

# MATERIAL SAFETY DATA SHEET

## PROPANE

**PRODUCT NAME:**  
**HAZMIN Number:** 4065  
**Trane MSDS Number:** 4065

### Company Data

**Current Company:** AIR PRODUCTS AND  
CHEMICALS, INC.  
**Short Name:** None  
7201 Hamilton Boulevard  
Allentown, PA 181951501  
**Emergency Phone:** 800-523-9374  
**Information Phone:** 800-345-3148

**Manufacturer/Supplier:** AIR PRODUCTS AND  
CHEMICALS, INC.  
7201 Hamilton Boulevard  
Allentown, PA 18195-1501  
**Emergency Phone:** 800-523-9374  
**Information Phone:** 800-345-3148

### Product Data

**Formula:** C<sub>3</sub>H<sub>8</sub>.  
**Synonym 1:** X85030700-00-0  
**MSDS Prepared:** 6/1/90

### Physical and Chemical Data

**Boiling Point:** = -43.8°F **NOTE:** -42.1C (@ 1 atm).  
**Specific Gravity:** = .585 **NOTE:** @ -49F (-45C)/1 atm.\*  
**Vapor Density:** = .117 **NOTE:** @ 68F (20C)/1 atm.\*  
**Melt/Freeze Point:** = -305.9 **NOTE:** -187.7C (@ 1 atm).  
**Vapor Pressure:** = 147 @ 80.4 **NOTE:** psia (10 atm).\*  
**Molecular Weight:** = 44.10  
**Solubility in Water:** @ 64F (18C): 1 atm 6.5% BY VOLUME.

**Appearance/Odor:** SICKENING SWEET SMELL/COLORLESS GAS/\*SEE PHYSICAL DATA TEXT SECTION FOR ADDITIONAL INFORMATION.

---

### Fire and DOT Data

**Flash Point Closed:** = -156°F NOTE: (-104C).

**Auto Ignition:** = 842°F NOTE: (432C).

**LEL/LFL:** = 2.1 NOTE: IN AIR @ 1 atm.

**UEL/UFL:** = 9.5 NOTE: IN AIR @ 1 atm.

**UN Number:** 1075

**DOT Class:** FLAMMABLE GAS.

**DOT Label:** FLAMMABLE GAS.

**Proper Shipping Name:** LIQUEFIED PETROLEUM GAS.

---

### Component Data

**Component:** PROPANE

**Cas No:** 74986

**OSHA TWA (ppm):** 1000

**ACGIH STEL (ppm):** \*TWA

**Limit Note:** \*SEE GENERAL INFORMATION TEXT SECTION FOR ADDITIONAL INFORMATION.

---

### GENERAL INFORMATION

MANUFACTURER: AIR PRODUCTS AND CHEMICALS, INC.  
INDUSTRIAL GAS DIVISION  
ALLENTOWN, PA 18195

TEL.: (215) 481-4911.

EMERGENCY PHONE: 800-523-9374.

IN PENNSYLVANIA: 800-322-9092.

TWX: 510-651-3686.

TELECOPY: (215) 481-5900.

CABLE-AIRPROD TELEX: 847416.

TRADE NAME AND SYNONYMS: PROPANE.

CHEMICAL NAME AND SYNONYMS: PROPANE, LIQUEFIED  
PETROLEUM GAS,  
DIMETHYLMETHANE.

CHEMICAL FAMILY: ALKANES CAS# 74-98-6.

FORMULA: C3H8.

MW: 44.10.

ISSUE DATE:

ISSUED: 1 APRIL 1978.

REVISIONS:

REV: 1 JUNE 1990.

---

## HEALTH HAZARD DATA

SEE COMPONENT PAGE(S) FOR ADDITIONAL INFORMATION.

EXPOSURE LIMITS:

OSHA PEL (PERMISSIBLE EXPOSURE LIMIT): TWA = 1000 PPM.

PROPANE IS NOT LISTED AS A CARCINOGEN BY NTP, IARC, OR OSHA.

SYMPTOMS IF INGESTED, CONTACTED WITH SKIN, OR VAPOR  
INHALED: SYMPTOMS OF  
EXPOSURE TO PROPANE DEPENDING ON CONCENTRATION AND  
DURATION OF EXPOSURE MAY  
INCLUDE RAPID RESPIRATION, AIR HUNGER, INCOORDINATION,  
FATIGUE, NAUSEA,  
VOMITING, CONVULSIONS, LOSS OF CONSCIOUSNESS AND  
DEATH. CONTACT OF LIQUID  
PROPANE WITH THE SKIN MAY CAUSE FROSTBITE. SYMPTOMS  
OF FROSTBITE ARE SKIN

COLOR CHANGE TO GRAY OR WHITE, COLD FEELING AND NUMBNESS.

