1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	Shell Polymers Polyethylene Homopolymer
Product code	:	E6126, E6136, E6010, E6037, E6046, E6155, E6159, E6049
CAS-No.	:	9002-88-4
Other means of identification	:	63B072, 63B072S, 65N8, 65N8U

Manufacturer or supplier's details

Supplier	:	SHELL EASTERN CHEMICALS (S) A REGISTERED BUSINESS OF SHELL EASTERN TRADING (PTE) LTD (UEN:198902087C) 9 North Buona Vista Drive , #07-01 The Metropolis Tower 1 Singapore 138588 Singapore
Telephone	:	+65 6384 8269
Telefax	:	+65 6384 8454
Contact for Safety Data Sheet	:	If you have any enquiries about the content of this SDS please email sccmsds@shell.com 如果您有关于该SDS内容的任何质询，请发电邮联系 sccmsds@shell.com
Emergency telephone number	:	+86-532-83889090

Recommended use of the chemical and restrictions on use

Recommended use	:	Thermoplastic resin for extrusion, film blowing, or moulding applications.
Restrictions on use	:	This product must not be used in applications other than those listed in Section 1 without first seeking the advice of the supplier. Manufacture of FDA Class II and III medical devices and storage or containment of radioactive materials., This product must not be used in applications other than the above without first seeking the advice of the supplier.

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance	solid
Colour	white, colourless, translucent

Odour	mild
Health Hazards	No specific hazards under normal use conditions.
Safety Hazards	Not classified as flammable but will burn.
Environmental Hazards	Not classified as dangerous for the environment.

GHS Classification

Based on available data this substance / mixture does not meet the classification criteria.

GHS label elements

Hazard pictograms : No Hazard Symbol required

Signal word : No signal word

Hazard statements : PHYSICAL HAZARDS:
Not classified as a physical hazard under GHS criteria.
HEALTH HAZARDS:
Not classified as a health hazard under GHS criteria.
ENVIRONMENTAL HAZARDS:
Not classified as an environmental hazard under GHS criteria.

Precautionary statements :

Prevention:
No precautionary phrases.

Response:
No precautionary phrases.

Storage:
No precautionary phrases.

Disposal:
No precautionary phrases.

Other hazards which do not result in classification

Spilled product may present a dangerous slipping hazard.

Physical and chemical hazards	Not classified as flammable but will burn.
Health Hazards	Inhalation: No specific hazards under normal use conditions. Skin: No specific hazards under normal use conditions. Eyes: No specific hazards under normal use conditions. Ingestion: No specific hazards under normal use conditions.
Environmental Hazards	Not classified as dangerous for the environment.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

Hazardous components

Chemical name	CAS-No.	Classification	Concentration (% w/w)
Polyethylene	9002-88-4		>= 99

No Hazardous ingredients, or are below required disclosure limits

4. FIRST-AID MEASURES

General advice : Not expected to be a health hazard when used under normal conditions.

If inhaled : No treatment necessary under normal conditions of use.
If symptoms persist, obtain medical advice.

In case of skin contact : Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available.
If persistent irritation occurs, obtain medical attention.

In case of eye contact : Flush eye with copious quantities of water.
Remove contact lenses, if present and easy to do. Continue rinsing.
If persistent irritation occurs, obtain medical attention.

If swallowed : In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.

Most important symptoms and effects, both acute and delayed : Not considered to be an inhalation hazard under normal conditions of use.
Possible respiratory irritation signs and symptoms may include a temporary burning sensation of the nose and throat, coughing, and/or difficulty breathing.

No specific hazards under normal use conditions.
Skin irritation signs and symptoms may include a burning sensation, redness, or swelling.

No specific hazards under normal use conditions.
Eye irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blurred vision.

No specific hazards under normal use conditions.
Ingestion may result in nausea, vomiting and/or diarrhoea.

Protection of first-aiders : When administering first aid, ensure that you are wearing the appropriate personal protective equipment according to the incident, injury and surroundings.

Notes to physician	:	Call a doctor or poison control center for guidance. Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
Unsuitable extinguishing media	:	Do not use water in a jet.
Specific hazards during firefighting	:	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 may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide may be evolved if incomplete combustion occurs. Unidentified organic and inorganic compounds.
Specific extinguishing methods	:	Standard procedure for chemical fires. Clear fire area of all non-emergency personnel. Keep adjacent containers cool by spraying with water.
Special protective equipment for firefighters	:	Proper protective equipment including chemical resistant gloves are to be worn; chemical resistant suit is indicated if large contact with spilled product is expected. Self-Contained Breathing Apparatus must be worn when approaching a fire in a confined space. Select fire fighter's clothing approved to relevant Standards (e.g. Europe: EN469).

