Bill MAZYCK - Jim Diess - Leo O'Neal
Jim Huffman - Dennis Litchfield

PETROLANE

P.O. Box 1410 - 1600 E. Hill St., Long Beach, CA 90801 - Telephone: (213) 427-5471

IMPORTANT SAFETY INFORMATION DO NOT DISCARD

March 1989

GS ROOFING PRODUCTS CO 0035
P O BOX 70339
CHARLESTON HGTS SC 29405

PLAINTIFF'S EXHIBIT
BIR-1135

Attn: Safety Manager

In accordance with "right-to-know" laws and the OSHA Hazard Communication Standard (29 CFR 1910.1200), Petrolane is sending you the enclosed Material Safety Data Sheet (MSDS).

Study the MSDS prior to product use and make it available to each of your employees who handle and use the product. If you resell the product, provide an MSDS to your customers.

We call attention to the information relating to odorization of propane which can be found in Section III, "Physical Data." The following paragraphs elaborate on the MSDS information. Discuss this material with your employees.

A small amount of a foul smelling odorant is added to propane to act as a warning agent in case of leakage or accidental release. All odorants have limitations. For instance, some people have a permanently impaired sense of smell. Colds and allergies can cause a temporary reduction in ability to smell. The propane odor can be masked by competing strong odors. High concentrations of the odorant can temporarily desensitize a person's sense of smell.

The most common odorant, ethyl mercaptan, can be converted to a less odorous compound by oxidation. The phenomenon is called "odor fade." Oxidizers are most usually rust, moisture and air. A new tank just placed in service is susceptible to odor fade. Several fills of the tank may be required before the oxidation reaction is completed.

You can reduce the potential for odor fade. Every propane container must be purged of moisture and air before first use. Never leave an empty container open to the atmosphere after use because air and moisture could reactivate the oxidation process. Regularly check the odor level in a tank. Call us if the odor level is faint.

Petrolane appreciates your business. We will continue to supply quality products and service along with the information necessary for you to maintain a safe, healthful workplace.

Petrolane Safety Department

PETROLANE MATERIAL SAFETY DATA SHEET

P.O. Drawer 1410 - 1600 E. Hill St., Long Beach, CA 90801
Contact: Safety Department - Telephone: (213) 427-5471

February 1989

WARNING STATEMENT

DANGER! Extremely Flammable. Keep away from heat, sparks and open flame. Vapor reduces oxygen available for breathing and may cause suffocation in confined spaces. Use only with adequate ventilation. Odor may not provide adequate warning of potentially hazardous concentrations. Vapor is heavier than air and collects in low levels. Liquid may cause freeze burn similar to frostbite.

I. Product Identification

Product Name: Petrolane Propane
Chemical Name: Propane
Synonyms: LP-Gas, Bottled Gas
Chemical Family: Paraffinic Hydrocarbon
Chemical Formula: C_3H_8
DOT Proper Shipping Name: Liquefied Petroleum Gas
DOT Hazard Class: Flammable Gas
DOT I.D. Number: UN1075

Transportation Emergency Telephone:
800-424-9300 (CHEMTREC)

NFPA Classification:

Health	1	Slightly Toxic
Fire	4	Extremely Flammable
Reactivity	0	Stable

II. Hazardous Ingredients

Component	CAS Number	%	OSHA PEL	ACGIH TLV
Ethane	74-84-0	0-6	None established	Simple asphyxiant
Propane	74-98-6	87-97	1000 ppm (8hr)	Simple asphyxiant
Propylene	115-07-1	0-5	None established	Simple asphyxiant
Butane	106-97-8	0-2.5	None established	800 ppm (8 hr)

III. Physical Data

Boiling Point: -44°F
Melting Point: -309°F
Vapor Pressure: 208 psig (max.) @ 100°F
Vapor Density (Air=1): 1.5
Specific Gravity (H_2O=1): 0.504
% Volatile by Volume: 100%
Solubility in Water: Insoluble
Evaporation Rate(Bu Ac=1): N/A
Gas Volume @ Atm. Pressure & 60°F (Cu. ft. gas/gal. liquid): 36.4

Appearance and Odor: Colorless, odorless in pure form. Propane contains a foul smelling, skunk-like warning agent(odorant). The odorant is effective, in most instances, but not everyone can smell the odor. The ability of people to detect odors varies widely. Also, certain chemical reactions with material in the propane system can reduce the propane odor level. No odorant will be 100% effective in all circumstances. If odor level appears to be weak, notify propane supplier immediately.