TOXICOLOGICAL PROPERTIES: PROPANE ACTS AS A SIMPLE ASPHYXIANT THROUGH THE EXCLUSION OF OXYGEN FROM BREATHING ATMOSPHERES. ANESTHETIC PROPERTIES MAY BE EVIDENT AT VERY HIGH CONCENTRATIONS. THERE EXISTS AN IMMEDIATE FIRE AND EXPLOSION HAZARD WHEN THE CONCENTRATION OF PROPANE IN THE ATMOSPHERE EXCEEDS THE LOWER FLAMMABLE LIMIT (2.1% BY VOLUME). USE SUITABLE FLAMMABLE GAS METER (EXPLOSIMETER) CALIBRATED FOR PROPANE TO MEASURE CONCENTRATIONS OF THE GAS IN AIR.

RECOMMENDED FIRST AID TREATMENT:

RESCUE PERSONNEL SHOULD AVOID EXPOSURE. SELF-CONTAINED BREATHING APPARATUS MAY BE REQUIRED. EXTREME HAZARD OF FIRE AND EXPLOSIONS MAY RESULT FROM STATIC ELECTRICAL DISCHARGE OR OTHER IGNITION SOURCES. DO NOT ENTER AREAS WITHIN THE FLAMMABLE RANGE DUE TO THE IMMEDIATE FIRE AND EXPLOSION HAZARD.

INHALATION: MOVE THE AFFECTED PERSON TO AN UNCONTAMINATED ATMOSPHERE. IF BREATHING HAS STOPPED OR IS LABORED, GIVE ASSISTED RESPIRATION (E.G., MOUTH-TO-MOUTH). SUPPLEMENTAL OXYGEN SHOULD BE ADMINISTERED. KEEP THE VICTIM WARM AND QUIET. SEEK MEDICAL ASSISTANCE PROMPTLY.

SKIN CONTACT: IN THE EVENT OF FREEZING OF THE SKIN, FROZEN TISSUES SHOULD BE FLOODED OR SOAKED WITH TEPID WATER (105-115°F, 41-46°C). DO NOT USE HOT WATER. IF FREEZING IS SUPERFICIAL AND OF MINOR EXTENT AS FROM SPATTERED DROPLET, MEDICAL ASSISTANCE MAY NOT BE REQUIRED; HOWEVER ALL OTHER CASES SHOULD BE PROMPTLY REFERRED TO PHYSICIAN. FIRST DEGREE

BURNS (REDDENING ONLY, AS SUNBURN, OR SECOND DEGREE BURNS (BLISTERING) WHICH ARE THE RESULT OF FIRE EXPOSURE AND ARE LOCALIZED TO A PORTION OF AN EXTREMITY OR OTHER SMALL AREA OF THE BODY MAY BE IMMERSSED IN COOL WATER FOR 10-20 MINUTES TO RELIEVE PAIN. DO NOT IMMERSE THE WHOLE BODY IN COLD BATH. ALL THERMAL INJURIES EXCEPT THE MOST MINOR AND LOCALIZED BURNS SHOULD RECEIVE PROMPT MEDICAL CARE. BURNED AREAS SHOULD BE COVERED WITH THE CLEANEST MATERIAL AVAILABLE, SUCH AS A CLEAN SHEET, PRIOR TO TRANSPORT. DO NOT USE BURN OINTMENTS OR GREASY MATERIALS ON BURNS WHICH SHOW MORE THAN LOCALIZED REDDENING.

---

## FIRE AND EXPLOSION HAZARD DATA

SEE DATA PAGE(S) FOR ADDITIONAL INFORMATION.

EXTINGUISHING MEDIA: DRY CHEMICAL, CARBON DIOXIDE, OR HALON.

ELECTRICAL CLASSIFICATION GROUP: CLASS 1, GROUP D.

SPECIAL FIRE FIGHTING PROCEDURES: SHUT OFF SOURCE OF PROPANE GAS. WHEN POSSIBLE ALLOW FIRE TO BURN ITSELF OUT TO AVOID THE ACCUMULATION OF AN UNBURNED FLAMMABLE MIXTURE. COOL ADJOINING EQUIPMENT AND CYLINDERS WITH A WATER SPRAY. KEEP PERSONNEL WELL AWAY, SINCE CONTAINERS CAN RUPTURE VIOLENTLY WHEN EXPOSED TO FIRE.

