

SAFETY DATA SHEET

Perpetual® Recycled PET (Polyethylene Terephthalate)

1. CHEMICAL PRODUCT/COMPANY IDENTIFICATION

PRODUCT IDENTIFIER:

Perpetual® Recycled PET (Polyethylene Terephthalate)

Includes Flake and Pellet Forms

RECOMMENDED USE AND USE RESTRICTIONS:

Recycled PET (flake and pellet forms) for use in plastics industry. See attached "Medical Caution Bulletin No. 1", at end of SDS for use restrictions.

MANUFACTURER / SUPPLIER:

DAK Americas LLC

"An Alpek Polyester Business"

7621 Little Ave., Suite 500

Charlotte, NC 28226

www.AlpekPolyester.com

EMERGENCY PHONE NUMBERS:

Product Information:

1-800-227-6335

Transport Emergency: CHEMTREC

1-800-424-9300

2. HAZARDS IDENTIFICATION

OSHA HAZARD CLASSIFICATION:

COMBUSTIBLE DUST - WARNING! MAY FORM COMBUSTIBLE DUST CONCENTRATIONS IN AIR.

HAZARDS NOT OTHERWISE CLASSIFIED:

- CAUTION! MOLTEN MATERIAL WILL PRODUCE THERMAL BURNS. Molten polymer will adhere to skin and can cause severe burns.
- Eye contact with polymer particles may cause mechanical irritation with discomfort, tearing, or blurring of vision.

3. COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENTS:

Material	CAS Number	%
Polyethylene Terephthalate	25038-59-9 / 24938-04-3	>99
Moisture or Residual Additives, Modifiers, Colorants/Impurities	-	<1

4. FIRST AID MEASURES

DESCRIPTION OF NECESSARY MEASURES:

INHALATION: No specific intervention is indicated, as the compound is not likely to be hazardous by inhalation. However, if exposed to gases, vapors or fumes from overheating or combustion, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician if necessary.

SKIN CONTACT: The compound is not likely to be hazardous by skin contact, but cleansing the skin after use is advisable. If molten material gets on skin, cool rapidly with cold water. Do not attempt to remove material from skin. Obtain medical treatment for thermal burn.

EYE CONTACT: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. If contact with molten material occurs, seek medical attention immediately. If contact with non-molten material occurs, consult physician.

INGESTION: Ingestion is not an expected route of exposure during normal use of the product. If ingested, consult a physician.

MOST IMPORTANT SYMPTOMS/EFFECTS, ACUTE AND DELAYED:

Contact with molten product may cause severe skin and/or eye burns.

INDICATION OF IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT:

Contact with molten product. Treat burns as thermal burns. The material will come off as healing occurs; therefore, immediate removal from the skin is not necessary.

5. FIRE FIGHTING MEASURES

SUITABLE EXTINGUISHING MEDIA:

Water, Foam, Carbon Dioxide (CO₂), or Dry Chemical.

SPECIFIC HAZARDS ARISING FROM CHEMICAL:

HAZARDOUS COMBUSTION PRODUCTS: Carbon dioxide and carbon monoxide.

SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIRE-FIGHTERS:

Keep personnel removed and upwind of fire. Wear self-contained breathing apparatus. Wear full protective equipment.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS / PROTECTIVE EQUIPMENT / EMERGENCY PROCEDURES

The interior of molten masses may remain hot for some time because of the low heat conductivity of the polymer. Use care when handling/disposing of molten masses.

Review Section 5. FIRE FIGHTING MEASURES and Section 7. PRECAUTIONS FOR SAFE HANDLING before proceeding with clean-up.

Use appropriate Personal Protective Equipment during clean-up. Thermal protective equipment should be used when handling molten material (See Section 8. for further details).

METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP:

Sweep up and recover, or mix material with moist absorbent and shovel into suitable chemical waste container.

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. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Non-sparking tools should be used.

7. HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING:

- Do not breathe gases, vapors or fumes that may be evolved during processing. Caution and suitable thermal eyes, face, and body personal protective equipment (PPE) must be used if handling hot/molten material. Contact with molten material can cause burns, so unprotected contact with molten material must be avoided.

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- Keep spilled flakes/pellets swept up from walkways to minimize slipping hazards. Do not walk on spilled flakes/pellets.
- Avoid dust generation and prevent dust accumulations to minimize explosion hazard. Physical operations, such as grinding, can create dust and a potential dust explosion hazard. Under these conditions, follow National Fire Protection Association (NFPA) Codes and Standards for handling combustible dusts.

CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES:

Keep container closed. Incompatible or can react with strong oxidizers.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE LIMITS:

Polyethylene Terephthalate		Particles Not Otherwise Specified	Particulates Not Otherwise Regulated (PNOR)
PEL (OSHA):	None Established	–	15 mg/m ³ Total dust 5 mg/m ³ Respirable fraction
TLV (ACGIH):	None Established	3 mg/m ³ Respirable particles 10 mg/m ³ Inhalable particles	–

*All exposure limits presented are 8-hour time weighted average (TWA) limits.

APPROPRIATE ENGINEERING CONTROLS:

- Use local ventilation to control gases, vapors and fumes from hot processing.
- Use static controls. Static charges can build up and ignite dust or solvent laden atmospheres. Design precautions into processes that can create dust, such as pneumatic conveying systems, grinding and other physical operations. There is the potential for a dust explosion hazard.
- Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment).

INDIVIDUAL PROTECTION MEASURES / PERSONAL PROTECTIVE EQUIPMENT:

EYE/FACE PROTECTION: Wear coverall chemical splash goggles when the possibility exists for eye or face contact from airborne material. Wear a face shield when working with molten material.

RESPIRATORY PROTECTION: Respirators are not needed for normal use. Where airborne concentrations are expected to exceed exposure limits, a NIOSH approved respirator should be selected based on the form and concentration of the contaminant in air and in accordance with the OSHA Respiratory Protection Standard (29 CFR 1910.134).

PROTECTIVE CLOTHING: If there is potential for contact with hot/molten material, wear heat-resistant impervious clothing and footwear. Special protective clothing is not needed for normal use. Gloves are recommended as good industrial practice.

RECOMMENDED DECONTAMINATION FACILITIES: Eyewash station, washing facilities.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Solid flake (transparent, clear, or various color polymer) or Pellet (grey in crystallized form, clear in amorphous form)	Flammability Limits (Upper/Lower):	No data available
Odor:	Odorless	Vapor Pressure:	Not Applicable
Odor Threshold:	No data available	Vapor Density:	Not Applicable
pH:	Not Applicable	Specific Gravity:	No data available
Melting Point:	250 – 255 °C	Solubility in Water:	Insoluble
Initial Boiling Point and Boiling Range:	No data available	Partition coefficient (n-octanol/water):	No data available
Flash Point:	Not applicable, combustible solid	Auto-Ignition Temperature:	No data available
Evaporation Rate:	No data available	Decomposition Temperature:	330 °C
Flammability:	No data available	Viscosity:	No data available

10. STABILITY AND REACTIVITY

REACTIVITY:

None known.

CHEMICAL STABILITY:

Stable at normal conditions. Polymerization will not occur.

POSSIBILITY OF HAZARDOUS REACTIONS:

None known.

CONDITIONS TO AVOID:

Temperatures above 330 °C.

INCOMPATIBLE MATERIALS:

Incompatible or can react with strong oxidizers.

HAZARDOUS DECOMPOSITION PRODUCTS:

Thermal decomposition products caused by overheating polymer can include carbon monoxide, carbon dioxide, acetaldehyde and ethylene. Decomposition products (gases, vapors and/or fumes) may cause skin, eye or respiratory tract irritation, and other adverse health effects.

11. TOXICOLOGICAL INFORMATION

INFORMATION ON LIKELY ROUTES OF EXPOSURE:

Polymer dust may be inhaled, and come in contact with skin and eyes. Thermal decomposition products may be inhaled.

SYMPTOMS RELATED TO PHYSICAL, CHEMICAL AND TOXICOLOGICAL CHARACTERISTICS:

- Skin contact with molten material will produce thermal burns.
- Eye contact with polymer dust may cause mechanical irritation with discomfort, tearing, or blurring of vision. Polyethylene terephthalate is a mild eye irritant.
- Eye contact with molten material will produce thermal burns.
- Decomposition products (gases, vapors and/or fumes) may cause skin, eye or respiratory tract irritation, and other adverse health effects.

ACUTE, DELAYED, AND CHRONIC EFFECTS FROM SHORT AND LONG-TERM EXPOSURE:

Polyethylene terephthalate animal testing indicates:

- No carcinogenic, mutagenic, developmental or reproductive effects.
- No adverse effects from short exposures by inhalation and ingestion.

Polyethylene terephthalate patch tests with humans resulted in no skin irritation or sensitization.

