SAFETY DATA SHEET
Ultra High Molecular Weight Polyethylene (UHMW-PE)

SECTION 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name : POLIMAXX® UHMWPE
Product Code  : U310
Manufacturer   : IRPC Public Company Limited
                299 Moo 5 Sukhumvit Road AmphurMuangRayong Thailand
Emergency Call : +66(0) 38 802560
Website       : www.irpc.co.th, www.irpcomark.com

SECTION 2. HAZARDS IDENTIFICATION

Regulation (EC) No 1272/2008: This product is not classified as dangerous according to Regulation (EC) No 1272/2008.
Directive 67/548/EEC : This product is not classified as dangerous according to EU Directive 67/548/EEC.
GHS: Not classified
Label elements : Not applicable
Other hazards   : Not applicable

SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredients : Ingredient        CAS Number
             Base Powder       9002-88-4
Other Name   : UHMW, UHMW-PE, PE-UHMW

While this product is not classified as hazardous under OSHA Regulations, this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and made available for employees and other users of the product.

SECTION 4. FIRST AID MEASURES

Skin Exposure : If hot vapor or molten polymer contact skin, cool rapidly with cold water.
Eyes Exposure : Flush with plenty of water. Seek medical attention if discomfort persists, and to remove foreign body.
Inhalation    : Remove to fresh air. Seek medical attention if breathing difficulties occur.
Ingestion     : If a significant quantity has been swallowed, give glasses of water to dilute.
For helper protection : Avoid the contact with molten polymer
Note to Physicians : If the polymer is heated at too high temperature or if is burned, gases may be released. Patients who have been exposed to off-gases may need to have their arterial blood gases and carboxyhemoglobin levels checked.

SECTION 5. FIRE FIGHTING MEASURES

Suitable extinguishing agents : Dry chemical, foam, water fog or carbon dioxide. Avoid using direct streams of water on molten burning material
Hazardous materials during firefighting : Carbon monoxide and carbon dioxide, and original monomer other hydrocarbon oxidation Products.
Specific Hazards : Inhalation of vapors or fumes.
Protective equipment : Use a mask with universal filler. Use self-contained breathing apparatus and full protective clothing.
**SECTION 6. ACCIDENTAL RELEASE MEASURES**

**Personal Precautions**: Avoid inhalation and direct contact.

**Environmental Precautions**: Discharge into the environment must be avoided.

**Clean-up Methods**: Collect spilled material using a method that minimizes dust generation (e.g. wet methods, HEPA vacuum). Place waste in an appropriate container for disposal. Use care during clean-up to avoid exposure to the material and injury from broken containers.

**SECTION 7. HANDLING AND STORAGE**

**Handling**: Use with adequate ventilation. Avoid dust generation. Avoid contact with eyes and skin. Accumulations of dust should be removed from settling areas.

**Storage**:
- **Storage conditions**: Store in a dry place from heat and direct sunlight.
- **Properly**: Good ventilation and temperature preferably
- **Avoid**: Dust, heat sources, sparks and flame.
- **Risk symbols**: Not applicable

**Safety material to package**: Plastic bags or paper material are recommended.

**SECTION 8. EXPOSURE CONTROLS/ PERSONNEL PROTECTION**

**Exposure limits**

<table>
<thead>
<tr>
<th>Component Name</th>
<th>Reference</th>
<th>TWA ppm</th>
<th>TWA mg/m³</th>
<th>OEL ppm</th>
<th>OEL mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyethylene</td>
<td>Italy OEL</td>
<td>-</td>
<td>10</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Japan OEL for Dusts</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>8</td>
</tr>
</tbody>
</table>

**Personal protective equipments**
- **Respiratory protection**: No special respiration protection is normally required.
- **Eye protection**: Wear safety glasses with side shields, goggles or face shield.
- **Protective clothing**: Gloves required when handling hot material. In case of fire, wear SHA/NIOSH approved self-contained breathing apparatus or equivalent and full protective gear.
- **Ventilation**: Provide adequate ventilation when processing material at elevated temperatures.

