



Safety Data Sheet

Issue Date: 29-Oct-2014

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Version 1

1. IDENTIFICATION

Product Identifier

Product Name Heat-Shrinkable Tubing

Other means of identification

SDS # PAN-006

Product Technology

Typical uses of heat-shrinkable polymeric products include primary electrical insulation, EMI/RFI shielding, cable jacketing and repair, strain relief, waterproofing, cable/pipe identification, corrosion protection, environmental/mechanical protection, and cable joining, splicing, and termination in commercial and military/aerospace electronic applications

Recommended use of the chemical and restrictions on use

Recommended Use Heat-shrinkable tubing.

Details of the supplier of the safety data sheet

Supplier Address

Panduit
18900 Panduit Dr.
Tinley Park, IL 60487

Emergency Telephone Number

Company Phone Number Phone: 708-532-1800
Fax: 708-532-1811
Emergency Telephone (24 hr) INFOTRAC 1-352-323-3500 (International)
1-800-535-5053 (North America)

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: In common with most organic materials, thermal degradation and combustion byproducts may be toxic and should not be inhaled. Thermal degradation is not significant at temperatures 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 additives, if any may include, but are not limited to carbon monoxide, carbon dioxide, organic acids, aldehydes (including formaldehyde), acetic acid, low molecular weight hydrocarbons, silicon dioxide, hydrogen chloride, hydrogen fluoride, hydrogen bromide, vinyl acetate, ammonia, hydrogen cyanide, antimony, fluoro-olefins, phosphine and oxides of nitrogen, phosphorus and sulfur.

Appearance Plastic tubing; molded parts
in a variety of shapes, sizes & colors

Physical State Solid

Classification

This chemical does not meet the hazardous criteria set forth by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200). However, this Safety Data Sheet (SDS) contains valuable information critical to the safe handling and proper use of this product. This SDS should be retained and available for employees and other users of this product.

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a manufactured article. Heat-Shrinkable Polymeric Products are not hazardous during proper installation, but the heat-shrinkable tubing may emit hazardous thermal decomposition and combustion byproducts if overheated to degradation. See "Thermal Degradation and Combustion Byproduct" section of this SDS for more specific information. Base polymer materials include polyethylene and olefin copolymers. Heat-shrinkable products may be coated with or used in conjunction with adhesives/mastics, which are based on olefin copolymers or polyamides.

4. FIRST-AID MEASURES

First Aid Measures

Eye Contact	None under normal use conditions. If eye irritation occurs, flush with clean water for 15 minutes while holding eyelids apart. Seek medical attention.
Skin Contact	First aid is normally not required. After handling product, it is good work practice to wash your hands. If molten material contacts skin, cool area immediately in water. DO NOT attempt to remove material from the skin. Treat as a burn, and seek medical attention.
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, qualified personnel should administer oxygen. If victim is not breathing, immediately begin artificial respiration. Keep victim warm and quiet; seek immediate medical attention.
Ingestion	Not a normal route of exposure. However, if swallowed and symptoms develop, seek medical attention.

Most important symptoms and effects

Symptoms	Overheating the product to charring or burning may produce vapors that may cause eye, skin, nose and throat irritation. Persons with pre-existing eye, skin, or respiratory disorders (e.g., asthma conditions) may be more susceptible to the effects of these vapors.
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Indication of any immediate medical attention and special treatment needed

Notes to Physician	Treat symptomatically.
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5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Use carbon dioxide, water, dry chemical or foam. Selection of extinguishing media should be based upon the size of the fire, the firefighting training/experience of the individual attempting to extinguish or control the fire, and the packaging materials exposed to the fire.

Unsuitable Extinguishing Media Not determined.

Specific Hazards Arising from the Chemical

Product is not flammable or combustible.

Hazardous Combustion Products In common with most organic materials, thermal degradation and combustion byproducts may be toxic and should not be inhaled. Thermal degradation is not significant at temperatures 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 additives, if any, may include but are not limited to carbon monoxide, carbon dioxide, organic acids, aldehydes (including formaldehyde), acetic acid, low molecular weight hydrocarbons, silicon dioxide, hydrogen chloride, hydrogen fluoride, hydrogen bromide, vinyl acetate, ammonia, hydrogen cyanide, antimony, fluoro-olefins, phosphine and oxides of nitrogen, phosphorus and sulfur.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Move containers from fire area if you can do it without risk. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. Cool containers with flooding quantities of water until well after fire is out.

