

SAFETY DATA SHEET



ENABLE™ DEVELOPMENTAL GRADES (ZnO)

This SDS is a document with no country specific information included.

Section 1. Identification

Product name	: ENABLE™ DEVELOPMENTAL GRADES (ZnO) See Section 16 for synonyms.
Product description	: LLDPE without polymer processing aid
<u>Relevant identified uses of the substance or mixture and uses advised against</u>	
Identified uses	: Coatings, Extrusion and moulding, Film blowing
Uses advised against	: This product is not recommended for any industrial, professional or consumer use other than the identified uses above.
Supplier	: ExxonMobil Chemical Asia Pacific (Regn. No. 52893724C) (A Division Of ExxonMobil Asia Pacific Pte Ltd - Regn. No. 196800312N) 1 HarbourFront Place #06-00 HarbourFront Tower One 098633 Singapore
24-Hour emergency telephone number	: 800 101 2201 / +65 3158 1349 (CHEMTREC)
Supplier General Contact	: +65 6885 8000
Local Emergency telephone number	: CHEMTREC International: +1-703-741-5970 Australia: 1800 862 115 China: 400 120 4937 India: 000-800-100-7141 Japan: 0800-300-5842 Malaysia: 1-800-815-308 New Zealand: 0800-425-459 Philippines: 1-800-1-116-1020 Republic of Korea: 080-880-0468 Taiwan: 00801-14-8954 Thailand: 001-800-13-203-9987

Section 2. Hazard identification

	This material is not hazardous according to UN GHS Criteria. Classification includes all GHS hazard classes. For hazard categories with two cut-off/ concentration limits, classification was based on the higher limit.
Classification of the substance or mixture	: Not classified.
<u>GHS label elements</u>	
Hazard statements	: No known significant effects or critical hazards.
Other hazards which do not result in classification	: May form explosible dust-air mixture if small particles are generated during further processing, handling, or by other means.
Note	: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	% by weight	Identifiers
zinc oxide	<0.25	CAS: 1314-13-2

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Note :

The product may contain varying levels of additives such as slip and anti-blocking agents, anti-oxidants, stabilizers and processing aids.

Section 4. First-aid measures

Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. If burned by contact with hot material, molten material adhering to skin should be cooled as quickly as possible with water, and see a physician for removal of adhering material and treatment of burn.
- Ingestion** : Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : No known significant effects or critical hazards.

Over-exposure signs/symptoms

- Eye contact** : No specific data.
- Inhalation** : No specific data.
- Skin contact** : No specific data.
- Ingestion** : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use dry chemical, CO₂, water spray (fog) or foam.

Unsuitable extinguishing media : Do not use water jet.

Specific hazards arising from the chemical : No specific fire or explosion hazard.

Hazardous combustion products : Flammable hydrocarbons, Incomplete combustion products, Oxides of carbon, Smoke, Fume

Special protective actions for fire-fighters : Use standard firefighting procedures and consider the hazards of other involved materials. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. Assure an extended cooling down period to prevent re-ignition. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

Large spill : Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. Confine the spill immediately with booms. Skim from surface. Warn other shipping. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

Section 7. Handling and storage

Precautions for safe handling

Protective measures	: Thermal burn hazard - contact with hot material may cause thermal burns. Put on appropriate personal protective equipment (see Section 8). Prevent small spills and leakage to avoid slip hazard. Care should be taken when storing and handling this product. Apart from the specific nature of the polymer product, conditions such as humidity, sunlight, and temperature have an influence on the way the product behaves during storage and handling. Special attention should be paid to avoid inappropriate stacking of palletized bags or other package units. Indeed, polymer products may be dimensionally unstable under certain conditions. Avoid conditions generating heat during transfer operations.
Advice on general occupational hygiene	: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
Static Accumulator	: This material is a static accumulator.
Loading/Unloading Temperature	: Ambient
Transport Temperature	: Ambient
Transport Pressure	: Ambient
Conditions for safe storage, including any incompatibilities	: Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
Storage Temperature	: Ambient
Storage Pressure	: Ambient
Suitable Containers/Packing	: Bulk Containers, Hopper Cars, Bags, Boxes, Drums, Octatainer, Silos
Suitable Materials and Coatings	: aluminum, Polyethylene Bags

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
zinc oxide	ACGIH TLV (United States, 1/2024) TWA 8 hours: 2 mg/m ³ . Form: Respirable fraction. STEL 15 minutes: 10 mg/m ³ . Form: Respirable fraction.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

For dusty conditions, ACGIH recommends for insoluble and poorly soluble particles not otherwise specified an 8-hour TWA of 10 mg/m³ (inhalable particles), 3 mg/m³ (respirable particles).

Biological exposure indices

No exposure indices known.

Section 8. Exposure controls/personal protection

Appropriate engineering controls : SPECIAL PRECAUTIONS: Should significant vapors/fumes be generated during the thermal processing (rotomolding) of this product, it is recommended that work stations be monitored for the presence of thermal degradation by-products, such as aldehydes (formaldehyde, acetaldehyde, etc) and organic acids (formic acid, acetic acid, etc), which may evolve at elevated temperatures. Processors of this product should assure that adequate ventilation or other controls are used to control exposure. It is recommended that the current ACGIH-TLVs for the thermal degradation by-products be observed. Contact your local sales representative for further information.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields. Face shield.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. If product is hot, thermally protective, chemical resistant gloves are recommended. If contact with forearms is likely, wear gauntlet style gloves.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. If product is hot, thermally protective, chemical resistant apron and long sleeves are recommended.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties and safety characteristics

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

Physical state : Solid. [pellet, Granule, powder]

Color : Clear to Opaque, White to Off-White

Odor : None to Mild

Odor threshold : Not available.

pH : Not applicable.

