

## 1. IDENTIFICATION OF SUBSTANCE OR PREPARATION

PRODUCT	Thermofit Heat-Shrinkable Polymeric Products: Tubing: ATO99, DR-25, DR-25-TW, DTMS, FRAG, PRDM, T-DR-25, ZHCP. Moulded Parts Type: -50, -51.
	For products coated with Raychem Unicure-225 precatylised epoxy resin adhesive, refer to supplementary information on Safety Data Sheet RAY/3111E.
APPLICATION	Heat-shrinkable polymeric products for applications including primary electrical insulation, cable jacketing and repair, and environmental/mechanical protection.
COMPANY/UNDERTAKING IDENTIFICATION	Raychem Ltd Cheney Manor Industrial Estate Swindon SN2 2QS United Kingdom
Telephone	(44) 1793-573824
Emergency Telephone	Day: (32) 14-584545 Night: (32) 14-584545

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## 2. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL DESCRIPTION	Plastic materials may be based on polyethylene and olefin copolymers, fluoropolymers, polyamides and polyesters. Products may be coated with Raychem Unicure-225 precatylised epoxy resin adhesive.
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## 3. HAZARDS IDENTIFICATION

This Safety Data Sheet applies to a group of products which are not hazardous as supplied, but which may emit hazardous thermal decomposition products (refer to section 10).

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## 4. FIRST AID MEASURES

EYES	If molten material contacts the eyes, flush with water for at least 15 minutes, holding eyelids open. Seek medical attention.
SKIN	If molten material contacts the skin, cool immediately with cold water. Treat as a burn. Do not attempt to remove material adhering to the skin. Seek medical attention.
INGESTION	Seek medical attention.
INHALATION	Move to fresh air. Keep warm and at rest. Seek medical attention if breathing problems develop.

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## 5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA	Water fog, dry powder, carbon dioxide, foam.
FIRE AND EXPLOSION HAZARDS	Toxic fumes may be evolved in a fire.
PROTECTIVE MEASURES	Fire fighters should wear self-contained breathing apparatus with full facepiece and protective clothing.

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## 6. ACCIDENTAL RELEASE MEASURES (SPILLAGE)

PERSONAL PRECAUTIONS	Not applicable.
ENVIRONMENTAL PRECAUTIONS	Not applicable.
RECOVERY	Pick up for re-use or disposal.

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## 7. STORAGE AND HANDLING (IN NORMAL USE)

STORAGE	Cool, dry warehouse environment. Store in original packaging and away from direct sunlight.
VENTILATION	Use local exhaust ventilation of the workplace. If using gas torches in confined spaces, ensure an adequate supply of fresh air to avoid oxygen depletion.
HANDLING	Refer to Raychem product installation instructions.  Avoid overheating the product after shrinkage has occurred. If the product blisters, chars or shows any other signs of degradation, stop heating immediately. Avoid inhaling fumes which may be released from hot plastic.  Wash hands at the end of work and before eating, drinking or smoking.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION (NORMAL USE)

OCCUPATIONAL EXPOSURE LIMITS	Not applicable to products as supplied. Small amounts of substituted aromatic isocyanates may be released during installation.			
Name	LTEL (8-hour TWA)	STEL (15-minute)	Type	Ref.
Isocyanates, all (as NCO)	0.02 mg m <sup>-3</sup>	0.07 mg m <sup>-3</sup>	MEL	EH40/95
PERSONAL PROTECTIVE EQUIPMENT				
RESPIRATORY	Not required under normal circumstances. Use respiratory protective equipment if ventilation is inadequate to control exposure.			
HAND	Heat resistant gloves may be required to manipulate hot products after installation.			
EYE	Safety glasses/goggles or face shield, depending on the application.			

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## 9. PHYSICAL/CHEMICAL PROPERTIES

APPEARANCE	Plastic tubing and moulded parts in a variety of shapes, sizes and colours.
ODOUR	No distinctive odour.
PH (as delivered)	Not applicable.
MELTING POINT (°C)	Not applicable.
BOILING POINT (°C)	Not applicable.
FLASH POINT (°C)	Not applicable.
RELATIVE SELF-IGNITION TEMPERATURE (°C)	No relevant data available.
EXPLOSIVE PROPERTIES	
UPPER LIMIT (%)	Not applicable.
LOWER LIMIT (%)	Not applicable.
RELATIVE DENSITY (20°C)	0.9 - 1.4
SOLUBILITY IN WATER (20°C)	Insoluble.

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## 10. STABILITY AND REACTIVITY

STABILITY	Stable.
CONDITIONS TO AVOID	Avoid heating products beyond temperatures required for normal installation.
MATERIALS TO AVOID	None known.
HAZARDOUS DECOMPOSITION PRODUCTS	Thermal decomposition and combustion products will depend on the base polymer used and may include, but not be limited to: alcohols, aldehydes, aromatic amines, aromatic isocyanates, bromine, carbon dioxide, carbon monoxide, esters, fluorinated hydrocarbons, hydrocarbons, hydrogen bromide, hydrogen chloride, hydrogen fluoride, ketones, nitrogen oxides, organic acids and tetrahydrofuran.

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## 11. TOXICOLOGICAL INFORMATION

### ACUTE EFFECTS

EYES	Overheating products during installation may produce fumes that can cause irritation, redness and watering of the eyes.
SKIN	These products would not be expected to cause irritation, or present a hazard to health through skin absorption. Contact with molten material may cause thermal burns.
INGESTION	Not a normal route of exposure.
INHALATION	Overheating products during installation may produce fumes that can cause irritation of the upper respiratory tract, headache, dizziness, nausea and, in the absence of ventilation, possible asphyxiation.

CHRONIC EFFECTS Thermal decomposition products may include aromatic isocyanates which can cause sensitization by inhalation. Hypersensitive persons may suffer respiratory problems (difficult breathing, coughing, asthma) even at low isocyanate concentrations.

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## 12. ECOLOGICAL INFORMATION

MOBILITY No relevant data available.

PERSISTENCE & DEGRADABILITY Products are resistant to bio-degradation.

BIO-ACCUMULATION No relevant data available.

AQUATIC TOXICITY No relevant data available

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## 13. DISPOSAL CONSIDERATIONS

Landfill or incinerate at an approved site in accordance with local and national regulations. For incineration use a high temperature incinerator equipped with secondary combustion chamber and exhaust gas scrubber.

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## 14. TRANSPORT INFORMATION (REGULATIONS)

PACKAGING (Size & Description) Packaging used for supply will depend on product type.

TRANSPORT CLASSIFICATION Non-hazardous.

OTHER INFORMATION Not restricted for any mode of international transport.

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## 15. REGULATORY INFORMATION (SUPPLY & LABELLING)

SUPPLY CLASSIFICATION Not considered as dangerous preparations in the context of EC Council Directive 88/379/EEC.

HAZARD PICTOGRAM Not applicable

RISK PHRASES Not applicable

SAFETY PHRASES Not applicable

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## 16. OTHER INFORMATION

Users are advised to ensure that this information is brought to the attention of the employees, agents or contractors handling this product. Distributors of this product are advised to forward this document, or the information contained herein, to their purchaser.

Reference: RAY/3137E  
Date of issue: July 1995

Supersedes: RAY/3122E, Revision 1  
Reason for revision: Separate Safety Data Sheet for products listed in section 1.

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The information contained herein is based on the present state of our knowledge and is intended to describe our products from the point of view of safety requirements. It should not therefore be construed as guaranteeing specific properties.

Users of Raychem products should make their own evaluation to determine the suitability of each such product for the specific application and to establish safe handling and installation procedures.