6. ACCIDENTAL RELEASE MEASURES**Personal precautions, protective equipment and emergency procedures**

Personal Precautions Wear protective clothing as described in Section 8 of this safety data sheet.

Methods and material for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Clean-Up Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE**Precautions for safe handling**

Advice on Safe Handling For products containing a thermochromic temperature indicator, discontinue heating after the color changes from red to colorless. Avoid any vapors 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. Avoid heating products beyond temperatures required for normal installation.

Installation: Follow the appropriate 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.

Conditions for safe storage, including any incompatibilities

Storage Conditions This product is stable under normal conditions.

Incompatible Materials None known based on information supplied.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies

Appropriate engineering controls

Engineering Controls Provide general or local exhaust ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/Face Protection Use safety glasses with side shield or goggles to prevent contact with eyes, as appropriate to the given operation.

Skin and Body Protection	Avoid contact with skin. Use heat resistant rated gloves to prevent skin contact; as appropriate to the given operation. If it is necessary to handle grossly overheated or fire-damaged products, wear natural rubber gloves to prevent possible contact with potentially corrosive acid residues.
Respiratory Protection	If installation occurs in a confined, unventilated area, NIOSH/MSHA-approved respirators are recommended.
General Hygiene Considerations	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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State	Solid	Odor	Not determined
Appearance	Plastic tubing; molded parts in a variety of shapes, sizes & colors	Odor Threshold	Not determined
Color	Various		

Property	Values	Remarks • Method
pH	Not applicable	
Melting Point/Freezing Point	Not determined	
Boiling Point/Boiling Range	Not applicable	
Flash Point	Not determined	
Evaporation Rate	Not applicable	
Flammability (Solid, Gas)	Not determined	
Upper Flammability Limits	Not applicable	
Lower Flammability Limit	Not applicable	
Vapor Pressure	Not applicable	
Vapor Density	Not determined	
Specific Gravity	Not determined	
Water Solubility	insoluble	
Solubility in other solvents	Not determined	
Partition Coefficient	Data not available	
Auto-ignition Temperature	Not determined	
Decomposition Temperature	Not determined	
Kinematic Viscosity	Not applicable	
Dynamic Viscosity	Not applicable	
Explosive Properties	No data available	
Oxidizing Properties	No data available	

10. STABILITY AND REACTIVITY

Reactivity

Not reactive under normal conditions.

Chemical Stability

Stable under recommended storage conditions.

Possibility of Hazardous Reactions

None under normal processing.

Hazardous Polymerization Under normal conditions of storage and use, hazardous polymerization will not occur.

Conditions to Avoid

Avoid overheating of product.

Incompatible Materials

None known based on information supplied.

Hazardous Decomposition Products

See hazardous combustion products (Section 5).

11. TOXICOLOGICAL INFORMATION**Information on likely routes of exposure****Product Information****Eye Contact**

Contact with molten material may cause thermal burns.

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.

Inhalation

In common with most organic materials, thermal degradation and combustion byproducts may be toxic and should not be inhaled.

Ingestion

Ingestion of this product is highly unlikely. There is insufficient information available on this material to predict the effects from ingestion.

Component Information

Mixture

Information on physical, chemical and toxicological effects**Symptoms**

Please see section 4 of this SDS for symptoms.

Delayed and immediate effects as well as chronic effects from short and long-term exposure**Carcinogenicity**

This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.

Numerical measures of toxicity

Not determined

12. ECOLOGICAL INFORMATION**Ecotoxicity**

The product is not expected to be hazardous to the environment.

Component Information

Mixture

Persistence/Degradability

Not determined.

Bioaccumulation

Not determined.

Mobility

Not determined

Other Adverse Effects

Not determined

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods

Disposal of Wastes	Disposal should be in accordance with applicable regional, national and local laws and regulations.
Contaminated Packaging	Disposal should be in accordance with applicable regional, national and local laws and regulations.

14. TRANSPORT INFORMATION

Note	Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances.
DOT	Not regulated
IATA	Not regulated
IMDG	Not regulated

15. REGULATORY INFORMATION

International Inventories

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

US State Regulations

California Proposition 65

This product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm; Antimony trioxide CAS# 1309-64-4.

U.S. State Right-to-Know Regulations

This product does not contain any substances regulated under applicable state right-to-know regulations

16. OTHER INFORMATION

<u>NFPA</u>	Health Hazards Not determined	Flammability Not determined	Instability Not determined	Special Hazards Not determined
<u>HMIS</u>	Health Hazards Not determined	Flammability Not determined	Physical Hazards Not determined	Personal Protection Not determined

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Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet