

**MATERIAL SAFETY DATA SHEET (MSDS)****1. CHEMICAL IDENTITY**

|                                 |                                                       |                                |                  |
|---------------------------------|-------------------------------------------------------|--------------------------------|------------------|
| <b>Chemical Name</b>            | Liquified petroleum gas                               | <b>Trade name</b>              | LPG              |
| <b>Synonyms</b>                 | LPG, Propane, Butane, Propylene, Purofax, Bottled gas | <b>Chemical classification</b> | Aromatic mixture |
| <b>Formula</b>                  | C3H6-C3H6-C4H10 (Mixture)                             | <b>CAS Number</b>              | 68476-85-7       |
| <b>UN number</b>                | 1075                                                  | <b>UN Hazard class</b>         | 2                |
| <b>Hazchem code (EAC)</b>       | 2WE                                                   |                                |                  |
| <b>REGULATED IDENTIFICATION</b> |                                                       | <b>Hazardous ingredients</b>   | <b>CAS No.</b>   |
| <b>Shipping Name</b>            | Petroleum gases, liquified                            | Propane                        | 74-98-6          |
| <b>Shipping code/ Label</b>     | Flammable , class2                                    | Butane                         | 106-97-8         |
| <b>Hazardous waste Id No.</b>   | 5                                                     | Propylene                      | 115-07-1         |
| <b>Uses:</b>                    |                                                       |                                |                  |

**2. PHYSICAL AND CHEMICAL DATA**

|                                                |           |                                         |                       |                                      |                            |
|------------------------------------------------|-----------|-----------------------------------------|-----------------------|--------------------------------------|----------------------------|
| <b>Boiling point/ Range</b>                    | >-40      | <b>Physical state</b>                   | Gas at 15 c and 1 atm | <b>Appearance</b>                    | Colourless                 |
| <b>Melting/ Freezing Point C</b>               | NP        | <b>Vapour Pressure( at 20 C ) mm Hg</b> | DNA                   | <b>Odour</b>                         | Mercaptane added for Odour |
| <b>Vapour Density ( Air =1)</b>                | 1.5       | <b>Solubility in water ( at 30 C)</b>   | Floats                | <b>Other Informations</b>            |                            |
| <b>Specific gravity ( at 50 C ) (water =1)</b> | 0.51-0.58 | <b>pH</b>                               | Not pertinent         | Soluble in Organic solvents, Alcohol |                            |

**3. FIRE AND EXPLOSION HAZARD DATA**

|                                        |               |                                                    |             |                                   |                |
|----------------------------------------|---------------|----------------------------------------------------|-------------|-----------------------------------|----------------|
| <b>Flash point C (CC) (OC)</b>         | NA            | <b>Flammability LFL % v UFL % v</b>                | 1.9<br>9.5  | <b>TDG Flammability</b>           | 2              |
| <b>Explosion sensitivity to impact</b> | May explode   | <b>Explosion sensitivity to static electricity</b> | May explode | <b>Autoignition Temperature C</b> | 466.1          |
| <b>Combustible Material</b>            | No            | <b>Explosive Material</b>                          | No          | <b>Hazardous Polymerization</b>   | will not occur |
| <b>Flammable Material</b>              | YES           | <b>Oxidiser</b>                                    | No          | <b>Corrosive Material</b>         | No             |
| <b>Pyrophoric Material</b>             | NO            | <b>Organic Peroxide</b>                            | No          | <b>Other information</b>          |                |
| <b>Hazardous Combustion Products</b>   | Emits CO, CO2 |                                                    |             |                                   |                |

**4. REACTIVITY DATA**

|                                             |                                                                           |
|---------------------------------------------|---------------------------------------------------------------------------|
| <b>Chemical stability</b>                   | Stable                                                                    |
| <b>Incompatibility with other Materials</b> | Strong oxidiser                                                           |
| <b>Reactivity</b>                           | No reaction with common materials but may react with oxidising materials. |
| <b>Hazardous Reaction Products</b>          | Not available.                                                            |

**5. HEALTH HAZARD DATA**

|                                                    |                                                                                                                                                                                                                                   |                          |                        |                     |
|----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|------------------------|---------------------|
| <b>Route of entry</b>                              | Inhalation, Skin                                                                                                                                                                                                                  |                          |                        |                     |
| <b>Effect of exposure/ Symptoms</b>                | Concentration in air greater than 10 % causes dizziness in few minutes. 1 % conc. gives the same symptoms in 10 mts. High concentration causes asphyxiantion. Liquid on skin causes frostbite.                                    |                          |                        |                     |
| <b>Emergency treatment</b>                         | If inhaled remove the victim to fresh air area. Provide artificial respiration. Skin : Remove the wetted cloths and wash the affected area with plenty of water. Eyes : Flush with plenty of water for 15 min. seeks medical aid. |                          |                        |                     |
| <b>Permissible Exposure Limit</b>                  | <b>TLV-TWA ( ACGIH)</b>                                                                                                                                                                                                           | 1000 ppm                 | <b>STEL(ACGIH)</b>     | Not listed          |
| <b>LD 50 orl-rat: Not listed<br/>LCLo ihl-hmn:</b> | <b>IDLH</b>                                                                                                                                                                                                                       |                          | <b>Odour threshold</b> | 5000 to 20000 ppm   |
| <b>NFPA Hazard signals</b>                         | <b>Health</b><br>1                                                                                                                                                                                                                | <b>Flammability</b><br>4 | <b>Reactivity</b><br>0 | <b>Special</b><br>- |



