1. CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Product Name: LPG (Liquefied Petroleum Gas)
Tradenames / Synonyms: elpiji
MSDS Code: LPG-mix-001-PTM
Date: May 1, 2007
Manufacture: PERTAMINA, Indonesia
Distributor: PERTAMINA, Direktorat Pemasaran & Niaga
unit Gas Domestik
Gedung Utama Pertamina Lt 12
Jl. Medan Merdeka Timur 1A, Jakarta 10110, Indonesia
Phone: 62-21-3815137,- 3815569
Facs.: 62-21-3846943,-3843773

Product Information:
PERTAMINA, Pemasaran Gas Domestik
Phone: 62-21-3815137,- 3815569
Facs.: 62-21-3846943,-3843773
Medical Emergency: 62-21-3815964

2. COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS Number</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Ethane</td>
<td>74-84-0</td>
<td>0.2 % Max.</td>
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<tr>
<td>2. Propane</td>
<td>74-98-6</td>
<td>97.50 % (C3 + C4) Min.</td>
</tr>
<tr>
<td>3. Iso-butane</td>
<td>75-28-5</td>
<td></td>
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<tr>
<td>4. N-butane</td>
<td>106-97-8</td>
<td></td>
</tr>
<tr>
<td>5. Pentane and heavier</td>
<td>68476-43-7</td>
<td>Traces</td>
</tr>
<tr>
<td>6. Ethyl Mercaptan</td>
<td>67-56-1</td>
<td>50 ml/100 AG Min.</td>
</tr>
</tbody>
</table>
* Pentane as n-Pentane

3. HAZARDS IDENTIFICATION

3.1. EMERGENCY OVERVIEW:
Health Hazards: Danger, may cause cardiac sensitization, asphyxiant gas, overexposure may cause depression, liquid material may cause frostbite and freeze burns.
Flammability hazards: Extremely flammable, forms explosive mixtures with air, may cause flash fire.
Appearance / Odor: Vapor and liquid are colorless, contain stanching agent
OSHA Hazard Determination: 800 - 1000 ppm 8-hour TWA
HMIS Rating:
Health: 1; Flammability: 4; Reactivity: 0

3.2. POTENTIAL HEALTH EFFECTS

mary Route of Exposure

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Eye Contact: May causes irritation. Direct contact with liquefied/pressurized gas or frost particle may produce severely and possibly permanent eye damage from freezer burn.

Skin Irritation: Neither a “corrosive” nor “irritant” by OSHA standard. Solid or liquid forms of this material and pressurized gas can cause Freezer burns. Prolonged exposure tends to remove skin oils, Possibly leading to dermatitis.

Inhalation: Oxygen deficient atmospheres may cause gasping, disorientation, unconsciousness, and possibly death.

Ingestion: Not expected with proper use.

Solid and liquid forms of this material and pressurized gas Can cause burns. Potential human health risks vary from person to person. As a precaution, exposure to liquids, Vapors, mists or fumes should be minimized.

Carcinogenicity: No

3.3. TOXICOLOGICAL INFORMATION

Acute or chronic overexposure to this material or its components may cause systematic toxicity, including adverse effects to the following: cardiovascular and central nervous systems.

Contain asphyxiant which may cause reproductively and/or development effects in pregnant woman.

Pre-existing medical conditions which may be aggravated by exposure include disorders of the respiratory and cardiovascular systems.

3.4. ECOLOGICAL INFORMATION

Ecological Information: ND

4. FIRST AID AND EMERGENCY PROCEDURES

INHALATION: Remove from exposure and call physician. For respiratory distress give air, oxygen, and/or administer cardiopulmonary resuscitation. Keep warm and quiet until medical attention arrives.

SKIN CONTACT: This material is not expected to be absorbed through the skin. In case of excessive skin contact with liquid, immediately flush skin with tap water for fifteen minutes. If irritation develops, immediately contact physician for treatment.

EYE CONTACT: Immediately flush eyes with tap water for at least fifteen minutes. If irritations develop and If liquid gets into eyes, contact physician immediately.

INGESTION: Do not induce vomiting; call physician immediately.

5. FIRE FIGHTING MEASURES

Flammable Properties
Flash Point: -153°F, -103°C
Hazardous Product of Combustion: Deficient primary and secondary air can produce Carbon Monoxide

Explosion: Exposed to an ignition source it will burn in the open or be Explosive in confined spaces

Fire Extinguishing Media: Dry Chemical, CO₂ Halogenated Extinguishing Agent, Water Spray.

Fire Fighting Instructions: Shut off gas source; use water to keep fire-exposed containers cool and to protect men effecting the shut off. Control fire until gas supply can be shut off. Minimize breathing of gases, vapor, fumes or decomposition products. Use supplied-air breathing equipment for enclosed or confined spaces or as otherwise needed.

6. ACCIDENTAL RELEASE MEASURES

Emergency Action: Eliminate and/or shut off ignition sources and keep ignition sources out of the area. Keep unnecessary people away; isolate hazard area and deny entry. Stay upwind. Isolate for ½ mile in all directions if tank, rail car or tank truck is involved in release. Evacuate area endangered by release as required (See Personal Protection Information Section)

Spill or Leak Procedure: Evacuate area of all unnecessary personnel. Wear protective equipment and/or garments if exposure conditions warrant. Protect from ignition. Ventilate area thoroughly. Shut off source, if possible.

7. HANDLING AND STORAGE

Handling and storage: Transport & store cylinders & tanks secured in an upright position in vented space. Do not store with oxidizing agents, O₂ / chlorine cylinder. Cylinders that are not in use must have valves in closed position.

Eye protection: Safety glasses, goggles or face shield
Skin Protection: Insulated gloves
Inhalation: Where concentration in air would reduce the oxygen level below 18% air or exceed occupational exposure limits, self contained breathing apparatus is required

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Ventilation and other forms of engineering controls are the preferred means for controlling exposures.

Ventilation: Explosion proof ventilation equipment

Personal Protective Equipment: Safety glasses, goggles or face shield and Insulated gloves

Respiratory Protection: Where concentration in air would reduce the oxygen level below 18% air or exceed occupational exposure limits, self contained breathing apparatus is required

9. PHYSICAL AND CHEMICAL PROPERTIES

Vapor pressure 100°F, psig 120.00 max.
10. STABILITY AND REACTIVITY

Chemical Stability: Stable
Incompatibility with Other Materials: Oxygen and strong oxidizing agents
Hazardous Polymerization Occur: Will not occur
Decomposition: Deficient primary and secondary air can produce carbon monoxide
Carbon oxides formed when burned

11. DISPOSAL CONSIDERATIONS

Waste Disposal: Insure conformity with all applicable disposal regulations

12. TRANSPORTATION INFORMATION

Shipping Name: Liquefied Petroleum Gas
Hazard Class: 2.1 (Flammable Gas)
Packing Group: Not Applicable
Marking: Liquefied Petroleum Gas
Labels required: Flammable Gas

13. REGULATORY INFORMATION

There may be specific regulations at the local, regional or state/provincial level that pertain to this product.

14. OTHER INFORMATION

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.