PRODUCT INFORMATION

PRODUCT: Hexane, Isopentane, Isobutane, Butane, Propane in Ethane

TRADE NAME: None

CHEMICAL NAME: Hexane, Isopentane, Isobutane, Butane, Propane in Ethane

SYNONYMS: None

FORMULA: $C_6H_{14}$, (iso)$C_5H_{12}$,(iso)$C_4H_{10}$, $C_4H_{10}$, $C_3H_8$, in $C_2H_6$

CHEMICAL FAMILY: Gas mixture

SUPPLIER'S NAME: MEGS Inc.

SUPPLIER'S ADDRESS: 2675 De Miniac
Ville St-Laurent, Qc, H4S 1E5

EMERGENCY PHONE NUMBER: (514) 956-7503

MOLECULAR WEIGHT: 36.32

PRODUCT USE: Various

PRODUCT IDENTIFICATION NUMBER: UN 1956, Compressed gases, n.o.s.

HAZARDOUS INGREDIENTS

<table>
<thead>
<tr>
<th>CHEMICAL ID</th>
<th>CONCENTRATION</th>
<th>CAS #</th>
<th>LD(50)</th>
<th>LC(50)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hexane</td>
<td>0.5%</td>
<td>110-54-3</td>
<td>Oral-rat 28.7 g/kg</td>
<td>Ihl-rat 48000 ppm/4 h</td>
</tr>
<tr>
<td>Isopentane</td>
<td>1.5%</td>
<td>78-78-4</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Isobutane</td>
<td>5.0%</td>
<td>75-28-5</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Butane</td>
<td>8.0%</td>
<td>106-97-8</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>12.0%</td>
<td>Bal</td>
<td></td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Propane</td>
<td>12.0%</td>
<td>74-98-6</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Ethane</td>
<td>Bal</td>
<td>74-84-0</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

PHYSICAL DATA
**PHYSICAL STATE:** Gas  
**APPEARANCE:** Colorless  
**ODOR:** Odorless  
**ODOR THRESHOLD:** Not applicable  
**SPECIFIC GRAVITY (H_2O = 1):** See Vapor Density (air =1)  
**VAPOR PRESSURE:** Not applicable (gas)  
**VAPOR DENSITY (air = 1):** 1.269  
**EVAPORATION RATE:** Not applicable (gas)  
**BOILING POINT:** Gas mixture  
**FREEZING POINT:** Gas mixture  
**pH:** Not applicable (gas)  
**GAS DENSITY:** 1.53 kg/m³ @ 15 °C, 101.3 kPa  
**COEFFICIENT OF WATER/OIL DISTRIBUTION:** Slightly miscible in water  

### FIRE OR EXPLOSION HAZARD

| CONDITIONS OF FLAMMABILITY: | Flammable over a specified range in air  
|                            | Vapors are heavier than air and may travel to a source of ignition and flash back  
| MEANS OF EXTINCTION: | Water, carbon dioxide, dry chemical.  
| FLASHPOINT AND METHOD OF DETERMINATION: | Butane = -73.9 °C cc; propane = -104 °C cc; ethane = -135 °C cc  
| UPPER EXPLOSION LIMIT (% BY VOL): | Butane = 8.4, propane = 9.5, ethane = 12.4  
| LOWER EXPLOSION LIMIT (% BY VOL): | Butane = 1.8, propane = 2.2, ethane = 3.0  
| AUTO-IGNITION TEMPERATURE: | Butane = 420 °C, propane = 480 °C, ethane = 515 °C  
| FLAMMABILITY CLASSIFICATION: | Class 1, Group D  
| HAZARDOUS COMBUSTION PRODUCTS: | None  
| EXPLOSION DATA: | Yes, in air or with other oxidizers  
| SENSITIVITY TO STATIC DISCHARGE: | Yes  

### REACTIVITY DATA

**CHEMICAL STABILITY:** Stable as to decomposition.
INCOMPATIBLE MATERIALS: Oxidizers; (hexane) - flourine, chlorine, magnesium perchlorate.

CONDITIONS OF REACTIVITY: None
HAZARDOUS DECOMPOSITION: None

TOXICOLOGICAL PROPERTIES

ROUTES OF ENTRY:

SKIN CONTACT: None

SKIN ABSORPTION: None

EYE: None

INHALATION: Moderate concentrations so as to exclude an adequate supply of oxygen to the lungs cause dizziness, drowsiness, and eventual unconsciousness. It also may act as an anesthetic in high concentrations. For ethane, no definite symptoms are apparent in concentrations up to 5 molar percent in air. For propane, may also act as a depressant on the central nervous system. Hexane is irritating to the mucous membranes and upper respiratory system, however, at the level of this mixture this property is greatly reduced.

