SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product information
Product Name: Marlex® HHM 5502BN Polyethylene
Material: 1120264, 1120263, 1120262, 1120191, 1120190, 1018781, 1018783, 1079987, 1079986, 1079983, 1079982, 1079988, 1061818, 1079981, 1079985, 1079984, 1018781, 1018785, 1018784

Company: Chevron Phillips Chemical Company LP
10001 Six Pines Drive
The Woodlands, TX 77380

Local: CHEVRON PHILLIPS CHEMICALS ASIA PTE. LTD.
C/O DONG WOO CORPORATION
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BUNDANG-GU,SEONGNAMI-SI,
GYEONGGI-DO,13557
SOUTH KOREA
Telephone no.: +612-9186-1132

Emergency telephone:
Health: 866.442.9628 (North America)
1.832.813.4984 (International)
Transport: CHEMTREC 800.424.9300 or 703.527.3887(int'l)
Asia: CHEMWATCH (+612 9186 1132) China: 0532 8388 9090
EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Mexico CHEMTREC 01-800-681-9531 (24 hours)
South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600
Argentina: +(54)-1159839431

Responsible Department: Product Safety and Toxicology Group
E-mail address: SDS@CPChem.com
Website: www.CPChem.com

MEDICAL APPLICATION CAUTION: Do not use this material in medical applications involving permanent implantation in the human body or permanent contact with internal body fluids or tissues.
Do not use this material in medical applications involving brief or temporary implantation in the human body or contact with internal body fluids or tissues unless the material has been provided directly from Chevron Phillips Chemical Company LP or its legal affiliates under an agreement which expressly acknowledges the contemplated use.

Chevron Phillips Chemical Company LP and its legal affiliates makes no representation, promise, express warranty or implied warranty concerning the suitability of this material for use in implantation in the human body or in contact with internal body fluids or tissues.

SECTION 2: Hazards identification

Classification of the substance or mixture

Standards for classification and labeling of chemical substances and material safety data sheet (ministry of employment and labor public notice No. 2013-37) (GHS 2009)

Classification

This material is not classified as hazardous under the Article 39 Paragraph 1 of the Industrial Safety and Health Act (ISHA). It is not regulated for the MSDS creation and labeling by the provision of Article 41 Paragraph 1 of the ISHA.

Labeling

This material is not classified as hazardous under the Article 39 Paragraph 1 of the Industrial Safety and Health Act (ISHA). It is not regulated for the MSDS creation and labeling by the provision of Article 41 Paragraph 1 of the ISHA.

SECTION 3: Composition/information on ingredients

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration</th>
<th>KECI Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyethylene Hexene Copolymer</td>
<td>25213-02-9</td>
<td>99 % - 100%</td>
<td>KE-13670</td>
</tr>
</tbody>
</table>

SECTION 4: First aid measures

If inhaled : Move to fresh air in case of accidental inhalation of dust or fumes from overheating or combustion. If symptoms persist, call a physician.

In case of skin contact : If the molten material gets on skin, quickly cool in water. Seek immediate medical attention. Do not try to peel the solidified material from the skin or use solvents or thinners to dissolve it.

In case of eye contact : In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

If swallowed : Do not induce vomiting without medical advice.

SECTION 5: Firefighting measures

Flash point : No data available

Autoignition temperature : No data available
Suitable extinguishing media: Water. Water mist. Dry chemical. Carbon dioxide (CO2). Foam. If possible, water should be applied as a spray from a fogging nozzle since this is a surface burning material. The application of high velocity water will spread the burning surface layer. Avoid the use of straight streams that may create a dust cloud and the risk of a dust explosion. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Specific hazards during fire fighting: Risks of ignition followed by flame propagation or secondary explosions can be caused by the accumulation of dust, e.g. on floors and ledges.

Special protective equipment for fire-fighters: Use personal protective equipment. Wear self-contained breathing apparatus for firefighting if necessary.

Further information: This material will burn although it is not easily ignited.

Fire and explosion protection: Treat as a solid that can burn. Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

Hazardous decomposition products: Normal combustion forms carbon dioxide, water vapor and may produce carbon monoxide, other hydrocarbons and hydrocarbon oxidation products (ketones, aldehydes, organic acids) depending on temperature and air availability. Incomplete combustion can also produce formaldehyde.

SECTION 6: Accidental release measures

Personal precautions: Sweep up to prevent slipping hazard. Avoid breathing dust. Avoid dust formation.

Environmental precautions: Do not contaminate surface water. Prevent product from entering drains.

