

Raychem Safety Data Sheet

Reference RAY/5103E

Revision 2

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1. IDENTIFICATION OF SUBSTANCE OR PREPARATION

PRODUCT Raychem Heat-Shrinkable Interconnections with Solder for Low Temperature Wire

APPLICATION This Safety Data Sheet applies to the following Product Types:

B-001 B-002 B-003 B-005 B-008 B-013 B-014 B-015
B-025 B-026 B-050 B-051 B-053 B-055 B-056 B-065
B-150 B-151 B-900 C-142 CWT D-142
MTS-50 MTS-51 MTS-52 MTS-53 MTS-54 MTS-55
MTS-56 MTS-57 MTS-58 MTS-59 MTS/1
RTS-142
S018 ST18 STA-2000
W-060 W-061 W-063 W-065 W-069

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2. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL DESCRIPTION Base polymer materials include polyethylene and olefin copolymers, fluoropolymers, chloropolymers, polyamides, polyesters and silicones. Heat shrinkable products may be coated with or used in conjunction with adhesives/mastics which are based on olefin copolymers or polyamides.

| HAZARDOUS INGREDIENTS | | | |
|------------------------------|-----------|-------|-----------------------|
| Name | CAS No. | % w/w | Supply Classification |
| Cadmium | 7440-43-9 | 18.0 | Not applicable |
| Lead | 7439-92-1 | 32.0 | Not applicable |
| Tin | 7440-31-5 | 50.0 | Not applicable |

3. HAZARDS IDENTIFICATION

This Safety Data sheet applies to a group of products which do not present a significant risk to health under normal conditions of use. However, plastic components may emit hazardous thermal decomposition by-products if overheated or burnt. Refer to section 10.

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4. FIRST AID MEASURES

| | |
|------------|--|
| EYES | Flush with water for at least 15 minutes, holding eyelids open. Seek medical attention if irritation persists. |
| SKIN | If molten material contacts skin, cool immediately with cold water. Do not attempt to remove material adhering to the skin. Treat as a burn. Seek medical attention. |
| INGESTION | Not a normal route of exposure. If swallowed and symptoms develop, seek medical attention. |
| INHALATION | If exposed to vapours or fumes from overheated or burnt material, move the affected person to fresh air. Keep warm and at rest. If breathing problems develop, oxygen should be administered by qualified personnel. Seek immediate medical attention. |

5. FIRE FIGHTING MEASURES

| | |
|----------------------------|--|
| EXTINGUISHING MEDIA | Water, dry chemical, 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 a full facepiece and chemical protective clothing. |

6. ACCIDENTAL RELEASE MEASURES (SPILLAGE)

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

7. STORAGE AND HANDLING (IN NORMAL USE)

| | |
|-------------|---|
| STORAGE | Cool, dry warehouse environment |
| VENTILATION | Ensure adequate general and/or local exhaust ventilation of the workplace during product installations. |
| HANDLING | Refer to Raychem Product Installation Instructions. Avoid heating products beyond temperatures required for normal installation. If the product chars or burns, stop heating immediately. Avoid inhaling any vapours or fumes which may be evolved under such circumstances. Allow vapours or fumes to disperse and ventilate the area thoroughly before resuming work. Wear personal protective equipment if it is necessary to handle grossly overheated or fire damaged products (refer to section 8). Avoid contact with molten material. Wash hands before eating, drinking or smoking. |

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8. EXPOSURE CONTROLS/PERSONAL PROTECTION (NORMAL USE)

OCCUPATIONAL EXPOSURE LIMITS

| Name | LTEL (8-hour TWA) | STEL (15-minute) | Type | Ref. |
|--|-------------------------|------------------------|----------|---------------|
| Cadmium and cadmium compounds (as Cd) | 0.025 mgm ⁻³ | - | MEL | EH40/94 |
| Cadmium oxide fume (as Cd) | 0.025 mgm ⁻³ | 0.05 mgm ⁻³ | MEL | EH40/94 |
| Cadmium, elemental and compounds (as Cd) | | | | |
| Total dust/particulate | 0.01 mgm ⁻³ | - | TLV | ACGIH 1993-94 |
| Respirable fraction of dust | 0.002 mgm ⁻³ | - | TLV | ACGIH 1993-94 |
| Lead dust and fume (as Pb) | 0.15 mgm ⁻³ | - | Standard | CLWR* |
| | 0.15 mgm ⁻³ | - | TLV | ACGIH 1993-94 |
| Tin dust and fume (as Sn) | 2 mgm ⁻³ | 4 mgm ⁻³ | OES | EH40/94 |
| | 2 mgm ⁻³ | - | TLV | ACGIH 1993-94 |

* CLWR UK Control of Lead at Work Regulations, 1980

Note: Solder preforms, containing cadmium, lead and tin, are encased in heat-shrinkable tubing. Product testing has demonstrated that there is no exposure to metal fumes, even at temperatures where thermal degradation of tubing occurs.

PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY

Not required for normal installations.

HAND

Heat resistant gloves should be worn if hot products are to be handled after installation. If it is necessary to handle grossly overheated or fire-damaged products, neoprene or PVC gloves should be worn to avoid skin contact with potentially corrosive inorganic acid residues.

EYE

Not required for normal installations. Safety goggles or a face shield should be worn if there is a risk of contact with molten material.

9. PHYSICAL/CHEMICAL PROPERTIES

APPEARANCE

Clear or transparent blue plastic sleeves with coloured inserts and solder rings.

ODOUR

None

PH (as delivered)

Not applicable

MELTING POINT

Not applicable

BOILING POINT

Not applicable

FLASH POINT

Not applicable

AUTOFLAMMABILITY

Not applicable

EXPLOSIVE PROPERTIES

Not applicable

UPPER LIMIT

LOWER LIMIT

RELATIVE DENSITY (SG)

Not applicable

SOLUBILITY

Insoluble

PARTITION COEFFICIENT

Not applicable

10. STABILITY AND REACTIVITY

STABILITY

Stable under normal conditions.

CONDITIONS TO AVOID

Avoid heating products beyond temperatures required for normal installation.

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| | |
|-------------------------------------|---|
| MATERIALS TO AVOID | None known |
| RECOMMENDED MATERIALS FOR EQUIPMENT | Not applicable |
| HAZARDOUS DECOMPOSITION PRODUCTS | At temperatures higher than those recommended for proper installation, most significantly, if the product burns, thermal degradation and combustion by products will depend on the base polymer used. Thermal degradation and combustion by products may include, but not be limited to carbon monoxide, carbon dioxide, aldehydes, acetic acid, low molecular weight hydrocarbons, silicon dioxide, hydrogen chloride, hydrogen fluoride, hydrogen bromide, fluoro-olefins, and oxides of nitrogen, phosphorus and sulphur. In a fire situation, oxide fumes or particulates of cadmium, lead and tin may be released. |

11. TOXICOLOGICAL INFORMATION

Proper installation of this product creates no known acute or chronic health hazards.

ACUTE EFFECTS

| | |
|------------|---|
| EYES | Overheating the product during installation may produce vapours and 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. There is insufficient information available on these products to predict the effects from ingestion. |
| INHALATION | Overheating the product during installation may produce vapours and fumes that can cause upper respiratory tract irritation, headache, dizziness and nausea. Inhaling thermal decomposition products of fluoropolymers may produce symptoms similar to influenza. |

| | |
|-----------------|-------------|
| CHRONIC EFFECTS | None known. |
|-----------------|-------------|

12. ECOLOGICAL INFORMATION

| | |
|-----------------------------|---|
| MOBILITY | No relevant data are available. |
| PERSISTENCE & DEGRADABILITY | Products are resistant to biodegradation and persistent in the environment. |
| BIO-ACCUMULATION | No relevant data are available. |
| AQUATIC TOXICITY | No relevant data are available. |

OTHER

13. DISPOSAL CONSIDERATIONS

Solder contains cadmium and lead. Heat-shrinkable plastic sleeves may contain halogenated materials. Dispose of in accordance with national and local regulations.

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14. TRANSPORT INFORMATION (REGULATIONS)

| | |
|--------------------------------|---|
| PACKAGING (Size & Description) | Packaging will depend on the type of product and quantity supplied. |
| TRANSPORT CLASSIFICATION | Non hazardous |
| OTHER | Not restricted for any mode of international transport. |

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 & SAFETY PHRASES | Not applicable |
| OTHER APPLICABLE REGULATIONS | Refer to national laws relating to substances hazardous to health or the environment. |

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/5103E Revision 2
Date of issue: June 1994

Supersedes: RAY/5103E Revision 1
Reason for revision: Changes to information in sections 1, 2, 4, 8 and 15

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.