Material Safety Data Sheet

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Sasol Polymers
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Polyethylene

Low density (LDPE) and linear low density (LLDPE) polyethylene

1. Product identification

Trade name	:	LDPE and LLDPE
Chemical name	:	Polyethylene
Alternative naming	:	PE-LD and PE-LLD Alkathene Ethene polymer
Chemical formula	:	$-(CH_2 - CH_2)-_n$
CAS N°	:	9002-88-4
NIOSH / RTECS N°	:	TQ3325000
Emergency response guide	:	Not classified as hazardous
UN N°	:	Not classified as hazardous

2. Composition

Polyethylene	:	0.910 – 0.939 g/cm^3 Ethylene polymer
Safety phrases	:	S14; S22; S36/37/38/39; S45

3. Hazards identification

This is a non-hazardous, odourless solid.
When heated to decomposition and depending on the availability of oxygen, traces of toxic carbon monoxide (<1%) fumes can evolve and plain carbon particles and hydrocarbon products can form.
Avoid breathing Polymer dusts.
Essentially non-irritating to skin – skin absorption is unlikely due to physical properties of substance.

4. First aid measures

Inhalation
Remove patient from exposure to fresh air and keep at rest.
Obtain medical attention if mechanical effects persist.

Skin contact
Wash off with flowing water or shower.

Eye contact
Wash the eye(s) with clean water, including under the eyelids, for at least 20 minutes.

Ingestion
No adverse effects anticipated by this route of exposure.
If vomiting occurs, keep head lower than the hips to help prevent aspiration.
Obtain medical attention if mechanical effects persist.

Further medical treatment
Treat symptomatically if necessary.

5. Fire fighting measures

Special hazards
Although non-combustible, when heated to decomposition and depending on the availability of oxygen, traces of toxic carbon monoxide (<1%) fumes can evolve and plain carbon particles and hydrocarbon products can form.
Hazardous combustion products of materials burning in surrounding area must also be considered.
Dense smoke is emitted when this product is allowed to burn without sufficient oxygen.
Mechanical handling can cause formation of dusts.
To reduce the potential for dust explosions, do not permit dust to accumulate.

Extinguishing media
Use an extinguishing media appropriate for the material that is burning.
WATER, $C0_2$, DRY CHEMICAL, FORG OR ALCOHOL RESISTANT FOAM

Special precautions
Insolate fire area and deny unnecessary entry.
Move containers from fire area if you can do so without risk.
Do not scatter substance to other areas.
Cool surroundings with water to localise the fire zone.
Hand held carbon dioxide or dry chemical extinguishers might be used for small fires.
If material is molten, do not apply direct water stream but use fine water spray or foam.
Soak product thoroughly with water to cool and prevent re-ignition.

Protection of fire fighters
Wear positive pressure self-contained breathing apparatus and protective fire fighting clothing.
If protective equipment is not available or not used, fight fire from a protected location of safe distance.

6. Accidental release measures

Personal precautions
Do not touch or walk through spilled material as pellets may present a slipping hazard.

Environmental precautions
Do not allow product/runoff from fire or spillage control to enter sewers, drains or watercourses.
Do not scatter this substance to other areas.
Spillage or uncontrolled discharges into watercourses must be alerted to the Department of Water Affairs and other appropriate regulatory body.

Spillage
Sweep up substance and place into polythene containers for disposal via an authorised waste contractor.

7. Handling and storage

Handling
Avoid generation and dispersion of dust and do not breathe dust.
Avoid breathing fumes from molten material.

Storage
Store in a cool place and keep containers closed when not in use.
Keep away from acids, oxidising agents and flammable substances.
Do not expose product to ultraviolet light.

8. Exposure controls / personal protection

Occupational exposure limit
TWA-OEL-RL = Not listed for polyethylene; (HCS REG. 1995)

In case of polyethylene dust generation and dispersion, observe the Occupational Exposure Limit for dust :

TWA-OEL-RL = 5mg/m^3 Respirable dust; HCS REG. 1995
TWA-OEL-RL = 10mg/m^3 Total inhalable dust; HCS REG. 1995

Engineering control measures
Provide adequate ventilation, including appropriate local extraction, to ensure that the occupational exposure limit for Polyethylene dust is not exceeded.
Mechanical ventilation (dilution and/or local exhaust) is recommended for all indoor situations.
Ensure eye wash fountains and quick drench showers are provided within the immediate work area for emergency use.

