation/rat

*** 1989 Updated PELs effectively vacated by a July 1992 decision by the U.S. Court of Appeals for the Eleventh Circuit (AFL-CIO v. OSHA, 965 F2d; 11th Cir., 1992).**

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

HIGHLY FLAMMABLE, gas with pungent odor which may cause CNS depression or asphyxiation at high concentrations. Contact with liquid may cause frostbite. DANGEROUS FIRE AND EXPLOSION HAZARD. Product is heavier than air and may accumulate in low-lying areas. Do not use or store near heat, sparks, flame, or other ignition sources. Do not smoke in work or storage areas. Contents under pressure. Do not puncture, incinerate, burn, compact or heat. Use and store below 120°F. Do not use in confined area.

Prevent vapor buildup. Use only with adequate ventilation.

POTENTIAL HEALTH EFFECTS

EYES: Contact with liquid may cause frostbite.

SKIN: Contact with liquid may cause frostbite.

INHALATION: Humans exposed to 10,000 ppm n-butane for 10 minutes exhibited drowsiness but no other evidence of systemic effects. Accumulation of high concentrations may cause central nervous system (CNS) depression or displace atmospheric oxygen causing suffocation.

INGESTION: Ingestion is not anticipated as product is a gas.

SIGNS AND SYMPTOMS: CNS effects may be characterized by drowsiness, dizziness, confusion, or excitation. Symptoms of asphyxiation may include diminished mental alertness, poor muscular coordination, faulty judgment, fatigue, "air" hunger, rapid breathing, nausea, and loss of consciousness or death.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: None known.

CHRONIC: Adverse effects not anticipated under normal working conditions. Intentional abuse has resulted in adverse effects.

CARCINOGENICITY: NTP: No / OSHA: No / IARC: No

TARGET ORGANS: Respiratory system, CNS

4. FIRST AID MEASURES

EYE CONTACT: For gas: Flush eyes with lukewarm water for 15 minutes. If irritation develops, seek medical attention. For liquid: If contact with eyes occurs, open eyes wide to allow liquid to evaporate. Seek immediate medical attention.

SKIN CONTACT: For gas: Flush skin with lukewarm water for 15 minutes. If irritation persists, seek medical attention. For liquid: If frostbite occurs, Seek medical attention.

INHALATION: Remove to fresh air. If breathing is difficult, administer oxygen. If breathing has stopped, give artificial respiration. Seek medical attention.

OTHER: Not anticipated. If cryogenic liquid is accidentally ingested, seek immediate medical attention.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

FLASHPOINT: -156°F/-104°C Estimated (Closed Cup)

NFPA HAZARD CLASSIFICATION:

HEALTH: / FLAMMABILITY: 4 / REACTIVITY: 0

FLAMMABLE LIMITS: LEL: 2.1 (As propane) UEL: 9.5 (As propane)

EXTINGUISHING MEDIA: Small fires: Dry chemical, foam or carbon dioxide. Large fires: water spray or fog. **Stop flow of gas** before

attempting extinguishment. Continued flow of gas may create an explosive gas/air mixture which, if ignited, is far more hazardous than original fire.

FIRE AND EXPLOSION HAZARDS: Thermal decomposition will produce carbon oxides. Highly flammable and explosive. Vapors may travel to ignition source and flash back. Vapors are heavier than air and may tend to accumulate in low-lying areas. Explosion hazard indoors, outdoors, and in confined areas. Cylinder may explode if exposed to heat or flame. If fire is present in storage area, DO NOT ENTER. Continue to cool flame exposed containers with water until well after flames have been extinguished.

FIRE FIGHTING EQUIPMENT: Firefighters should wear a NIOSH/MSHA-approved self-contained breathing apparatus (SCBA) operated in positive pressure mode and full turnout gear or bunker gear.

6. ACCIDENTAL RELEASE MEASURES

EXTINGUISH OR REMOVE ALL IGNITION SOURCES (i.e.: cigarettes), REMOVE CONTAINER TO OUTSIDE IF POSSIBLE. If it is not possible to remove container, isolate hazard area and deny entry to unauthorized and/or unprotected personnel. Vapors may travel considerable distance to ignition source and flash back. Ventilate enclosed areas. Flush large spills with water. Clean-up water run off to sewers may cause fire or explosion. Do not re-enter area of leak until product is sufficiently dispersed. Clean-up personnel should wear appropriate protective equipment including respiratory protection.

7. HANDLING AND STORAGE

Earth bond and ground all lines and equipment associated with the product system. Electrical equipment should be non-sparking and explosion proof.

