Safety Data Sheet

Westlake Chemical

Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product identifier

Product Name **Epolene® Maleated Polyethylene Polymer**

Synonyms Ethylene – maleic anhydride copolymer; Functionalized poly(ethylene-co-hexene); Maleated LLDPE; Maleated Polyethylene

Product Grades C-26, C-70, DB-27, DC-27

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified use(s) Plastics, wax, adhesives

1.3 Details of the supplier of the safety data sheet

Manufacturer
Westlake Polymers LLC
2801 Post Oak Blvd.
Houston, TX 77056
United States
www.westlake.com

Telephone (General) 713-960-9111

1.4 Emergency telephone number

800-424-9300 – CHEMTREC

Section 2: Hazards Identification

EU/EEC

According to Regulation (EC) No 1272/2008 (CLP)/REACH 1907/2006 [amended by 830/2015]
According to EU Directive 67/548/EEC (DSD) or 1999/45/EC (DPD)

2.1 Classification of the substance or mixture

CLP
- Not classified

DSD/DPD
- Not classified

2.2 Label Elements

CLP	**Hazard Statements**	• No label element(s) required
DSD/DPD	**Risk phrases**	• No label element(s) required

2.3 Other Hazards

CLP
- May form combustible dust concentrations in air.
  According to Regulation (EC) No. 1272/2008 (CLP) this material is not considered hazardous.

DSD/DPD
- May form combustible dust concentrations in air.
  According to European Directive 1999/45/EC this material is not considered dangerous.

United States (US)

According to OSHA 29 CFR 1910.1200 HCS

2.1 Classification of the substance or mixture

OSHA HCS 2012
- Not classified

2.2 Label elements

OSHA HCS 2012 **Hazard statements**
- No label element(s) required

2.3 Other hazards

OSHA HCS 2012
- As shipped, product is not hazardous. Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), this product is not considered hazardous.

Canada

According to WHMIS 2015

2.1 Classification of the substance or mixture

WHMIS 2015
- Not classified

2.2 Label elements

WHMIS 2015
- No label element(s) required.

2.3 Other hazards

WHMIS 2015
- May form combustible dust concentrations in air.
  In Canada, the product mentioned above is not considered hazardous under the Workplace Hazardous Materials Information System (WHMIS).

Section 3 - Composition/Information on Ingredients

3.1 Substances

- Material does not meet the criteria of a substance in accordance with Regulation (EC) No 1272/2008.

3.2 Mixtures

Composition		
Chemical Name	**Identifiers (CAS)**	**%**
Poly(ethylene-co-1-hexene)	25213-02-9	>99%
Polymers	Proprietary	15 - 0
Antioxidants	Proprietary	<0.5
Slip reagent and/or processing aid	Proprietary	<1 - 0
Acid neutralizer	Proprietary	<0.15
Maleic anhydride	108-31-6	<0.05

Section 4 - First Aid Measures

4.1 Description of first aid measures

Inhalation
- IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Give artificial respiration if victim is not breathing. If signs/symptoms continue, get medical attention.

Skin
- For thermal burns, flush or submerge effected area in cold water to dissipate heat. Cover with clean bandage material. Do not peel material from skin. Get medical attention. For contact at ambient temperatures, wash with soap and water.

Eye
- If dust or molten material contacts the eye, immediately flush with plenty of water for at least 15 minutes. If irritation persists, get medical attention immediately.

Ingestion
- First aid is not expected to be necessary if material is used under ordinary conditions and as recommended.

4.2 Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to Physician
- Burns should be treated as thermal burns. The material will come off as healing occurs; therefore, immediate removal from the skin is not necessary.

Section 5 - Firefighting Measures

5.1 Extinguishing media

Suitable Extinguishing Media
- Water fog, dry chemical, foam, carbon dioxide.

Unsuitable Extinguishing Media
- None known.

5.2 Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards
- 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 Combustion Products
- Carbon dioxide, carbon monoxide, formaldehyde, acetaldehyde, other low molecular weight organic alcohols, aldehydes, methyl ketones, carboxylic acids and irritating smoke.

5.3 Advice for firefighters

- Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection.

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal Precautions
- Do not walk through spilled material. Do not breathe dust. Avoid contact with skin and eyes. Wear appropriate personal protective equipment, avoid direct contact.

Emergency Procedures
- Contain spill and monitor for excessive dust accumulation. Avoid unnecessary personnel and equipment traffic in the spill area. Ventilate closed spaces before entering.

