MATERIAL SAFETY DATA SHEET

SRM Supplier: **National Institute of Standards and Technology**
Standard Reference Materials Program
Bldg. 202, Rm. 211
Gaithersburg, Maryland 20899

SRM Number: 2764
MSDS Number: 2764
SRM Name: Propane in Air
Date of Issue: 26 December 2000

MSDS Coordinator: Joylene W.L. Thomas
Phone: (301) 975-6776
ChemTrec: 1-800-424-9300

FAX: (301) 926-4751
E-mail: SRMMSDS@nist.gov

SECTION I. MATERIAL IDENTIFICATION

Material Name: Propane in Air

Description: This SRM mixture is supplied in a DOT 3AL specification aluminum (6061 alloy) cylinder with a water volume of 6 L. Mixtures are shipped with a nominal pressure exceeding 12.4 MPa (1800 psi), which provides the user with 0.73 m^3 (25.8 ft^3) of useable mixture. The cylinder is the property of the purchaser and is equipped with a CGA-590 brass valve, which is the recommended outlet for this propane mixture. NIST recommends that this cylinder not be used below 0.7 MPa (100 psi).

Other Designations: **Propane** (dimethylmethane; propyl hydride) in **Air**

Name	Chemical Formula	CAS Registry Number
Propane	C_3H_8	74-98-6
Air	O_2/N_2*	132259-10-0

DOT Classification: Compressed Gas, N.O.S., (propane; air) UN1956

Manufacturer/Supplier: Available from a number of suppliers

*Oxygen and nitrogen are the major components of air

SECTION II. HAZARDOUS INGREDIENTS

Hazardous Component	Nominal Concentration	Limits and Toxicity Data
Propane	0.25 µmol/mol	ACGIH TLV-TWA: simple asphyxiate
		OSHA PEL: 1000 mg/kg

NOTE: This material contains propane at a concentration below the reportable limit (0.1 % for carcinogens, 1 % for all other health hazards) required by OSHA according to 29 CFR 1910.1200 (g)(2)(i)(C)(1).

SECTION III. PHYSICAL/CHEMICAL CHARACTERISTICS

Propane
Appearance and Odor: colorless with a pungent odor
Relative Molecular Mass: 44.11
Vapor Density (Air = 1): 1.55
Boiling Point (@ 1 atm): - 42 °C
Vapor Pressure (@ 20 °C): 6536 mm Hg
Solubility in Water (@ 20 °C): 18.68 cm^3/L

SECTION IV. FIRE AND EXPLOSION HAZARD DATA

Flash Point: Nonflammable **Method Used:** Not applicable **Autoignition Temperature:** Not applicable

Flammability Limits in Air (Volume %): UPPER: Not applicable
LOWER: Not applicable

Extinguishing Media: Use extinguishing media that is appropriate to the surrounding fire. Water spray can be used to cool fire exposed containers.

Special Fire Procedures: Fire fighters should wear full protective clothing, eye protection, and self-contained breathing apparatus (SCBA) when this material is involved in a fire. Keep fire exposed cylinders cool with water spray. If possible, stop the product flow.

Hazardous Combustion Products: None

Unusual Fire and Explosion Hazards: Escaping gas mixtures containing 19 % to 24 % oxygen (air) vigorously support combustion of surrounding materials and may accelerate it. High oxidizing atmospheres increase the likelihood of fire. The cylinder may rupture under fire conditions.

SECTION V. REACTIVITY DATA

Stability: __X__ **Stable** ____ **Unstable**

Conditions to Avoid: Avoid storage in poorly ventilated areas or near a heat source.

Incompatibility (Materials to Avoid): Avoid flammable and combustible materials, especially greases and oils.

See Section IV: *Fire and Explosion Hazard Data*

Hazardous Decomposition or Byproducts: None

Hazardous Polymerization: _____ **Will Occur** __X__ **Will Not Occur**

SECTION VI. HEALTH HAZARD DATA

Route of Entry: __X__ **Inhalation** _____ **Skin** _____ **Ingestion**

Acute Effects: None applicable

Chronic Effects: None known

Medical Conditions Generally Aggravated by Exposure: None known

Other Effects of Exposure: Not applicable

Listed as a Carcinogen/Potential Carcinogen:

	Yes	No
In the National Toxicology Program (NTP) Report on Carcinogens		X
In the International Agency for Research on Cancer (IARC) Monographs		X
By the Occupational Safety and Health Administration (OSHA)		X

EMERGENCY AND FIRST AID PROCEDURES:

Skin Contact: Not applicable

Eye Contact: Not applicable

Ingestion: Not applicable

Inhalation: If inhaled, move the victim to fresh air. If breathing is difficult, give oxygen; if the victim is not breathing, give artificial respiration. Obtain medical assistance.

NOTE: In the event of exposure, consult a physician.

TARGET ORGAN(S) OF ATTACK: Not applicable

SECTION VII. PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be Taken in Case Material Is Released or Spilled: Notify safety personnel of major leaks or spills. Shut off source, if possible and remove sources of heat.

Waste Disposal: The cylinder is the property of the purchaser. Dispose of non refillable cylinders in accordance with federal, state, and local regulations. Allow gas to vent slowly to atmosphere in an unconfined area or exhaust hood. **DO NOT** reuse the empty cylinder; the empty cylinder will contain residue.

Handling and Storage: Secure cylinders when using to prevent from falling. Use hand truck to move cylinders. Wear safety shoes when handling cylinder. Provide adequate general and local exhaust ventilation. For eye protection, wear safety glasses. Store in a well ventilated area away from sources of heat. Keep valve protection cap on cylinders when not in use.

NOTE: Contact lenses pose a special hazard; soft lenses may absorb irritants, and all lenses concentrate irritants. **DO NOT** wear contact lenses in the lab.

SECTION VIII. SOURCE DATA/OTHER COMMENTS

Sources: Scott Specialty Gases, MSDS *Propane in Air*, 21 November 1997.
MDL Information Systems, Inc., MSDS *Propane*, 02 June 2000.

Disclaimer: Physical and chemical data contained in this MSDS are provided for use in assessing the hazardous nature of the material. The MSDS was prepared carefully, using current references; however NIST does not certify the data on the MSDS. The certified value for this material is given only on the NIST Certificate.