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Observe all relevant local and international regulations. Avoid raising a dust cloud. Material can create slippery conditions.
	:	Avoid contact with skin, eyes and clothing. Isolate hazard area and deny entry to unnecessary or unprotected personnel. Do not breathe fumes, vapour. Do not operate electrical equipment.
Environmental precautions	:	Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers. Use appropriate containment to avoid environmental contamination.

Ventilate contaminated area thoroughly.

Methods and materials for containment and cleaning up	:	Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers.
Additional advice	:	For guidance on selection of personal protective equipment see Section 8 of this Safety Data Sheet. For guidance on disposal of spilled material see Section 13 of this Safety Data Sheet.

7. HANDLING AND STORAGE

Handling

General Precautions	:	Avoid breathing of or direct contact with material. Only use in well ventilated areas. Wash thoroughly after handling. For guidance on selection of personal protective equipment see Section 8 of this Safety Data Sheet. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.
Advice on safe handling	:	Avoid contact with skin, eyes and clothing. Avoid generation or accumulation of dusts. Avoid breathing dust. Take precautionary measures against static discharges. Ensure all equipment is electrically grounded before beginning transfer operations. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Refer to NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, for safe handling. Avoid generating heat during transfer operations. Spills may present a slip hazard.
Avoidance of contact	:	Strong oxidising agents.

Storage

Conditions for safe storage	:	Take measures to prevent the build up of electrostatic charge. Keep tightly closed in a dry and cool place. Refer to section 15 for any additional specific legislation covering the packaging and storage of this product.
Other data	:	Tanks must be clean, dry and rust-free. Must be stored in a diked (bunded) well- ventilated area, away from sunlight, ignition sources and other sources of heat. Drums should be stacked to a maximum of 3 high. Storage Temperature:

Ambient.

Packaging material : Suitable material: For containers or container linings, use mild steel or high density polyethylene.

Specific use(s) : Not applicable

Ensure that all local regulations regarding handling and storage facilities are followed.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Polyethylene	9002-88-4	PC-TWA (Total dust)	5 mg/m3	CN OEL

Biological occupational exposure limits

No biological limit allocated.

Monitoring Methods

Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.
Validated exposure measurement methods should be applied by a competent person and samples analysed by an accredited laboratory.
Examples of sources of recommended exposure measurement methods are given below or contact the supplier. Further national methods may be available.
GBZ 159 Specifications of air sampling for hazardous substances monitoring in the workplace.
GBZ/T 160 Determination of toxic substances in the air of workplace.
GBZ/T 192 Determination of dust in the air of workplace.
GBZ/T 300 Determination of toxic substances in the air of workplace

Engineering measures : Adequate ventilation to control airborne concentrations.
Local exhaust ventilation is recommended.
Eye washes and showers for emergency use.
The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include:

General Information:
Define procedures for safe handling and maintenance of controls.
Educate and train workers in the hazards and control measures relevant to normal activities associated with this

product.
Ensure appropriate selection, testing and maintenance of equipment used to control exposure, e.g. personal protective equipment, local exhaust ventilation.
Drain down system prior to equipment break-in or maintenance.
Retain drain downs in sealed storage pending disposal or subsequent recycle.
Always observe good personal hygiene measures, such as washing hands after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned.
Practice good housekeeping.

Personal protective equipment

Protective measures

Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

Respiratory protection : In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material.
If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation.
Check with respiratory protective equipment suppliers.
Select a suitable P1 air purifying respirator for inert particles
Where air-filtering respirators are unsuitable (e.g. airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus.
Where air-filtering respirators are suitable, select an appropriate combination of mask and filter.

Hand protection
Remarks : Recommended preventive skin protection Protective gloves against thermal risks Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.

For continuous contact we recommend gloves with breakthrough time of more than 240 minutes with preference for > 480 minutes where suitable gloves can be identified. For short-term/splash protection we recommend the same but recognize that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough

time maybe acceptable so long as appropriate maintenance and replacement regimes are followed. Glove thickness is not a good predictor of glove resistance to a chemical as it is dependent on the exact composition of the glove material. Glove thickness should be typically greater than 0.35 mm depending on the glove make and model.

