



MATERIAL SAFETY DATA SHEET

RAY3143

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Aliphatic Polyamide-Based Hot Melt Adhesives

PART NUMBERS S1017, S1048, S1065, S1124, /42, /86, /93, /164

MANUFACTURER: TE Connectivity

DIVISION: Aerospace, Defense & Marine

ADDRESS: 300 Constitution Drive
Menlo Park, CA 94025-1164 USA

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: (US) 1-800-522-6752
(CAN) 1-905-475-6222

CHEMICAL FAMILY: Hot melt adhesives and mastics

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

SECTION 2: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Form: Forms: Tapes, Tubes, split sleeves, Coatings, Dual wall inner layer
Color: Yellowish tan to gray
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 be toxic and should not be inhaled.

OSHA HAZARDS: Irritant

GHS CLASSIFICATION: Skin irritant (Category 3)

GHS LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS

PICTOGRAM:



SIGNAL WORD: Warning

HAZARD STATEMENT(S)

H315+H320 Causes skin and eye irritation
H335 May cause respiratory irritation

PRECAUTIONARY STATEMENT(S):

P261 Avoid breathing vapors during installation.
P271 Use only in well ventilated areas
P284 In case of inadequate ventilation wear respiratory protection
P370 + P378 In case of fire: Use carbon dioxide, dry chemical, or foam to extinguish.

NFPA HAZARD CLASSIFICATIONS:

HEALTH: 1 FLAMMABILITY: 1 REACTIVITY: 0

HMIS HAZARD CLASSIFICATIONS (US/CN/EU):

HEALTH: 1 FLAMMABILITY: 1 REACTIVITY: 0

POTENTIAL HEALTH EFFECTS:



MATERIAL SAFETY DATA SHEET

RAY3143

ACUTE HEALTH HAZARDS:

EYES: 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: This product is not expected to be a skin irritant. Contact with the molten material may cause thermal burns. 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 vapors that may cause eye, skin, and nose and throat irritation.

CHRONIC HEALTH HAZARDS:

Not known.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:

Persons with pre-existing eye, skin, or respiratory disorders (e.g., asthma conditions) may be more susceptible to the effects of fumes generated during burning or charring of material.

Additional Information

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 vapors to disperse and ventilate before continuing work in the area.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

<u>INGREDIENTS (Chemical/Common Names):</u>	<u>CAS No.:</u>	<u>% by Wt:</u>	<u>EC No.:</u>
Polyamide Polymer 1	Proprietary	0 - 100	NA
Polyamide Polymer 2	Proprietary	0 - 100	NA
Butylene/Poly (Alkylene Ether) Phthalate	9086-55-9	0 - 98	NA
Ethylene-Vinyl Acetate Copolymer	24937-78-8	0 - 33	607-457-0
Olefin Copolymer	25053-53-6	0 - 17	607-512-9
2-butanone-formaldehyde resin	9008-59-7	0 - 7.5	NA
Carbon Black*	1333-86-4	0 - < 5	215-609-9
Titanium Dioxide*	13463-67-7	0 - < 2	236-675-5
Stabilizer	6683-19-8	0 - < 0.5	229-722-6
Talc (no asbestos)	14807-96-6	Trace	238-877-9

* Carbon black and Titanium Dioxide are physically bound within the resin matrix and are, therefore, unavailable for exposure.
NA – Not applicable/NE – Not Established/ND – Not determined

SECTION 4: FIRST AID MEASURES

EYE CONTACT: If eye irritation occurs, flush eyes with plenty of clean water for at least 15 minutes while holding eyelids apart. 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: Not a normal route of exposure. However if swallowed and symptoms develop, seek medical attention.

INHALATION: No specific intervention is indicated as the compound is not likely to be hazardous by inhalation. If exposed to fumes from overheating or combustion and 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.



MATERIAL SAFETY DATA SHEET

RAY3143

SECTION 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.

SUITABLE 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.

