

# SAFETY DATA SHEET

Based on Directive 91/155/EEC of the Commission of  
the European Communities

## Thermofit Heat-Shrinkable Polymeric Products

### \*1. Identification of the substance/preparation and the company

#### 1.1 Identification of the substance or preparation:

Thermofit Heat-Shrinkable Polymeric Products

##### Synonyms :

Tubing: Altera-MT1000, Altera-MT3000, ATO53, HTMS, KATM, KYNAR, RT-375,  
RW-175, RW-200, RW-200-E, TFE, TFE-R, VITON, VITON-E, VITON-TW

Moulded Parts Type : -12, ATO31

CAS no.	: N.A.	Reference	: RAY/3139E Revision 2.1
EC index no.	: N.A.	NFPA code	: N.D.
EINECS no.	: N.A.	Molecular weight	: N.A.
RTECS no.	: N.A.	Formula	: N.A.

#### 1.2 Company/undertaking identification:

RAYCHEM Limited  
Cheney Manor Industrial Estate  
Swindon SN2 2QS, United Kingdom  
Tel. : (+44) 1793-573824 - Fax : (+44) 1793-573953

#### 1.3 Telephone number for emergency:

(+32) 14-58 45 45  
Information centre of dangerous goods (B.I.G.)  
Technische Schoolstraat 43A, B-2440 Geel, Belgium

### 2. Composition/information on ingredients

Plastic materials containing fluoropolymers  
Products may be coated with, or used in conjunction with polyamide and/or olefin copolymer based adhesives

### 3. Hazards identification

- This Safety Data Sheet applies to a group of products which are not hazardous as supplied
- Products may emit hazardous thermal decomposition products if overheated or burnt (see section 10.2)

### 4. First aid measures

#### 4.1 Eye contact:

- If molten material contacts the eyes:  
immediately flush with clean water for 15 minutes
- Consult a doctor/medical service

#### 4.2 Skin contact:

- If molten material contacts the skin:  
immediately flush with cold water for 15 minutes  
do not attempt to remove material stuck to the skin  
treat as a burn
- Consult a doctor/medical service

#### 4.3 After inhalation:

- If exposed to fumes from hot material:  
remove the victim into fresh air  
keep warm and at rest
- Consult a doctor/medical service if breathing problems develop

#### 4.4 After ingestion:

- Not applicable

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### 4.5 Further medical advice:

- Residues from fire damaged fluoropolymer based products may contain hydrofluoric acid
- In case of skin contact, apply 2.5% calcium gluconate gel or immerse in iced solution of benzalkonium chloride. For deep tissue burns, 5-10% aqueous solution of calcium gluconate may be injected subcutaneously.
- In case of eye contact, irrigate with 1% calcium gluconate in neutral saline solution
- For absorption by any route of exposure, monitor electrocardiogram for signs of calcium depletion. Consider intravenous fluid therapy with calcium gluconate

## 5. Fire-fighting measures

### 5.1 Suitable extinguishing media:

- Water spray
- Polyvalent foam
- Dry powder
- Carbon dioxide

### 5.2 Unsuitable extinguishing media:

- No data available

### 5.3 Special exposure hazards:

- Toxic and corrosive decomposition products may be evolved in a fire (see section 10.2)
- Take care when handling fire damaged fluoropolymer based products
- Wear neoprene gloves to avoid skin contact with potentially highly corrosive residues which may contain hydrofluoric acid
- Equipment in contact with degraded material should be washed with saturated calcium hydroxide solution
- Gloves, wipes and residues should be neutralised with saturated calcium hydroxide solution before disposal

### 5.4 Instructions:

- Dilute toxic gases with water spray

### 5.5 Special protective equipment for firefighters:

- Self-contained breathing apparatus with full face piece
- Protective clothing for exposure to chemicals

## 6. Accidental release measures

### 6.1 Personal protection:

- Wear personal protective equipment (see section 8.3)

### 6.2 Environmental precautions:

- Not applicable

### 6.3 Clean-up:

- Pick-up for continued use or disposal

## 7. Handling and storage

### 7.1 Handling:

- Refer to Raychem product installation instructions
- Avoid overheating the product after shrinkage has occurred
- Stop heating immediately if the product blisters, chars or shows other signs of degradation
- Avoid inhaling fumes which may be released and ventilate the area thoroughly before resuming work
- Avoid contact with molten material
- Avoid contact with residues from fire damaged products (see section 5.3)
- Do not smoke where fluoropolymer dust may be produced e.g. by grinding, sanding or cutting processes
- Wash hands before eating, drinking or smoking

### 7.2 Storage:

- Store in original packaging in a cool and dry area

## Thermofit Heat-Shrinkable Polymeric Products

- 7.3 **Materials for packaging:**  
- Material to avoid: no data available

### \*8. Exposure controls/Personal protection

- 8.1 **Recommended engineering controls:**  
- Use general and/or local exhaust ventilation of the workplace  
- When using gas torches in confined spaces ensure an adequate supply of fresh air to avoid oxygen depletion

**Sampling methods:**  
- Not applicable

8.2 **Exposure limits:**

8.2 **Exposure limits:**

TLV (8 hour TWA) UK OEL (EH40/99):

- Not applicable

8.3 **Personal protection:**

**eye protection:**

- Safety glasses with side shield, goggles or face shield depending on the application

**hand protection:**

- Heat resistant gloves if handling hot products after installation  
- Neoprene gloves if handling thermally decomposed or fire damaged products (see section 5.3)

**skin protection:**

- Protective clothing if handling hot products after installation

**respiratory protection:**

- Not required for normal conditions of use  
- If ventilation is inadequate to control exposure to fumes evolved during installation, a suitable respirator or air-supplied equipment should be worn