DO NOT SMOKE in work or storage areas. "No smoking" signs should be posted in storage and use areas. Change contaminated clothing promptly due to fire/explosion hazard. Wash hands after handling and before meals and breaks. Use only with adequate ventilation. Empty container may contain flammable residue, dispose of and handle accordingly.

Protect containers from physical damage. Do not drag, slide or roll cylinders. Use suitable hand truck. Store in cool, dry, well-ventilated area away from emergency exits, other flammables and heavily traveled areas. Temperatures where cylinders are stored should not exceed 120°F. Store upright to prevent damage. A "first in-first out" inventory system should be used to prevent cylinders from being stored for excessive periods of time.

DO NOT HEAT CYLINDER BY ANY MEANS. (i.e.: Do not weld, do not leave in sun.)

DO NOT carry compressed gas cylinder in an enclosed space such as a car trunk, van or station wagon as accidental release may result in asphyxiation, fire, or explosion.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION: Under normal conditions (ambient temperature and pressure) and use none required.

SKIN PROTECTION: Neoprene, plastic or rubber gloves.

EYE PROTECTION: Safety goggles or glasses. Faceshields are

recommended for handling cryogenic liquids.

ENGINEERING CONTROLS: Local exhaust ventilation as necessary to prevent concentrations from exceeding recommended exposure guidelines and to prevent buildup of explosive concentrations. Electrical equipment should be suitable for potentially flammable atmospheres. No smoking or open lights.

PERSONAL CONTROL MEASURES:

Air sampling for butane: Coconut charcoal sorbent tube (OSHA CIM*)

Air sampling for propane: Anasorb CMS (OSHA CIM*)

*CIM - Chemical Information Manual

OTHER: Emergency showers and eyewash stations

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Colorless gas

ODOR: Pungent (Mercaptan additive)

BOILING POINT: -44°F

VAPOR PRESSURE: @ 130°F 300 psig 14.34 bars

VAPOR DENSITY: 1.52 (Air = 1)

SOLUBILITY IN WATER: Negligible

SPECIFIC GRAVITY: 0.51 (liquid @ 60°F/15.5°C)

MELTING POINT: -305°F/-151°C

pH: Not Applicable

% VOLATILE: Gas

VISCOSITY: Gas

SOLIDS CONTENT: 0%

10. STABILITY AND REACTIVITY

STABILITY: Stable.

INCOMPATIBILITY: Strong oxidizers. Propane and chlorine dioxide can explode on contact.

HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition will produce carbon oxides.

HAZARDOUS POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL INFORMATION

INGESTION: Product is a gas.

SKIN: Propane used with isobutane in deodorant/antiperspirant products (65-70% weight), was not shown to cause skin irritation in 125 human volunteers (Aerosol was applied twice daily for 12 weeks).

EYE: No Data

INHALATION: No subjective physiological responses, exposure related cardiac abnormalities, or pulmonary function abnormalities were reported in eight adult volunteers (both sexes) exposed to propane at levels of 250-1000 ppm for 1, 5, and 10 minutes and 1, 2, and 8 H/day for either 1 day or 2 weeks. Numbness, headache, vomiting, and a "chilly feeling" were reported by 5 female workers exposed to propane when the gas escaped through improper pipe fittings.

CHRONIC: A 16 year old girl who abused n-butane for a year suffered visual hallucinations during initial abuse, became increasingly irritable and suffered a gradual deterioration in social functioning.

OTHER: No Data

12. ECOLOGICAL INFORMATION

Volatilization to the atmosphere is expected to be the dominant fate process for n-butane and propane. In the atmosphere, n-butane and propane react with photochemically produced hydroxyl radicals with average atmospheric half-lives of 6 and 13 days respectively.

13. DISPOSAL CONSIDERATIONS

Dispose of in accordance with applicable local, state and federal regulations. Dispose per 40 CFR Part 261 and 262.

14. TRANSPORT INFORMATION

DOT:

PROPER SHIPPING NAME: Liquefied petroleum gas Propane mixtures

HAZARD CLASS/DIVISION: 2.1 2.

UN NUMBER: UN 1075 UN 1978

LABEL: FLAMMABLE GAS FLAMMABLE GAS

15. REGULATORY INFORMATION

CANADIAN WHMIS: A, B1, D2B

OSHA HAZARD COMMUNICATION RULE, 29 CFR 1910.1200: Product is considered hazardous under the criteria of this rule.

Propane, n-butane, and propylene are listed under the accident prevention provisions of Section 112 (r) of the Clean Air Act with a Threshold Quantity of 10,000 pounds.

CERCLA, 40 CFR Part 302 (CERCLA): This product does not contain ingredients subject to the reporting requirements of SARA 302 (CERCLA).