SPECIAL FIRE FIGHTING PROCEDURES & PROTECTIVE EQUIPMENT:

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.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

Toxic fumes may be given off in a fire. See "Hazardous Combustion Products"

SPECIFIC HAZARDS IN CASE OF FIRE:

SENSITIVITY TO MECHANICAL IMPACT: None known.

SENSITIVITY TO STATIC DISCHARGE: None known.

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 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 oxides of carbon, organic acids (including acetic acid), aldehydes and alcohols, oxides of nitrogen, tetrahydrofuran, acrolein, vinyl acetate, and acetaldehyde.

SECTION 6: ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS:

Wear appropriate personal protection when responding, as specified under Section 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

ENVIRONMENTAL PRECATIONS:

Prevent spilled material from entering sewers and waterways.

SPILL CONTAINMENT & CLEANUP METHODS/MATERIALS:

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

SECTION 7: HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING AND STORAGE:

Handling: Avoid overheating of product and open flame. Avoid any vapors 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 TE installation instructions and application guides to ensure that installation is performed properly. 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 vapors to disperse and ventilate before continuing work in the area.

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

OTHER PRECAUTIONS (e.g.; Incompatibilities):

Not Known



MATERIAL SAFETY DATA SHEET

RAY3143

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS/SYSTEM DESIGN INFORMATION:

Ensure adequate ventilation during installation.

VENTILATION:

General dilution ventilation is acceptable.

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.

EYE PROTECTION:

Use safety glasses or 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 face shield and goggles.

SKIN PROTECTION:

Use heat insulating gloves if there is a danger of molten material contacting the skin or if it is necessary to handle grossly overheated or fire-damaged products

OTHER PROTECTIVE CLOTHING OR EQUIPMENT:

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

EXPOSURE GUIDELINES & LIMITS:

OSHA	Permissible Exposure Limit (PEL/TWA)	Not established
ACGIH	Threshold Limit Value (TLV) Short-Term Exposure Limit	Not established
Quebec	Permissible Exposure Value (PEV) Short Term Exposure Limit	Not established
Ontario	Occupational Exposure Level (OEL) Short Term Exposure Value	Not established
Germany	Maximale Arbeitsplatzkonzentrationen (MAK) Short-Term Limit (30-minutes)	Not established
United Kingdom	Occupational Exposure Standard (OES) Short-term Exposure Standard	Not established

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

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Yellowish tan to gray tapes, tubes, split sleeves, coatings, dual wall inner layer
ODOR:	Little or no odor.
ODOR THRESHOLD:	Not Available
PHYSICAL STATE:	Solid
pH:	Not applicable.
BOILING POINT:	Not applicable.
MELTING POINT:	135° - 165° C (275° – 329° F)
FREEZING POINT:	Not applicable.
VAPOR PRESSURE (mmHg @ 20°C):	Not applicable
VAPOR DENSITY (AIR = 1):	Not applicable
SPECIFIC GRAVITY (H₂O = 1):	0.96 - 1.18
EVAPORATION RATE (Butyl acetate=1):	Not applicable
SOLUBILITY IN WATER:	Not applicable
FLASH POINT:	Not applicable



MATERIAL SAFETY DATA SHEET

RAY3143

AUTO-IGNITION TEMPERATURE:	Not applicable
LOWER EXPLOSIVE LIMIT (LEL):	Not applicable
UPPER EXPLOSIVE LIMIT (UEL):	Not applicable
PARTITION COEFFICIENT:	Not applicable
VISCOSITY (centipoise @ 25° C):	Not applicable
DECOMPOSITION TEMPERATURE:	Not applicable

SECTION 10: STABILITY AND REACTIVITY

STABILITY:	This product is stable under normal conditions, at ambient temperature.
INCOMPATIBILITY (MATERIAL TO AVOID):	This product should not come into contact with strong oxidizers, acids or bases.
HAZARDOUS DECOMPOSITION OR BY-PRODUCTS:	See Section 5: FIRE FIGHTING MEASURES (Hazardous Combustion Products).
HAZARDOUS POLYMERIZATION:	Will not occur. No known polymerization conditions to avoid.
CONDITIONS TO AVOID:	Avoid overheating of product and open flame.