INGESTION: None

ACUTE OVER EXPOSURE EFFECTS: Breathing high concentrations may cause an anesthetic effect; however, the major property of this mixture is the exclusion of an adequate supply of oxygen to the lungs. See also Inhalation

CHRONIC OVER EXPOSURE EFFECTS: None

EXPOSURE LIMITS: The greatest danger posed by gases defined in this mixture is to act as simple asphyxiants. Oxygen levels should be maintained at greater than 18 molar percent at normal atmospheric pressure which is equivalent to a partial pressure of 135 mm Hg. (ACGIH 1995-1996). While its toxicological properties have not been thoroughly investigated, hexane is also a suspected neurotoxin.

IRRITANCY OF PRODUCT: None

SENSITIZATION TO MATERIAL: None

CARCINOGENICITY, REPRODUCTIVE EFFECTS: None known

TERATOGENICITY, MUTAGENICITY: None
TOXICOLOGICALLY SYNERGISTIC PRODUCTS: From ethane, other low-boiling alkanes

PREVENTIVE MEASURES

PERSONAL PROTECTIVE EQUIPMENT: Plastic or rubber gloves. Safety goggles or safety glasses. Safety shoes, safety shower.

SPECIFIC ENGINEERING CONTROLS: The gases defined in this mixture are noncorrosive and may be used with any common structural material.

LEAK AND SPILL PROCEDURES: EVACUATE ALL PERSONNEL FROM AFFECTED AREA.
Use appropriate protective equipment. If leak is in user's equipment, be certain to purge piping with an inert gas prior to attempting repairs. If leak is on container or container valve, contact the closest MEGS location.

WASTE DISPOSAL: Do not attempt to dispose of waste or unused quantities.
Return in the shipping container properly labeled, with any valve outlet plugs or caps secured and valve protection cap in place to MEGS for proper disposal. For emergency disposal, contact the closest MEGS location.

HANDLING PROCEDURES AND EQUIPMENT: USE ONLY IN WELL-VENTILATED AREAS.
Valve protection caps must remain in place unless container is secured with valve outlet piped to the point of use. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure reducing regulator when connecting cylinder to lower pressure piping or systems. Do not heat cylinder by any means to increase the discharge rate of product from the cylinder. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder. Do not tamper with (valve) safety device. Close valve after each use and when empty.

STORAGE REQUIREMENTS: Protect cylinders from physical damage. Store in cool, dry, well-ventilated area of non combustible construction away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 52°C. Cylinders must be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a "first in - first out" inventory system to prevent full cylinders being stored for excessive periods of time. Post "No Smoking or Open Flames" signs in the storage or use area. There should be no sources of ignition in the storage or use area.

TDG CLASSIFICATION: 2.1
WHMIS CLASSIFICATION: A, B

SPECIAL SHIPPING INFORMATION: Always secure cylinders in an upright position before transporting them. NEVER transport cylinders in trunks of vehicles, enclosed vans, truck cabs or in passenger compartments. Transport cylinders secured in open flatbed or in open pick-up type vehicles.

FIRST AID MEASURES

SPECIFIC FIRST AID PROCEDURES: PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO THIS MIXTURE. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS.

INHALATION: Conscious persons should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. Unconscious persons should be moved to an uncontaminated area, given assisted resuscitation and supplemental oxygen. Further treatment should be symptomatic and supportive.

EYE CONTACT: Flush eyes with copious quantities of water, in the event of exposure to hexane fumes.

SKIN CONTACT: None

PREPARATION INFORMATION

PREPARED BY: Safety Department

DATE PREPARED: 12/19/1999

LAST REVISION DATE: 05/21/2002

THE INFORMATION, RECOMMENDATIONS AND DATA CONTAINED IN THIS DOCUMENT ARE INTENDED TO BE USED BY PROPERLY TRAINED AND QUALIFIED PERSONNEL ONLY AND AT THEIR SOLE RISKS AND DISCRETION. THE INFORMATION, RECOMMENDATIONS AND DATA HEREIN CONTAINED ARE DERIVED FROM SOURCES WHICH WE BELIEVE TO BE RELIABLE. HOWEVER, MEGS INC. MAKES NO REPRESENTATION AND GIVES NO WARRANTY OF ANY KIND WHATSOEVER WITH RESPECT TO THEIR ACCURACY OR COMPLETENESS AND ASSUMES NO LIABILITY FOR DAMAGES OR LOSS ARISING DIRECTLY OR INDIRECTLY FROM
THEIR USE, WHETHER PROPER OR IMPROPER.