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Material Safety Data Sheet

ULTEM[®] HU1000 Colors

EMERGENCY TELEPHONE: 724-746-6050 or 856-227-0500
ISSUE DATE: October 1, 1985
REVISION DATE: October 24, 2011
TRADE NAME: ULTEM[®]
PART NAME: PEI
CHEMICAL NAME: Polyetherimide (PEI)

1. Information on Ingredients

MATERIAL	CAS Number	%
Polyetherimide	61128-46-9	>95
Titanium dioxide	13463-67-7	0.1 \pm 5.0
Nickel antimony titanium oxide yellow	8007-18-9	0.1 \pm 1.0
Carbon Black	1333-86-4	0.1 \pm 1.0

This product may contain proprietary ingredients.

This is a polymeric material. Any hazardous constituents are wetted by the polymer system, and therefore are unlikely to present exposure under normal conditions of processing, machining, and handling.

2. Hazard Identification

EMERGENCY OVERVIEW

- Stock shape products with slight or no odor
- Machining shavings may create a slipping hazard
- Can burn in a fire generating dense, toxic smoke
- Molten material in contact with skin can cause severe thermal burns
- Fumes produced during melt processing may cause eye, skin and respiratory tract irritation. Severe over-exposure may result in nausea, headache, chills and fever.
- Secondary operations such as grinding, sanding or cutting can generate dust which may present an explosion or respiratory hazard.

HMIS Rating

Health: 0

Flammability: 1

Reactivity: 0

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POTENTIAL HEALTH EFFECTS

Immediate Effects

Inhalation	Dust irritating to the respiratory tract. Overheating in processing may generate hazardous, irritating vapors.
Skin	Polymer particles may cause mechanical irritation. The molten product can cause serious burns.
Eyes	Dust and particles, like other inert materials, are mechanically irritating to eyes
Ingestion	Low toxicity by this route is expected based on the biological activity of high molecular weight polymers.

Medical conditions which may be aggravated by exposure:

There are no known health effects aggravated by exposure to this product. However, certain sensitive individuals and individuals with respiratory impairments may be affected by exposure to components in the processing vapors.

Processing vapors may cause irritation to the eyes, skin and respiratory tract. In cases of severe exposure, nausea and headache can also occur. Grease-like processing vapor condensates on ventilation ductwork, molds, and other surfaces can cause irritation and injury to skin.

3. First Aid Measures

INHALATION

Move to fresh air in case of accidental inhalation of vapors. Seek medical attention immediately if symptoms occur.

SKIN CONTACT

The compound is not likely to be hazardous by skin contact, but cleansing the skin after use is advised. If molten polymer contacts the skin, cool rapidly with cold water. Do not attempt to peel polymer from skin. Seek medical treatment for thermal burn.

EYE CONTACT

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician if irritation persists.

INGESTION

No specific intervention is indicated as compound is not likely to be hazardous by ingestion. If swallowed, do not induce vomiting ☒ seek medical advice.

4. Fire Fighting Measures

FLAMMABLE PROPERTIES

Autoignition Temperature:

No information available

Explosive Limits	Upper:	Not determined
	Lower:	Not determined

Fire and Explosion Hazards :

Like most organic materials in powder form, dust generated from this product may form a flammable dust-air mixture. Potential for a dust explosion may exist. Minimize the generation and accumulation of dust. Keep away from sources of ignition.

Hazardous gases/vapors produced in fire are carbon oxides, hydrocarbon fragments and dense black smoke containing hazardous combustion products

EXTINGUISHING MEDIA

Water spray mist, Foam

Unsuitable extinguishing Media for safety reasons: Carbon dioxide and dry chemical are not recommended because of their lack of cooling capacity may permit re-ignition

FIRE FIGHTING INSTRUCTIONS

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

5. Handling and Storage

HANDLING

Protection ☒ fire and explosion

Do not handle hot or molten material without appropriate protective equipment. Maintain good housekeeping in work areas. Do not exceed recommended process temperatures to minimize release of decomposition products.

STORAGE

Material Storage

Store in a cool dry place. Keep away from heat sources, sources of ignition and sunlight.

6. Exposure Controls / Personal Protection

ENGINEERING CONTROLS

VENTILATION: If hot processing this material, use local and/or general exhaust ventilation to control the concentration of vapors and fumes below exposure limits.

In cutting, grinding, or machining operations with this material, use local exhaust to control the concentration of dust below exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

EYE/FACE PROTECTION

Wear safety glasses. Wear overall chemical splash goggles and face shield when possibility exists for eye or face contact with molten material. A full face mask positive-pressure air-supplied respirator provides protection from eye irritation.

RESPIRATORS

When temperatures exceed 230°C and ventilation is inadequate to maintain concentrations below exposure limits, use a positive-pressure air-supplied respirator. Air-purifying respirators may not provide adequate protection.

During grinding, sawing, routing, drilling or sanding operations use a NIOSH/MSHA approved air-purifying respirator with dust/mist cartridge or canister if airborne particulate concentrations are expected to exceed permissible exposure levels.

PROTECTIVE CLOTHING

If there is potential contact with hot/molten materials, wear heat resistant clothing and footwear. Wear leather or cotton gloves when grinding, sawing, routing, drilling or sanding.