UNUSUAL FIRE AND EXPLOSION HAZARDS: PROPANE GAS VAPORS ARE DENSE AND CAN COLLECT AND REMAIN IN LOW SPOTS EVEN AFTER THE SOURCE OF GAS HAS BEEN ELIMINATED.

---

## PHYSICAL DATA

SEE DATA PAGE(S) FOR ADDITIONAL INFORMATION.

VAPOR PRESSURE (PSIA): @ 80.4°F (26.9°C) 147 PSIA (10 ATM).

VAPOR DENSITY (LB/CU FT): @ 68°F (20°C), 1 ATM 0.117.

SPECIFIC GRAVITY (AIR=1): @ 68°F (20°C), 1 ATM 1.56.

LIQUID DENSITY (LB/CU FT): @ -49°F (-45°C), 1 ATM 36.54.

SPECIFIC GRAVITY (H<sub>2</sub>O=1): @ -49°F (-45°C), 1 ATM 0.585.

APPEARANCE AND ODOR: PROPANE IS A COLORLESS GAS STORED AS A LIQUID UNDER ITS OWN VAPOR PRESSURE. IT IS ARTIFICIALLY ODORIZED WITH A SICKENING SWEET SMELL.

---

## REACTIVITY DATA

STABILITY: STABLE.

CONDITIONS TO AVOID: DO NOT EXPOSE TO HEAT OR FLAME.

INCOMPATIBILITY (MATERIALS TO AVOID): OXIDIZERS SUCH AS OXYGEN, CHLORINE OR FLUORINE.

HAZARDOUS DECOMPOSITION PRODUCTS: NONE.

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

CONDITIONS TO AVOID: NONE.

---

## SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: VENTILATE AREA TO PREVENT FLAMMABLE MIXTURE FROM FORMING. REMOVE SOURCES OF IGNITION, HEAT, SPARKS, ETC. AVOID ENTERING AREA OF FLAMMABLE ATMOSPHERE. CAREFULLY REMOVE CYLINDERS WITH SLOW LEAKS TO A REMOTE, OUTDOOR LOCATION. CONTACT AIR PRODUCTS FOR ASSISTANCE.

WASTE DISPOSAL METHOD: DO NOT ATTEMPT TO DISPOSE OF RESIDUAL PROPANE IN CYLINDERS. RETURN TO AIR PRODUCTS FOR DISPOSAL WITH POSITIVE PRESSURE IN CYLINDER, CYLINDER VALVE TIGHTLY CLOSED, AND VALVE CAPS IN PLACE.

---

## SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE): USE ORGANIC VAPOR CANISTER OR SELF-CONTAINED BREATHING APPARATUS DEPENDING ON CONCENTRATION OF VAPORS.

VENTILATION: NATURAL OR MECHANICAL WHERE GAS IS PRESENT.

LOCAL EXHAUST: AS NECESSARY.

MECHANICAL (GENERAL): AS NECESSARY.

SPECIAL: MECHANICAL VENTILATION FOR ENCLOSED STORAGE AREAS MUST MEET NATIONAL ELECTRIC CODE (NEC) REQUIREMENTS FOR CLASS I GROUP D.

OTHER: AS NECESSARY.

PROTECTIVE GLOVES: ORDINARY LEATHER WORK GLOVES RECOMMENDED FOR CYLINDER

HANDLING. WELDER'S GLOVES REQUIRED FOR CUTTING AND WELDING OPERATION.

EYE PROTECTION: SAFETY GLASSES RECOMMENDED FOR HANDLING CYLINDERS. WELDER'S GOGGLES, ETC. REQUIRED FOR CUTTING AND WELDING.

OTHER PROTECTIVE EQUIPMENT: LEATHER SLEEVES, LEATHER APRON AND OTHER

STANDARD PROTECTIVE EQUIPMENT FOR CUTTING AND WELDING. SAFETY SHOES RECOMMENDED WHEN HANDLING COMPRESSED CYLINDERS.

---

### SPECIAL PRECAUTIONS\*

#### SPECIAL LABELING INFORMATION:

DOT SHIPPING NAME: LIQUEFIED PETROLEUM GAS.  
DOT HAZARD CLASS: FLAMMABLE GAS.  
DOT SHIPPING LABEL: FLAMMABLE GAS.  
I.D. NUMBER: UN 1075.

