

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: S1189 Stress Relief Material (EPPA 117), S1340 Mastic, S1336 Mastic, and EPPA-225 Dual Layer Tape (S1189/S1336). **RAY4565**
PRODUCT CODES: EPPA-117 and EPPA-225
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 and Canada: 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: Modified epichlorohydrin copolymer and nitrile rubber mastics in tape form and stand-alone products
PRODUCT USE: Includes non consumer mastics and stress relief material designed for high voltage splices and terminations.

This product is considered an Article thus it is not regulated under US-OSHA; CAN-WHMIS; IOSH; ISO; UK-CHIP; or EU Directives (EC Regulation 1272/2008, Annex VI, Table 3.2. -Classification, Labelling, and Packaging of Substances and Mixtures (CLP), 98/24/EC-Chemical Agents at Work, 99/45/EC-Preparation Labelling, 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 overheated, 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: Not Applicable to Articles

Health		Environmental	Physical
Acute Toxicity – NL	Carcinogenicity – NL	Aquatic Toxicity – NL	NFPA – NL
Eye Corrosion - NL	Reproductive/		CN - NL
Skin Corrosion – NL	Developmental – NL		EU - NL
Skin Sensitization – NL	Target Organ Toxicity		
Mutagenicity – NL	(Repeated) – NL		

GHS Label: Not Applicable to Articles

Symbols: None

Hazard Statements	Precautionary Statements
Contact with residues from fires may cause skin or eye irritation.	Do Not Overheat Or Burn. Do Not Get In Eyes, On Skin, Or On Clothing. Avoid Breathing Vapours/Fumes or Particulates.

EMERGENCY OVERVIEW: These products may emit hazardous thermal decomposition and combustion by-products if overheated to degradation. Thermal degradation and combustion by-products may be toxic and should not be inhaled. At temperatures higher than those recommended for proper installation, most significantly if the product burns, thermal degradation and combustion by-products may be produced. See Section 10. Mastics used in Cold Applied Joint Kits do not emit any irritants during installation.

POTENTIAL HEALTH EFFECTS:

EYES: Fumes evolved during hot processing may irritate eyes, nose and throat. Contact with molten material may cause thermal burns.

SKIN: Brief contact may produce dermatitis, possibly delayed in rubber sensitive individuals. Contact with the molten material may cause thermal burns. No harmful effects are expected from skin absorption of this product.

INGESTION: Ingestion of this product is highly unlikely. There is insufficient information available on this material to predict the effects from ingestion.

INHALATION: Exposure to process fumes from heated material may cause irritation.

ACUTE HEALTH HAZARDS:

Possible irritation if products are overheated.

CHRONIC HEALTH HAZARDS:

None known.

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.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

<u>INGREDIENTS (Chemical/Common Names):</u>	<u>CAS No.:</u>	<u>% by Wt:</u>	<u>EC No.:</u>
S1189 Stress Relief Material			
Epichlorohydrin copolymer	24969-10-6	30-60	NA
2-Butanone-formaldehyde resin	9008-59-7	15-40	NA
Acrylonitrile/Butadiene/Methacrylic acid polymer	9010-81-5	5-10	NA
Aluminum trihydroxide	21645-51-2	5-10	244-492-7
Silicon dioxide (Amorphous fumed silica)	112945-52-5	3-7	NE
Octadecanol-terminated poly (1,4-cyclohexylenedimethylene-3,3-thiodipropionate)	63123-11-5	1-5	NE
Pentaerythritol tetrakis (3-(3,5-di-tert-butyl-4-hydroxyphenyl) propionate)	6683-19-8	1-5	229-722-6
S1336 and S1340 Mastics			
Acrylonitrile/butadiene polymer	9003-18-3	68-98	NA
Phenol, 4-(1,1-dimethylethyl) ethyne co-polymer	28514-92-3	0-10	NA
Silane, dichlorodimethyl-, reaction products with silica	68611-44-9	0-10	271-893-4
Polymerized 1,2-dihydro-2,2,4-trimethylquinoline	26780-96-1	0-0.1	NA

Additional Information

These ingredients reflect components of the finished product related to performance of the product as distributed into commerce.

NA – Not applicable/NE – Not established

SECTION 4: FIRST AID MEASURES

EYE CONTACT: Eye contact with molten material may cause thermal burns. If eye irritation occurs, hold eyelids apart and flush affected area(s) with clean water. Seek medical attention.

SKIN CONTACT: First aid is normally not required. After handling product, it is good work practice to wash your hands. If molten material contacts skin, cool area immediately in water. DO NOT attempt to remove material from the skin. Treat as a burn, and seek medical attention.

INGESTION: If swallowed and symptoms develop, 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 EXTINGUISHING MEDIA:**

Dry chemical, carbon dioxide, water, foam. Selection of extinguishing media should be based upon the size of the fire, the firefighting training/experience of the individual attempting to extinguish or control the fire, and the packaging materials exposed to the fire.

