

MATERIAL SAFETY DATA SHEET

TKG® 1000 (UHMWPE)

Section 1. COMPANY AND PRODUCT IDENTIFICATION

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Material Name: TKG® 1000
UHMWPE NATURAL AND COLOURS. Polyethylene.

Section 2. COMPOSITION / INFORMATION ON COMPONENTS

MATERIAL	CAS Number	%
Polyethylene	9002-88-4	>99

Section 3. HAZARDS IDENTIFICATION

HAZARDS: Molten material may cause thermal burns. At process temperatures irritating fumes may be produced. Dust may form explosive mixtures with air.

PHYSICAL STATE: Solid.

COLOUR: Translucent to white or opaque color.

ODOR: Faint, mild hydrocarbon odor.

ODOR THRESHOLD: No value available.

Section 4. FIRST AID MEASURES

1-Hexene, polymer with ethane – Hot material may cause thermal burns. At process temperatures, irritating fumes may cause soreness in the nose and throat; coughing may result. Mechanical irritation is possible.

Eye contact: Mechanical irritation is possible.

Skin contact: Molten material may cause thermal burns.

Inhalation: Inhalation of process fumes and vapours may cause soreness in the nose and throat and coughing. "Nuisance dust" such as polymer dust typically exhibits no significant health effect when they are

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reasonably controlled. Exposure to high concentrations of dust may cause slight irritation by mechanical action.

Ingestion: Ingestion not likely route of exposure.

Section 5. FIRE FIGHTING MEASURES

Suitable extinguishing media: SMALL FIRE: Use dry chemical, CO₂, water spray or regular foam.
LARGE FIRE: Use large quantities of water spray.

Special protective equipment for fire fighting:

PROTECTIVE EQUIPMENT/CLOTHING: Wear an approved positive pressure self-contained breathing apparatus and fire-fighter turnout gear.

FIRE FIGHTING GUIDANCE: Polyolefin dust particles in the atmosphere are combustible and may be explosive. Keep away from heat, sparks, flame and all other ignition sources. Prevent dust accumulations and dust clouds.

HAZARDOUS COMBUSTION PRODUCTS: Carbon monoxide, olefinic and paraffinic compounds, trace amounts of organic acids, ketones, aldehydes and alcohols may be formed.

Additional advice:

Flash Point: Not Applicable

Auto Ignition Temperature: Approx. 343°C (649°F)

Section 6. ACCIDENTAL RELEASE MEASURES

Methods for cleaning up: Mechanical.

Environmental precautions: Before entry of swarf waste to sewage it should be mechanically cleaned of product remainders.

Section 7. HANDLING AND STORAGE

General advice: Keep away from heat, sparks, open flame, or any ignition source. Machine or process with adequate ventilation. Machine shavings can make walking hazardous, potentially causing falls and serious injury. After handling, always wash hand thoroughly with soap and water.

Technical measures: Keep dry. Store away from excessive heat and away from strong oxidizing agents.

Section 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Guidelines for materials: Ventilate area to prevent accumulation of dust or vapors.

Respiratory protection: A respiratory protection program that meets OSHA's 29 CFR 1910.134 or ANSI Z88.2 requirements must be followed whenever workplace conditions warrant respirator use. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. Use appropriate respiratory protection where atmosphere exceeds recommended limits.

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Eye protection:	Dust service goggles should be worn to prevent mechanical injury or other irritation to eyes due to airborne particles which may result from handling this product. Safety glasses are required as minimum requirements.
Skin protection:	Use chemical resistant gloves appropriate to conditions of use. Wear heat protective gloves and clothing if there is a potential for contact with heated material. Protective clothing such as long sleeves or a lab coat should be worn.
Work / hygiene practices:	Selection of appropriate personal protective equipment should be based on an evaluation of the performance characteristics of the protective equipment relative to the task(s) to be performed, conditions present, duration of use, and the hazards and/or potential hazards that may be encountered during use. Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet facilities. Promptly remove soiled clothing/wash thoroughly before reuse. Material shavings on hard surface can be a serious slipping/falling hazard. Use care when walking shavings.

