

Raychem Safety Data Sheet

Reference RAY/5104E

Revision 3

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1. IDENTIFICATION OF SUBSTANCE OR PREPARATION

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

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

B-004 B-007 B-009 B-010 B-016 B-020 B-021 B-022 B-023
B-028 B-030 B-031 B-040 B-041 B-043 B-044 B-045 B-046
B-052 B-057 B-058 B-060 B-061 B-062 B-063 B-066 B-067
B-070 B-080 B-090 B-091 B-166 B-167 B-202 B-206 B-300
B-500 B-501 B-600 B-800 B-801 B-802 B-803 B-804 B-901
B-902
C-100 C-101 C-103 C-104 C-105 C-110 C-112 C-128 C-129
C-134 C-136 C-141 C-144 C-145 C-146 C-147 C-700 C-704
C-711 C-713 C-714 C-715 C-740 C-750
D-100 D-101 D-102 D-103 D-104 D-105 D-106 D-107 D-108
D-109 D-110 D-112 D-113 D-128 D-129 D-131 D-133 D-134
D-136 D-141 D-143 D-144 D-145 D-146 D-147 D-148 D-150
D-151 D-152 D-153 D-155 D-156 D-181 D-183 D-204 D-301
D-500 D-511 D-550 D-600 D-602 D-607 D-621 D-700 D-701
D-703 D-704 D-710 D-711 D-713 D-714 D-715 D-740 D-
1744 DK-602 DWT
RTS-S01 RTS-S02 RTS-100 RTS-101 RTS-103 RTS-104
RTS-105 RTS-107 RTS-110 RTS-113 RTS-133 RTS-141
RTS-144 RTS-146 RTS-181 RTS-1744
S01 S02 S03 SO63 SO96 SGRP SGRS SGRT ST63 ST96
STA-2001 SWT
W-021 W-024 W-030 W-040 W-041 W-042 W-043 W-047
W-062 W-070 W-081 W-092 W-517

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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 Solder may contain antimony, bismuth, lead, silver or tin, depending on type used.

Name	CAS No	% w/w	Supply Classification
Antimony	7440-36-0	0.05 - 0.12	Not applicable
Bismuth	7440-69-9	0.05 - 14.0	Not applicable
Lead	7439-92-1	0.10 - 93.5	Not applicable
Silver	7440-22-4	0.05 - 4.0	Not applicable
Tin	7440-31-5	5.0 - 96.0	Not applicable

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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.

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.
Antimony and compounds (as Sb)	0.5 mgm ⁻³ 0.5 mgm ⁻³	- -	OES TLV	EH40/95 ACGIH 1995-96
Lead dust and fume (as Pb)	0.15 mgm ⁻³ 0.05 mgm ⁻³	- -	Standard TLV	CLWR* ACGIH 1995-96
Silver, metallic	(under review) 0.1 mgm ⁻³	- -	- TLV	EH40/95 ACGIH 1995-96
Silver compounds (as Ag)	0.01 mgm ⁻³ 0.01 mgm ⁻³	- -	OES TLV	EH40/95 ACGIH 1995-96
Tin dust and fume (as Sn)	2 mgm ⁻³ 2 mgm ⁻³	4 mgm ⁻³ -	OES TLV	EH40/95 ACGIH 1995-96

* CLWR UK Control of Lead at Work Regulations

Note: Solder preforms, which may contain antimony, bismuth, lead, silver or 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

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10. STABILITY AND REACTIVITY

STABILITY	Stable under normal conditions.
CONDITIONS TO AVOID	Avoid heating products beyond temperatures required for normal installation.
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, depending on the solder, oxide fumes or particulates of antimony, bismuth, lead, silver or 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
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12. ECOLOGICAL INFORMATION

MOBILITY	No relevant data are available.
PERSISTENCE & DEGRADABILITY	Products are resistant to biodegradation.
BIO-ACCUMULATION	No relevant data are available.
AQUATIC TOXICITY	No relevant data are available.

OTHER

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13. DISPOSAL CONSIDERATIONS

Solder may contain antimony, bismuth, lead, silver or tin, depending on the type used. Heat-shrinkable plastic sleeves may contain halogenated materials. Dispose of in accordance with national and local regulations.

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	Not applicable
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/5104E Revision 3
Date of issue: December, 1995

Supersedes: RAY/5104E Revision 2
Reason for revision: Amendments to sections 1, 2, 8 and 12

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.