6.2 Environmental precautions

- No special environmental precautions necessary.

6.3 Methods and material for containment and cleaning up

Containment/Clean-up Measures
- Avoid generating dust.
- Use clean nonsparking tools to collect material.
- 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.

6.4 Reference to other sections

- Refer to Section 8 - Exposure Controls/Personal Protection and Section 13 - Disposal Considerations.

Section 7 - Handling and Storage

7.1 Precautions for safe handling

Handling
- Avoid contact with molten material; do not breathe fumes, vapors, dust or sprays from molten or burning material. When processing at > 600ºF (315ºC), consider use of a respirator to avoid breathing decomposition products.

- Do not use in areas without adequate ventilation. Minimize dust generation and accumulation. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres.
- Use appropriate Personal Protective Equipment (PPE) Avoid contact with skin and eyes. Do not breathe dust. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco.

7.2 Conditions for safe storage, including any incompatibilities

Storage

- Keep container closed and in ventilated area, away from ignition sources, heat, open flames, and direct sunlight. Do not store with incompatible materials.

7.3 Specific end use(s)

- Refer to Section 1.2 - Relevant identified uses

7.4 Other Information

- For prevention of fire and explosion, keep from contact with incompatible materials. Minimize dust generation and accumulation. Because product may accumulate a static charge, use proper bonding and/or grounding procedures prior to transfer. In the United States of America, refer to NFPA® Pamphlet No. 654, "Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, 2006 edition."

Section 8 - Exposure Controls/Personal Protection

8.1 Control parameters

Exposure Limits/Guidelines				
	Result	**ACGIH**	**NIOSH**	**OSHA**
Polymers as Particulates not otherwise classified (PNOC)	TWAs	10 mg/m3 TWA (inhalable particles, recommended); 3 mg/m3 TWA (respirable particles, recommended) as Particulates not otherwise classified (PNOC)	Not established	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction) *as Particulates not otherwise classified (PNOC)*
Acid Neutralizer (Proprietary)	TWAs	Not established	10 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable dust)	Not established
Acid Neutralizer (Proprietary)	TWAs	2 mg/m3 TWA (respirable fraction)	5 mg/m3 TWA (dust and fume)	5 mg/m3 TWA (fume); 15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)
	TWAs	10 mg/m3 STEL (respirable fraction)	10 mg/m3 STEL (fume)	Not established
	STELs	Not established	15 mg/m3 Ceiling (dust)	Not established
Maleic anhydride (108-31-6)	TWAs	0.01 mg/m3 TWA (inhalable fraction and vapor)	0.25 ppm TWA; 1 mg/m3 TWA	0.25 ppm TWA; 1 mg/m3 TWA

8.2 Exposure controls

Engineering Measures/Controls

- Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. Supplementary local exhaust ventilation, closed systems, or respiratory and eye protection may be needed in special circumstances; such as poorly ventilated spaces, very hot processing, evaporation of liquids from large surfaces, spraying of mists, mechanical generation of dusts, drying of solids, etc.

Personal Protective Equipment

Respiratory

- For limited exposure use an N95 dust mask. For prolonged exposure use an air-purifying respirator with high efficiency particulate air (HEPA) filters. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or symptoms are experienced.

Eye/Face	• Wear safety goggles.
Hands	• Wear thermally resistant gloves and long sleeves when handling molten product.
Skin/Body	• Wear long sleeves and/or protective coveralls.
Environmental Exposure Controls	• Follow best practice for site management and disposal of waste.

Key to abbreviations
ACGIH = American Conference of Governmental Industrial Hygiene
NIOSH = National Institute of Occupational Safety and Health
OSHA = Occupational Safety and Health Administration
STEL = Short Term Exposure Limits are based on 15 minute exposures
TWA = Time Weighted Averages are based on 8h/day, 40h/week exposures

Section 9 - Physical and Chemical Properties

9.1 Information on Physical and Chemical Properties

Material Description			
Physical Form	Solid	**Appearance/Description**	Whitish solid with a slight to mild odor.
Color	White	**Odor**	Slight to mild.
Odor Threshold	0.32 ppm (Maleic anhydride)		
General Properties			
Boiling Point	NDA	**Softening Point**	105 to 126 C(239 to 259 F)
Decomposition Temperature	>300 C (573 F) (estimated)	**pH**	NDA
Specific Gravity/Relative Density	0.90 to 0.92 Water=1	**Water Solubility**	Negligible.
Viscosity	NDA	**Explosive Properties**	Not Explosive.
Oxidizing Properties:	Not an oxidizer.		
Volatility			
Vapor Pressure	NDA	**Vapor Density**	NDA
Evaporation Rate	NDA		
Flammability			
Flash Point	NDA	**UEL**	NDA
LEL	NDA	**Autoignition**	NDA
Flammability (solid, gas)	Not Flammable.		
Environmental			
Octanol/Water Partition coefficient	NDA		

9.2 Other Information

- No additional physical and chemical parameters noted.

