



Electronics

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

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FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE or ACCIDENT

Call CHEMTREC - Day or Night - 1-800-424-9300 Toll free in the continental U.S., Hawaii, Puerto Rico, Canada, Alaska or Virgin Islands. For calls originating elsewhere: (703) 527-3887 (collect calls accepted)

For non-emergency health and safety information, call: (650) 361-4907

EFFECTIVE DATE: May, 2001 **PRINT DATE:** May 24, 2001 **MSDS #:** Ray2010
REVISION NUMBER: 3

PRODUCT NAME: Hot Melt Adhesives/Mastics

SYNONYMS:

PRODUCT USE: Hot melt adhesives and mastics are used as sealants, strain relief, and void fillers for heat-shrinkable polymeric and polyolefin products.

MSDS PREPARED BY: Roger Riley, Site EHS Manager (650) 361-3210

2. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL INGREDIENTS (% BY WEIGHT):

This MSDS is furnished for a group of products containing base polymer materials which include olefin copolymers or polyamides. These hot melt adhesives and mastics are not hazardous during proper installation, but may emit hazardous thermal decomposition and combustion products if overheated to degradation. See Section 5 for information on thermal degradation and combustion products. The products have similar properties during normal conditions of use, but may emit dissimilar thermal degradation by products if overheated. For more information, please call (650) 361-4907.

TRANSPORT CANADA PRODUCT IDENTIFICATION NUMBER: Not Regulated

See Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for Exposure Guidelines

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Contact with the molten material may cause thermal burns. If eye irritation occurs, hold eyelids apart and flush affected area(s) with clean water. Seek medical attention. 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. If ingested and symptoms develop, seek medical attention. In case of inhalation where symptoms of exposure develop, move victim to fresh air. If symptoms persist, seek medical attention.

Note: These products may emit hazardous vapors/fumes when heated during installation. These products also may emit hazardous thermal decomposition and combustion byproducts if they are charred or burned. The thermal degradation and combustion byproducts 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 byproducts may include, but are not limited to carbon monoxide, carbon dioxide, organic acids (including acetic acid), aldehydes and alcohols, oxides of nitrogen and silicon, tetrahydrofuran, acrolein, vinyl acetate, and aromatic and aliphatic hydrocarbons.

EFFECTS OF ACUTE OVEREXPOSURE:

EYE CONTACT: Contact with molten material may cause thermal burns. Overheating the product to charring or burning will produce fumes that may cause eye irritation. Persons with pre-existing eye disorders may be more susceptible to the effects of the overheated material.

SKIN CONTACT: This product is not expected to be a skin irritant. Contact with the molten material may cause thermal burns.

SKIN ABSORPTION: No harmful effects are expected from skin absorption of this product.

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

INHALATION: In common with most organic materials, degradation and combustion byproducts may be toxic and should not be inhaled. (See **Section 5: FIRE FIGHTING MEASURES, Hazardous Combustion Products** for more information.) 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.

OTHER: 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.

EFFECTS OF CHRONIC (Long-Term) EXPOSURE: Not known.

4. FIRST AID MEASURES

EYE: If eye irritation occurs, hold eyelids apart and flush affected area(s) with clean water. Seek medical attention

SKIN: First aid is normally not required. After handling product, it is good work practice to wash you 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: Not a normal route of exposure. However 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, oxygen should be administered by qualified personnel. Seek immediate medical attention. If victim is not breathing, immediately begin artificial respiration. Keep victim warm and quiet; seek immediate medical attention.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

FLASHPOINT: Not applicable.

METHOD USED: Not applicable.

FLAMMABLE LIMITS

UPPER FLAMMABILITY LIMIT (% BY VOLUME): Not applicable.

LOWER FLAMMABILITY LIMIT (% BY VOLUME): Not applicable.

AUTOIGNITION TEMPERATURE: Not available.

EXTINGUISHING MEDIA: Carbon dioxide, water, dry chemical, 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.

HAZARDOUS COMBUSTION PRODUCTS: In common with most organic materials, thermal degradation and combustion byproducts may be toxic and should not be inhaled. Thermal degradation is not significant during normal processing. At temperatures above, higher than those recommended for proper installation, or most significantly if the material is burned, the thermal degradation and combustion byproducts may include, but are not limited to carbon monoxide, carbon dioxide, organic acids (including acetic acid), aldehydes and alcohols, oxides of nitrogen and silicon, tetrahydrofuran, acrolein, vinyl acetate, and aromatic and aliphatic hydrocarbons.

FIRE FIGHTING EQUIPMENT AND PROCEDURES: Firefighters should wear self-contained breathing apparatus operated in the positive pressure demand mode when fighting fires. Use water spray to cool nearby containers and structures exposed to fire. Extinguish all nearby sources of ignition because air currents may move vapours to ignition sources distant from the handling point.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Toxic fumes may be given off in a fire. See also "Hazardous Combustion Products", above..