## MATERIAL SAFETY DATA SHEET ( MSDS)

### 6. PREVENTIVE MEASURES

|                                         |                                                                                                                 |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| <b>PERSONAL PROTECTIVE MATERIAL</b>     | Avoid contact with liquid or gas. Provide hand gloves, safety goggles, gas mask, protective clothing and shoes. |
| <b>HANDLING AND STORAGE PRECAUTIONS</b> | Keep in tightly closed cylinders in a cool, well ventilated area, away from heat, flame, sparks.                |

### 7. EMERGENCY AND FIRST AID MEASURES

|                                   |                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>FIRE ( Class of fire : C )</b> |                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Fire extinguish media</b>      | Water spray, DCP, CO <sub>2</sub>                                                                                                                                                                                                                                                                                                                               |
| <b>Special Procedures</b>         | keep the containers cool by spraying water if exposed to fire or hear.                                                                                                                                                                                                                                                                                          |
| <b>Unusual Hazards</b>            | Otherwise containers will explode in fire.                                                                                                                                                                                                                                                                                                                      |
| <b>EXPOSURE</b>                   |                                                                                                                                                                                                                                                                                                                                                                 |
| <b>First Aid Measures</b> ___     | Eyes : Flush with plenty of water for atleast 10 minutes<br>Skin : Remove contaminated clothing and wash affected skin with water.<br>Inhalation : Remove victims to fresh air. If not breathing , give artificial respiration.<br>Ingestion : if conscious, have victim drink water or milk. Do not induced vomiting.<br>Obtain medical attention immediately. |
| <b>Antidotes/ Dosages</b>         | No specific antidote. Treat symptomatically.                                                                                                                                                                                                                                                                                                                    |
| <b>SPILLS</b>                     |                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Steps to be taken</b>          | Shut off leaks if without risk. Warn everybody that air mixture is explosive.                                                                                                                                                                                                                                                                                   |
| <b>Waste Disposal Method</b>      | Allow gas to burn under control.                                                                                                                                                                                                                                                                                                                                |

### 8. ADDITIONAL INFORMATION/ REFERENCES

|                                                                |                                                                                                                                                                     |
|----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ECOLOGICAL INFORMATION</b>                                  |                                                                                                                                                                     |
| <b>Ecotoxicity</b>                                             | DNA                                                                                                                                                                 |
| <b>Persistence</b>                                             | DNA                                                                                                                                                                 |
| <b>OTHER INFORMATION</b>                                       | A common air contaminant. Flammable when exposed to heat or flame. Keep containers tightly closed. Slightly explosion hazard. No food chain concentration potential |
| <b>REFERENCES ( FOR OBTAINING MORE INFORMATION)</b>            |                                                                                                                                                                     |
| 1. Hazardous chemicals Data Book: G Weiss: Noyes Data corp USA | 1. Hand book of environmental data: Karen Verschueren: van Nostrand Reinhold Co., USA                                                                               |

### 9. MANUFACTURER/SUPPLIER'S DATA

|                                                                                             |                                    |                         |
|---------------------------------------------------------------------------------------------|------------------------------------|-------------------------|
| <b>Haldia Petrochemicals Limited,</b><br>Durgachak, Haldia, Purba<br>Medinipur, WB- 721 602 | <b>Contact person in Emergency</b> | Emergency leader        |
| PH: (03224) 274400/007                                                                      | <b>Local Bodies Involved</b>       | The District Magistrate |
| Fax: ( 03224) 274420                                                                        | <b>Standard Packing</b>            | By pipeline             |
|                                                                                             | <b>Termcard details/ Ref</b>       | Not pertinent           |
|                                                                                             | <b>Others</b>                      | -                       |

### 10. DISCLAIMER

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Information contained in this material safety data sheet is believed to be reliable but no representation, guarantee or warranties of any kind are made as to its accuracy, suitability for a particular application or results to be obtained from them. It is upto the user/ distributor to ensure that the information contained in the material safety data sheet is relevant to the product manufactured/ handled or sold by him as the case may be. HPL makes no warranties, expressed or implied, in respect of the adequacy of this document for any particular purpose. |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|