STOODY INDUSTRIAL AND WELDING SUPPLY, INC.

MATERIAL SAFETY DATA SHEET (MSDS)

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Propane

CHEMICAL NAME: Propane

CHEMICAL FAMILY: Alkane (hydrocarbon)

FORMULA: C_3H_8

SYNONYMS: Dimethylmethane, LP-Gas, Liquefied petroleum gas (LPG)

NAME AND ADDRESS:

STOODY INDUSTRIAL AND WELDING SUPPLY, INC.
3316 National Avenue
San Diego, CA 92113

TELEPHONE:

Emergency Phone: (800) 633-8253 (24 hr.)
Routine information call: (619) 234-6750
Weekdays 7:30 AM – 5:00 PM

[USE]: Various.

2. COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT NAME /CAS NUMBER	PERCENTAGE	OSHA PEL	ACGIH TLV
Propane/74-98-6	>99%	1000 ppm	Simple Asphyxiant

[LD_{50}]: None. **[LC_{50}]:** None.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

DANGER! Flammable liquid and gas under pressure.
Can form explosive mixtures with air.
May cause frostbite.

POTENTIAL HEALTH EFFECTS INFORMATION:

ROUTES OF EXPOSURE:

INHALATION: Simple asphyxiant. It should be noted that before suffocation could occur, the lower flammability limit of propane in air would be exceeded; possibly causing both an oxygen-deficient and explosive atmosphere. Exposure to concentrations (> 10%) may cause dizziness. Exposure to atmospheres containing 8-10% or less oxygen will bring about unconsciousness without warning, and so quickly that the individuals cannot help or protect themselves. Lack of sufficient oxygen may cause serious injury or death.

EYE CONTACT: Contact with liquid or cold vapor can cause freezing of tissue.

SKIN CONTACT: Contact with liquid or cold vapor can cause frostbite.

[SKIN ABSORPTION]: None.

[INGESTION]: None.

CHRONIC EFFECTS: None.

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE: None

OTHER EFFECTS OF OVEREXPOSURE: None.

CARCINOGENICITY: Propane is not listed by NTP, OSHA or IARC.

4. FIRST AID MEASURES

INHALATION: Persons suffering from lack of oxygen should be removed to fresh air. If victim is not breathing, administer artificial respiration. If breathing is difficult, administer oxygen. Obtain prompt medical attention.

EYE CONTACT: Contact with liquid or cold vapor can cause freezing of tissue. Gently flush eyes with lukewarm water. Obtain medical attention immediately.

SKIN CONTACT: Contact with liquid or cold vapor can cause frostbite. Immediately warm affected area with lukewarm water not to exceed 105°F.

INGESTION: None.

NOTES TO PHYSICIAN: None.

5. FIRE FIGHTING MEASURES

FLASH POINT: -156° F (-104° C). **AUTOIGNITION:** 842° F (432° C)

FLAMMABLE LIMITS IN AIR BY VOLUME:

LOWER: 2.2%. **UPPER:** 9.5%.

EXTINGUISHING MEDIA: CO_2, dry chemical, water spray or fog for surrounding area. Do not extinguish until propane source is shut off.

SPECIAL FIRE FIGHTING INSTRUCTIONS: Evacuate all personnel from danger area. Immediately cool container with water spray from maximum distance, taking care not to extinguish flames. If flames are accidentally extinguished, explosive re-ignition may occur. Stop flow of gas, if possible without risk, while continuing cooling water spray.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Propane is easily ignited. It is heavier than air, therefore, it may collect in low areas or travel along the ground where an ignition source may be present. Pressure in a container can build up due to heat, and it may rupture if pressure relief devices should fail to function.

HAZARDOUS COMBUSTION PRODUCTS: None.

[SENSITIVITY TO STATIC DISCHARGE]: Possible, container should be grounded.

[SENSITIVITY TO MECHANICAL IMPACT]: None

6. ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: Evacuate the immediate area. Eliminate any possible sources of ignition, and provide maximum explosion-proof ventilation. Shut off source of propane, if possible. If leaking from cylinder, or valve, contact your supplier. Never enter a confined space or other area where the concentration is greater than 10% of the lower flammable limit which is 0.22%.

7. HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN STORAGE: Specific requirements are listed in NFPA 58. Cylinder storage locations should be well-protected, well-ventilated, dry, and separated from combustible materials. Cylinders should never knowingly be allowed to reach a temperature exceeding 125° F (52° C). Cylinders of propane should be separated from oxygen cylinders or other oxidizers by a minimum distance of 20 ft., or by a barrier of non-combustible material at least 5 ft. high having a fire resistance rating of at least ½ hour. Full and empty cylinders should be segregated. Use a first-in, first-out inventory system to prevent full containers from being stored for long periods of time.

Cylinders should be stored upright with valve protection cap in place and firmly secured to prevent falling or being knocked over. Protect cylinders from physical damage; do not drag, roll, slide or drop. Use a suitable hand truck for cylinder movement. Post "No Smoking or Open Flames" signs in the storage areas. There should be no sources of ignition. All electrical equipment should be explosion proof in the storage and use areas. Storage areas must meet national electric codes for class 1 hazardous areas.

PRECAUTIONS TO BE TAKEN IN HANDLING: Propane is heavier than air and may collect in low areas that are without proper ventilation. Leak check system with leak detection solution, never with flame. If user experiences difficulty operating cylinder valve, discontinue use and contact supplier. Never insert an object (e.g., wrench, screwdriver, pry bar, etc.) into valve cap openings. Doing so may damage valve, causing a leak to occur. Use an adjustable strap wrench to remove over-tight or rusted caps. Non-sparking tools should be used. Never strike an arc on a compressed gas cylinder or make a cylinder a part of an electrical circuit. Electrically bond and ground cylinder when transferring liquid product. For additional precautions in using propane see Section 16 - Other Information.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS:

VENTILATION: Provide natural or explosion-proof ventilation adequate to ensure propane does not reach its lower flammable limit of 2.2%.

RESPIRATORY PROTECTION (SPECIFY TYPE):

General Use: None.

Emergency Use: Air supplied respirators are required in oxygen-deficient atmospheres, air purifying respirators will not function. Before entering area you must check for flammable and oxygen-deficient atmospheres.

PROTECTIVE GLOVES: Work gloves are recommended when handling cylinders.

EYE PROTECTION: Safety glasses are recommended when handling cylinders.

OTHER PROTECTIVE EQUIPMENT: Safety shoes are recommended when handling cylinders. Cotton clothing is recommended for use to prevent static electric buildup.

9. PHYSICAL AND CHEMICAL PROPERTIES

MOLECULAR WEIGHT: 44.097

BOILING POINT (1 ATM): -43.67° F (-42.04° C)

SPECIFIC GRAVITY (Air =1): At 70° F (21.1° C) and 1 atm: 1.5223

FREEZING POINT/MELTING POINT: At 1 atm: -305.84°F (-187.69° C)

VAPOR PRESSURE: At 70° F (21.2° C): 109.73 psig (756.56 kPa)

GAS DENSITY: At 70° F (21.1° C) and 1 atm: 0.110 lb/ft^3 (1.77 kg/m^3)

EVAPORATION RATE (Butyl Acetate=1): Not applicable.

SOLUBILITY IN WATER: Vol/Vol at 100° F (37.8° C): 0.065

EXPANSION RATIO (for liquid to gas): At 70° F (21.1° C): 1 to 290

[pH]: Not applicable

APPEARANCE, ODOR AND STATE: Colorless, and tasteless gas at normal temperature and pressure. Unodorized propane has a slightly sweet odor. If an odorant has been added it will have a strong unpleasant odor.

[COEFFICIENT OF WATER/OIL DISTRIBUTION]: Not available

[ODOR THRESHOLD]: 1800 mg/m^3

10. STABILITY AND REACTIVITY

STABILITY: Stable

CONDITIONS TO AVOID: None

INCOMPATIBILITY (Materials to Avoid): Oxidizing agents..

REACTIVITY:

A) HAZARDOUS DECOMPOSITION PRODUCTS: None

B) HAZARDOUS POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL INFORMATION

Propane is nontoxic and is a simple asphyxiant, however it does have slight anesthetic properties and higher concentrations may cause dizziness.

[IRRITANCY OF MATERIAL]: None.

[SENSITIZATION TO MATERIAL]: None.

[REPRODUCTIVE EFFECTS]: None.

[TERATOGENICITY]: None.

[MUTAGENICITY]: None.

[SYNERGISTIC MATERIALS]: None

12. ECOLOGICAL INFORMATION

No adverse ecological effects are expected. Propane does not contain any Class I or Class II ozone depleting chemicals (40 CFR Part 82). Propane is not listed as a marine pollutant by DOT (49 CFR Part 171).

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Do not attempt to dispose of residual or unused product in the cylinder. Return to supplier for safe disposal.