SPECIAL HANDLING RECOMMENDATIONS: USE ONLY IN WELL VENTILATED AREAS.

PROPANE GAS CYLINDERS CONTAIN GAS AT HIGH PRESSURE AND SHOULD BE HANDLED WITH CARE. USE A PRESSURE-REDUCING REGULATOR WHEN CONNECTING TO LOWER

PRESSURE PIPING SYSTEMS. ALWAYS KEEP PROPANE CYLINDERS UPRIGHT AND SECURE

CYLINDERS WHEN IN USE. NEVER EXPOSE A PROPANE CYLINDER TO HEAT. ALWAYS

OPEN AND CLOSE VALVES SLOWLY. RETURN EMPTY CYLINDERS TO AIR PRODUCTS WITH POSITIVE PRESSURE AND CYLINDER VALVE CLOSED. AVOID DRAGGING, ROLLING, OR

SLIDING CYLINDERS, EVEN FOR SHORT DISTANCE. USE A SUITABLE HAND TRUCK.

FOR ADDITIONAL HANDLING RECOMMENDATIONS ON COMPRESSED GAS CYLINDERS,

CONSULT COMPRESSED GAS ASSOCIATION PAMPHLET P-1.

SPECIAL STORAGE RECOMMENDATIONS: STORAGE OF 300 LBS. OR LESS OF PROPANE IS



PERMISSIBLE WITHIN INDUSTRIAL BUILDINGS. STORAGE IN EXCESS OF 300 LBS. BUT LESS THAN 10,000 MAY BE IN WELL VENTILATED SPECIAL ROOMS OR BUILDINGS AS DESCRIBED IN NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) NO. 58. KEEP CYLINDERS AWAY FROM SOURCES OF HEAT. STORAGE SHOULD NOT BE IN HEAVY TRAFFIC AREAS TO PREVENT ACCIDENTAL KNOCKING OVER OR DAMAGE FROM PASSING OR FALLING OBJECTS. VALVE CAPS, WHERE CYLINDER COLLARS ARE NOT PROVIDED, SHOULD REMAIN ON CYLINDERS NOT CONNECTED FOR USE. SEGREGATE FULL AND EMPTY CYLINDERS. KEEP PROPANE CYLINDER STORAGE AREAS AWAY FROM STORAGE OF OXYGEN AND OTHER OXIDIZERS. STORAGE AREAS SHOULD BE FREE OF COMBUSTIBLE MATERIAL. AVOID EXPOSURE TO AREAS WHERE SALT OR OTHER CORROSIVE CHEMICALS ARE PRESENT. STORE PROPANE CYLINDERS WITH THE VALVE END UP. SEE COMPRESSED GAS ASSOCIATION PAMPHLET P-1 AND NFPA NO. 58 FOR ADDITIONAL STORAGE RECOMMENDATIONS.

SPECIAL PACKAGING RECOMMENDATIONS: COMPRESSED GAS CYLINDERS SHOULD NOT BE REFILLED EXCEPT BY QUALIFIED PRODUCERS OF COMPRESSED GASES. SHIPMENT OF A COMPRESSED GAS CYLINDER FILLED WITHOUT THE WRITTEN PERMISSION OF THE OWNER IS A VIOLATION OF FEDERAL LAW.

OTHER RECOMMENDATIONS OR PRECAUTIONS: COMPRESSED GAS CYLINDERS SHOULD NOT BE REFILLED EXCEPT BY QUALIFIED PRODUCERS OF COMPRESSED GASES. SHIPMENT OF A COMPRESSED GAS CYLINDER FILLED WITHOUT THE WRITTEN PERMISSION OF THE OWNER IS A VIOLATION OF FEDERAL LAW.

\*VARIOUS GOVERNMENT AGENCIES (I.E. DEPARTMENT OF TRANSPORTATION, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, FOOD AND DRUG ADMINISTRATION AND OTHERS)

MAY HAVE SPECIFIC REGULATIONS CONCERNING THE  
TRANSPORTATION, HANDLING,  
STORAGE OR USE OF THIS PRODUCT WHICH WILL NOT BE  
REFLECTED IN THIS DATA  
SHEET. THE CUSTOMER SHOULD REVIEW THESE REGULATIONS  
TO ENSURE THAT S/HE IS  
IN FULL COMPLIANCE.

HAZMIN Version: 3 / Last Edited on 10/8/99

Report: 2/27/02 7:29:20 AM

**HAZMIN<sup>®</sup>**

---

© 1999,2000,2001 Logical Technology, Inc.  
All Rights Reserved