1. PRODUCT INFORMATION

Product Identifier: ISOPRENE

Application and Use:
Chemical feedstock.

Product Description:
Olefinic hydrocarbon

CAS number: 78-79-5

REGULATORY CLASSIFICATION

WHMIS Information:
Class B, Division 2: Flammable Liquids
Class D, Division 2, Subdivision A: Very Toxic Material

TDG Information (Rail/Road):
PIN Number: UN 1218
Shipping Name: ISOPRENE, STABILIZED
Packing Group: I
Primary TDG: Class 3

Canadian Environmental Protection Act (CEPA):
All components of this product are either on the Domestic Substances List (DSL) or exempt.

EMERGENCY TELEPHONE NUMBER
Health/Transportation
24 Hour Service (519) 339-2145

MANUFACTURER/SUPPLIER
Imperial Oil
Chemicals Division
240 4th Avenue S.W.
Calgary, Alberta T2P 3M9

2. REGULATED COMPONENTS
The following component data is defined in accordance with sub-paragraph 13(a)(i) to (iv) or paragraph 14(a) of the Hazardous Products Act.

<table>
<thead>
<tr>
<th>NAME</th>
<th>% (w/w)</th>
<th>CAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isoprene</td>
<td>100</td>
<td>78-79-5</td>
</tr>
</tbody>
</table>

3. TYPICAL PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
Spec. Gravity: 0.69 at 15.5 deg C
Vap. Pres.: 40.5 kPa at 10 deg C
61.8 kPa at 21 deg C
162.1 kPa at 49 deg C
Solubility in Water: 0.06% at 25 deg C
Boiling Point: 34 deg C
Freezing/Melting Point: -146 deg C
Viscosity: 0.37 cST at 0 deg C
Vapour Density (air=1): 2.35
Molecular Wt: 68
pH: Not applicable.
Odour: Pungent aromatic odor.
Appearance: Clear colorless liquid or gas.

4. HEALTH HAZARD INFORMATION

NATURE OF HAZARD

INHALATION:
Negligible hazard at normal temperatures (up to 38 deg C).
Irritating, in high concentrations, to the eyes, nose, throat and lungs.

EYE CONTACT:
Irritating, but will not injure eye tissue.

SKIN CONTACT:
Frequent or prolonged contact may irritate the skin and cause a skin rash (dermatitis).

INGESTION:
Low toxicity.

CHRONIC:
This product contains Isoprene. The bone marrow is a target organ for isoprene toxicity in mice but not rats. Isoprene has been shown to produce tumors in mice and rats and induce genetic damage in mice. There is no data available to evaluate the carcinogenicity of isoprene in humans. The International Agency for Research on Cancer (IARC) has evaluated isoprene and found it to be possibly carcinogenic to humans (2A). The National Toxicology Program (NTP) has evaluated isoprene and found it to be a Human Carcinogen (9th Report on Carcinogens).
OCCUPATIONAL EXPOSURE LIMIT

MANUFACTURER RECOMMENDS:
For Isoprene, 10 ppm.

Local regulated limits may vary.

---

5. FIRST AID MEASURES

INHALATION:
In emergency situations use proper respiratory protection to immediately remove the affected victim from exposure. Administer artificial respiration if breathing has stopped. Keep at rest. Call for prompt medical attention.

EYE CONTACT:
Flush eyes with large amounts of water until irritation subsides. If irritation persists, get medical attention.

SKIN CONTACT:
Flush with large amounts of water. Use soap if available.

INGESTION:
If swallowed, DO NOT induce vomiting. Keep at rest. Get prompt medical attention.

---

6. PREVENTIVE AND CORRECTIVE MEASURES

PERSONAL PROTECTION:
The selection of personal protective equipment varies depending upon conditions of use.
Where prolonged and/or repeated skin and eye contact is likely to occur, wear safety glasses with side shields, long sleeves, and chemical resistant gloves.
Where eye contact is unlikely, but may occur as a result of short and/or periodic exposures, wear safety glasses with side shields.
Where concentrations in air may exceed the occupational exposure limits given in Section 4 and where engineering, work practices or other means of exposure reduction are not adequate, approved respirators may be necessary to prevent overexposure by inhalation.

ENGINEERING CONTROLS:
The use of local exhaust ventilation is recommended to control emissions near the source. Laboratory samples should be handled in a lab hood. Provide mechanical ventilation of confined spaces. Use explosion-proof ventilation equipment.

ELECTROSTATIC ACCUMULATION HAZARD:
Yes, use proper grounding procedure.

HANDLING, STORAGE AND SHIPPING:
Keep container closed. Handle and open containers with care. Store in a cool, well ventilated place away from incompatible materials.
DO NOT handle or store near an open flame, heat, or other sources of ignition. Protect material from direct sunlight. Material will accumulate static charges which may cause an electrical spark (ignition source). Use proper grounding procedures. DO NOT pressurize, cut, heat, or weld containers. Empty product containers may contain product residue. DO NOT reuse empty containers without commercial cleaning or reconditioning.

**SPILL CONTROL AND DISPOSAL:**
Consult an expert on the disposal of recovered material. Ensure disposal in compliance with government requirements and ensure conformity to local disposal regulations. Notify the appropriate authorities immediately. Take all additional action necessary to prevent and remedy the adverse effects of the spill.

**LAND SPILL:**
Eliminate source of ignition. Keep public away. Prevent additional discharge of material, if possible to do so without hazard. Prevent spills from entering sewers, watercourses or low areas. Contain spilled liquid with sand or earth. Do not use combustible materials such as sawdust. Recover by pumping (use an explosion proof motor or hand pump), or by using a suitable absorbent.

**WATER SPILL:**
Eliminate sources of ignition. Warn occupants and shipping in surrounding and downwind areas of fire and explosion hazard and request all to stay clear.

---

7. **FIRE AND EXPLOSION HAZARD**

**Flash Point and Method:**
-54 deg C TCC ASTM D56
**Autoignition Temperature:** 440 deg C
**Flammable Limits:** 1.5 to 10 % by volume

**GENERAL HAZARDS:**
Extremely flammable; material will readily ignite at normal temperatures. Decomposes; flammable/toxic gases will form at elevated temperatures (thermal decomposition). Unstable material; will vigorously polymerize, decompose, condense or will become self reactive under conditions of shocks, pressure or temperature.

**FIRE FIGHTING:**
Use water spray to cool fire exposed surfaces and to protect personnel. Shut off fuel to fire if possible to do so without hazard. If a leak or spill has not ignited use water spray to disperse the vapours. Either allow fire to burn out under controlled conditions or extinguish with foam or dry chemical. Try to cover liquid spills with foam. A self-contained breathing apparatus (SCBA) is recommended for indoor fires and any significant outdoor fires. For small outdoor fires, which may easily be extinguished with a portable fire extinguisher, use of an SCBA is optional.

**HAZARDOUS COMBUSTION PRODUCTS:**
No unusual
8. REACTIVITY DATA

GENERAL:
Product is unstable and will vigorously polymerize, decompose, condense, or become self-reactive under conditions of shock, pressure, or temperature.

INCOMPATIBLE MATERIALS AND CONDITIONS TO AVOID:
Air, oxidizing agents, phenols, acetylide forming metals, caustics, amines, alkanolamines, halogenated compounds, alcohols, glycolesters, alkylene oxides, ammonia, halogens, ether, acid anhydrides, moisture.

HAZARDOUS DECOMPOSITION:
Polymerization can generate sufficient heat to cause violent explosion.

9. NOTES

In ATP 29 (COMMISSION DIRECTIVE 2004/73/EC) to be implemented by 31 October 2005 the latest, Isoprene is classified as a Carcinogen and a Mutagen

Carc.Cat.2; R45, Muta.Cat.3; R68

REVISION SUMMARY:
Since August 15, 2002 this MSDS has been revised in Section(s):
9

10. PREPARATION

DATE PREPARED: NOV 26, 2004
SUPERSEDES: AUG 15, 2002

Prepared By: Olefins, Basic Chemicals Group (800) 663-4109

CAUTION: The information contained herein relates only to this product or material and may not be valid when used in combination with any other product or material or in any process. If the product is not to be used for a purpose or under conditions which are normal or reasonably foreseeable, this information can not be relied upon as complete or applicable. For greater certainty, uses other than those described in "Application and Use" of section 1 must be reviewed with the supplier. The information contained herein is based on information available at the indicated date of preparation.