EXPOSURE GUIDELINES

EXPOSURE LIMITS

TITANIUM DIOXIDE

PEL (OSHA): 10 mg/m³, 8 hr. TWA, total dust
 TLV (ACGIH): 10 mg/ m³, 8 hr. TWA, respirable dust

NICKEL ANTIMONY TITANIUM OXIDE YELLOW

PEL (OSHA): 1 mg/m³, 8 hr. TWA, total dust
 TLV (ACGIH): 0.5 mg/ m³, 8 hr. TWA, respirable dust

CARBON BLACK

PEL (OSHA): 3.5 mg/m³, 8 hr. TWA, total dust
 TLV (ACGIH): 3.5 mg/ m³, 8 hr. TWA, respirable dust

7. Physical and Chemical Properties

PHYSICAL DATA

Melting Point: This product does not exhibit a sharp melting point but softens gradually over a wide range of temperatures
 Ignition Temperature: No information available
 Solubility in Water: Insoluble
 Odor: None or Slight
 Color: Translucent Clear or Black
 Form: Rod, Plate, Sheet or Tube (stock shape product)
 Specific Gravity: >1; (water = 1)

8. Stability and Reactivity

CHEMICAL STABILITY

Stable at normal temperatures and storage conditions. Hazardous polymerization does not occur.

CONDITIONS TO AVOID

To avoid thermal decomposition, do not overheat. Heating can result in the formation of gaseous decomposition products, some of which may be hazardous. Do not exceed melt temperature recommendations. In order to avoid Autoignition and hazardous decomposition of hot thick masses of plastic, purgings should be collected in small, flat, thin shapes and quenched with water to allow for rapid cooling. Do not allow product to remain in barrel at elevated temperatures for extended periods of time: purge with a general purpose resin.

HAZARDOUS COMBUSTION OR DECOMPOSITION

Process vapors under recommended processing conditions may include trace levels of hydrocarbon fragments, alkylphenols, diarylcarbonates, other substituted hydrocarbons, hydrogen cyanide (hydrocyanic acid).

POLYMERIZATION

Polymerization will not occur.

9. Toxicological Information

ACUTE TOXICITY

LD50/oral/rat:	>5000 mg/kg
LD50/dermal/rabbit:	>2000 mg/kg
Inhalation:	Unlikely due to physical form
Eye Contact:	Particles, like other inert materials, are mechanically irritating
Ingestion:	Unlikely due to physical form
Chronic Toxicity:	No information available
Subchronic Toxicity:	No information available
Primary Irritation:	Does not generally irritate and is only mildly irritating to skin
IARC:	Not listed
OSHA:	Not regulated
NTP:	Not Tested

Special Studies: Titanium Dioxide: The International Agency for Research on Cancer (IARC) has determined titanium dioxide to be a possible human carcinogen (class 2B) based on evidence in experimental animals. Rats exposed to high doses of titanium dioxide by inhalation or intratracheal installation showed and increased incidence in lung tumors.

Carbon Black: The IARC has determined that carbon black is a class 2B known animal and possible human carcinogen by the route of inhalation. Rats exposed to high doses of carbon black by inhalation developed statistically significant increases in lung fibrosis and lung tumors.

10. Ecological Information

AQUATIC TOXICITY

No information is available. Toxicity is expected to be low based on insolubility in water. Do not discharge to streams, ponds, lakes or sewers.

ENVIRONMENTAL FATE/INFORMATION

This material is considered to be non-biodegradable

11. Disposal Considerations

WASTE DISPOSAL

Preferred options for disposal are (1) recycling, (2) incineration with energy recovery, and (3) landfill. The high fuel value of this product makes option 2 very desirable for material that cannot be recycled, but incinerator must be capable of scrubbing out acidic combustion products. Treatment, storage, transportation, and disposal must be in accordance with applicable federal, state/provincial, and local regulation.

12. Transportation Information

SHIPPING INFORMATION

Not regulated in transportation by DOT/IMO/IATA.

13. Regulatory Information

U.S. FEDERAL REGULATIONS

TSCA Inventory Status:	In compliance with TSCA Inventory requirements for commercial purposes.
SARA 313 Chemicals:	Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals that are subject to the reporting requirements of the Act and

STATE REGULATIONS (U.S.)

STATE RIGHT-TO-KNOW

No substances on the state hazardous substances list, for the states indicated below, are used in the manufacture of products on this Material Safety Data Sheet, with the exceptions indicated.

WARNING ☐ Substances known to the state of California to cause cancer, birth defects or other reproductive harm ☐ Carbon Black; Nickel Antimony Titanium Oxide Yellow

CANADIAN REGULATIONS

WHMIS Classification:

Not a WHMIS controlled product.

WHMIS Ingredient Disclosure List:

This product does not contain substances required to be disclosed according to the Canada WHMIS Ingredient Disclosure List

WHMIS Classification:

Not a WHMIS controlled product.

RoHS EU Directive 2002/95/EC

The subjected product is in compliance with EU RoHS Directive 2002/95/EC. All below chemicals are not employed in the manufacture of the product: a. Cadmium and its compounds, b. Lead and its compounds, c. Mercury and its compounds, d. Hexavalent chromium compounds, e. Polybrominated biphenyls (PBBs), f. Polybrominated diphenyl ethers (PBDEs including Deca-BDE). The trace levels of heavy metals may be present as impurities within threshold limits (<0.1% for Pb, Hg, Cr VI, and <0.01% for Cd). We are disclosing this information, to the best of our knowledge, based upon data from our raw material manufacturers.

14. Other Information

ADDITIONAL INFORMATION

MEDICAL USE: CAUTION ☐ Do not use in medical applications involving permanent implantation in the human body.

This Material Safety Data Sheet and the information it contains is offered to you in good faith as accurate. We have reviewed any information contained in this data sheet which we received from sources outside our company. We believe this information to be correct but cannot guarantee its accuracy or completeness. Health and safety precaution in this data sheet may not be adequate for all individuals and/or situations. It is the user's responsibility to evaluate and use this product safely and to comply with all applicable laws and regulations. No statement made in the data sheet shall be construed as a permission or recommendation for the use of any product in a manner that may infringe existing patents. No warranty is made, either expressed or implied.