SECTION 11: TOXICOLOGICAL INFORMATION

ACUTE TOXICITY (Test Results Basis and Comments):

LD₅₀ (Oral, Rat): Not Available

LC₅₀ (Inhalation, Rat):.Not Available

IRRITANCY OF PRODUCT: Vapors 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 products are listed by OSHA, NTP, or IARC as carcinogens.

REPRODUCTIVE TOXICITY: None known.

TERATOGENICITY: None known.

MUTAGENICITY: None known.

TOXICOLOGICALLY SYNERGISTIC PRODUCTS: None known

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.
- Water Endangering Class (WGK): NA

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD:	Treatment, storage, and disposal must be in accordance with applicable, federal, state, provincial, and local regulations.
HAZARDOUS WASTE CLASS/CODE:	This product, as sold, is not regulated as a hazardous waste. US - Not applicable to material as manufactured for distribution into commerce. CN – Not applicable to material as manufactured for distribution into commerce. EWC – Not applicable to material as manufactured for distribution into commerce.



MATERIAL SAFETY DATA SHEET

RAY3143

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	Not regulated		
Hazard Class	NA	ID Number	NA
Packing Group	NA	Labels	NA

AIRCRAFT – ICAO-IATA:

Proper Shipping Name	Not regulated		
Hazard Class	NA	ID Number	NA
Packing Group	NA	Labels	NA

VESSEL – IMO-IMDG:

Proper Shipping Name	Not regulated		
Hazard Class	NA	ID Number	NA
Packing Group	NA	Labels	NA

Additional Information

- Transport requires proper packaging and paperwork, including the Nature and Quantity of goods, per applicable origin/destination/customs points as-shipped. Statement of Jurisdictional/Modal Special Provision(s) required
- 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; 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: If the product contains chemicals subject to TSCA Section 12b export notification they are listed below:

<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)

If the product contains chemicals subject to the reporting requirements of Section 313 of SARA Title III, they are listed below.

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

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

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

STATE REGULATIONS (US):

California Proposition 65

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



MATERIAL SAFETY DATA SHEET

RAY3143

<u>State</u>	<u>Chemical</u>	<u>CAS #</u>	<u>% Wt</u>
IL; MA; NJ; PA; FL	Talc (Asbestos Free)	14807-96-6	Trace
NJ, PA	Titanium Dioxide	13463-67-7	0 - < 2

INTERNATIONAL REGULATIONS (Non-US):

Canadian Domestic Substance List (DSL)

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

WHMIS Classifications

Carbon Black (Bound in Matrix)

D2A Very Toxic Material Causing Other Toxic Effects: 1 carcinogenicity: IARC group 2B

D2B - Poisonous and infectious material - Other effects - Toxic

Titanium Dioxide (Bound in Matrix)

D2A - Poisonous and infectious material - Other effects - Very toxic

Polyamide Polymer 1

D2B - Poisonous and infectious material - Other effects - Toxic

This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations* and the MSDS contains all of 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 and/or Ont. Reg. 127/01:

<u>Chemical</u>	<u>CAS #</u>	<u>% Wt</u>
Carbon Black (Bound in Matrix)	1333-86-4	1 - < 5
Titanium Dioxide (Bound in Matrix)	13463-67-7	0 - < 2
Polyamide 1	Proprietary	50 - 100

European Inventory of Existing Commercial Chemical Substances (EINECS)

All ingredients remaining in the 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.

R-Phrases

None

S-Phrases

none

Additional 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, or for distribution into specific domestic destinations.

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.

MSDS/SDS PREPARATION INFORMATION:

Department Issuing SDS: TE Connectivity, Menlo Park

Contact: Stefanie Gravano, Ph.D. Materials Manager

Tel: 001 650 361 2066

Email: stefanie.gravano@te.com

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MATERIAL SAFETY DATA SHEET RAY3143

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