SENSITIVITY TO STATIC DISCHARGE: None known.

SENSITIVITY TO MECHANICAL IMPACT: None known.

6. ACCIDENTAL RELEASE MEASURES

Wear appropriate personal protection when responding, as specified under **Section 8: EXPOSURE CONTROLS / PERSONAL PROTECTION** below. This material may be swept up and collected in a suitable container for disposal or reuse.

7. HANDLING AND STORAGE

HANDLING: Avoid overheating of product and open flame. Avoid any vapours given off if the product is heated to decomposition, as shown by a darkening and browning. 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.

INSTALLATION: Follow appropriate Tyco Electronics installation instructions and application guides to ensure that installation is performed properly. Ensure that any local requirements/legislation concerning the use of hand-held electrical equipment are observed. Do not touch hot surfaces on installation equipment. Avoid heating products beyond temperatures required for normal installation. 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.

STORAGE: Store in a cool, dry, well-ventilated area.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION: If installation occurs in a confined, unventilated area, or if product is overheated to degradation, NIOSH/MSHA-approved air-supplied respirators are recommended.

SKIN PROTECTION: Avoid prolonged or repeated contact with skin. Wear impervious gloves to prevent or minimize contact. Based on the operation performed, follow the appropriate occupational safety and health guidelines. 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 material, wear 4H gloves with heat-resistant gloves to prevent possible contact with potentially corrosive organic acid residues.

EYE PROTECTION: Use appropriate eyewear to prevent contact with eyes. Based on the operation performed, follow the appropriate occupational safety and health guidelines. If there is a danger of molten material contacting the eyes, use eye/face protection.

EXPOSURE GUIDELINES:

ONTARIO: Not established

OSHA: Not established

ACGIH: Not established

ENGINEERING CONTROLS: In accordance with good industrial hygiene practice, ensure adequate ventilation during installation.

Other Precautions: See installation instructions for proper installation procedures. If product chars or burns, immediately stop heating. Avoid inhaling any vapors/fumes which may be given off under such circumstances. Allow any vapors/fumes to disperse and ventilate before continuing work in the area

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Off-white, amber, gray, black or red solids.

ODOUR: Little or no odour.

ODOUR THRESHOLD: Not Available

BOILING POINT: Not applicable.

VAPOUR PRESSURE (mmHg @ 20°C): Not applicable

MELTING POINT: See installation guide

EVAPORATION RATE: Not applicable

VOLATILITY: Not applicable

VAPOUR DENSITY: Not applicable

SPECIFIC GRAVITY: 0.93 – 1.47

SOLUBILITY IN WATER: Not applicable

FLASH POINT (°F)/Method: Not applicable

FLAMMABLE LIMITS IN AIR (volume %): Lower Not applicable Upper Not applicable

10. STABILITY AND REACTIVITY

STABILITY: This product is stable under normal conditions. at ambient temperature.

CONDITIONS TO AVOID: Avoid overheating of product and open flame.

INCOMPATIBILITY (Specific Materials to Avoid): This product should not come into contact with strong oxidizers, peroxides, acids and reducing agents.

HAZARDOUS DECOMPOSITION PRODUCTS: See Section 5: FIRE FIGHTING MEASURES (Hazardous Combustion Products).

HAZARDOUS POLYMERIZATION: Will not occur. No known polymerization conditions to avoid.

11. TOXICOLOGICAL INFORMATION

L₅₀ / LC₅₀: Not Available

IRRITANCY OF PRODUCT: Vapours from the heated product may cause irritation of the eyes, skin, nose, and throat.

SENSITIZATION TO MATERIAL: Not known.

CARCINOGENICITY: 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 carcinogens.

REPRODUCTIVE TOXICITY: None known.

TERATOGENICITY: None known.

MUTAGENICITY: None known.

TOXICOLOGICALLY SYNERGISTIC PRODUCTS: None known

12. ECOLOGICAL INFORMATION

No present requirements.

13. DISPOSAL CONSIDERATION

Use appropriate methods based on federal and provincial statutes and regulations and local by-laws. Contact local environmental agency for specific rules and instructions.

14. TRANSPORT INFORMATION

Not regulated

15. REGULATORY INFORMATION

CANADIAN DSL LISTING: All the components of this product are listed on the Domestic Substances List (DSL).

WHMIS CLASSIFICATION FOR PRODUCT: This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

16. OTHER INFORMATION

Sources of Information:

Tyco Electronics makes no warranties as to the accuracy or completeness of this information and disclaims any liability in connection with its use. Tyco Electronics's obligations shall be only as set forth in Tyco Electronics's standard terms and conditions of sale for this product. In no case will Tyco Electronics be liable for any incidental, indirect or consequential damages arising out of the sale, resale, use or misuse of the product.

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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