

## HEAT-SHRINKABLE POLYOLEFIN PRODUCTS

### 1. Identification of the substance/preparation and of the company/undertaking

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

**Synonyms:** BBIR, BBIT, BMTM, BPTM, CASM, CICM, CRSM, ECIC, ERIC, GRP, HVBT, ICIC, LPSM, LSSM, MWJS, MWTM, RFSM, SPOE, TAWS, TWJS, WCSM, XCSM

Moulded Parts Type: 102L, 302K, 402R, 402W, 502K

CAS No.	: N.A.	Reference	: RAY/4566E Revision 5
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 Use of the substance or the preparation:

Heat-shrinkable polyolefin products

#### 1.3 Company/undertaking identification:

TYCO ELECTRONICS Raychem GmbH  
Haidgraben 6  
85521 Ottobrunn, Deutschland  
Tel. : (+49) 89-6089414 - Fax. : (+49) 89-6089445

#### 1.4 Telephone number for emergency:

+32 14 58 45 45  
Brandweerinformatiecentrum voor gevaarlijke stoffen (B.I.G.)  
Technische Schoolstraat 43A, B-2440 Geel

### 2. Composition/information on ingredients

- Plastic materials based on polyolefins
- Products may be coated with, or used in conjunction with polyolefin, olefin copolymer and/or polyamide based adhesives (refer to separate Tyco Electronics Safety Data Sheets RAY/4510E, RAY/4513E and RAY/4549E)

### 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 10.3)

### 4. First aid measures

#### 4.1 Eye contact:

- If molten material contacts the eye:
- Rinse immediately with plenty of 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 vapours/fumes from overheated or burnt material:
- Remove the victim into fresh air
- Keep warm and at rest
- Consult a doctor/medical service if breathing problems develop

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Reference number : BIG\24496GB  
Reason for revision : synonyms  
Revision date : 02-05-2005  
Revision number : 005

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- 4.4 After ingestion:**  
- Not applicable

## 5. Fire-fighting measures

- 5.1 Suitable extinguishing media:**  
- Water spray  
- Polyvalent foam  
- ABC powder  
- Carbon dioxide
- 5.2 Unsuitable extinguishing media:**  
- No data available
- 5.3 Special exposure hazards:**  
- Toxic vapours/fumes may be evolved in a fire (see section 10.3)
- 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/precautions:** see heading 8.1/8.3/10.3
- 6.2 Environmental precautions:**  
- Not applicable
- 6.3 Methods for cleaning up:**  
- Pick up for use or disposal

## 7. Handling and storage

- 7.1 Handling:**  
- Avoid contact with molten material  
- Wash hands before eating, drinking or smoking
- 7.2 Storage:**  
- Store in a dry area  
- Keep only in the original container  
- Meet the legal requirements  
- Keep away from: heat sources, oxidizing agents, acids, bases
- |                                |                     |    |
|--------------------------------|---------------------|----|
| <b>Storage temperature</b>     | : N.D.              | °C |
| <b>Quantity limits</b>         | : N.D.              | kg |
| <b>Storage life</b>            | : N.D.              |    |
| <b>Materials for packaging</b> | :                   |    |
| - suitable                     | : no data available |    |
| - to avoid                     | : no data available |    |
- 7.3 Specific uses:**  
- Refer to Tyco Electronics product installation instructions
- Avoid overheating the product after shrinkage has occurred
  - Stop heating immediately if product blisters, chars or shows other signs of degradation
  - Avoid inhaling fumes which may be released and ventilate the area

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## 8. Exposure controls/Personal protection

### 8.1 Exposure limit values:

TLV value : not listed

#### Sampling methods:

- No data available

### 8.2 Exposure controls:

#### 8.2.1 Occupational exposure controls:

- Work under local exhaust/ventilation
- When using gas torches in confined spaces ensure an adequate supply of fresh air to avoid oxygen depletion

#### 8.2.2 Environmental exposure controls: see heading 13

### 8.3 Personal protection:

#### 8.3.1 respiratory protection:

- Not required for normal conditions of use.
- Approved respirator or self contained breathing apparatus for installations in confined/unventilated areas

#### 8.3.2 hand protection:

- Heat resistant gloves if there is a risk of contact with hot/molten material
  - Gloves if handling thermally degraded or fire-damaged products
- Suitable materials: Neoprene  
PVC

- Breakthrough time: N.D.

#### 8.3.3 eye protection:

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

#### 8.3.4 skin protection:

- Protective clothing
- Suitable materials: Neoprene  
PVC

## 9. Physical and chemical properties

### 9.1 General information:

Appearance (at 20°C) : Plastic tubing and moulded parts  
Odour : Almost odourless  
Colour : Variable in colour

### 9.2 Important health, safety and environmental information:

pH value : N.D.  
Boiling point/boiling range : N.D. °C  
Flashpoint : N.D. °C  
Explosion limits : N.D. vol% ( °C)  
Vapour pressure (at 20°C) : N.D. hPa  
Vapour pressure (at 50°C) : N.D. hPa  
Relative density (at 20°C) : 0.9/1.4  
Water solubility : Insoluble  
Soluble in : N.D.  
Relative vapour density : N.D.  
Viscosity : N.D. Pa.s  
Partition coefficient n-octanol/water : N.D.  
Evaporation rate :  
ratio to butyl acetate : N.D.  
ratio to ether : N.D.