Methods for cleaning up: Clean up promptly by sweeping or vacuum.

Additional advice: Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air).

SECTION 7: Handling and storage

Handling

Advice on safe handling: Use good housekeeping for safe handling of the product. Keep out of water sources and sewers.

Spilled pellets and powders may create a slipping hazard.

Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard,
bonding and grounding may be necessary, but may not by themselves be sufficient. At elevated temperatures (>350°F, >177°C), polyethylene can release vapors and gases, which are irritating to the mucous membranes of the eyes, mouth, throat, and lungs. These substances may include acetaldehyde, acetone, acetic acid, formic acid, formaldehyde and acrolein. Based on animal data and limited epidemiological evidence, formaldehyde has been listed as a carcinogen. Following all recommendations within this SDS should minimize exposure to thermal processing emissions.

Advice on protection against fire and explosion:
Treat as a solid that can burn. Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

Storage:
Requirements for storage areas and containers:
Keep in a dry place. Keep in a well-ventilated place.

Advice on common storage:
Do not store together with oxidizing and self-igniting products.

SECTION 8: Exposure controls/personal protection

Engineering measures:
Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

Personal protective equipment:

Respiratory protection:
No respiratory protection is normally required. If heated material generates vapor or fumes that are not adequately controlled by ventilation, wear an appropriate respirator. Use the following elements for air-purifying respirators: Organic Vapor and Formaldehyde. Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection. Dust safety masks are recommended when the dust concentration is excessive.

Eye protection:
Use of safety glasses with side shields for solid handling is good industrial practice. If this material is heated, wear chemical goggles or safety glasses with side shields or a face shield. If there is potential for dust, use chemical goggles.

Skin and body protection:
At ambient temperatures use of clean and protective clothing is good industrial practice. If the material is heated or molten, wear thermally insulated, heat-resistant gloves that are able to
withstand the temperature of the molten product. If this material is heated, wear insulated clothing to prevent skin contact if engineering controls or work practices are not adequate.

### SECTION 9: Physical and chemical properties

**Information on basic physical and chemical properties**

**Appearance**

<table>
<thead>
<tr>
<th>Form</th>
<th>Pellets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Solid</td>
</tr>
<tr>
<td>Color</td>
<td>Opaque</td>
</tr>
<tr>
<td>Odor</td>
<td>Mild to no odor</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No data available</td>
</tr>
</tbody>
</table>

**Safety data**

- **Flash point**: No data available
- **Lower explosion limit**: Not applicable
- **Upper explosion limit**: Not applicable
- **Autoignition temperature**: No data available
- **Thermal decomposition**: Low molecular weight hydrocarbons, alcohols, aldehydes, acids and ketones can be formed during thermal processing.
- **pH**: Not applicable
- **Melting point/range**: 90 - 140 °C (194 - 284 °F)
- **Freezing point**: Not applicable
- **Initial boiling point and boiling range**: Not applicable
- **Vapor pressure**: Not applicable
- **Relative density**: Not applicable
- **Density**: 0.91 - 0.97 g/cm3

Please refer to the Technical Data Sheet (TDS) for more detailed information relating to the nominal physical properties, including density, of this polyethylene resin grade.

- **Water solubility**: Negligible
- **Partition coefficient: n-octanol/water**: No data available
- **Solubility in other solvents**: No data available
- **Viscosity, dynamic**: Not applicable
SAFETY DATA SHEET

Marlex® HHM 5502BN Polyethylene

SECTION 10: Stability and reactivity

Reactivity : This material is considered non-reactive under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Chemical stability : This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Possibility of hazardous reactions

Conditions to avoid : Avoid prolonged storage at elevated temperature.

Materials to avoid : Avoid contact with strong oxidizing agents.

Thermal decomposition : Low molecular weight hydrocarbons, alcohols, aldehydes, acids and ketones can be formed during thermal processing.

Hazardous decomposition products : Normal combustion forms carbon dioxide, water vapor and may produce carbon monoxide, other hydrocarbons and hydrocarbon oxidation products (ketones, aldehydes, organic acids) depending on temperature and air availability. Incomplete combustion can also produce formaldehyde.

Other data : No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

Marlex® HHM 5502BN Polyethylene
Acute oral toxicity : Presumed Not Toxic

Marlex® HHM 5502BN Polyethylene
Acute inhalation toxicity : Presumed Not Toxic

Marlex® HHM 5502BN Polyethylene
Acute dermal toxicity : Presumed Not Toxic

Marlex® HHM 5502BN Polyethylene
Skin irritation : No skin irritation

SDS Number:100000000723 6/10
Marlex® HHM 5502BN Polyethylene

Eye irritation
No eye irritation

Sensitization
Did not cause sensitization on laboratory animals.