Section 10: Stability and Reactivity

10.1 Reactivity

- No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

- Stable under normal temperatures and pressures.

10.3 Possibility of hazardous reactions

- Hazardous polymerization not indicated.

10.4 Conditions to avoid

- Heat, sparks, open flame.

10.5 Incompatible materials

- Strong oxidizing agents, fluorine.

10.6 Hazardous decomposition products

- No data available

Section 11 - Toxicological Information

11.1 Information on toxicological effects

Component Name	CAS	Data
Antioxidants (< 0.5%)	*Proprietary*	**Acute Toxicity:** Ingestion/Oral-Rat LD50 • >5000 mg/kg; *Lungs, Thorax, or Respiration*:**Dyspnea**; Inhalation-Rat LC50 • >1800 mg/m³ 4 Hour(s); Skin-Rat LD50 • >2000 mg/kg; **Reproductive:** Ingestion/Oral-Rat TDLo • 1750 mg/kg (multigeneration); *Reproductive Effects:Effects on Newborn*:**Other neonatal measures or effects.**
Antioxidants (0% TO 0.5%)	*Proprietary*	**Acute Toxicity:** Ingestion/Oral-Rat LD50 • >5000 mg/kg; Skin-Rabbit LD50 • >3160 mg/kg
Antioxidants (< 0.5%)	*Proprietary*	**Acute Toxicity:** Ingestion/Oral-Rat LD50 • >6000 mg/kg; **Irritation:** Skin-Rat LD50 • >2000 mg/kg; **Reproductive:** Ingestion/Oral-Rat TDLo • 63000 mg/kg (multigeneration); *Reproductive Effects:Paternal Effects*:**Other effects on male**; *Reproductive Effects:Maternal Effects*:**Other effects**
Antioxidant (0% TO 0.4%)	*Proprietary*	**Acute Toxicity:** Ingestion/Oral-Rat LD50 • >2500 mg/kg; **Irritation:** Eye-Rabbit • 500 mg 24 Hour(s) • Mild irritation
Acid Neutralizer (< 0.15%)	*Proprietary*	**Acute Toxicity:** Ingestion/Oral-Rat LD50 • >10 g/kg
Polymers (0% TO 15%)	*Proprietary*	**Acute Toxicity:** Ingestion/Oral-Rat LD50 • >8 g/kg; Inhalation-Rat LC50 • 75.5 g/m³ 30 Minute(s); **Tumorigen / Carcinogen:** Implant-Rat TDLo • 33 mg/kg; *Tumorigenic*:**Equivocal tumorigenic agent by RTECS criteria**; *Tumorigenic*:**Tumors at site of application**

GHS Properties	Classification
Acute toxicity	**EU/CLP • OSHA HCS 2012 • WHMIS 2015 •**NDA
Aspiration Hazard	**EU/CLP • OSHA HCS 2012 • WHMIS 2015 •**Not relevant
Carcinogenicity	**EU/CLP • OSHA HCS 2012 • WHMIS 2015 •**Classification criteria not met
Germ Cell Mutagenicity	**EU/CLP • OSHA HCS 2012 • WHMIS 2015 •**Classification criteria not met
Skin corrosion/Irritation	**EU/CLP • OSHA HCS 2012 • WHMIS 2015 •**Classification criteria not met
Skin sensitization	**EU/CLP • OSHA HCS 2012 • WHMIS 2015 •**Classification criteria not met
STOT-RE	**EU/CLP • OSHA HCS 2012 • WHMIS 2015 •**NDA
STOT-SE	**EU/CLP • OSHA HCS 2012 • WHMIS 2015 •**NDA
Toxicity for Reproduction	**EU/CLP • OSHA HCS 2012 • WHMIS 2015 •**Classification criteria not met
Respiratory sensitization	**EU/CLP • OSHA HCS 2012 • WHMIS 2015 •**Classification criteria not met
Serious eye damage/Irritation	**EU/CLP • OSHA HCS 2012 • WHMIS 2015 •**Classification criteria not met

Route(s) of entry/exposure
- Inhalation, Skin, Eye, Ingestion

Medical Conditions Aggravated by Exposure
- Disorders of the lungs.