**Other protective equipments**: N.A

**Engineering Controls**: For molten materials: Provide mechanical ventilation; in general such ventilation should be provided at compounding/converting areas and at fabricating/filling work stations where the material is heated. Local exhaust ventilation should be used over and in the vicinity of machinery involved in handling the molten material.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

**Physical Appearance**: Powder.
**Color**: White.
**Odor**: Slight to none.
**Flash Point**: Not Application
**Auto Ignition Temperature**: Not Application
**Density**: 0.930 – 0.940 g/cm³
**Vapour density**: Not Application
Vapour Pressure: Not Application
Bulk Density: 350 – 500 kg/m³
Solubility in Water: Insoluble.
Solubility in Other Products: Soluble in organic solvents under special conditions.

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability: Material is stable under ordinary conditions of use and storage.
Hazardous reactions: Will not occur
Condition to Avoid: Flame: avoid prolonged heating at processing temperature or temperature above 280°C (536°F)
Material to Avoid: Halogen, strong oxidizing and aromatic solvents.
Hazardous Decomposition Products: Aliphatic Hydrocarbons.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute Toxicity

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Route</th>
<th>Species</th>
<th>Acute Toxic Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyethylene</td>
<td>Oral</td>
<td>Rat</td>
<td>LD&lt;sub&gt;50&lt;/sub&gt; &gt; 3000 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Inhalation</td>
<td>Mouse</td>
<td>LC&lt;sub&gt;50&lt;/sub&gt; 12000 mg/m³/3M</td>
</tr>
</tbody>
</table>

Irritating/corrosive effects
Eye Irritation: Solid particles may cause transient irritation from mechanical abrasion
Skin Irritation: Not expected to cause skin irritation. Molten material may cause thermal burns.
Inhalation: Not a likely route of exposure. Process fumes may cause irritation
Ingestion: May cause a choking hazard if swallowed.

Other information
Carcinogenic effect:
International Agency for Research on Cancer (IARC): Group 3
NOT classifiable as to its carcinogenicity to humans.

SECTION 12. ECOLOGICAL INFORMATION

Eco-toxicity: No relevant studies identified.
Persistence and degradability: This material is not expected to be readily biodegradable.
Bio-accumulative potential: Product is not likely to accumulate in biological organisms.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal Methods:
This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.
Dispose of by: burial in a land-fill specifically licenced to accept chemical and / or pharmaceutical wastes or Incineration in a licenced apparatus (after admixture with suitable combustible material)
Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.
SECTION 14. TRANSPORT INFORMATION

Land (RID/ ADR) : Not classified.
Seas (IMO/ IMDG) : Not classified.
Air (ICAO-IATA) : Not classified.

SECTION 15. REGULATORY INFORMATION

US. Toxic Substances Control Act
All components of this product are on the TSCA Inventory.

European Inventory of Existing Commercial Chemical Substances (EINECS)
The components of this product are on the EINECS inventory or are exempt from inventory requirements.

The product is not classified as dangerous for supply according to the Regulation (EC) No 1272/2008 and the EC directive 67/548/EEC and 1999/45/EC.

NFPA - USA
Health – 1, Flammability – 1, Reactivity – 0

Canada - WHMIS
This product does not meet WHMIS classification criteria.

Canada – DSL
This product is listed in DSL.

SECTION 16. OTHER INFORMATION

The information in this document is based on our best present. Nevertheless, it does not constitute a guarantee for any specific product features and does not establish any a legally binding contract.

DOT : Department of Transportation
ADR : European agreement concerning the international carriage of dangerous goods by road.
RID : Regulations concerning the international carriage of dangerous goods by rail.
IMDG – CODE : International maritime dangerous goods code
ICAO : International Civil Aviation Organization
IATA : International air transport association
GHS : Globally Harmonized System of Classification and Labeling of Chemicals
NFPA : National Fire Protection Association
WHMIS : Workplace Hazardous Materials Information System
DSL : Domestic Substances List

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