IV. Fire and Explosion Data

Flash Point (Method Used): -156°F (estimated)
Flammable Limits (% Volume in Air): Lower 2.1% Upper 9.5%

Extinguishing Media: Dry chemical, foam or CO_2 for small fires. Stop flow of gas first.

Special Fire Fighting Procedures and Precautions: Elimimate sources of ignition. Evacuate area. Notify fire department. Allow only trained, properly protected personnel in area. Shut off source of gas, if possible. Allow fire to burn itself out after gas flow is shut off. High volume water supply can be used to cool heat-exposed pressure containers and nearby equipment. Approach a flame enveloped container from the side, never the head ends. Use extreme caution when applying water to a container which has been exposed to heat or flame for more than a short time. Shock of cool water on hot metal could cause container rupture. For uncontrollable fires and when flame is impinging on container, withdraw all personnel and evacuate surrounding vicinity immediately.

Unusual Fire and Explosion Hazards: Products of combustion may yield carbon monoxide, a toxic gas. Uncontrolled vapors spread rapidly, are heavier than air and are extremely flammable.

V. Reactivity Data

Stability: Stable Conditions to Avoid: High heat, sparks, open flame
Materials to Avoid: Strong oxidizing agents
Hazardous Decomposition Products: Incomplete combustion can cause carbon monoxide, a toxic gas.
Hazardous Polymerization: Will not occur Conditions to Avoid: None

VI. Health Hazard Data

Product is not listed as carcinogenic by NTP, IARC or OSHA. Product may contain a trace, but detectable amount of benzene, a chemical listed by the State of California and known to cause cancer or reproductive toxicity.

Routes of Entry / Acute Effects of Overexposure:

Inhalation: Exposure to high concentrations of the vapor causes dizziness, drowsiness, nausea or unconsciousness due to anesthetic properties.

Skin Contact: Liquid can cause freeze burns similar to frostbite if contact with skin occurs. No skin absorption is expected.

Eye Contact: Liquid can cause freeze burns if contact with eyes occurs.

Ingestion: Ingestion is not expected to occur in normal use.

Chronic Effects of Overexposure: No abnormal reactions reported following exposure to 1000 ppm for 8 hours per day, 5 days per week, for 2 weeks.

Medical Conditions Generally Aggravated by Exposure: Persons with chronic respiratory diseases should avoid exposure.

VII. Emergency and First Aid Procedures

Eye Contact: Flush with water. Obtain medical assistance if contact with liquid has occurred.

Skin Contact: If freeze burn occurs, remove contaminated clothes, shoes and jewelry. Immerse burned area in warm (not hot) water. Keep immersed. Call for medical assistance.

Inhalation: Remove victim from further exposure and into fresh air. Provide oxygen if breathing is labored. If victim is unconscious, seek immediate medical attention. If breathing has stopped, give artificial respiration.

Ingestion: Not expected to occur in normal use.

VIII. Spill or Leak Procedures

Product is extremely flammable. Vapor is heavier than air and may collect at lower levels. Flammable concentrations may be present below nose level. If there is a leak but no fire, do not light the escaped gas. Eliminate all ignition sources. Do not smoke, use a nearby phone or actuate electrical switches. Evacuate the area. If possible, remove leaking container to safe area. Stop flow of gas or allow vapor to disperse in a safe area. Water spray can be used to help dilute vapor concentration in air.

Dispose of gas only by controlled burning in compliance with local laws and regulations.

IX. Handling and Storage Precautions

Store in an authorized location (outside, detached storage is preferred) with adequate ventilation. Keep away from heat and ignition sources. Inspect cylinders frequently for leaks, dents, gouges and corrosion with emphasis on bottom of cylinder. Store cylinders in upright position or with pressure relief valves in vapor space. Do not drop or abuse cylinders. Keep container valve closed and plugged when not in use. Install protective caps when cylinders are not connected for use. Empty containers retain some residue, so they should be treated as if they are full.

X. Personal Protection Information

Ventilation: Use adequate ventilation to maintain exposures below recommended limits.

Respiratory Protection: Use a NIOSH-approved respirator if area is thought to contain unknown concentration of gas.

Eye Protection: Use safety goggles or safety glasses with side shields.

Protective Clothing: No special garments are necessary, but avoid skin contact with liquid because of possibility of freeze burn. Propane resistant gloves are recommended.

XI. Communication with Employees and Purchasers

This Material Safety Data Sheet (MSDS) alerts the reader to the potential safety and health hazards of propane. It also contains valuable reference material relating to the safe use and handling of the product. Make sure that this information is shared with all employees and purchasers who use or handle the product. It is an important part of the OSHA hazard communication program.

This information is believed to be accurate as of the date of issue, but is offered without guarantee. Conditions of use and suitability for use are beyond Company control, therefore, all risks of use of the product are assumed by the user. COMPANY EXPRESSLY DISCLAIMS ALL WARRANTIES OF EVERY KIND INCLUDING WARRANTIES OF MERCHANTIBILITY AND FITNESS FOR ANY PARTICULAR PURPOSE. Company assumes no responsibility for any injuries or damages caused by the product even if safety procedures are followed as outlined herein. Nothing herein is intended to be construed as permission or recommendation for use of the product in any manner which might infringe existing patents.

MATERIAL SAFETY DATA SHEET

P.O. Drawer 1410 - 1600 E. Hill St., Long Beach, CA 90801
Contact: Safety Department - Telephone: (213) 427-5471

I. Warning Statement

DANGER! Extremely Flammable.
Vapor reduces oxygen available for breathing and may cause suffocation in confined spaces.
Liquid may cause freeze burn similar to frostbite.

II. Product Identification

Product Name: Petrolane Propane
Chemical Name: Propane
Synonyms: LP-Gas, Bottled Gas
Chemical Family: Paraffinic Hydrocarbon
Chemical Formula: C_3H_8

Transportation Emergency Telephone:
800-424-9300 (CHEMTREC)

NFPA Classification:
Health 1 Slightly Toxic
Fire 4 Extremely Flammable
Reactivity 0 Stable

CAS Reg. No. [illegible]

III. Hazardous Components

Composition (Typical)	% (approx.)
Propane	92
Propylene	5
Butane	3

Exposure Limits

OSHA PEL for Propane is 1,000 ppm (8 hrs.)
ACGIH TLV: Simple Asphyxiant (propane)

Product is a simple asphyxiant in high concentrations.
Product is not listed as a carcinogen or potential carcinogen by NTP, IARC or OSHA.

IV. Physical Data

Boiling Point: -44°F
Vapor Pressure: 208 psig (max.) @ 100°F
Vapor Density (Air=1): 1.5
Appearance and Odor: Colorless liquefied petroleum gas.
Propane sold for fuel contains a foul smelling warning agent (odorant).

Specific Gravity (H_2O=1): 0.507
% Volatile by Volume: 100%
Solubility in Water: Insoluble

V. Reactivity Data

Stability: Stable
Hazardous Polymerization: Will not occur
Hazardous Decomposition Products: Incomplete combustion can cause carbon monoxide.
Materials to Avoid: Strong oxidizing agents

VI. Fire and Explosion Data

Flash Point (Method Used): -156°F (estimated)
Flammable Limits (% Volume in Air): Lower 2.1% Upper 9.5%

Extinguishing Media: Dry chemical, foam or CO_2 for small fires. Stop flow of gas first.

