Safety Data Sheet



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

1.1 Product identifier

Product Name Linear Low Density Polyethylene

Synonyms Poly(ethylene-co-1-hexene), Ethene hexene copolymer, LLDPE, Ethylene –

hexene Copolymer

Product Grades <u>Hifor®:</u> DD74107, DD74134, DE74134, DF74134, DG74134, DW2005ED,

DX61105, DX74105, DX74113, DX74147, DX74152, DX94105, LF2005ED, LF2023AD, LT61105, LT74105, LT74113, LT74119, LT74134, LT74147,

LT74151, LT74152, LT94105

Hifor® Clear: SC74557

Hifor® Xtreme: DW74859, DW74874, DX74844, DX74853, DX74859, DX74869, DX74870, DX74873, DX74881, DW74886, LF74869, SC74844, SC74853, SC74859, SC74869, SC74870, SC74876, SC74877, SC74879, SC74880,

SC74881

Mxsten®: CV77523, CV77527, CV77529

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

Relevant identified use(s) Plastic film, laminating, molding, coating.

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

• No label element(s) required

DSD/DPD Risk phrases • No label element(s) required

2.3 Other Hazards

• 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

statements

OSHA HCS 2012

Not classified

2.2 Label elements

OSHA HCS 2012 Hazard

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 – 85		
Polymers	Proprietary	15 – 0		
Antioxidants*	Proprietary	<0.5 – 0		
Slip reagent and/or processing aid	Proprietary	<1 – 0		
Acid neutralizer	Proprietary	<0.12		
Diatomaceous Earth** or Talc*** or antiblock	68855-54-9 or 14807-96-6 or proprietary	<2.5 – 0		

^{*} may contain Trisnonylphenylphosphite which under some fabrication conditions may form nonyl & octyl phenols

Section 4 - First Aid Measures

^{**} contains crystalline silica CAS #s 14464-46-1 & 14808-60-7

^{***} contains < 1% quartz or crystalline silica

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, 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 > 600°F (315°C), 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	recommended); 3 mg/m3 TWA (respirable particles, recommended) as Particulates not otherwise recommended		15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction) as Particulates not otherwise classified (PNOC)
Talc or diatomaceous earth or antiblock (14807966)	TWAs	2 mg/m3 TWA (particulate matter containing no asbestos and <1% crystalline silica, respirable fraction)	2 mg/m3 TWA (containing no Asbestos and <1% Quartz, respirable dust)	Not established
Cristobalite (14464461)	TWAs	0.025 mg/m3 TWA (respirable fraction)	0.05 mg/m3 TWA (respirable dust)	Not established
Quartz (14808607)	TWAs	0.025 mg/m3 TWA (respirable fraction)	0.05 mg/m3 TWA (respirable dust)	Not established
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)
	STELs	10 mg/m3 STEL (respirable fraction)	10 mg/m3 STEL (fume)	Not established
	Ceilings	Not established	15 mg/m3 Ceiling (dust)	Not established

