



# MATERIAL SAFETY DATA SHEET

RAY2015

(US, CN, EU Version for International Trade)

## SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: S-1251 Mastic and S-1243 Mastic  
 PRODUCT CODES: S-1251 (Red) and S-1243 (Black)

RAY2015

MANUFACTURER: Tyco Electronics Corporation  
 DIVISION: Tyco Electronics Energy Division  
 ADDRESS: 2901 Fulling Mill Road  
 Middletown, PA 17057-3163

SUPPLIERS: Tyco Electronics Canada Ltd.  
 20 Esna Park Drive  
 Markham, Ontario L3R 1E1

EMERGENCY TELEPHONE NUMBERS: US: CHEMTREC 1-800-424-9300  
 CN: CHEMTREC 1-800-424-9300  
 Outside North America: 1-703-527-3887 (Collect calls accepted)

NON-EMERGENCY HEALTH/SAFETY INFORMATION: North America: 1-800-327-6996

CHEMICAL FAMILY: Hydrocarbon-based polymer mastic materials.  
 PRODUCT USE: Mastic tape for filling voids in splices.

This product is considered an Article thus it is not regulated under US-OSHA; CAN-WHMIS; IOSH; ISO; UK-CHIP; or EU Directives (67/548/EEC-Dangerous Substance Labeling, 98/24/EC-Chemical Agents at Work, 99/45/EC-Preparation Labeling, 2001/58/EC-MSDS Content, and 1907/2006/EC-REACH), and an MSDS is not required for this product considering that when used as recommended or intended, or under ordinary conditions, it should not present a health and safety exposure or other hazard. If heated, charred, burned, or shredded the health and safety information presented below may apply.

### Additional Information

This product is not intended for solvent-containing or extreme temperature or pressure environments. Please request information if considering use beyond current product labelling or not covered in the Product Installation Guide.

## SECTION 2: HAZARDS IDENTIFICATION

GHS Classification:

GHS Classifications: Not applicable to articles

Health Hazards	Reproductive/Developmental – NL	Environmental Hazards
Acute Toxicity – NL	Target Organ Toxicity – NL	Aquatic Toxicity – NL
Skin Corrosion/Irritation – NL		
Eye Corrosion/Irritation - NL	Physical Hazards	
Respiratory or Skin Sensitization – NL	Flammability – NL (Not	
Mutagenicity – NL	flammable or combustible)	
Carcinogenicity – NL		

GHS Label: As required for Finished Goods according to End-Use Products Regulations

Symbols (Industrial/Commercial Goods Only): Not Applicable

Hazard Statements	Precautionary Statements
Not applicable	Not applicable

### EMERGENCY OVERVIEW:

These products may emit hazardous thermal decomposition and combustion by-products if they are charred or burned. The thermal degradation and combustion by-products may be toxic and should not be inhaled. Thermal degradation is not significant at temperatures achieved during proper installation, as directed by product installation guides. At temperatures higher than those recommended for proper installation, most significantly if the product burns, the thermal degradation and combustion by-products may include, but are not limited to carbon monoxide, carbon dioxide, organic acids (including acetic acid), aldehydes (including formaldehyde) and alcohols, oxides of nitrogen and silicon, vinyl acetate, and aromatic and aliphatic hydrocarbons.

POTENTIAL HEALTH EFFECTS:

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- EYES:** Contact with molten material may cause thermal burns. Overheating the product to charring or burning will produce fumes that may cause tearing (lachrymation) or eye irritation.
- SKIN:** This product is not expected to be a skin irritant. Repeated contact may cause an allergic skin reaction in sensitized individuals. Persons with pre-existing skin disorders may be more susceptible to the effects of this material. Contact with the molten material may cause thermal burns. Skin absorption of this material is unlikely.
- INGESTION:** Not a likely route of exposure. There is insufficient information available to predict the effects of swallowing this material.
- INHALATION:** In common with most organic materials, thermal degradation and combustion by-products may be toxic and should not be inhaled. For more information on thermal decomposition products, refer to Section 10.

**ACUTE HEALTH HAZARDS:**

Possible discomfort/itching.

**CHRONIC HEALTH HAZARDS:**

Long-term skin contact may cause an allergic skin reaction in sensitized individuals. None of the ingredients to which users may be exposed and which are present at equal to or greater than 0.1% of the products are listed by OSHA, NTP, or IARC as suspect carcinogens.

**MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:**

Overheating the product to charring or burning may produce vapours that may cause eye, skin, nose and throat irritation. Persons with pre-existing eye, skin, or respiratory disorders (e.g., asthma conditions) may be more susceptible to the effects of these vapours.

Additional Information

None known.

**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

<u>INGREDIENTS (Chemical/Common Names):</u>	<u>CAS No.:</u>	<u>% by Wt:</u>	<u>EC No.:</u>
Hydrocarbon polymer	25034-71-3	30-60	NE
Ethylene propylene terpolymer	25038-36-2	10-30	NE
Surface treated aluminium silicate	1332-58-7	1-10	310-194-1
Silica reaction products (does not contain crystalline silica)	68611-44-9	1-5	271-893-4
Iron oxide	1309-37-1	1-5	215-168-2
Zinc-2-mercaptobenzothiazole	155-04-4	1-5	205-840-3
Diphenylamine-acetone reaction mixture	9003-79-6	1-5	NE
Carbon black	1333-86-4	0-5	215-609-9

NE -- Not Established/NA -- Not applicable/ND -- Not determined

Additional Information

These products do not release detectable quantities of hazardous chemicals unless overheated or burned.

**SECTION 4: FIRST AID MEASURES**

- EYE CONTACT:** If eye irritation occurs, hold eyelids apart and flush affected area(s) with clean water. Seek medical attention.
- SKIN CONTACT:** Thoroughly wash affected area(s) with soap and water. If irritation develops and persists, seek medical attention. For molten material: Do not attempt to remove molten material. Use cool water to reduce severity of burn. Treat as a burn and seek medical attention.
- INGESTION:** Not a normal route of exposure. However, if swallowed, drink plenty of water and seek medical attention.
- INHALATION:** If respiratory symptoms or other symptoms of exposure develop, move victim to fresh air. If symptoms persist, seek medical attention. If breathing difficulties develop, qualified personnel should administer oxygen. Seek immediate medical attention. If victim is not breathing, immediately begin artificial respiration. Keep victim warm and quiet; seek immediate medical attention.

Additional Information

None.

**SECTION 5: FIRE-FIGHTING MEASURES****SUITABLE/UNSUITABLE EXTINGUISHING MEDIA:**

Use media suitable for the surrounding fire: Water spray, Foam, Dry chemical powder, or Carbon dioxide.

**SPECIAL FIRE FIGHTING PROCEDURES & PROTECTIVE EQUIPMENT:**

For fires in enclosed areas fire fighters should wear self-contained breathing apparatus (SCBA) in positive pressure demand mode to avoid inhalation of combustion gases. Use water spray to cool nearby containers and structures exposed to fire or extreme heat from a fire.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:**

Do not use water spray on live electrical parts.

**SPECIFIC HAZARDS IN CASE OF FIRE:**

See Section 10 for thermal decomposition products.

Additional Information

Not sensitive to mechanical shock.

**SECTION 6: ACCIDENTAL RELEASE MEASURES****PERSONAL PRECAUTIONS:**

Wear heat-resistant gloves or allow material to cool before responding. See Section 5 if responding to burning or charred materials.

**ENVIRONMENTAL PRECAUTIONS:**

NA

**SPILL CONTAINMENT & CLEANUP METHODS/MATERIALS:**

This material may be swept up and collected in a suitable container for disposal or reuse.

Additional Information

None.

**SECTION 7: HANDLING AND STORAGE****PRECAUTIONS FOR SAFE HANDLING AND STORAGE:**

**HANDLING:** Refer to Tyco Electronics product installation instructions. Operating temperature range is between -40 to 130°C. Ensure adequate ventilation of the work place; avoid breathing vapours and contact with skin and eyes. Do not eat, drink, or smoke in the work area. Wash hands after handling material. Avoid contact with residues from fire damaged products (see Section 10)

**STORAGE:** Refer to Tyco Electronics product installation instructions. Operating temperature range is between 40 to 130°C. Ensure adequate ventilation of the work place; avoid breathing vapours and contact with skin and eyes. Do not eat, drink, or smoke in the work area. Wash hands after handling material.

**OTHER PRECAUTIONS (e.g.; Incompatibilities):**

No data available on packaging/materials to avoid.

Additional Information

None.

**SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION****ENGINEERING CONTROLS/SYSTEM DESIGN INFORMATION:**

Design installation systems to guard against burns and ensure adequate ventilation.

**VENTILATION:**

In accordance with good industrial hygiene practice, use adequate mechanical ventilation during installation. If products are likely to be overheated during installation, consult an industrial ventilation professional or industrial hygienist.

**RESPIRATORY PROTECTION:**

Not required for normal conditions of use. See also special firefighting procedures (Section 5). If installation is to occur in a confined space with inadequate ventilation, and overheating is likely, a NIOSH-approved supplied air respirator may be required.