Eye protection	:	Safety glasses with side-shields
Skin and body protection	:	Where risk of splashing or in spillage clean up, use chemical resistant one-piece overall with integral hood, chemical resistant knee length boots and chemical resistant gloves. Otherwise use chemical resistant apron and gauntlets. For spillage clean up use chemical resistant knee length boots.
Thermal hazards	:	When handling heated product, wear heat resistant gloves, safety hat with chin strap, face shield (preferably with a chin guard), safety glasses, heat resistant coveralls (with cuffs over gloves and legs over boots), neck protection and heavy duty boots, e.g. leather for heat resistance.
Hygiene measures	:	Wash hands before eating, drinking, smoking and using the toilet. Launder contaminated clothing before re-use.

Environmental exposure controls

General advice	:	Take appropriate measures to fulfill the requirements of relevant environmental protection legislation. Avoid contamination of the environment by following advice given in Section 6. If necessary, prevent undissolved material from being discharged to waste water. Waste water should be treated in a municipal or industrial waste water treatment plant before discharge to surface water.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	solid
Colour	:	white, colourless, translucent
Odour	:	mild
Odour Threshold	:	not determined
pH	:	Not applicable
Melting point/freezing point	:	115 - 135 °C / 239 - 275 °F
Boiling point/boiling range	:	Not applicable
Flash point	:	Not applicable
Evaporation rate	:	Not applicable

Flammability (solid, gas)	:	Data not available
Upper explosion limit	:	Not applicable
Lower explosion limit	:	Not applicable
Vapour pressure	:	Data not available (50.0 °C / 122.0 °F) Data not available
Relative vapour density	:	Not applicable
Relative density	:	0.918 - 0.965Method: ASTM D4052
Density	:	0.918 - 0.965 g/cm3 (20 °C / 68 °F) Method: ASTM D4052
Solubility(ies)		
Water solubility	:	insoluble
Partition coefficient: n-octanol/water	:	Not applicable
Auto-ignition temperature	:	> 300 °C / 572 °F
Decomposition temperature	:	> 300 °C / 572 °F
Viscosity		
Viscosity, dynamic	:	Not applicable
Viscosity, kinematic	:	Not applicable
Particle characteristics		
Particle size	:	Data not available
		Data not available
Explosive properties	:	Not applicable
Oxidizing properties	:	Not applicable
Surface tension	:	not determined
Conductivity	:	Data not available
Molecular weight	:	> 25,000 g/mol

10. STABILITY AND REACTIVITY

Reactivity	:	The product does not pose any further reactivity hazards in

addition to those listed in the following sub-paragraph.

Chemical stability	:	Stable. Accumulation of dust can create an explosion hazard. Dust can be ignited by static electricity, sparks and heat.
Possibility of hazardous reactions	:	Reacts with strong oxidising agents. Hazardous polymerisation does not occur.
Conditions to avoid	:	Extremes of temperature and direct sunlight.
Incompatible materials	:	Strong oxidising agents.
Hazardous decomposition products	:	Hazardous combustion products may include: Carbon dioxide (CO2) Carbon monoxide. Organic Substances

11. TOXICOLOGICAL INFORMATION

Basis for assessment	:	Information given is based on data from similar products.Information given is based on data from similar products. Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).
Exposure routes	:	Exposure may occur via inhalation, ingestion, skin absorption, skin or eye contact, and accidental ingestion.

Acute toxicity

Components:

Polyethylene:

Acute oral toxicity	:	Remarks: Based on available data, the classification criteria are not met.
Acute inhalation toxicity	:	Remarks: Based on available data, the classification criteria are not met.
Acute dermal toxicity	:	Remarks: Based on available data, the classification criteria are not met.

Skin corrosion/irritation

Components:

Polyethylene:

Remarks: Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation

Components:

Polyethylene:
Remarks: Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation

Components:

Polyethylene:
Remarks: For respiratory sensitisation:
Based on available data, the classification criteria are not met.

Germ cell mutagenicity

Components:

Polyethylene:
Genotoxicity in vitro : Remarks: Based on available data, the classification criteria are not met.

: Remarks: Based on available data, the classification criteria are not met.

Carcinogenicity

Components:

Polyethylene:

Remarks: Based on available data, the classification criteria are not met.

Material	GHS/CLP Carcinogenicity Classification
Polyethylene	No carcinogenicity classification.

Material	Other Carcinogenicity Classification
Polyethylene	IARC: Group 3: Not classifiable as to its carcinogenicity to humans

Reproductive toxicity

Components:

Polyethylene:

:
Remarks: Based on available data, the classification criteria are not met.

STOT - single exposure

Components:

Polyethylene:
Remarks: Based on available data, the classification criteria are not met.

