**MATERIAL SAFETY DATA SHEET**

1. **Product and Company Identification**

   **Product name**: PETLIN LD *

   **Product code**: PE-LD

   **Chemical name**: Polyethylene (low density)

2. **Composition/Information on Ingredients**

   This chemical product is a preparation.

   **Common chemical name**: Low Density Polyethylene

   **Formula**: $(-CH_2 - CH_2)_n$

   **Generic name**: Polyolefines

   **CAS number**: 9002-88-4

   **Synonym(s)**: LDPE

   **Components contributing to the hazard**: None

3. **Hazards Identification**

   **Specific hazards**:

   **Inhalation**: When/if inhaled, fines may cause mechanical irritation of the respiratory tract; Coughing.

   **Skin contact**: Material is unlikely to cause irritation, but if contact with molten material occurs, treat as for thermal burn (see Section 4).

   **Eye contact**: Fines can cause mechanical irritation; Red eyes.

   **Ingestion**: No hazard.

   The material is not classified as being a dangerous preparation according to the EEC-Directive 88/379 and the subsequent amendments (see Section 15).

   **R(isk) phrases**: Not applicable.

4. **First-Aid Measures**

   **Inhalation**: When fumes of molten material have been inhaled:
   - move person to fresh air as quickly as possible
   - rest in half upright position
   - loosen clothing
   - keep warm
5. Fire-fighting Measures

Extinguishing media: Water, water/foam, CO₂, ABC fire extinguishing powder.

<table>
<thead>
<tr>
<th>On fire</th>
<th>Extinguishing medium</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processing plant</td>
<td>Polymeric</td>
<td>Water/foam</td>
</tr>
<tr>
<td></td>
<td>Equipment</td>
<td>CO₂</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ABC powder</td>
</tr>
<tr>
<td>Storage</td>
<td>Bags</td>
<td>Water, Water/foam</td>
</tr>
<tr>
<td></td>
<td>Bulk silo</td>
<td>Cooling with water</td>
</tr>
<tr>
<td>Transport</td>
<td>Lorry / pallets</td>
<td>Water, Water/foam</td>
</tr>
<tr>
<td></td>
<td>Bulk car</td>
<td>Water/foam</td>
</tr>
</tbody>
</table>

Not to be used for reasons of safety: Not applicable

Specific Hazards:

Solid: Treat the material as a solid that can burn. Moulded parts or solid granules generally burn slowly with a low smoke density and flaming drips, carbon monoxide and irritating oxygen containing organic substances are released.

Product fines: A spark can ignite an explosive concentration of product fines in air (see Section 7 and 9).

Vapours: Hot vapours - from heated material - plus air can be extremely inflammable in the case of stochiometric mixtures.

Combustion products: No harmful additives are present with respect to the material (see Section 10).

Protection for the fire-fighters: Do not approach fire in confined space without positive pressure self contained breathing apparatus and full bunker gear: bunker coats, helmets with face shield, gloves, rubber boots. Note: Cool fire exposed containers with water.

6. Accidental Release Measures

Personal precautions: Apply ample grounding with respect to dust explosion danger caused by released dust (see Section 7). Protection of skin/ eye/ hand (see Section 8).

Environmental precautions: For disposal considerations

Cleaning up methods: Shovel or sweep up, use special industrial vacuum cleaner to suck possible fines/dust. Avoid generating dust clouds. Put into containers for reclaiming or disposal.
### Handling Precautions

