 1302 Champion Circle Carrollton, TX 75006 Tel: 469.568.0800 Fax: 469.568.0808	MSDS (Material Safety Data Sheet)	File No.	LSC/100527
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	Dunbar Heat-Shrinkable Polymeric Products (DUNBAR- PHWT-FR)	Revision Date	
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SECTION 1. PRODUCT IDENTIFICATION

- 1) Product Name: DUNBAR-PHWT-FR
- 2) Company Identification

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SECTION 2. COMPOSITION, INFORMATION ON INGREDIENTS

- 1) CAS No.: Not applicable, mixture
- 2) Chemical Name: Not applicable, mixture
- 3) %: Trade Secret
- 4) EINECS No.: Unlisted

SECTION 3. HAZARDS INGREDIENTS


DUNBAR-PHWT-FR is not hazardous during proper installation, but may emit hazardous thermal decomposition and combustion by products if overheated to degradation. Base polymer materials include polyethylene and olefin copolymers.

SECTION 4. PRODUCT APPLICATIONS

Typical uses of DUNBAR-PHWT-FR include primary electrical insulation, EMI/RFI shielding, cable jacketing and repair, strain relief, component encapsulation, packaging, environmental/mechanical protection, and cable joining, splicing, and termination in commercial and military/aerospace electronics applications.

SECTION 5. PHYSICAL PROPERTIES

- 1) Appearance and Odor: Plastic tubing in a variety of sizes and colors. No odor
- 2) Boiling Point: Not applicable
- 3) Volatility (% by Volume): Not applicable
- 4) Specific Gravity (Water=1): 1.22~1.25
- 5) Flash Point (?)/Method: Not applicable
- 6) Flammable Limits in Air (volume %): Lower(Not applicable), Upper(Not applicable)
- 7) Vapor Pressure (mmHg @20?): Not applicable
- 8) Vapor Density: Not applicable
- 9) Evaporation Rate: Not applicable

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SECTION 6. HEALTH HAZARD INFORMATION

Exposure Limits: There are no established exposure limits for polymer mixture.

Health Effects/Symptoms of Exposure


Proper installation of this product creates no known acute or chronic health hazards.

Acute (Short-Term Exposure):

- 1) Eye Contact: Contact with molten material may cause thermal burns.
- 2) Skin Contact: This product is not expected to be a skin irritant. Contact with the molten material may cause thermal burns. No harmful effects are expected from skin absorption of this product.
- 3) Ingestion (Swallowing): Ingestion of this product is highly unlikely. There is insufficient information available on this material to predict the effects from ingestion.
- 4) Inhalation (Breathing): In common with most organic materials, thermal degradation and combustion byproduct may be toxic and should not be inhaled.
- 5) Chronic (Long-Term Exposure): None of the ingredients to which users may be exposed and which are present at equal to or greater than 0.1% of the product are listed by OSHA, NTP, or IARC as suspect carcinogens.
- 6) Comments: Overheating the product to charring or burning may produce vapors that may cause eye, skin, nose, and throat irritation. Persons which pre-existing eye, skin, or respiratory disorders (e.g. asthma conditions) may be more susceptible to the effects of these vapors.

SECTION 7. STORAGE, HANDLING, AND PREVENTIVE MEASURES


- 1) Stability at room temperature: This product is stable under normal conditions.
- 2) Condition to Avoid: Avoid overheating of product.
- 3) Incompatibilities (Materials to Avoid): None known.
- 4) Hazardous Polymerization: Will not occur. No known polymerization conditions to avoid.
- 5) Thermal Degradation and combustion Byproducts: In common with most organic materials, degradation and combustion byproducts may be toxic and should not be inhaled. Thermal degradation is not significant at temperature achieved during proper installation, as directed by product installation guides. At temperatures higher than those recommended for proper installation, most significantly if the product burns, the thermal degradation and combustion byproducts will depend on the base polymer used, and may include, but are not limited to, carbon monoxide, carbon dioxide, aldehydes, acetic acid, low molecular weight hydrocarbons, silicon dioxide, hydrogen chloride, hydrogen fluoride, hydrogen bromide, fluoro-olefins, and oxides of nitrogen, phosphorus, and sulfur.
- 6) Handling: Avoid any vapor given off if the product is heated to decomposition, as shown by a darkening and browning of the sleeve. Avoid contact with molten material. Heat-resistant gloves are required if hot products are handled after installation. Do not consume food, beverages or tobacco in the immediate work area. Wash hands before eating, drinking or smoking.

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- 7) Other Precautions: Avoid heating products beyond temperatures required for normal installation. See installation instructions for proper installation procedures. If product chars and burns, immediately stop heating. Avoid inhaling any fumes which may be given off under such circumstances. Allow any vapor to disperse and ventilated before continuing work in the area.
- 8) Ventilations: In accordance with good industrial hygiene practice, ensure adequate ventilation during installation.
- 9) Respiratory Protection: If installation occurs in a confined, unventilated area, NIOSH&MSHA-approved respirations are recommended.
- 10) Protective Clothing: OSHA, ANSI, or NIOSH guidelines should be followed. If there is a danger of molten material contacting the skin or eyes, use eye/face protection and heat resistant gloves. If it is necessary to handle grossly overheated or fire-damaged products, wear natural rubber gloves to prevent possible contact with potentially corrosive inorganic and residues.
- 11) Transportation: These products are non-hazardous under Department of Transportation Regulations 49, CFR Section 171.8, IATA, IMO, and AFR 71-4. Because there are no applicable shipping regulations for these products, labels are not required on the outside shipping container for these products and all products may be shipped through the Postal Services.
- 12) Disposal: Dispose in accordance with all local, state and federal regulation. If there are local regulations covering the controlled incineration of halogenated materials, then all halogen-containing products will be subject to such regulations. Refer to the product literature for identification of halogen-containing products.
- 13) Installation: Follow appropriate 'LG Cable installation instructions and application guides to ensure that installation is performed properly. Ensure that any local requirements/legislation concerning the use of hand-held electrical equipment are observed. When using IR (infrared) heating devices, observe specific instructions. Do not touch hot surfaces on installation equipment.

SECTION 8. EMERGENCY AND FIRST AID PROCEDURES

- 1) Eyes: If eye irritation occurs, hold eyelids apart and affected area(s) with clean water. Seek medical attention.
- 2) Skin: First aid is normally not required. After handling product, it is good work practice to wash your hands. If molten material contacts skin, cool areas immediately in water. **DO NOT** attempt to remove material from the skin. Treat as a burn, and seek medical attention.
- 3) Ingestion: Not a normal route of exposure. However, if swallowed and symptoms develop, seek medical attention.
- 4) Inhalation: If respiratory symptoms or other symptoms of exposure develop, move victim to fresh air. If symptoms persist, seek medical attention. If breathing difficulties develop oxygen should be administered by qualified personnel. Seek immediate medical attention. If victim is not breathing, immediately begin artificial respiration. Keep victim warm and quickly seek immediate medical attention.

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5) Steps to be Taken in Case of Release or Spill: Wear appropriate personal protection when responding then sweep up and collect in a suitable container for disposal or reuse.

6) Unusual Fire and Explosion Hazards: Toxic fumes may be given off in a fire. See also sections on Thermal Degradation and Combustion Byproducts and Other Precautions.

7) Special Fire Fighting Procedure: Firefighters should wear self-contained breathing apparatus (pressure demand NIOSH approved or equivalent) with a full faceplate operated in the positive demand mode when fighting fires.