Safety Data Sheet

Issue Date: 29-Oct-2014 **Revision Date:** 04-Nov-2014 **Version** 1

1. IDENTIFICATION

Product Name **Heat-Shrinkable Tubing**

MSDS # **PAN-006-CA**

Recommended Use Heat-shrinkable tubing.

Other Information
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.

Supplier Address
Panduit
18900 Panduit Dr.
Tinley Park, IL 60487

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. **Odor** Not determined

Potential Health Effects

Acute Toxicity

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.

Chronic effects No known effect based on information supplied.

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.

Aggravated Medical Conditions None known.

Environmental Hazard See Section 12: ECOLOGICAL INFORMATION

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is not hazardous per the Hazardous Products Act (HPA) and the Controlled Products Regulation (CPR). 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 MSDS 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

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.

Notes to Physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Flammable properties Not flammable.

Flash Point Not applicable

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.

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.

Explosion Data
Sensitivity to Mechanical Impact None.
Sensitivity to Static Discharge None.

Specific Hazards Arising from the Chemical Product is not flammable or combustible.

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	Wear protective clothing as described in Section 8 of this safety data sheet.
Methods for Containment	Prevent further leakage or spillage if safe to do so.
Methods for Clean-Up	Pick up and transfer to properly labeled containers.

7. HANDLING AND STORAGE

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.
Storage Conditions	This product is stable under normal conditions.

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
Engineering Controls	Provide general or local exhaust ventilation systems.

Personal protective equipment (PPE)

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.
Eye/Face Protection	Use safety glasses with side shield or goggles to prevent contact with eyes, as appropriate to the given operation.
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		
Appearance	Plastic tubing; molded parts in a variety of shapes, sizes & colors	**Odor**	Not determined
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 Density	Not determined	
Relative Density	Not determined	
Vapor Pressure	Not applicable	
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

Stability Stable under recommended storage conditions.

Incompatible Materials None known based on information supplied.

Conditions to Avoid Avoid overheating of product.

Hazardous Decomposition Products See hazardous combustion products (Section 5).

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

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Product Information .

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

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.

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

Chronic toxicity

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

Target organ effects None known.

12. ECOLOGICAL INFORMATION

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

13. DISPOSAL CONSIDERATIONS

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

DOT Not regulated

IATA Not regulated

IMDG Not regulated

TDG Not regulated

15. REGULATORY INFORMATION

International Inventories

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

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

SARA 311/312 Hazard Categories

Acute Health Hazard	Not determined
Chronic Health Hazard	Not determined

Fire Hazard	Not determined
Sudden Release of Pressure Hazard	Not determined
Reactive Hazard	Not determined

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355).

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; Antinomy trioxide CAS# 1309-64-4

U.S. State Right-to-Know Regulations

International Regulations

CANADA

This product is a manufactured article

16. OTHER INFORMATION

NFPA	**Health Hazards** 0	**Flammability** 0	**Stability** 0	**Special Hazards** -
HMIS	**Health Hazards** 0	**Flammability** 0	**Physical Hazards** 0	**Personal Protection** -

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Disclaimer
The information provided in this Material 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