1. CHEMICAL IDENTITY

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>1,3-Butadiene</th>
<th>Trade name</th>
<th>Butadiene</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synonyms</td>
<td>Divinyl, Divinyl, Erythrene, Vinylethylene</td>
<td>Chemical classification</td>
<td>Hydrocarbon</td>
</tr>
<tr>
<td>Formula</td>
<td>C4H6</td>
<td>CAS Number</td>
<td>106-99-0</td>
</tr>
<tr>
<td>UN number</td>
<td>1010</td>
<td>UN Hazard class</td>
<td>2.3</td>
</tr>
<tr>
<td>Hazchem code (EAC)</td>
<td>2 W E</td>
<td>Hazardous ingredients</td>
<td>--</td>
</tr>
</tbody>
</table>

2. PHYSICAL AND CHEMICAL DATA

<table>
<thead>
<tr>
<th>Boiling point/ Range °C</th>
<th>-4.5</th>
<th>Physical state</th>
<th>Gas</th>
<th>Appearance</th>
<th>Colorless</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting/Freezing Point °C</td>
<td>-10deg.</td>
<td>Vapour Pressure (at 20 °C)</td>
<td>1840</td>
<td>Odour</td>
<td>Mild aromatic</td>
</tr>
<tr>
<td>Vapour Density (Air =1)</td>
<td>1.87</td>
<td>Solubility in water (at 30 °C)</td>
<td>Not soluble</td>
<td>Other Information:</td>
<td></td>
</tr>
<tr>
<td>Specific gravity (at 20 °C) (water =1)</td>
<td>0.621 (liq)</td>
<td>pH</td>
<td>Not pertinent</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. FIRE AND EXPLOSION HAZARD DATA

<table>
<thead>
<tr>
<th>Flash point °C</th>
<th>-76</th>
<th>Flammability LFL % v UFL % v</th>
<th>2</th>
<th>TDG Flammability</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explosion sensitivity to impact</td>
<td>Stable</td>
<td>Explosion sensitivity to static electricity</td>
<td>May Explode</td>
<td>Autoignition Temperature °C</td>
<td>429</td>
</tr>
<tr>
<td>Combustible Material</td>
<td>Yes</td>
<td>Explosive Material</td>
<td>Yes</td>
<td>Hazardous Polymerization</td>
<td>Yes</td>
</tr>
<tr>
<td>Flammable Material</td>
<td>Yes</td>
<td>Oxidiser</td>
<td>No</td>
<td>Corrosive Material</td>
<td>No</td>
</tr>
<tr>
<td>Pyrophoric Material</td>
<td>No</td>
<td>Organic Peroxide</td>
<td>No</td>
<td>Other Information</td>
<td></td>
</tr>
<tr>
<td>Hazardous Combustion Products</td>
<td>Emits acrid smoke and fumes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. REACTIVITY DATA

<table>
<thead>
<tr>
<th>Chemical stability</th>
<th>With air forms peroxides, leading to explosive decomposition.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incompatibility with other Materials</td>
<td>Strong oxidizers, copper and copper alloys</td>
</tr>
<tr>
<td>Reactivity</td>
<td>Potentially explosive with NO3+O2, Ethanol + iodine + mercury oxide (at 35 degC),</td>
</tr>
<tr>
<td>Hazardous Reaction Products</td>
<td>Upon exposure to air it forms explosive peroxides, sensitive to heat, shock or heating above 27degC</td>
</tr>
</tbody>
</table>

5. HEALTH HAZARD DATA

<table>
<thead>
<tr>
<th>Route of entry</th>
<th>Inhalation, absorption through skin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effect of exposure/ Symptoms</td>
<td>Slight anesthetic effect at high concentration, liquid causes frostbite on skin contact, slight irritation to eyes and nose at high concentrations may affect nervous system. Suspected carcinogen.</td>
</tr>
<tr>
<td>Emergency treatment</td>
<td>Flush eyes with plenty of water for at least 10 minutes. Remove contaminated clothing. Wash affected skin with water. Apply xylocaïne or an antibiotic cream locally. If inhaled, remove victim to fresh air. Give artificial respiration, if breathing has stopped. Obtain medical attention immediately.</td>
</tr>
<tr>
<td>Permissible Exposure Limit</td>
<td>TLV-TWA (ACGIH)</td>
</tr>
<tr>
<td>LD50 orl-rat: TCIlo ihl-hmn:</td>
<td>IDLH</td>
</tr>
<tr>
<td>NFPA Hazard signals</td>
<td>Health</td>
</tr>
</tbody>
</table>
### 6. PREVENTIVE MEASURES

**PERSONAL PROTECTIVE MATERIAL**
- Hose mask with goggles, face shields and hose inlet in a vapour free atmosphere, self-contained breathing apparatus, and rubber suit side cover safety goggles and shoes.

**HANDLING AND STORAGE PRECAUTIONS**
- Store in a cool, fire proof with ventilation along the ground. Keep away from heat, sparks, open flame and incompatible materials. Para-1 butylcatechol (0.01-0.02%) is used as polymerisation.

### 7. EMERGENCY AND FIRST AID MEASURES

**FIRE** (Class of fire: C)
- **Fire extinguish media**: Dry Chemical, Carbon Dioxide, Foam, Steam, Water Fog.
- **Special Procedures**: Keep the container cool by spraying water if exposed to heat or flame.
- **Unusual Hazards**: Extremely flammable liquid. Vapor may explode if ignited in enclosed area.

**EXPOSURE**
- **First Aid Measures**: 
  - **Eye**: Immediately flush eyes with plenty of water for at least 15 minutes.
  - **Skin**: Flush exposed skin with plenty of water. Remove contaminated clothing, including shoes, and thoroughly clean and dry before reuse.
  - **Inhalation**: If adverse effect occurs, remove to uncontaminated area. Give artificial respiration at Hot breathing. Obtain medical attention immediately.
  - **Ingestion**: None required.
- **Antidotes/ Dosages**: DNA
- **SPILLS**
  - **Steps to be taken**: Shut off leaks without risk. Contain the liquid on earth or sand.
  - **Waste Disposal Method**: Incinerate at a safe place.

### 8. ADDITIONAL INFORMATION/ REFERENCES

**ECOLOGICAL INFORMATION**
- **Ecotoxicity**: Not harmful to aquatic life
- **Persistence**: DNA

**OTHER INFORMATION**

**REFERENCES (FOR OBTAINING MORE INFORMATION)**
- 1. Hazardous Chemicals Data Book: G Weiss: Noyes Data Corp USA.

### 9. MANUFACTURER/SUPPLIER’S DATA

- **Haldia Petrochemicals Limited**, Durgachak, Haldia, Purba Medinipur, WB- 721 602
  - **Contact person in Emergency**: Emergency Leader
  - **Ph**: (03224) 274400/007
  - **Fax**: (03224) 274420
  - **Local Bodies Involved**: The Additional District Magistrate
  - **Standard Packing**: Suspected Carcinogen
  - **Tremcard details/ Ref**: Others

### 10. DISCLAIMER

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