Section 1. Chemical Product and Company Identification

Product name: Polyethylene

In Case of Emergency: Chemtrec: (800) 424-9300
Total Petrochemicals & Refining USA, Inc.: (800) 322-3462

Supplier: Total Petrochemicals & Refining USA, Inc.
P O Box 674411
Houston, TX 77267-4411

Technical Information: For non-emergency product information:
email product.stewardship@total.com

Chemical Family: Polymer

CAS Registry Number: 9002-88-4 or 25213-02-9 or 25087-34-7

MSDS#: PE0016 (EN)
Validation Date: 4/12/2013
Print Date: 4/12/2013

Synonym: Polyethylene

This MSDS applies to all grades of polyethylene, including but not limited to:


It also includes any of the above named grades with the "-NA" suffix.

This MSDS also covers experimental materials, BDM1 ####, BDM2 ####, and specially compounded samples labeled Polyethylene N#### and N#####-#, where # can be any digit (0-9).

Section 2. Hazards Identification

Emergency Overview: Irritating vapors to respiratory system and eyes may form when polymer is processed at high temperatures. Molten or heated material in skin contact can cause severe burns.

Routes of Entry: FOR HOT MATERIAL: Skin contact. Eye contact. Inhalation.

Potential Acute Health Effects:

- Eyes: Dust may cause mechanical irritation to eye. Heated Polymer: Eye contact can cause serious thermal burns. Vapors formed when polymer is heated may be irritating to the eye.
- Skin: No known acute effects of this product resulting from skin contact at room temperature. Heated Polymer: skin contact can cause serious thermal burns.
- Inhalation: Negligible at room temperature. Nuisance dusts can be irritating to the upper respiratory tract. Irritating vapors may form when the polymer is processed at high temperatures.
- Ingestion: No effects are expected for ingestion of small amounts. May be a choking hazard.

Potential Chronic Health Effects: CARCINOGENIC EFFECTS: Polyethylene is not a known carcinogen. Not listed as a carcinogen by OSHA, NTP or IARC.

Medical Conditions Aggravated by Overexposure: There is no known effect from chronic exposure to this product. Repeated or prolonged exposure is not known to aggravate medical condition.

Overexposure/Signs/ Symptoms: No adverse health effects anticipated from the solid pellet.

See Toxicological Information (Section 11)
Section 3. Composition and Information on Ingredients

Occupational exposure limits, if available, are listed in Section 8.

<table>
<thead>
<tr>
<th>Substance Name</th>
<th>CAS #</th>
<th>% by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyethylene Homopolymer</td>
<td>9002-88-4</td>
<td>~ 100</td>
</tr>
<tr>
<td>or Ethylene-1-hexene Copolymer</td>
<td>25213-02-9</td>
<td></td>
</tr>
<tr>
<td>or Ethylene-1-butene Copolymer</td>
<td>25087-34-7</td>
<td></td>
</tr>
</tbody>
</table>

Section 4. First Aid Measures

Eye Contact: Rinse with water for a few minutes. Seek medical attention if necessary.

Skin Contact: 
- Polymer: NO known EFFECT on skin contact, rinse with water for few minutes.
- Heated Polymer: For serious burns from heated polymer, get medical attention. In case of skin contact, immediately immerse in or flush with clean, cold water.

Inhalation: Allow the victim to rest in a well ventilated area.

Ingestion: No First Aid procedures are needed.

Section 5. Fire Fighting Measures

Flammability of the Product: May be combustible at high temperature.

Auto-ignition Temperature: 349°C (660.2°F)

Flash Points: CLOSED CUP: 341°C (645.8°F).

Flammable Limits: Not available.

Products of Combustion: Carbon oxides (CO, CO2) and soot.

Fire Hazards in Presence of Various Substances: No specific information is available in our database regarding the flammability of this product in the presence of various materials.

Explosion Hazards in Presence of Various Substances: 
- Risks of explosion of the product in presence of mechanical impact: Not expected.
- Risks of explosion of the product in presence of static discharge: Possible.
- Risk of explosion from dust accumulation of this product is possible. See MSDS section 7 Handling for more information.

Fire Fighting Media and Instructions: 
- SMALL FIRE: Dry chemical extinguisher (ABC or AB). Use water spray or fog.
- LARGE FIRE: Use water spray or fog. Do not use water jet.

Protective Clothing (Fire): Wear MSHA/NIOSH approved self-contained breathing apparatus or equivalent and full protective gear.

Special Remarks on Fire Hazards: Fire may produce irritating gases and dense smoke.

Special Remarks on Explosion Hazards: Flowing material may produce static discharge, igniting dust accumulations.

Section 6. Accidental Release Measures

Small Spill and Leak: Pellets on the floor could present a serious slipping problem. Good housekeeping must be maintained at all times to avoid this hazard. Sweep, shovel, or vacuum material into clean containers.

Large Spill and Leak: Use a shovel to put the material into a convenient waste disposal container. Do not allow any potentially contaminated water with pellets to enter any waterway, sewer or drain.
### Section 7. Handling and Storage

**Handling**

Handling of plastic may form nuisance dust. Protect personnel.

Pneumatic material handling and processing equipment may generate dust of sufficiently small particle size that, when suspended in air, may be explosive. Dust accumulations should be controlled through a comprehensive dust control program that includes, but is not limited to, source capture, inspection and repair of leaking equipment, routine housekeeping and employee training in hazards. See NFPA 654.

When handled in bulk quantities, this product and its associated packaging may present a crushing hazard due to the large masses involved, possibly resulting in severe injury or death.

**Storage**

Keep container dry. Keep in a cool place. Ground all equipment containing material. Keep container tightly closed. Keep in a cool, well-ventilated place. Combustible materials should be stored away from extreme heat and away from strong oxidizing agents.

### Section 8. Exposure Controls/Personal Protection

**Engineering Controls**

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

**Personal Protection**

- **Eyes** Safety glasses with side shields.
- **Body** Coveralls.
- **Respiratory** Ventilation is normally required when handling this product at high temperatures. Wear appropriate respirator when ventilation is inadequate.
- **Hands** Thermally insulated gloves required when handling hot material.
- **Feet** Shoes.

**Protective Clothing (Pictograms)**

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyethylene Homopolymer</td>
<td>Not established.</td>
</tr>
<tr>
<td>or Ethylene-1-hexene Copolymer</td>
<td></td>
</tr>
<tr>
<td>or Ethylene-1-butene Copolymer</td>
<td></td>
</tr>
</tbody>
</table>

Consult local authorities for acceptable exposure limits.

### Section 9. Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical State and Appearance</strong></td>
<td>Solid. (Solid)</td>
</tr>
<tr>
<td><strong>Color</strong></td>
<td>Translucent white pellets.</td>
</tr>
<tr>
<td><strong>Odor</strong></td>
<td>Odorless.</td>
</tr>
<tr>
<td><strong>Molecular Weight</strong></td>
<td>Not applicable.</td>
</tr>
<tr>
<td><strong>Molecular Formula</strong></td>
<td>(-\text{CH}_2\text{-CH}_2)x)</td>
</tr>
<tr>
<td><strong>Melting/Freezing Point</strong></td>
<td>126 to 136°C (258.8 to 276.8°F)</td>
</tr>
<tr>
<td><strong>Specific Gravity</strong></td>
<td>0.91 to 0.97 (Water = 1)</td>
</tr>
<tr>
<td><strong>Volatile</strong></td>
<td>Negligible.</td>
</tr>
<tr>
<td><strong>Solubility in Water</strong></td>
<td>Insoluble in water.</td>
</tr>
</tbody>
</table>
**Section 10. Stability and Reactivity**

**Stability and Reactivity**
The product is stable. Avoid temperatures above 300 degree C (570 F).

**Conditions of Instability**
No additional remark.

**Incompatibility with Various Substances**
May react or be incompatible with oxidizing materials.

**Hazardous Decomposition Products**
Hazardous decomposition products are carbon monoxide, carbon dioxide, dense smoke, and various hydrocarbons.