### 9.3 Other information:

Melting point/melting range : 70/140 °C (Adhesives)  
Auto-ignition point : N.D. °C  
Saturation concentration : N.D. g/m<sup>3</sup>

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## 10. Stability and reactivity

### 10.1 Conditions to avoid/reactivity:

- Stable under normal conditions

### 10.2 Materials to avoid:

- Keep away from: heat sources, oxidizing agents, acids, bases

### 10.3 Hazardous decomposition products:

- Thermal decomposition is not significant when products are used in accordance with Tyco Electronics installation instructions
- At higher temperatures and if materials burn, thermal decomposition/combustion products may include, but are not limited to: alcohols, aldehydes, carbon dioxide, carbon monoxide, hydrocarbons, organic acids and oxides of nitrogen and sulphur

## 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
LC50 inhalation rat	: N.D.	ppm/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	: not listed

11.3 Routes of exposure: inhalation of thermal decomposition products

### 11.4 Acute effects/symptoms:

- **AFTER INHALATION**
  - Overheating products during installation produce fumes that can cause:
  - Irritation of the respiratory tract
  - Coughing
  - Headache
  - Dizziness
  - Nausea
  - In the absence of ventilation, possible asphyxiation
- **AFTER SKIN CONTACT**
  - 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
- **AFTER EYE CONTACT**
  - Overheating products during installation produce fumes that can cause:
  - Irritation
  - Redness of the eye tissue
- **AFTER INGESTION**
  - Not a normal route of exposure
  - Acute oral toxicity is expected to be low

### 11.5 Chronic effects:

- None known

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## 12. Ecological information

### 12.1 Ecotoxicity:

- No data available

### 12.2 Mobility:

- Volatile organic compounds (VOC): N.D.%
- Insoluble in water

For other physicochemical properties see heading 9

### 12.3 Persistence and degradability:

- biodegradation BOD<sub>5</sub> : N.D. % ThOD
- water : N.D.
- soil : T ½: N.D. days

### 12.4 Bioaccumulative potential:

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

### 12.5 Other adverse effects:

- WGK : N.D.
- Effect on the ozone layer : Not dangerous for the ozone layer (1999/45/EC)
- Greenhouse effect : No data available
- Effect on waste water purification : No data available

## 13. Disposal considerations

### 13.1 Provisions relating to waste:

- Waste material code (75/442/EEC, Council Decision 2001/118/EC, O.J. L47 of 16/2/2001): 12 01 05 (plastics shavings and turnings)
- Waste material code (Flanders): 551 567

### 13.2 Disposal methods:

- Landfill or incinerate at an approved site in accordance with national and local regulations
- Recycle/reuse
- Remove to an authorized dump (Class II)
- Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber
- Do not discharge to wastewater treatment installation

### 13.3 Packaging/Container:

- No available data

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## 14. Transport information

- 14.1 Classification of the substance in compliance with UN Recommendations  
UN number :  
CLASS :  
SUB RISKS :  
PACKING :  
PROPER SHIPPING NAME :
- 14.2 ADR (transport by road)  
CLASS : NOT SUBJECT  
PACKING :  
DANGER LABEL TANKS :  
DANGER LABEL PACKAGES :
- 14.3 RID (transport by rail)  
CLASS :  
PACKING :  
DANGER LABEL TANKS :  
DANGER LABEL PACKAGES :
- 14.4 ADNR (transport by inland waterways)  
CLASS : NOT SUBJECT  
PACKING :  
DANGER LABEL TANKS :  
DANGER LABEL PACKAGES :
- 14.5 IMDG (maritime transport)  
CLASS : NOT SUBJECT  
SUB RISKS :  
PACKING :  
MFAG :  
EMS :  
MARINE POLLUTANT :
- 14.6 ICAO (air transport)  
CLASS : NOT SUBJECT  
SUB RISKS :  
PACKING :  
PACKING INSTRUCTIONS PASSENGER AIRCRAFT :  
PACKING INSTRUCTIONS CARGO AIRCRAFT :
- 14.7 Special precautions in connection with transport : not restricted for any mode of international transport

## 15. Regulatory information

Classification according to directives 67/548/EEC and 1999/45/EC (\*\*: see heading 16)

NOT APPLICABLE

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## 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 Tyco Electronics 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.

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

### (\*\*) Labelling:

The labelling of the substance described in this MSDS complies with the provisions of Directive 1999/45/EC of 31 May 2001, published in the Official Journal of the European Communities L 200 of 30/07/1999. This Directive replaces Directive 88/379/EEC of 7 June 1988, published in the Official Journal of the European Communities L 187 of 16/07/1988.

Member States shall apply the laws, regulations and administrative provisions referred to in article 22 of this Directive:

- (a) to preparations not within the scope of Directive 91/414/EEC or Directive 98/8/EC as from 30 July 2002; and
- (b) to preparations within the scope of Directive 91/414/EEC or Directive 98/8/EC as from 30 July 2004.

### Exposure limits:

**TLV** : Threshold Limit Value - ACGIH USA 2000  
**OES** : Occupational Exposure Standards - United Kingdom 1999  
**MEL** : Maximum Exposure Limits - United Kingdom 1999  
**MAK** : Maximale Arbeitsplatzkonzentrationen - Germany 2001  
**TRK** : Technische Richtkonzentrationen - Germany 2001  
**MAC** : Maximale aanvaarde concentratie - The Netherlands 2002  
**VME** : Valeurs limites de Moyenne d'Exposition - France 1999  
**VLE** : Valeurs limites d'Exposition à court terme - France 1999  
**GWBB** : Grenswaarde beroepsmatige blootstelling - Belgium 1998  
**GWK** : Grenswaarde kortstondige blootstelling - Belgium 1998  
**EC** : Indicative occupational exposure limit values - directive 2000/39/EC