NUMERICAL MEASURES OF TOXICITY

Polyethylene Terephthalate: Oral Approximate Lethal Dose (ALD): >10,000 mg/kg in rats

CARCINOGENICITY INFORMATION:

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by NTP, IARC, OSHA or ACGIH as a carcinogen.

12. ECOLOGICAL INFORMATION

No toxicity data is available. The product is insoluble in water.

13. DISPOSAL CONSIDERATIONS

Product can be recycled. Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations.

14. TRANSPORTATION INFORMATION

SHIPPING INFORMATION:

- DOT – Class Not Regulated.
- Sea – IMDG (International Maritime Dangerous Goods) – Class Not Regulated.
- Air – ICAO (International Civil Aviation Organization) – Class Not Regulated.

15. REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS:

- TSCA Inventory Status: In compliance with TSCA Inventory requirements for commercial purposes.
- Under RCRA, it is the responsibility of the product user to determine at the time of disposal whether a material containing the product or derived from the product should be classified as a hazardous waste (40 CFR 261.20–24).
- If discarded in its purchased form, this product does not meet the RCRA characteristic definition for ignitability, corrosivity or reactivity and is not a RCRA listed waste; however, it has not been tested by the Toxicity Characteristic Leaching Procedure (TCLP).
- SARA, Title III: This material is not known to contain extremely hazardous substances.

INTERNATIONAL REGULATIONS:

- DSL (Canadian Domestic Substances List) and CEPA (Canadian Environmental Protection Act): This product is listed on the DSL or otherwise complies with CEPA new substance notification requirements.
- No components of this product are on the Mexican Raw Materials Regulation.

16. ADDITIONAL INFORMATION

The data in this Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Perpetual® is a registered trademark of DAK Americas LLC, an Alpek Polyester business.

SDS Revision Date: February 21, 2022

End of SDS

MEDICAL CAUTION BULLETIN NO. I

DO NOT USE MATERIALS PRODUCED BY ALPEK POLYESTER BUSINESSES IN MEDICAL APPLICATIONS INVOLVING **PERMANENT, BRIEF, OR TEMPORARY IMPLANTATION** IN THE HUMAN BODY OR PERMANENT CONTACT WITH INTERNAL BODY FLUIDS OR TISSUES, UNLESS THE MATERIAL HAS BEEN PROVIDED DIRECTLY FROM AN ALPEK POLYESTER BUSINESS UNDER A CONTRACT WHICH EXPRESSLY ACKNOWLEDGES THE CONTEMPLATED USE.

ALPEK POLYESTER MAKES NO REPRESENTATION, PROMISE, EXPRESS WARRANTY OR IMPLIED WARRANTY CONCERNING THE SUITABILITY OF THESE MATERIALS FOR USE IN THE HUMAN BODY OR IN CONTACT WITH INTERNAL BODY FLUIDS OR TISSUES.

THE CONTENT OF ALPEK POLYESTER MATERIAL IS NOT CERTIFIED FOR IMPLANTS.

Alpek Polyester materials are not designed or manufactured for use in implantation in the human body or in contact with internal body fluids or tissues. Alpek Polyester has not performed clinical testing of these materials for implantation. Alpek Polyester will not provide to customers making implantable devices any notice concerning its materials, as specified under 21 CFR section 820.50, or any other information necessary for medical device use of the materials under any other statute or FDA regulation. Alpek Polyester has neither sought, nor received, approval from the FDA for the use of these materials in implantation in the human body or in contact with internal body fluids or tissues.

ALL IMPLANTABLE MEDICAL DEVICES CARRY A RISK OF FAILURE AND ADVERSE CONSEQUENCES.

The medical judgment of a physician, a medical device seller and the FDA should be relied upon for identification of both harmful consequences and life-saving benefits from an implantation device comprised of specific materials. These benefits and risks can be found in published medical cases performing clinical medical studies of an implantable medical device. Alpek Polyester does not support the use of its products in these applications and cannot weigh the benefits against the risk defined in these articles. Alpek Polyester cannot offer a medical judgment on the safety or efficacy of the use of its materials in such devices.

DO NOT MAKE REFERENCE TO THE ALPEK POLYESTER NAME OR ANY ALPEK POLYESTER BUSINESS TRADEMARK IN ASSOCIATION WITH AN IMPLANTABLE MEDICAL DEVICE.

Do not use a trademark or licensed trademark from Alpek Polyester or any of its businesses as the descriptive name of an implantable medical device (e.g. do not call it the "Delcron®" prosthesis, or do not call it a "Laser+® device").

End of Bulletin