Further information
This product contains POLYMERIZED OLEFINS. During thermal processing (>350°F, >177°C) polyolefins can release vapors and gases (aldehydes, ketones and organic acids) which are irritating to the mucous membranes of the eyes, mouth, throat, and lungs. Generally these irritant effects are all transitory. However, prolonged exposure to irritating off-gases can lead to pulmonary edema. Formaldehyde (an aldehyde) has been classified as a carcinogen based on animal data and limited epidemiological evidence.

SECTION 12: Ecological information

Ecotoxicity effects

Toxicity to fish
Not applicable

Toxicity to daphnia and other aquatic invertebrates
No data available

Biodegradability
This material is not expected to be readily biodegradable.

Elimination information (persistence and degradability)

Bioaccumulation
Does not bioaccumulate.

Mobility
The product is insoluble and floats on water.

Additional ecological information
This material is not expected to be harmful to aquatic organisms. Fish or birds may eat pellets which may obstruct their digestive tracts.

Ecotoxicology Assessment

Short-term (acute) aquatic hazard
This product has no known ecotoxicological effects.

Long-term (chronic) aquatic hazard
This product has no known ecotoxicological effects.

SECTION 13: Disposal considerations

The information in this SDS pertains only to the product as shipped.
Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

**SECTION 14: Transport information**

The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments in non-bulk packages (see regulatory definition).

Consult the appropriate domestic or international mode-specific and quantity-specific Dangerous Goods Regulations for additional shipping description requirements (e.g., technical name or names, etc.) Therefore, the information shown here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the SDS and the bill of lading.

**US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)**

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

**IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)**

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

**IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)**

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

**ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))**

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

**RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))**

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

**ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)**

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
**SECTION 15: Regulatory information**

### National legislation

**Regulation under the Occupational Safety and Health Act**
A Material Safety Datasheet (MSDS) for this product is not required according to article 41 of the ISHA.

<table>
<thead>
<tr>
<th>Regulation</th>
<th>Chemical name</th>
<th>Threshold limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harmful Substances Prohibited from Manufacturing</td>
<td>Not relevant</td>
<td></td>
</tr>
<tr>
<td>Harmful Substances Required Permission for Manufacture</td>
<td>Not relevant</td>
<td></td>
</tr>
</tbody>
</table>

**Act on the Registration and Evaluation, etc. of Chemical Substances, Chemicals Control Act**

<table>
<thead>
<tr>
<th>Regulation</th>
<th>Chemical name</th>
<th>Threshold limits</th>
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</thead>
<tbody>
<tr>
<td>Toxic Chemicals</td>
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</tr>
<tr>
<td>Prohibited Chemicals</td>
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<tr>
<td>Observational chemicals</td>
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<tr>
<td>Restricted Chemicals</td>
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<td></td>
</tr>
<tr>
<td>Toxic Release Inventory</td>
<td>Not relevant</td>
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</tr>
</tbody>
</table>

**Dangerous Substances Safety Management Act**

Dangerous Substances: Not relevant  
Safety Management Act

### Notification status

Europe REACH: On the inventory, or in compliance with the inventory  
Switzerland CH INV: On the inventory, or in compliance with the inventory  
United States of America (USA): On or in compliance with the active portion of the TSCA TSCA inventory  
Canada DSL: All components of this product are on the Canadian DSL  
Australia AICS: On the inventory, or in compliance with the inventory  
New Zealand NZIoC: On the inventory, or in compliance with the inventory  
Japan ENCS: On the inventory, or in compliance with the inventory  
Korea KECl: All substances in this product were registered, notified to be registered, or exempted from registration by CPChem through an Only Representative according to K-REACH regulations. Importation of this product is permitted if the Korean Importer of Record was included on CPChem’s notifications or if the Importer of Record themselves notified the substances.

Philippines PICCS: On the inventory, or in compliance with the inventory  
China IECSC: On the inventory, or in compliance with the inventory  
Taiwan TCSI: On the inventory, or in compliance with the inventory

### SECTION 16: Other information

**Further information**

Legacy SDS Number: 240370
Significant changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information in this SDS pertains only to the product as shipped.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

<table>
<thead>
<tr>
<th>Key or legend to abbreviations and acronyms used in the safety data sheet</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
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