Residual product within process system may be burned at a controlled rate, if a suitable burning unit (flare stack) is available on site. This shall be done in accordance with federal, state, and local regulations.

14. TRANSPORT INFORMATION

DOT/IMO SHIPPING NAME: Propane

HAZARD CLASS: 2.1 (Flammable Gas)

IDENTIFICATION NUMBER: UN 1978 *

[PIN]: 1978

PRODUCT RQ: None

SHIPPING LABEL(s): Flammable gas.

PLACARD (When required): Flammable gas.

SPECIAL SHIPPING INFORMATION: Cylinders should be transported in a secure position, in a well ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles can present serious safety hazards and should be discouraged.

*For domestic transportation only: The identification number UN 1075 may be used in place of the identification number UN 1978. The identification number used must be consistent on package markings, shipping papers, and emergency response information (Special provision 19 from 49 CFR 172.101).

15. REGULATORY INFORMATION

The following information concerns selected regulatory requirements potentially applicable to this product. Not all such requirements are identified. Users of this product are responsible for their own regulatory compliance on a federal, state [provincial], and local level.

U.S. FEDERAL REGULATIONS:

EPA - ENVIRONMENTAL PROTECTION AGENCY

CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (40 CFR Parts 117 and 302):

Reportable Quantity (RQ): None

SARA: Superfund Amendment and Reauthorization Act

SECTION 302/304: Requires emergency planning on threshold planning quantities (TPQ) and release reporting based on reportable quantities (RQ) of EPA's extremely hazardous substances (40 CFR Part 355).

Extremely Hazardous Substances: None

Threshold Planning Quantity (TPQ): None

SECTIONS 311/312: Require submission of material safety data sheets (MSDSs) and chemical inventory reporting with identification of EPA defined hazard classes (40 CFR Part 370). The hazard classes for this product are:

IMMEDIATE:	No	PRESSURE:	Yes
DELAYED:	No	REACTIVITY:	No
		FIRE:	Yes

SECTION 313: Requires submission of annual reports of release of toxic chemicals that appear in 40 CFR Part 372.

Propane does not require reporting under Section 313

40 CFR PART 68: Risk Management for Chemical Accidental Release. Requires the development and implementation of risk management programs at facilities that manufacture, use, store, or otherwise handle regulated substances in quantities that exceed specified thresholds.

Propane is listed as a regulated substance in quantities of 10,000 pounds (4,553 kg) or greater.

TSCA: Toxic Substance Control Act: Propane is listed on the TSCA inventory.

OSHA - OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION:

29 CFR 1910.119: Process Safety Management of Highly Hazardous Chemicals. Requires facilities to develop a process safety management program based on Threshold Quantities (TQ) of highly hazardous chemicals as listed in Appendix A.

Propane is not listed in Appendix A as a highly hazardous chemical. However, any process that involves a flammable gas on site in one location, in quantities of 10,000 pounds (4,553 kg) or greater is covered under this regulation unless it is used as fuel.

FDA - FOOD AND DRUG ADMINISTRATION

21CFR 184.1655: Generally recognized as safe (GRAS) as a direct human food ingredient when used as a propellant, aerating agent and gas.

[CANADIAN REGULATIONS:]

[Controlled Product Hazard Class A, B1. This MSDS has been prepared in compliance with Controlled Product Regulations.]

16. OTHER INFORMATION

SPECIAL PRECAUTIONS: Use piping and equipment adequately designed to withstand pressures to be encountered. Use a check valve or other protective apparatus in any line or piping from the cylinder to prevent reverse flow.

Shipment of compressed gas cylinders which have not been filled with the owner's consent is a violation of Federal law (49 CFR Part 173.301 (b)).

MIXTURES: When two or more gases or liquefied gases are mixed, their hazardous properties may combine to create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an Industrial Hygienist, or other trained person when you make your safety evaluation of the end product. Remember, gases and liquids have properties which can cause serious injury or death.

OTHER INFORMATION:

NFPA RATINGS:

HEALTH:	= 1
FLAMMABILITY:	= 4
REACTIVITY:	= 0
SPECIAL:	= None

HMIS RATINGS:

HEALTH:	= 0
FLAMMABILITY:	= 4
REACTIVITY:	= 0

STANDARD VALVE CONNECTIONS FOR U.S. AND CANADA:

THREADED: CGA 510
PIN INDEXED YOKE: None
ULTRA HIGH INTEGRITY: None

Use the proper CGA connections, DO NOT USE ADAPTERS

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