SPECIAL FIRE FIGHTING PROCEDURES & PROTECTIVE EQUIPMENT:

Firefighters should wear self-contained breathing apparatus with a full-face piece operated in the positive pressure demand mode when fighting fires. Use water spray to cool nearby containers and structures exposed to fire.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

Do not use water or foam on live electrical parts.

SPECIFIC HAZARDS IN CASE OF FIRE:

None Known.

Additional Information

None.

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

Avoid Contact with Skin. Wear appropriate personal protective equipment when responding, and collect in a suitable container for disposal or reuse.

ENVIRONMENTAL PRECAUTIONS:

Prevent spilled material from entering sewers and waterways.

SPILL CONTAINMENT & CLEANUP METHODS/MATERIALS:

Sweep or shovel spilled material and absorbent and place in approved container.

Additional Information

None.

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

HANDLING: Avoid breathing any vapours/fumes given off when the product is heated to decomposition, as shown by darkening or browning. Allow any vapours/fumes to disperse and ventilate before continuing work in the area. Avoid contact with molten material. Heat-resistant gloves are required if hot products are handled after installation. Do not consume food, beverages or tobacco in the immediate work area. Wash hands before eating, drinking or smoking. Avoid contact with residues from fire damaged products (see Section 10).

STORAGE: Keep away from sources of heat or ignition. Store in a cool, dry place.

OTHER PRECAUTIONS (e.g.; Incompatibilities): Avoid heating products beyond temperatures required for normal installation. See installation instructions for proper installation procedures. If product chars or burns, immediately stop heating. Avoid inhaling any fumes which may be given off under such circumstances. Allow any vapours to disperse and ventilate before continuing work in the area.

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, ensure adequate ventilation during application, particularly in enclosed areas.

RESPIRATORY PROTECTION:

If installation involves heating the material and occurs in a confined, unventilated area, NIOSH-approved air-supplied respirators are recommended. See also special firefighting procedures (Section 5).

EYE PROTECTION:

If there is the potential of molten material contacting the face or eyes, use eye and face protection.

SKIN PROTECTION:

If there is a danger of molten material contacting the skin use heat resistant gloves. If it is necessary to handle grossly overheated or fire-damaged products, wear natural rubber gloves to prevent possible contact with potentially corrosive inorganic acid residues.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT:

None required under normal use conditions.

EXPOSURE GUIDELINES & LIMITS:

OSHA	Permissible Exposure Limit (PEL/TWA)	Total particulate	15 mg/m ³
ACGIH	Threshold Limit Value (TLV)	Total particulate	10 mg/m ³
		Aluminum oxide	10 mg/m ³
Quebec	Permissible Exposure Value (PEV)	Total particulate	10 mg/m ³
Ontario	Occupational Exposure Level (OEL)	Total particulate	10 mg/m ³
Germany	Maximale Arbeitsplatzkonzentrationen (MAK)	Total particulate	10 mg/m ³
		Aluminum hydroxide	6 mg/m ³
		Silane, dichlorodimethyl-, reaction products with silica	6 mg/m ³
United Kingdom	Occupational Exposure Standard (OES)	Total particulate, inhalable fraction	10 mg/m ³
		Aluminum oxides, respirable	4 mg/m ³

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

Additional Information

- The particulate ingredients are encapsulated in resin, so the individual occupational exposure limits do not apply.
- If product is overheated or burned, some of the decomposition products may have occupational exposure limits.
- Not Included as International Trade.
- May be Required to meet Domestic Requirements for a Specific Destination(s).

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Yellow tape
ODOR:	Slight odour
ODOR THRESHOLD:	NA
PHYSICAL STATE:	Solid
pH:	NA
BOILING POINT:	NA
MELTING POINT:	NA
FREEZING POINT:	NA
VAPOR PRESSURE:	Nil
VAPOR DENSITY (AIR = 1):	NA
SPECIFIC GRAVITY (H₂O = 1):	0.9 – 1.5
EVAPORATION RATE:	NA
SOLUBILITY IN WATER:	Nil
FLASH POINT:	NA
AUTO-IGNITION TEMPERATURE:	NA
LOWER EXPLOSIVE LIMIT (LEL):	NA

UPPER EXPLOSIVE LIMIT (UEL): NA
PARTITION COEFFICIENT: NA
VISCOSITY (poise @ 25° C): Not Available
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

STABILITY:
INCOMPATIBILITY (MATERIAL TO AVOID):
HAZARDOUS DECOMPOSITION OR BY-PRODUCTS:

This product is stable under normal conditions at ambient temperature.
Can react with strong acids and oxidizing agents.
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, hydrogen chloride, carboxylic acids, aldehydes, ketones, hydrogen cyanide, and chlorinated, aromatic and aliphatic hydrocarbons.

HAZARDOUS POLYMERIZATION:
CONDITIONS TO AVOID:

Will not occur
Can react with strong acids and oxidizing agents.