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 airpurifying 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	A translucent to whitish solid with an odorless to mild odor.
Color	Translucent to whitish.	Odor	Odorless to mild.
Odor Threshold	NDA		
General Properties			
Boiling Point	NDA	Melting Point	105 to 128 C(221 to 262 F)
Decomposition Temperature	>300 C (573 F) (estimated)	рН	NDA
Specific Gravity/Relative Density	0.900 to 0.935 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	>343 C(649.4 F) (estimated)	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% TO 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% TO 0.5%)	Proprietary	Acute Toxicity: Ingestion/Oral-Rat LD50 • >6000 mg/kg; 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		
Talc or diatomaceous earth or antiblock (0% TO 2.5%)	14807-96-6	Irritation: Skin-Human• 300 µg 3 Day(s)Intermittent • Mild irritation; Tumorigen / Carcinogen: Inhalation-Rat TCLo • 18 mg/m³ 6 Hour(s) 2 Year(s)Intermittent; Tumorigenic:Carcinogenic by RTECS criteria; Lungs, Thorax, or Respiration:Bronchiogenic Carcinoma; Endocrine:Tumors		
Acid Neutralizer (<0.12%)	Proprietary	Acute Toxicity: Ingestion/Oral-Rat LD50 • >10 g/kg		
Acid Neutralizer (<0.12%)	Proprietary	Acute Toxicity: Ingestion/Oral-Mouse LD50 • 7950 mg/kg; Irritation: Eye-Rabbit • 500 mg 24 Hour(s) • Mild irritation; Skin-Rabbit • 500 mg 24 Hour(s) • Mild irritation; Reproductive: Ingestion/Oral-Rat TDLo • 6846 mg/kg (122D preg); Reproductive Effects:Specific Developmental Abnormalities:Homeostasis; Reproductive Effects:Effects on Newborn:Stillbirth; Reproductive Effects:Effects on Newborn:Growth statistics (e.g., reduced weight gain)		
Quartz (0% TO 0.15%)	14808-60-7	Acute Toxicity: Inhalation-Human TCLo • 16 mppcf 8 Hour(s) 17.9 Year(s)Intermittent; Lungs, Thorax, or Respiration:Fibrosis, focal (pneumoconiosis); Lungs, Thorax, or Respiration:Cough; Lungs, Thorax, or Respiration:Dyspnea; Inhalation-Rat TCLo • 200 mg/kg; Lungs, Thorax, or Respiration:Fibrosis, focal (pneumoconiosis); Lungs, Thorax, or Respiration:Other changes; Nutritional and Gross Metabolic:Changes in Chemistry or Temperature:Fe; Multidose Toxicity: Inhalation-Hamster TCLo • 3 mg/m³ 6 Hour(s) 78 Week(s)Intermittent; Lungs, Thorax, or Respiration:Fibrosis (interstitial); Lungs, Thorax, or Respiration:Changes in lung weight; Inhalation-Rat TCLo • 6.2 mg/m³ 6 Hour(s) 6 Week(s)Intermittent; Lungs, Thorax, or Respiration:Other changes; Blood:Changes in spleen; Immunological Including Allergic:Increase in cellular immune response; Inhalation-Rat TCLo • 80 mg/m³ 26 Week(s)Intermittent; Lungs, Thorax, or Respiration:Fibrosis, focal (pneumoconiosis); Blood:Changes in spleen; Immunological Including Allergic:Decrease in cellular immune response; Mutagen: Micronucleus test • Unreported Route-Human • Other Cell Type • 120 mg/L 24 Hour(s); Micronucleus test • Unreported Route-Human • Other Cell Type • 120 mg/L 24 Hour(s); Micronucleus test • Unreported Route-Human • Cell Type • 120 mg/L 24 Hour(s); Inhalation-Rat TCLo • 50 mg/m³ 6 Hour(s) 71 Week(s)Intermittent; Tumorigenic:Carcinogenic by RTECS criteria; Liver:Tumors		
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 app	ication
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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

Medical Conditions Aggravated by Exposure Inhalation, Skin, Eye, Ingestion

Disorders of the lungs.

Potential Health Effects

Inhalation

Acute (Immediate)

- 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)**

Skin

Acute (Immediate)

Chronic (Delayed)

Eve

Acute (Immediate)

Chronic (Delayed) Ingestion

Acute (Immediate) **Chronic (Delayed)**

Exposure to dust may cause irritation. Processes such as cutting, grinding, crushing,

Prolonged exposure to the dust may cause wheezing, chest tightness, productive

cough nasal irritation and symptoms of chronic respiratory disease.

Exposure to dust may cause mechanical irritation.

No data available.

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.

No data available.

Excessive concentrations of nuisance dust in the workplace may cause mechanical irritation to mucous membranes.

No data available

Carcinogenic Effects				
	CAS	IARC	NTP	
Quartz	14808-60-7	Group 1-Carcinogenic	Known Human Carcinogen	
Cristobalite	14464-46-1	Group 1-Carcinogenic	Not Listed	

Key to abbreviations

LC = Lethal Concentration

LD = Lethal Dose

TC = Toxic Concentration

TD = Toxic Dose

Section 12 - Ecological Information

12.1 Toxicity

NDA

Westlake Internal SDS #: PE028

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

RCRA

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

WGK Classification

Non-hazardous to water (nwg)

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out.

Section 16 - Other Information

Last Revision Date

04/April/2018

Preparation Date

12/May/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