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

FORM:	Solid (semi finished or finished parts).
APPEARANCE:	Translucent to white or opaque colored solid stock shape
ODOR:	Faint, mild hydrocarbon odor
ODOR THRESHOLD:	No value available
pH:	Not applicable
BOILING POINT/BOILING RANGE:	Not applicable
FREEZING POINT/MELTING POINT:	136°C (276°F)
FLASH POINT:	Not applicable
AUTO-IGNITION:	343°C (649°F)
FLAMMABILITY:	Not Classified. Polymer will burn but does not easily ignite.
LOWER FLAMMABLE LIMIT:	Not applicable
UPPER FLAMMABLE LIMIT:	Not applicable
EXPLOSIVE PROPERTIES:	No data available
OXIDIZING PROPERTIES:	No data available
VAPOR PRESSURE:	Not applicable
EVAPORATION RATE:	Not applicable
RELATIVE DENSITY:	0.92 – 0.98 (water = 1)

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RELATIVE VAPOR DENSITY: Not applicable

SOLUBILITY (WATER): Insoluble

Section 10. STABILITY AND REACTIVITY

Chemical stability: Stable under normal conditions of use, storage and transportation.

Conditions to avoid: Avoid contact with strong oxidizers, excessive heat, sparks or open flame.

Incompatibility with other materials: Material may be softened by some hydrocarbons.

Hazardous decomposition products: Dependent on process conditions (>392°F, pressure, time, O₂) hazardous decomposition products may be generated.

Polymerization: Not likely.

Section 11. TOXICOLOGICAL INFORMATION

COMPONENT INFORMATION: • 1-HEXENE, POLYMER WITH ETHENE

INHALATION: Rats inhaling polyethylene dust developed mild inflammatory changes in the lungs. Prolonged inhalation of thermal degradation products from polyethylene cause neurological effects in rats.

INGESTION: No adverse health effects were noted on the digestive system of test animals when fed up to 20% polyethylene.

SKIN IRRITATION: No adverse effects are expected.

REPEATED DOSE TOXICITY: Subchronic, 50-90 day, feeding studies conducted on rats, dogs and swine showed no effects from dietary levels of 1-20% powdered and shredded polyethylene.

CARCINOGENICITY: Not listed by IARC, NTP, or OSHA.

Section 12. ECOLOGICAL INFORMATION

• 1-HEXENE, POLYMER WITH ETHENE

ECOTOXICITY: Ecotoxicity is expected to be nominal based on the low water solubility of polymers.

ENVIRONMENTAL FATE AND PATHWAY: Persistence and Degradability.

Biodegradation: This material is not expected to be readily biodegradable.

Bioaccumulation: This material is not expected to bioaccumulate.

• PROPRIETARY ADDITIVES

ECOTOXICITY: No data available.

ENVIRONMENTAL FATE AND PATHWAY: No data available.

Section 13. DISPOSAL CONSIDERATIONS

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Use only licensed transporters and permitted facilities for waste disposal. Comply with federal, state, or local regulations for disposal. Recycle if possible.

Section 14. TRANSPORTATION INFORMATION

SPECIAL REQUIREMENTS: If you reformulate or further process this material, you should consider re-evaluation of the regulatory status of the components listed in the composition section of this sheet, based on final composition of your product.

PROPER SHIPPING NAME: POLYETHYLENE, OTHER THAN LIQUID.

Section 15. REGULATORY INFORMATION

REGULATORY STATUS

Country	Inventory	Status
Australia	AICS	X
Canada	DSL	X
Canada	NDSL	
China	IECS	X
European Union	EINECS	X
European Union	ELINCS	
European Union	NLP	
Japan	ENCS	X
Korea	ECL	X
Philippines	PICCS	X
United States	TSCA	X

X = All components are included or are otherwise exempt from inclusion on this inventory. If identified components of this product are listed under the TSCA 12(b) Export Notification rule, they will be listed below.

SARA 302/304: No chemicals in this material with known CAS numbers are subject to the reporting requirements of CERCLA.

SARA 311/312: Based upon available information, this material is not classified as a health and/or physical hazard according to Section 311 & 312.

SARA 313: This material does not contain chemical components with known CAS number that exceed the De Minimums reporting levels established by SARA Title III, Section 313 and 40 CFR 372. The Section 313 regulatory status of the remaining components in this material, for which CAS number has not been established, has not been determined.

Section 16. OTHER INFORMATION

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