### 9. Physical and chemical properties

9.1 Appearance (at 20°C)	:	Plastic tubing and moulded parts
9.2 Odour	:	No distinctive odour
9.3 Colour	:	Various
9.4 pH value	:	N.A.
9.5 Boiling point/boiling range	:	N.A. °C
9.6 Melting point/melting range	:	70-170 °C (Adhesives)
9.7 Flashpoint	:	N.A. °C
9.8 Auto-ignition point	:	N.D. °C
9.9 Explosion limits	:	N.A. vol%
9.10 Vapour pressure (at 20°C)	:	N.A. hPa
9.11 Relative density (at 20°C)	:	1.4-2.2
9.12 Water solubility (at 20°C)	:	Insoluble
9.13 Soluble in	:	N.D.
9.14 Relative vapour density	:	N.A.
9.15 Saturation concentration	:	N.A. g/m <sup>3</sup>
9.16 Viscosity	:	N.A. Pa.s

# Thermofit Heat-Shrinkable Polymeric Products

## 10. Stability and reactivity

### 10.1 Stability:

- Stable under normal conditions

### 10.2 Reactivity/Hazardous decomposition products:

- Thermal decomposition is not significant when products are used in accordance with Raychem product installation instructions
- At higher temperatures, and if materials burn, thermal decomposition products may include, but are not limited to : alcohols, aldehydes, carbon monoxide, carbon dioxide, carbonylfluoride, fluorinated hydrocarbons, hydrocarbons, hydrogen fluoride, organic acids and oxides of nitrogen, phosphorus and sulphur

### 10.3 Conditions/materials to avoid:

- Not applicable

## 11. Toxicological information

### 11.1 Acute toxicity:

LD50 oral rat	: N.D.	mg/kg
LD50 dermal rat	: N.D.	mg/kg
LD50 dermal rabbit	: N.D.	mg/kg
LC50 inhalation rat	: N.D.	mg/l/4 h

### 11.2 Chronic toxicity:

EC carc. cat.: not listed  
EC muta. cat.: not listed  
EC repr. cat.: not listed  
Carcinogenicity (TLV): not listed

IARC classification: The preparation has not been evaluated

11.3 Routes of exposure: Inhalation/skin contact with thermal decomposition products

### 11.4 Acute effects/symptoms:

#### EYES:

- Overheating adhesives during installation may produce fumes that can cause severe irritation and lacrimation

#### SKIN:

- Contact with hot/molten material may cause thermal burns
- Residues from thermally decomposed or fire damaged products may cause severe irritation and chemical burns which may not be immediately visible

#### INHALATION:

- Overheating products during installation may produce fumes that can cause irritation of the respiratory tract, coughing, headache, dizziness, nausea and, in the absence of ventilation, possible asphyxiation
- Inhaling thermal decomposition products of fluoropolymers may cause 'polymer fume fever', with symptoms similar to influenza

#### INGESTION:

- Not a normal route of exposure

### 11.5 Chronic effects:

- None known

# Thermofit Heat-Shrinkable Polymeric Products

## \*12. Ecological information

### 12.1 Mobility:

- Insoluble in water

### 12.2 Biodegradation:

- |         |                  |        |                               |
|---------|------------------|--------|-------------------------------|
| - soil: | T ½              | : N.D. | days                          |
|         | BOD <sub>5</sub> | : N.D. | g O <sub>2</sub> /g substance |
|         | COD              | : N.D. | g O <sub>2</sub> /g substance |

- water: - Not readily biodegradable

- 12.3 Bioaccumulation:
- log P<sub>ow</sub> : N.D.
  - BCF : N.D.

### 12.4 Aquatic toxicity:

- No data available

### 12.5 Other information:

- WGK: N.D.
- Effect on the ozone layer : N.A.
- Waste water purification : N.D.

## \*13. Waste disposal considerations

### 13.1 Provisions relating to waste:

- Waste code (EC): N.A.

### 13.2 Disposal methods:

- Landfill or incinerate at an approved site in accordance with national and local regulations
- For incineration use a high temperature incinerator equipped with secondary combustion chamber and acid gas scrubber. Do not incinerate without provision for absorbing hydrogen fluoride (HF).

# Thermofit Heat-Shrinkable Polymeric Products

## 14. Transport information

- 14.1 Proper shipping name: N.A.
- 14.2 Transport by road/rail (ADR/RID): N.A.  
Danger code: -  
Danger labels on tanks: -  
on packages: -
- 14.3 Substance identification number (UN number): N.A.  
Packing: -
- 14.4 Maritime transport (IMDG code): N.A.  
EMS : -  
MFAAG : -  
Marine pollutant: -
- 14.5 Inland navigation (ADNR): N.A.
- 14.6 Air freight (ICAO): N.A.  
Instruction "passenger": -  
Instruction "cargo": -
- 14.7 Other information: Not classified as dangerous for transport

## 15. Regulatory information

Labelling in accordance with EC directives 67/548/EEC and 1999/45/EEC

NOT APPLICABLE

## \*16. Other information

Users are advised that they may have additional disclosure obligations under other national and local laws. Users are advised to ensure that this information is brought to the attention of all employees, agents, and contractors handling this product. 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. Distributors of this product are advised to forward this document, or the information contained herein, to every purchaser of this product.

N.A. = NOT APPLICABLE  
N.D. = NOT DETERMINED  
\* = INTERNAL CLASSIFICATION

MSDS established : 30-10-1996  
Reference number : BIG\26789GB  
Reference : RAY/3139E Revision 2  
Date of revision : 10-04-2000  
Reason for revision : -

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