**EYE PROTECTION:**

Not required during normal conditions of use. Safety glasses are generally recommended during installation and may be required for related activities in accordance with the employer's occupational health and safety program.

**SKIN PROTECTION:**

Not required during normal conditions of use. Consider wearing heat-resistant work gloves and long sleeves to prevent contact with molten material.

**OTHER PROTECTIVE CLOTHING OR EQUIPMENT:**

None required.

**EXPOSURE GUIDELINES & LIMITS:**

OSHA	Permissible Exposure Limit (PEL)	Particulate, total	15 mg/m <sup>3</sup>
	Permissible Exposure Limit (PEL)	Particulate, respirable	5 mg/m <sup>3</sup>
ACGIH	Permissible Exposure Limit (PEL)	Carbon black	3.5 mg/m <sup>3</sup>
	Threshold Limit Value (TLV)	Particulate, total	10 mg/m <sup>3</sup>
	Threshold Limit Value (TLV)	Particulate, respirable	3 mg/m <sup>3</sup>
British Columbia	Threshold Limit Value (TLV)	Carbon black	3.5 mg/m <sup>3</sup>
	Exposure Limit	Particulate, total	10 mg/m <sup>3</sup>
	Exposure Limit	Particulate, respirable	3 mg/m <sup>3</sup>
Quebec	Exposure Limit	Carbon black	3.5 mg/m <sup>3</sup>
	Permissible Exposure Value (PEV)	Particulate, total	10 mg/m <sup>3</sup>
Ontario	Permissible Exposure Value (PEV)	Carbon black	3.5 mg/m <sup>3</sup>
	Permissible Exposure Value (PEV)	Carbon black	3.5 mg/m <sup>3</sup>
	Occupational Exposure Level (OEL)	Particulate, total	10 mg/m <sup>3</sup>
United Kingdom	Occupational Exposure Level (OEL)	Carbon black	3.5 mg/m <sup>3</sup>
	Occupational Exposure Standard (OES)	Particulate, total	10 mg/m <sup>3</sup>
	Occupational Exposure Standard (OES)	Carbon black	3.5 mg/m <sup>3</sup>
	Short Term Exposure Limit	Carbon black	7 mg/m <sup>3</sup>

TWA – 8-Hour Time Weighted Average/ NE – Not Established

Additional Information

- Particulate exposure (kaolin and silica reaction products) is unlikely, since particles are encapsulated in polymers.
- Not Included as International Trade.
- May be Required to meet Domestic Requirements for a Specific Destination(s).

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

APPEARANCE:	Black or red solid tape
ODOUR:	Little or no odour.
ODOUR THRESHOLD:	NA
PHYSICAL STATE:	Solid
pH:	NA
BOILING POINT:	NA
MELTING POINT:	Melting points vary. See installation guide.
FREEZING POINT:	NA
VAPOR PRESSURE:	NA
VAPOR DENSITY (AIR = 1):	NA
SPECIFIC GRAVITY (H <sub>2</sub> O = 1):	0.93
EVAPORATION RATE:	Negligible
SOLUBILITY IN WATER:	Insoluble
FLASH POINT:	NA
AUTO-IGNITION TEMPERATURE:	NA
LOWER EXPLOSIVE LIMIT (LEL):	NA
UPPER EXPLOSIVE LIMIT (UEL):	NA
PARTITION COEFFICIENT:	NA
DECOMPOSITION TEMPERATURE:	Not Available

**FLAMMABILITY/HMIS HAZARD CLASSIFICATIONS (US/CN/EU):**

HEALTH: 0      FLAMMABILITY: 0      REACTIVITY: 0



Additional Information

None.

**SECTION 10: STABILITY AND REACTIVITY**

<b>STABILITY:</b>	Stable under normal working conditions, at ambient temperature.
<b>INCOMPATIBILITY (MATERIAL TO AVOID):</b>	Strong oxidizers, peroxides, acids and reducing agents.
<b>HAZARDOUS DECOMPOSITION OR BY-PRODUCTS:</b>	May include, but are not limited to carbon monoxide, carbon dioxide, organic acids (including acetic acid), aldehydes (including formaldehyde) and alcohols, oxides of nitrogen and silicon, vinyl acetate, and aromatic and aliphatic hydrocarbons.
<b>HAZARDOUS POLYMERIZATION:</b>	Will not occur.
<b>CONDITIONS TO AVOID:</b>	Avoid overheating product.

Additional Information

None.