Additional Information

None.

SECTION 11: TOXICOLOGICAL INFORMATION**ACUTE TOXICITY (Test Results Basis and Comments):**

- Aluminum trihydroxide: LD₅₀ – Oral (Rat), >5000 mg/kg; Amorphous silicon dioxide: LD₅₀ – Oral (Rat), 3,160 mg/kg
- Octadecanol-terminated poly (1,4-cyclohexylenedimethylene-3,3-thiodipropionate): LD₅₀ – Oral (Rat): >6,400 mg/kg
- Pentaerythryl tetrakis (3-(3,5-di-tert-butyl-4-hydroxyphenyl) propionate): LD₅₀ – Oral (Rat) >2,000 mg/kg; LC₅₀ – Rat: >46,000 mg/m³.

SUBCHRONIC/CHRONIC TOXICITY (Test Results and Comments):

No toxicology data available on product as a whole.

Additional Information

- No chronic toxicity data available.
- Hypersensitive persons may suffer respiratory problems (shortness of breath, wheezing, or cough) even at low concentrations of vapours produced from overheating or burning product.
- The ingredients in this product, present at equal to or greater than 0.1% of the product, are not listed by OSHA, NTP, or IARC as suspect carcinogens.

SECTION 12: ECOLOGICAL INFORMATION**PERSISTENCE & DEGRADABILITY:**

No data available on product. Toxicity is expected to be low based on insolubility in water. No data available on biodegradation.

BIO-ACCUMULATIVE POTENTIAL (Including Mobility):

No data available on bioaccumulation. Toxicity is expected to be low based on insolubility in water.

AQUATIC TOXICITY (Test Results & Comments):

No data available on aquatic toxicity. Toxicity is expected to be low based on insolubility in water.

Additional Information

- No known effects on stratospheric ozone depletion.
- Volatile organic compounds: 0% (by Volume)

- Water Endangering Class (WGK): NA

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Follow local, State/Provincial, and Federal/National regulations applicable to as-used, end-of-life characteristics to be determined by end-user.

HAZARDOUS WASTE CLASS/CODE:

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: 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	Not Regulated as Dangerous Goods	ID Number	NA
Hazard Class	NA	Labels	NA
Packing Group	NA		

AIRCRAFT – ICAO-IATA:

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

VESSEL – IMO-IMDG:

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

Additional Information

- Transport requires proper packaging and paperwork, including the Nature and Quantity of goods, per applicable origin/destination/customs points as-shipped.
- 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 DSL, TSCA (U.S.); and EINECS/ELINCS (E.U.), 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 contains 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.

<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>
4-Vinyl cyclohexene	100-40-3	0-0.098%
Epichlorohydrin	106-89-8	<0.0001 % (Unlikely to exceed safe harbour dose level of 9 µg/day)
Acrylonitrile	107-13-1	<0.001% (Unlikely to exceed safe harbour dose level of 0.7 µg/day)

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 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 Regulated. If overheated, decomposition products may have a WHMIS classification of D 2 B.

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:

<u>Chemical</u>	<u>CAS #</u>	<u>% Wt</u>
None	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.

<u>R-Phrases</u>	<u>S-Phrases</u>
Not applicable (see below)	Not applicable (see below)

Additional Information

Not Applicable. U.S., 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. Refer to the U.S. MSDS for state and federal regulations.

SECTION 16: OTHER INFORMATION
OTHER INFORMATION:

Distribution into Quebec to follow Canadian Controlled Product Regulations (CPR) 24(1) and 24(2).

Distribution into the EU to follow applicable Directives to the Use, Import/Export of the product as-sold.

SOURCES OF INFORMATION:

International Agency for Research on Cancer (2009) *Agents Reviewed By The IARC Monographs, Volumes 1-99* and IARC (1987) *IARC Monographs on the Evaluation of Carcinogenic Risks to Humans: Overall Evaluations of Carcinogenicity: An updating of IARC Monographs Volumes 1-42, Supplement 7*. Lyon, France.

Ontario Ministry of Labour Regulation 654/86. Regulations Respecting Exposure to Chemical or Biological Agents.

National Institute for Occupational Safety and Health, U.S. Centers for Disease Control and Prevention *Registry of Toxic Effects of Chemical Substances (RTECS)*. Cincinnati, Ohio.

European Commission Directorate General, Joint Research Centre/European Chemicals Bureau (2009) *European Chemical Substances Information System (ESIS)*, *European Inventory of Existing Commercial Chemical Substances (EINECS)*, and *International Uniform Chemical Information Database (IUCLID) Chemical Data Sheets*.

Other sources were consulted for country-specific or provincial occupational exposure limits. These sources are believed to be accurate, but the user should verify current federal and provincial regulations.

MSDS/SDS PREPARATION INFORMATION:DATE OF ISSUE: **15 January 2010**SUPERCEDES: **November 2007****DISCLAIMER:**

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