**Hazardous Polymerization**
Under normal conditions of storage and use, hazardous polymerization will not occur.

**Section 11. Toxicological Information**

**Toxicity to Animals**
Very low toxicity to humans or animals.

**Chronic Effects on Humans**
CARCINOGENIC EFFECTS: Not listed as a carcinogen by OSHA, NTP or IARC.

**Other Toxic Effects on Humans**
Not considered to be dangerous to humans.

**Section 12. Ecological Information**

**Ecotoxicity**
Avoid release to the environment. This product is not expected to bioaccumulate through food chains in the environment.

**Biodegradable/OECD**
Not readily biodegradable. Persistent in the environment.

**Mobility**
Because of its physico-chemical properties, the product has a low soil mobility. This material floats on water.

**Section 13. Disposal Considerations**

**Waste Information**
Transfer to an approved disposal area in accordance with federal, state, and local regulations. Consult your local or regional authorities.

**Section 14. Transport Information** *(for domestic bulk shipments, non-bulk shipments may differ)*

**DOT Classification for Bulk Shipments (non bulk shipments may differ)**
Not a DOT controlled material (United States).

**Proper Shipping Name/Description**
Not applicable.

**UN Number**
Not applicable.

**Packing Group**
Not applicable.

**Marine Pollutant**
Not listed in Appendix B to 49CFR172.101

**Hazardous Substances Reportable Quantity**
Not applicable

**Special Provisions for Transport**
Not applicable.

**TDG Classification**
Not controlled under TDG (Canada).

**IMO/IMDG Classification**
Not controlled under IMDG.

**ICAO/IATA Classification**
Not controlled under IATA.

**USCG Proper Shipping Name**
Not Available
**Section 15. Regulatory Information**

**HCS Classification**
This product is not a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

**U.S. Federal Regulations**
TSCA inventory: All the ingredients are on the TSCA list.

**SARA 301/302/303**
No chemicals in this product are listed as extremely hazardous substances in 40 CFR 355, Emergency Planning And Notification (Appendix A to Part 355).

**SARA 304**
No chemicals in this product require reporting under the requirement of 40 CFR 355, Emergency Planning And Notification (SARA extremely hazardous substances listed in Appendix A to Part 355 or CERCLA hazardous substances listed in Table 302.4 of 40 CFR Part 302).

**SARA 313**
This product contains no chemicals in excess of the applicable de minimis concentration that are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372 (Table 372.65).

**SARA 311/312**
This product is not a “Hazardous Chemical” as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200, and as such does not require reporting under the requirements of 40 CFR 370, Hazardous Chemical Reporting: Community Right-To-Know.

**International Regulations**

**WHMIS (Canada)**
Not controlled under WHMIS (Canada).

**DSCL (EEC)**
This product is not classified according to EU legislation.

**CEPA DSL/NDSL**
This material is listed or exempted.

**State Regulations**
To the best of our knowledge, this product does not contain reportable levels of substances currently listed in regulations of any particular state in the United States.

California Prop. 65: There are no Proposition 65 chemicals present in our polyethylene resins at levels that would require a warning under the California Safe Drinking Water and Toxic Enforcement Act.

**Section 16. Other Information**

**Label requirements**
Irritating vapors to respiratory system and eyes may form when polymer is processed at high temperatures. Molten or heated material in skin contact can cause severe burns.

**Hazardous Material Information System (U.S.A.)**

![Hazardous Material Information System](image)

**National Fire Protection Association (U.S.A.)**

![National Fire Protection Association](image)

**References**
Chemtox Database
Hazardous Substance Database

**Other Special Considerations**
Acceptable business/technical terms necessary for medical device applications must be developed by contacting your Total Petrochemicals & Refining USA, Inc. sales representative. Without such documented business terms, Total Petrochemicals & Refining USA, Inc. makes no representations and disclaims all warranties, express or implied, concerning biocompatibility and/or suitability of this product for medical device applications.
Notice to Reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

MSDS Name  Polyethylene Pellets Parent

To obtain an electronic copy of this MSDS, please email: product.stewardship@total.com.