Personal protection
Respirators
Ventilation and other forms of engineering controls are the preferred means of controlling exposures.
Wear suitable respiratory protective equipment if exposure to dust levels above the occupational exposure limit is likely to occur.
If mechanical ventilation is not available, approved respiratory protection must be worn in the event of this product being heated to decomposition, as traces of toxic carbon monoxide and carbon dioxide fumes can be present.

Eye protection
Wear safety spectacles as minimum protection when working with this substance.
If there is a potential for exposure to particles, which could cause mechanical injury to the eye, wear chemical goggles.

Skin protection
No precautions other than clean body-covering clothing should be necessary.

Other
A ready to use, safety shower and eyewash facility should be installed close to the working area. Although some of the additives used in this product may have exposure guidelines, these additives are encapsulated in the product and no exposure would be expected under normal handling conditions.

9. Physical and chemical properties

Appearance	*Touch, almost waxy solids, granules, pellets or powders (Translucent in thick sections, highly transparent in thin films)*
Odour	*Odourless*
Flash ignition temperature	*341°C*
Self – ignition temperature	*349°C*
Melting point	*110 – 120°C*
Density	*0.91 – 0.94 g.cm $^{-3}$ @ 20°C*
Tensile strength	*25 – 40 Mpa*
Solubility (Cold water)	*Insoluble*
Solubility (Other)	*Benzene, Xylene (At elevated temperatures)*

10. Stability and reactivity

Stability
This is a very stable substance.

Hazardous reactions
Processing may release fumes, which can be irritating.
Polymer fragments and other decomposition products can be released at temperatures exceeding melt temperatures.
Hazardous decomposition products, depending upon temperature, air supply and the presence of other materials may include trace amounts of aldehyde, alcohol, hydrocarbons and organic acids. Polyethylene show poor resistance to strong oxidising agents like concentrated nitric acid.

Hazardous decomposition products
At elevated temperatures and depending on the availability of oxygen, the product can decompose, liberating toxic carbon monoxide and carbon dioxide fumes.

11. Toxicological information

Inhalation
Single exposure to dust is unlikely to be hazardous.

Skin contact
Essentially non-irritating to skin – skin absorption is unlikely due to physical properties of substance.

Eye contact
Polyethylene powder or dust may cause irritation or corneal injury due to mechanical action.

Ingestion
Single dose oral toxicity is considered to be extremely low. No hazards anticipated from swallowing small amounts incidental to normal handling operations.

12. Ecological information

Environmental fate and distribution
In the terrestrial environment, material is expected to remain in the soil.
In the aquatic environment, material is expected to float.

Persistence and degradation
This water insoluble polymeric solid is expected to be inert in the environment.
Surface photo-degradation is expected with exposure to sunlight.
No appreciable biodegradation is expected.

Toxicity and bioaccumulation
No bio-concentration is expected because of high molecular weight (> 1000g.mol^{-1}).
Not expected to be acutely toxic, but pellets may mechanically cause adverse effects if ingested by waterfowl or aquatic life.

Effect on effluent treatment
Inform the Management Authorities on Sewage Works if this product enters the sewers.

13. Disposal considerations

Disposal should be in accordance with local, regional or national legislation.
Chemical additions, processing or otherwise altering this material may make the waste management information in this material safety data sheet incomplete, inaccurate or otherwise inappropriate.

14. Transport information

Polyethylene is not listed as a hazardous chemical substance and is not classified as dangerous for transport

15. Regulatory information

Users should ensure that they comply with any relevant local, regional or national legislation..

SABS Classification		:	*Not classified*
Safety phrases	*S14*	:	*Keep away from concentrated nitric acid.*
	S22	:	*Do not breathe dust.*
	S36/37/38/39:		*Wear suitable chemical protective clothing, gloves and eye/face protection and in case of insufficient ventilation, wear suitable respiratory equipment.*
	S45	:	*In case of an incident or if you do not feel well, seek medical advice immediately*

16. Documentation

This data sheet was prepared in accordance with the :

- *Occupational Health & Safety Act (85, 1993 General Administrative Regulations, Section 7;*
- *SABS ISO 11014-1;*
- *Annex A of SABS 0232-3,*
- *Annex B, C D of SABS 0228 and 0229*
- *SABX 0265*

References

- *Hazardous Chemical Substances Regulations, 1995*
- *Sax's Dangerous Properties of Industrial Materials, 8th Ed.*
- *Hazardous Substances Act, 1973 4th Ed.*

Reason for revision 04

- *Change of corporate logo*

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