**SECTION 11: TOXICOLOGICAL INFORMATION**

**ACUTE TOXICITY (Test Results Basis and Comments):**  
No data available.

**SUBCHRONIC/CHRONIC TOXICITY (Test Results and Comments):**  
None of the ingredients to which users may be exposed, and which are present at equal to or greater than 0.1% of the product, are listed by OSHA, NTP, or IARC as human carcinogens (Health Canada, 2002).

Additional Information

No chronic toxicity data available on product as a whole. The proposed TLV for carbon black has a carcinogenicity notation of A3, indicating that it is a confirmed animal carcinogen with unknown significance for humans (ACGIH, 2010). Classified by the IARC as a Class 2B carcinogen, or "Possibly Carcinogenic to Humans" (IARC, 2010). The probability of exposure to inhalable carbon black is very low, due to the fact that it is encapsulated in polymers.

**SECTION 12: ECOLOGICAL INFORMATION**

**PERSISTENCE & DEGRADABILITY:**  
No data available on biodegradation.

**BIO-ACCUMULATIVE POTENTIAL (Including Mobility):**  
No data available on bioaccumulation.

**AQUATIC TOXICITY (Test Results & Comments):**  
No data available on aquatic toxicity.

Additional Information

- No known effects on stratospheric ozone depletion.
- Volatile organic compounds: NA
- Water Endangering Class (WGC): NA

**SECTION 13: DISPOSAL CONSIDERATIONS**

<b>WASTE DISPOSAL METHOD:</b>	Follow local, Provincial, and Federal regulations applicable to as-used, end-of-life characteristics to be determined by end-user. Contact local environmental agency for specific rules and regulations.
<b>HAZARDOUS WASTE</b>	This product is non-hazardous, as defined under the Restriction of Hazardous Substance (RoHS) Standards. Dispose of in accordance with local solid waste rules.
<b>CLASS/CODE:</b>	US - Not applicable to finished product as manufactured for distribution into commerce. CN - Not applicable to finished product as manufactured for distribution into commerce. EWC - Not applicable to finished product as manufactured for distribution into commerce.

Additional Information

Not Included - Dispose/Recycle as allowed by local jurisdiction for the end-of-life characteristics as-disposed.



SECTION 14: TRANSPORT INFORMATION

GROUND – US-DOT/CAN-TDG/EU-ADR/APEC-ADR:

Proper Shipping Name	Finished Product Not Regulated as Dangerous Goods	ID Number	NA
Hazard Class	NA	Labels	NA
Packing Group	NA		

AIRCRAFT – ICAO-IATA:

Proper Shipping Name	Finished Product Not Regulated as Dangerous Goods	ID Number	NA
Hazard Class	NA	Labels	NA
Packing Group	NA		

VESSEL – IMO-IMDG:

Proper Shipping Name	Finished Product Not Regulated as Dangerous Goods	ID Number	NA
Hazard Class	NA	Labels	NA
Packing Group	NA		

Additional Information

- Not restricted for any mode of international transport as finished goods.
- Not a Marine Pollutant as-shipped per IMO/IMDG.

SECTION 15: REGULATORY INFORMATION

INVENTORY STATUS:

All components are listed on the TSCA; EINECS/ELINCS; AICS; and DSL, unless noted otherwise below.

U.S. FEDERAL REGULATIONS:

TSCA Section 8b – Inventory Status: All chemicals comprising this product are either exempt or listed on the TSCA Inventory.

TSCA Section 12b – Export Notification: The finished product does not contain chemicals subject to TSCA Section 12b export notification.

<u>Chemical</u>	<u>CAS #</u>
None	NA

CERCLA (COMPREHENSIVE RESPONSE COMPENSATION, AND LIABILITY ACT)

Chemicals present in the product which could require reporting under the statute:

<u>Chemical</u>	<u>CAS #</u>
None	NA

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

The finished product contains chemicals subject to the reporting requirements of Section 313 of SARA Title III; however, the finished product is exempt.

<u>Chemical</u>	<u>CAS #</u>	<u>% wt</u>
None	NA	NA

CERCLA SECTION 311/312 HAZARD CATEGORIES: Note that the finished product is exempt from these regulations.

Fire Hazard	No
Pressure Hazard	No
Reactivity Hazard	No
Immediate Hazard	No
Delayed Hazard	No

STATE REGULATIONS (US):

California Proposition 65

The following chemicals identified to exist in the finished product as distributed into commerce are known to the State of California to cause cancer, birth defects, or other reproductive harm:

<u>Chemical</u>	<u>CAS #</u>	<u>% Wt</u>
Carbon black (unbound particles of respirable size)	1333-86-4	<0.1

California Consumer Product Volatile Organic Compound Emissions

This Product is not regulated as a Consumer Product for purposes of CARB/OTC VOC Regulations, as-sold for the intended purpose and into the industrial/Commercial supply chain.

**CANADIAN AND EUROPEAN REGULATIONS:**
**Canadian Domestic Substance List (DSL)**

All ingredients remaining in the finished product as distributed into commerce are included on the Domestic Substances List.

**WHMIS Classifications**

Not Applicable.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the Controlled Products Regulations.

**NPRI and Ontario Regulation 127/01**

This product contains the following chemicals subject to the reporting requirements of Canada NPRI +/-or Ont. Reg. 127/01, however, the finished product is exempt.

<u>Chemical</u>	<u>CAS #</u>	<u>% Wt</u>
None known	NA	NA

**European Inventory of Existing Commercial Chemical Substances (EINECS)**

All ingredients remaining in the finished product as distributed into commerce are exempt from, or included on, the European Inventory of Existing Commercial Chemical Substances.

**European Communities (EC) Hazard Classification according to directives 67/548/EEC and 1999/45/EC.**

Not Applicable to the Product as-sold.

R-Phrases NA – Incorporated Above

S-Phrases NA – Incorporated Above

**Additional Information**

Not Applicable. US, Canada and EEC/EU Directives related to chemical hazards provide exemption of manufactured articles composed of discrete solid structures, and for articles that do not pose a safety or health hazard. When properly used as intended, this product is not expected to present a safety or health hazard when distributed into commerce. On this basis, EEC/EU R-Phrases/S-Phrases are not specifically included for the ingredients in the finished product.

**SECTION 16: OTHER INFORMATION**
**OTHER INFORMATION:**

This product may be regulated under additional regulations and laws not identified above, such as for uses other than described or as-designed/as-intended by the manufacturer.

**REFERENCES**

1. ACGIH (2010), 2010 TLVs and BEIs Based on the Documentation of the Threshold Limit Values and Biological Exposure Indices, American Conference of Governmental Industrial Hygienists, Cincinnati, Ohio.
2. CSST (2010) Laws and Corresponding Regulations of Québec, "Regulation respecting the quality of the work environment, An Act respecting occupational health and safety" (L.R.Q., c. S-2.1, r. 15), La Commission de la Sante et de la Sécurité du Travail du Québec.
3. European Commission Joint Research Centre, "European Inventory of Existing Commercial chemical Substances (EINECS) International Uniform Chemical Information Database (IUCLID)," European Commission. Accessed at <http://ecb.jrc.ec.europa.eu/esis/index.php?PGM=ein>, accessed 7 June 2010.
4. Health Canada (2002), Substances Assessed For Carcinogenicity.
5. IARC (2010) "IARC Monographs on the Evaluation of Carcinogenic Risks to Humans," Volume 93, in preparation, International Agency for Research on Cancer, World Health Organization, Lyon, France.
6. Ontario Ministry of Labour (2009) "Control of Exposure to Biological or Chemical Agents," R.R.O. 1990, Ontario Regulation 833.
7. U.S. Department of Labor, Occupational Safety and Health Administration (2010), "Air Contaminants," 29 CFR 1910.1000.
8. WorkSafeBC (2010), "Occupational Health and Safety Regulation, Section R5.48," WorkSafeBC (British Columbia Ministry of Labour), Vancouver, British Columbia.

**MSDS/SDS PREPARATION INFORMATION:**

DATE OF ISSUE: 15 September 2010

SUPERCEDES: 21 September 2007

**DISCLAIMER:**

Tyco Electronics Corporation makes no warranties as to the accuracy or completeness of this information and disclaims any liability in connection with its use. Tyco Electronics Corporation's obligation shall be only as set forth in Tyco Electronics Corporation's standard terms and conditions of sale for this product. In no case will Tyco Electronics Corporation be liable for



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*any incidental, indirect or consequential damages arising out of the sale, resale, use or misuse of the product.*

*The information presented herein was prepared at Tyco Electronics by qualified technical personnel, and to our knowledge it is true and accurate. The information and recommendations are furnished for this product with the understanding that the purchaser/user will independently determine the suitability of the product for this purpose. The data do not constitute a warranty, expressed or implied, statutory or otherwise, nor are they a representation for which Tyco Electronics Corporation assumes legal responsibility. The data are submitted for the user's information and consideration only. Any use of this product must be determined by the user to be in accordance with the applicable federal, State/Provincial, and local laws and regulations.*

*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 Corporation 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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