Special Fire Fighting Procedures and Precautions: Evacuate area. Notify fire department. Allow only properly protected personnel in area. Shut off source of gas, if possible. Allow fire to burn until gas flow is shut off. Adequate water stream can be used to cool exposed equipment and vapor space of containers. Approach a flame enveloped container from the side, never the head ends. For massive, uncontrollable fires and when flame is impinging on vapor space of containers, withdraw [illegible]

Fire and Explosion Hazards: Products of combustion may yield carbon monxide. Uncontrolled vapors spread rapidly, are heavier than air and are extremely flammable.

April 1986

S-775

VII. Handling and Storage Precautions

Store in an authorized location (outside, detached storage is preferred) with adequate ventilation. Keep away from heat and ignition sources. Inspect cylinders frequently for leaks, dents, gouges and corrosion with emphasis on bottom of cylinder. Store cylinders in upright position. Do not drop or abuse cylinders. Keep container valve closed and plugged when not in use. Install protective caps when cylinders are not connected for use.

VIII. DOT Transportation Data

Shipping Name: Liquefied Petroleum Gas
Hazard Class: Flammable Gas
I.D. Number: UN 1075

Marking: Liquefied Petroleum Gas / UN 1075
Label: Flammable Gas
Placard: Flammable Gas / UN 1075

IX. Health Hazard Data

Effects of Overexposure: Liquid can cause freeze burns similar to frostbite if contact with skin occurs. Large concentration of vapor in atmosphere can cause asphyxiation due to oxygen displacement. Inhalation of smaller quantities of vapor can cause respiratory irritation, dizziness, nausea or drowsiness.

X. Emergency and First Aid Procedures

Eye Contact: Flush with water. Obtain medical assistance if contact with liquid has occurred.

Skin Contact: If freeze burn occurs, remove contaminated clothes, shoes and jewelry. Immerse burned area in warm (not hot) water. Keep immersed. Call for medical assistance.

Inhalation: Remove victim from further exposure and into fresh air. Provide oxygen if breathing is labored. If victim is unconscious, seek immediate medical attention. If breathing has stopped, give artificial respiration.

Ingestion: Not expected to occur in normal use.

XI. Personal Protection Information

Ventilation: Use adequate ventilation to maintain exposures below recommended limits.

Respiratory Protection: Use a NIOSH-approved respirator if area is thought to contain unknown concentration of gas.

Eye Protection: Use safety goggles or safety glasses with side shields.

Protective Clothing: No special garments are necessary, but avoid skin contact with liquid because of possibility of freeze burn. Propane resistant gloves are recommended.

XII. Spill or Leak Procedures

Product is extremely flammable. If there is a leak but no fire, do not ignite the gas. Eliminate all ignition sources. Evacuate the area. If possible, remove leaking container to safe area. Stop flow of gas or allow vapor to disperse in a safe area. Use water spray to help dilute vapor concentration in the air.

Dispose of gas only by controlled burning in compliance with local laws and regulations.

XIII. Communication with Employees and Purchasers

This Material Safety Data Sheet (MSDS) alerts the reader to the potential safety and health hazards of propane. It also contains valuable reference material relating to the safe use and handling of the product. Make sure that this information is shared with all employees and purchasers who use or handle the product. It is an important part of the OSHA hazard communication program.

This information is believed to be accurate as of the date of issue, but is offered without guarantee. Conditions of use and suitability for use are beyond Company control, therefore, all risks of use of the product are assumed by the user. Company expressly disclaims all warranties of every kind including warranties of merchantibility and fitness for any particular purpose. Company assumes no responsibility for any injury or damage caused by the product even if safety procedures are followed as outlined herein. Nothing herein is intended to be construed as permission or recommendation for use of the product in any manner which might infringe existing patents.