Potential Health Effects

Inhalation

Acute (Immediate)
- Exposure to dust may cause irritation. Processes such as cutting, grinding, crushing, or impact may result in generation of excessive amounts of airborne dusts in the workplace. Nuisance dust may affect the lungs but reactions are typically reversible.

Chronic (Delayed)
- Prolonged exposure to the dust may cause wheezing, chest tightness, productive cough nasal irritation and symptoms of chronic respiratory disease.

Skin

Acute (Immediate)
- Exposure to dust may cause mechanical irritation.

Chronic (Delayed)
- No data available.

Eye

Acute (Immediate)
- Exposure to dust may cause mechanical irritation. Excessive concentrations of nuisance dust in the workplace may reduce visibility and may cause unpleasant deposits in eyes.

Chronic (Delayed)
- No data available.

Ingestion

Acute (Immediate)
- Excessive concentrations of nuisance dust in the workplace may cause mechanical irritation to mucous membranes.

Chronic (Delayed)
- No data available

Key to abbreviations

LC = Lethal Concentration
LD = Lethal Dose
MLD = Mild
TD = Toxic Dose

Section 12 - Ecological Information

12.1 Toxicity

- NDA

12.2 Persistence and degradability

- NDA

12.3 Bioaccumulative potential

- NDA

12.4 Mobility in Soil

- NDA

12.5 Results of PBT and vPvB assessment

- PBT and vPvB assessment has not been carried out.

12.6 Other adverse effects

- NDA

Section 13 - Disposal Considerations

13.1 Waste treatment methods

Product waste
- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Packaging waste
- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14 - Transport Information

	14.1 UN number	14.2 UN proper shipping name	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards
DOT	NDA	Not regulated	NDA	NDA	NDA
TDG	NDA	Not regulated	NDA	NDA	NDA

IMO/IMDG	NDA	Not regulated	NDA	NDA	NDA
IATA/ICAO	NDA	Not regulated	NDA	NDA	NDA

14.6 Special precautions for user

- None known.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- Not relevant.

Section 15 - Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

SARA Hazard Classifications

- None

Inventories

- These products comply with the following inventories:

Australia AICS	**Canada DSL/NDSL**	**China**	**EU EINECS/ ELNICS**
Japan ENCS	**Korea KECI**	**New Zealand**	**Philippines PICCS**
USA TSCA			

California Prop 65

- In compliance, no reportable substances

CERCLA

- In the event of a spill, the end user should verify whether reporting is required under local, state, and/or federal regulations.

CONEG

- These products are in compliance with the heavy metals requirements of the Coalition of Northeastern Governors and California Toxics in Packaging Prevention Act (AB2021).

Ozone Depleting Substances

- In compliance with 40 CFR 82, no reportable substances.

RCRA

- In the form delivered by Westlake, these products are not considered as hazardous waste, and are not subject to reporting under the Resource Conservation and Recovery Act.

15.2 Chemical Safety Assessment

- No Chemical Safety Assessment has been carried out.

Section 16 - Other Information

Last Revision Date 10/May/2018

Preparation Date 27/January/2015

For Other Information Contact Westlake Polymers LLC Customer Service 1-800-545-9577 (Monday-Friday, 7:30am-5:00pm - central standard time)

Disclaimer/Statement of Liability

It is your responsibility to determine that our product is safe, lawful, and technically suitable for your intended uses. This safety data sheet cannot cover all possible situations which the user may experience during processing. Each aspect of the user's operation should be examined to determine if, or where, additional precautions may be necessary. All health and safety information contained in this safety data sheet should be provided to employees and/or customers. Westlake Polymers LLC must rely on the user to use this information to develop appropriate work practice guidelines and employee instructional programs specific to the user's operation.

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The information in this sheet is valid for cited regulations published as of the date this document was prepared, as shown herein. Updates may be prepared as the regulations are amended or pending revised information about the resin. It is the customer's responsibility to seek updated regulatory information on any specific resin.

Key to abbreviations

NDA = No data available