Melting point/freezing point : 115 to 130°C (239 to 266°F) [In-house method]

Section 9. Physical and chemical properties and safety characteristics

Boiling point or initial boiling point and boiling range	: Not available.
Flash point	: Not applicable.
Evaporation rate	: Not available.
Flammability	: Ignitable
Lower and upper explosion limit/flammability limit	: Not applicable.
Vapor pressure	: Not applicable.
Relative vapor density	: Not applicable.
Relative density	: 0.9 to 0.95 [In-house method]
Bulk density	: 0.4 to 1 g/cm ³ [In-house method]
Solubility in water	: Negligible
Partition coefficient n-octanol/water (log Pow)	: Not applicable.
Auto-ignition temperature	: Not applicable.
Decomposition temperature	: Not available.
Viscosity	: Not applicable.
Molecular weight	: >25000
<u>Particle characteristics</u>	
Median particle size	: Not available.
Hygroscopic	: No

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: Avoid elevated temperatures for prolonged periods of time.
Incompatible materials	: Strong oxidizers
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Conclusion/Summary

Inhalation	: Minimally Toxic. No end point data for material. Based on chemical structure (polymers).
Dermal	: Minimally Toxic. No end point data for material. Based on chemical structure (polymers).
Oral	: Minimally Toxic. No end point data for material. Based on chemical structure (polymers).

Irritation/Corrosion

Section 11. Toxicological information

Conclusion/Summary

- Skin** : Negligible irritation to skin at ambient temperatures. No end point data for material. Based on chemical structure (polymers).
- Eyes** : May cause mild, short-lasting discomfort to eyes. No end point data for material. Based on chemical structure (polymers).
- Respiratory** : Negligible hazard at ambient/normal handling temperatures. No end point data for material.

Respiratory or skin sensitization

Conclusion/Summary

- Skin** : Not expected to be a skin sensitizer. No end point data for material. Based on chemical structure (polymers).
- Respiratory** : Not expected to be a respiratory sensitizer. No end point data for material.

Mutagenicity

- Conclusion/Summary** : Not expected to be a germ cell mutagen. No end point data for material. Based on chemical structure (polymers).

Carcinogenicity

- Conclusion/Summary** : Not expected to cause cancer. No end point data for material. Based on chemical structure (polymers).

Reproductive toxicity

- Conclusion/Summary** : Not expected to be a reproductive toxicant. No end point data for material. Based on chemical structure (polymers).

Specific target organ toxicity (single exposure)

- Conclusion/Summary** : Not expected to cause organ damage from a single exposure. No end point data for material.

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Target organs
ENABLE™ DEVELOPMENTAL GRADES (ZnO)	Not applicable.	-

- Conclusion/Summary** : Not expected to cause organ damage from prolonged or repeated exposure. No end point data for material. Based on chemical structure (polymers).

Aspiration hazard

- Conclusion/Summary** : Not expected to be an aspiration hazard. Based on physico-chemical properties of the material. No end point data for material.

Other information

- Contains** : Additives that are encapsulated in the polymer. Under the normal conditions for processing and use of this polymer the encapsulated additives are not expected to pose any health hazard. However, grinding of the polymer is not recommended without the use of appropriate measures to control exposure (see Section 8 - Engineering Controls).
- Product** : Elevated temperatures or mechanical action may form vapors, mists or fumes which may be irritating to the eyes and respiratory tract.

Section 12. Ecological information

The information given is based on data for the material, components of the material, or for similar materials, through the application of bridging principals.

Toxicity

Conclusion/Summary

- Acute toxicity** : Not expected to be harmful to aquatic organisms.
- Chronic toxicity** : Not expected to demonstrate chronic toxicity to aquatic organisms.

Section 12. Ecological information

Persistence and degradability

- Biodegradability** : Material -- Expected to be persistent.
- Hydrolysis** : Material -- Transformation due to hydrolysis not expected to be significant.
- Photolysis** : Material -- Transformation due to photolysis not expected to be significant.
- Atmospheric Oxidation** : Material -- Transformation due to atmospheric oxidation not expected to be significant.

Bioaccumulative potential

- Conclusion/Summary** : Material -- Potential to bioaccumulate is low.

Mobility in soil

- Mobility** : Material -- Expected to partition to sediment and wastewater solids. Low solubility and floats and is expected to migrate from water to the land.

Other ecological information

- Other adverse effects** : No known significant effects or critical hazards.

Note :

Section 13. Disposal considerations

- Disposal methods** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

Section 14. Transport information

	ADR	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	No.	No.	No.

- Special precautions for user** : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 14. Transport information

Transport in bulk according to IMO instruments : Not applicable.

Section 15. Regulatory information

This material is not hazardous according to UN GHS Criteria.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Please contact your supplier for information on the inventory status of this material.

Section 16. Other information

History

Date of issue/Date of revision : 5 September 2024

Date of previous issue : 25 June 2024

Version : 1.01

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
N/A = Not available
SGG = Segregation Group
UN = United Nations

Procedure used to derive the classification

Not classified.

References : Not available.

 Indicates information that has changed from previously issued version.

THIS SDS COVERS THE FOLLOWING MATERIALS :

Enable™ Performance Polymers;; EXP609PA

Product code : P000001294

Notice to reader

Section 16. Other information

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