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>General precautions</td>
<td>For safe polymer processing the material should be completely dry.</td>
</tr>
<tr>
<td>Personal protection</td>
<td>For more information on personal protection when handling the material (see Section 8).</td>
</tr>
<tr>
<td>Hygiene measures</td>
<td>Adequate washing facilities, with supplies of mild soap and hand cleanser should be available at all working locations. Solvents should never be used as hand cleansers. Smoking, eating and drinking in working and storage areas should be prohibited.</td>
</tr>
<tr>
<td>Technical measures</td>
<td></td>
</tr>
</tbody>
</table>
| Ventilation: general mechanical | A ventilation system should be installed where:  
- melt processing of the material is carried out;  
- solid material is being grinded or machined;  
- any high temperature processing is carried out (e.g. Sealing) |
| Ventilation: local exhaust | It is advised to install local exhaust ventilation in the vicinity of processing machines.                                                                                                                      |
| Prevention of dust generation | Suppression: optimize the piping system used for pneumatic transport (surface, corners, length, velocities)  
Filtering: take extreme care of dust explosion danger and apply local grounding where the presence of fines plus static electricity in or near the pneumatic transport lines is very likely.  
Note: When handling the granulate normally dust will not be a problem with respect to breathing. During regrinding operations the use of a dust mask is advised. |
| Prevention of fire and explosion | See 'Storage' under this section.                                                                                                                                                                           |

### Storage

| Technical measures | Owing to the electrostatic properties of the material and its fines a grounding installation for storage silos and pneumatic transport is obligatory. Other ways of prevention with respect to electrostatic hazards are: inerting i.e. Lowering oxygen concentration by means of nitrogen supply, control of transport speed, etc. |
|                   |                                                                                                                                                                                                             |
| Storage conditions | Avoid prolonged storage in open sunlight, high temperatures and/or high humidity as this could well speed up alteration and consequently loss of quality of the material and this could lead to unforeseen dangers.  
Keep polymer completely dry for good processing (in spite of increased static danger). Stack pallets only two high when storing, in order to prevent collapsing.  
Slip agent containing material should only be stacked two high after checking the integrity of the packaging. |
| Incompatible products | Not applicable                                                                                                                                                                                                 |

### 8. Exposure Controls & Personal Protection

| Control parameters | Threshold Limit Value (TLV): a provisional TLV (TWA 8 hours) is advised in accordance with the TLV of non-toxic nuisance dust:  
- 10 mg/m³ for inhalable dust  
- 5 mg/m³ for respirable dust. |
|                   |                                                                                                                                                                                                             |
Personal protection equipment:

- Respiratory protection: When TLV is accidentally exceeded (see Section 7: Prevention Dust Generation).
- Hand protection: When handling a hot melt, heat resistant gloves should be worn (e.g., when purging a processing machine).
- Eye protection: When handling a hot melt, heat resistant face shields should be worn (e.g., when purging a processing machine).
- Skin and body protection: The use of apron, boots and/or full protective suit is not prescribed here; it is up to the decision of the processor.

9. Physical and Chemical Properties

Polymer Properties:

<table>
<thead>
<tr>
<th>Property</th>
<th>Solid (at +20°C)</th>
<th>Granulate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Solid</td>
<td>Granulate</td>
</tr>
<tr>
<td>Form</td>
<td>Colourless, natural opaque</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Colour</td>
<td>Weak paraffinic</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Odour</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>pH value</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Relative density</td>
<td>915-935 kg/m³</td>
<td>550-630 kg/m³</td>
</tr>
<tr>
<td>Bulk density</td>
<td>550-630 kg/m³</td>
<td></td>
</tr>
<tr>
<td>Melting point/range</td>
<td>104-115°C</td>
<td>83-98°C</td>
</tr>
<tr>
<td>Softening point/range</td>
<td>83-98°C</td>
<td></td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Boiling point/range</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapour density</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Solubility in water</td>
<td>Insoluble</td>
<td></td>
</tr>
<tr>
<td>Solubility in other substances</td>
<td>Soluble only in some aromatic hydrocarbons and/or n-paraffines (&gt;C₁₄) at high temperatures.</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>(n-octanol)/water</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Miscibility</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Volume conductivity</td>
<td>Low, danger of static charges</td>
<td></td>
</tr>
</tbody>
</table>

Safety Properties:

<table>
<thead>
<tr>
<th>Property</th>
<th>Solid</th>
<th>Granulate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decomposition Temp.</td>
<td>&gt;300 °C</td>
<td></td>
</tr>
<tr>
<td>Flash point</td>
<td>&gt;360 °C</td>
<td></td>
</tr>
<tr>
<td>Auto Ignition Temp.</td>
<td>&gt;360 °C</td>
<td></td>
</tr>
</tbody>
</table>

Dust Explosive Properties:

<table>
<thead>
<tr>
<th>Property</th>
<th>Solid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower Explosion Limit (LEL)</td>
<td>St I</td>
</tr>
<tr>
<td>Minimum Ignition Temp.</td>
<td>410 °C</td>
</tr>
<tr>
<td>Dust Explosion Class (St)</td>
<td>1</td>
</tr>
</tbody>
</table>

10. Stability and Reactivity

The material is chemically unreactive. Under certain conditions, however, hazardous reactions can take place.

Conditions to avoid:

- Material fines

Material fines - accidentally released in air - can result in an explosive concentration (see Section 6, 7 and 9).
Electrostatic loading

For information on safety measures regarding electrostatic loading see:
Section 7: Technical Measures: Prevention of dust generation

Dust/powder air mixtures

Gas/vapour air mixtures

At high temperatures (local hot spots) inerting should possibly be applied in order to strongly reduce oxygen concentrations.
Stabilisation of the polymer results in inflammable gasses being formed only a higher than usual temperatures. Great care should be taken to process the material at moderate temperatures (i.e. well below +350°C) in order to avoid explosive vapour/air mixtures.

Processing temperatures

Do not exceed 320°C

Long term exposure

Do not expose for long period to temperatures above 80°C. Do not expose to UV-light (see Section 7).

Materials to avoid

Strong oxidising agents.

Hazardous decomposition

At processing temperatures some degree of thermal degradation will occur. Although highly dependent on temperature and environmental conditions a variety of decomposition products may be present in small amounts, ranging from simple inflammable hydrocarbons (e.g. Methane, propane) to toxic and/or irritating gases (e.g. Carbon monoxide, carbon dioxide, acids, ketones, aldehydes).

Changes in physical appearance:

Dust (and powder) fines can cause extremely dangerous situations compared with base material (see Section 6, 7 and 9). There is possibility of degradation to unstable products under normal circumstances. Only at extreme temperatures (above the decomposition temperature) degradation will occur.

Stabilization

None

11. Toxicological Information

Acute toxicity

None (LD₅₀ oral rat >5000 mg/kg)

Local effects

None

Chronic toxicity

None

Sensitization

None

Specific effects (carcinoginity, mutagenicity, teratogenicity, narcosis)

None

12. Ecological Information

Mobility

None

Persistence/degradability:

Very low UV degradability

Bioaccumulation

None

Ecotoxicity:

There is no indication that this material is a risk to the environment.

Aquatic toxicity:

Insoluble non toxic solid material (no water hazard)
13. Disposal Considerations

This material - as well as the packaging there off - present no danger regarding toxicological and/or ecological considerations. It can be burnt in a controlled way or be disposed of via landfill, or it can be recycled for - possible less critical - non food applications.
Note: Additional national or regional provisions may be in force within this matter.

14. Transport Information

| General precautions                  | Keep the material dry during transport |
| Special precautions                  | No special precautions have to be met. This material is not classified according to the recommendations of the UN (10th Edition) on the transport of dangerous goods. |
| GGVSee/IMDG-code                    | Not applicable |
| ICAOTI                               | Not applicable |
| IATA-DGR                             | Not applicable |
| RID/ADR                              | Not applicable |
| UN-number                            | Not applicable |
| GGVE/GGVS                            | Not applicable |
| ADNR                                  | Not applicable |

15. Regulatory Information

Labelling according to EC directive 88/379/EEC and subsequent amendments is not required. According national legislation may be in force in this matter.

| EC classification                  | No dangerous preparation |