STOT - repeated exposure

Components:

Polyethylene:
Remarks: Based on available data, the classification criteria are not met.

Aspiration toxicity

Components:
Polyethylene:
Not considered an aspiration hazard.

Further information

Components:
Polyethylene:
Remarks: Classifications by other authorities under varying regulatory frameworks may exist.

12. ECOLOGICAL INFORMATION

Basis for assessment	:	Information given is based on product testing. Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).

Ecotoxicity

Components:
Polyethylene :

Toxicity to fish (Acute toxicity)	:	Remarks: Practically non toxic, LC/EC/IC 50 > 100 mg/l .
Toxicity to crustacean (Acute toxicity)	:	Remarks: Practically non toxic: LL/EL/IL50 > 100 mg/l
Toxicity to algae/aquatic plants (Acute toxicity)	:	Remarks: Practically non toxic: LL/EL/IL50 > 100 mg/l
Toxicity to microorganisms (Acute toxicity)	:	Remarks: Data not available
Toxicity to fish (Chronic toxicity)	:	Remarks: NOEC/NOEL > 100 mg/l
Toxicity to crustacean(Chronic toxicity)	:	Remarks: NOEC/NOEL > 100 mg/l

Persistence and degradability

Components:
Polyethylene :

Biodegradability : Remarks: Not readily biodegradable.

Bioaccumulative potential

Product:

Partition coefficient: n-octanol/water : Remarks: Not applicable

Components:
Polyethylene :
Bioaccumulation : Remarks: Has the potential to bioaccumulate.

Mobility in soil

Components:
Polyethylene :
Mobility : Remarks: Floats on water.

Other adverse effects

no data available

Product:

Remarks Data available only for some components.

Components:
Polyethylene :

Remarks Data available only for some components.

13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Recover or recycle if possible.
It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations.

Do not dispose into the environment, in drains or in water courses.
Waste product should not be allowed to contaminate soil or water.

Disposal should be in accordance with applicable regional, national, and local laws and regulations.
Local regulations may be more stringent than regional or national requirements and must be complied with.

Contaminated packaging : Remove all packaging for recovery or waste disposal. Comply with any local recovery or waste disposal regulations.

Local legislation
Remarks : If potential for exposure exists refer to Section 8 for specific personal protective equipment.

14. TRANSPORT INFORMATION

National Regulations

International Regulations

ADR
Not regulated as a dangerous good

IATA-DGR
Not regulated as a dangerous good

IMDG-Code
Not regulated as a dangerous good

Maritime transport in bulk according to IMO instruments

Pollution category : Not applicable
Ship type : Not applicable
Product name : Not applicable

Special precautions for user

Remarks : Special Precautions: Refer to Section 7, Handling & Storage, for special precautions which a user needs to be aware of or needs to comply with in connection with transport.

15. REGULATORY INFORMATION

National regulatory information

Law on the Prevention and Control of Occupational Diseases

Rotterdam Convention (Prior Informed Consent)
Not applicable

Stockholm Convention (Persistent Organic Pollutants)
Not applicable

The categories of occupational disease:
Not applicable

Occupational Disease Classification list:
Not applicable

Regulations on Safety Management of Hazardous Chemicals

Catalogue of Hazardous Chemicals : Not applicable

Identification of Major Hazard Installations for Hazardous Chemicals (GB 18218)	:	Not applicable
Hazardous Chemicals for Priority Management under SAWS	:	Not applicable

Regulations on Labour Protection in Workplaces where Toxic Substances are Used

Catalogue of Highly Toxic Chemicals	:	Not applicable

Regulation of Environmental Management on the First Import of Chemicals and the Import and Export of Toxic Chemicals

Catalogue of Toxic Chemicals Severely Restricted in China	:	Not applicable

Other international regulations

The components of this product are reported in the following inventories:

TSCA	:	Listed
AIIC	:	Listed
DSL	:	Listed
IECSC	:	Listed
ENCS	:	Listed
KECI	:	Listed
NZIoC	:	Listed
PICCS	:	Listed
TCSI	:	Listed

16. OTHER INFORMATION

Abbreviations and Acronyms

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable

Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

Further information

Training advice	:	Provide adequate information, instruction and training for operators.
Other information	:	A vertical bar (|) in the left margin indicates an amendment from the previous version.
Sources of key data used to compile the Safety Data Sheet	:	The quoted data are from, but not limited to, one or more sources of information (e.g. toxicological data from Shell Health Services, material suppliers' data, CONCAWE, EU IUCLID date base, EC 1272 regulation, etc).

Disclaimer

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.

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