



PRODUCT SAFETY INFORMATION SHEET

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

TRADE NAME: RT/Duroid® 5870 Laminates

CHEMICAL FAMILY: Polytetrafluoroethylene Composite

HMIS RATING: H 1 F 1 R 0

USE OF ARTICLE: Printed Circuit Boards

DATE ISSUED: February 19, 2018

COMPANY/UNDERTAKING IDENTIFICATION: Rogers Corporation
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2. HAZARDS IDENTIFICATION

CLASSIFICATION OF THE MATERIAL: NE

LABELING REQUIREMENTS: NE

EFFECTS OF OVEREXPOSURE: None anticipated with normal handling. Machining may create dust. Processing material at temperatures exceeding decomposition temperature may release toxic fumes.

INHALATION: Dusts may cause respiratory irritation. Exposure to copper fume or PTFE decomposition products may cause symptoms of metal or Polymer Fume Fever. This is characterized by flu like symptoms (fever, chills, muscle aches) that last about 24 hours.

EYE CONTACT: Dust may cause mechanical irritation.

SKIN CONTACT: Dust may cause mechanical irritation.

INGESTION: None known.

CHRONIC: IARC has classified Glass filament, continuous as Class 3 (Not classifiable as to its carcinogenicity to humans).

3. COMPOSITION/INFORMATION ON INGREDIENTS

This material is produced as an "article" as defined in 20 CFR 1910.1200 and REGULATION (EC) N° 1907/2006 is therefore exempt from the Hazard Communication Standard and REACH. Since this material does not release and will not result in exposure to a hazardous chemical under normal conditions of use, no Safety Data Sheet is required.

<u>Chemical Name</u>	<u>CAS No.</u>	<u>EINECS /ELINCS</u>	<u>%</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>	<u>EU Classification</u>
DIELECTRIC Microfiber Glass (Encapsulated in a Polymer Matrix)	65997-17-3	266-046-0	Varies	5 mg/m ³ (Resp. Dust)	1 f/cc	Not Classified Under 67/548/EEC

<u>CLADDING (Copper, Aluminum or Brass)</u>						
Copper	7440-50-8	231-159-6	Varies	1 mg/m ³ (dust and mist)	1 mg/m ³ (dust and mist)	Not Classified Under 67/548/EEC
Aluminum	7429-90-5	231-072-3	Varies	5 mg/m ³ (Resp. Dust)	1 mg/m ³ (Resp. Dust)	Not Classified Under 67/548/EEC (only Al powder is Classified)
Zinc (Component of Brass)	7440-66-6	231-175-3	Varies	5 mg/m ³ (ZnO fume)	2 mg/m ³ (as ZnO)	Not Classified Under 67/548/EEC

4. FIRST-AID MEASURES

INHALATION:	(Dust & Fume) Remove to fresh air. Obtain medical attention if symptoms persist.
EYE CONTACT:	(Dust) Flush immediately with large amounts of water for 15 to 20 minutes. Do not rub eyes. Obtain medical attention if symptoms persist.
SKIN CONTACT:	(Dust) Remove contaminated clothing and flush area with water for 15 to 20 minutes. Obtain medical attention if symptoms persist.
INGESTION:	(Dust) Not a likely route of entry – obtain medical attention.

5. FIRE-FIGHTING MEASURES

FLASH POINT:	NE °C (°F)	Flammable Limits: NE
AUTOIGNITION TEMPERATURE:	NE °C (°F)	_____
EXTINGUISHING MEDIA:	<u>X</u> Water Spray <u>X</u> Foam <u>X</u> CO ₂ <u>X</u> Dry Chemical <u>X</u> Other –	
SPECIAL FIRE FIGHTING PROCEDURES:	Decomposition in a fire may produce toxic fumes. Firefighters should be equipped with self-contained breathing apparatus and turnout gear.	
UNUSUAL FIRE AND EXPLOSION HAZARDS:	None known.	

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS:	In case of fire toxic fumes are emitted. Wear suitable protective equipment. Do not breathe dust. Eliminate sources of ignition. Avoid contact with skin and eyes.
ENVIRONMENTAL PRECAUTIONS:	Prevent from entering sewer system, surface water or soil.
CLEANING METHODS:	Sweep or shovel into appropriate container for disposal. Avoid creation of airborne dust.

7. HANDLING AND STORAGE

HANDLING:	Wear suitable protective equipment, refer to Section 8.
STORAGE:	Keep in a cool, well-ventilated area.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION:	None needed under normal conditions. If mechanical ventilation is absent or inadequate to maintain exposure levels below those listed in Section 2, use NIOSH/MSHA approved respirators. A qualified individual should evaluate each situation.
<u>VENTILATION</u>	
LOCAL:	Recommended for all industrial operations.
GENERAL:	Recommended for all industrial operations.

PERSONAL PROTECTION

HAND:	Cut resistant gloves.
EYE:	Safety glasses with side-shields are recommended in all industrial operations
SKIN:	None Required
OTHER:	Safety shower/eyewash in the area. Do not smoke or keep smoking materials in areas where material is machined or excessive dusting occurs. Wash thoroughly before eating or smoking.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Light Gray or Tan Color Sheet Clad with Copper, Aluminum or Brass
ODOR:	None
PHYSICAL STATE:	Solid
BOILING POINT:	NA °C (°F)
MELTING POINT:	NE °C (°F)
FREEZING POINT:	NA °C (°F)
FLASH POINT:	NE °C (°F)
WATER SOLUBILITY:	In-Soluble
VAPOR DENSITY:	NA
VAPOR PRESSURE:	NA
SPECIFIC GRAVITY:	NE (Water = 1)
PARTITION COEFFICIENT:	NA
EVAPORATION RATE:	NA
RELATIVE DENSITY:	NA
VISCOSITY:	NA
AUTO-IGNITION TEMPERATURE:	NE °C (°F)
DECOMPOSITION TEMPERATURE:	NE °C (°F)
PH:	NA
FLAMMABILITY:	NE

10. STABILITY AND REACTIVITY

STABILITY	Stable
CONDITIONS TO AVOID:	PTFE begins to decompose very slowly above 500°F. Decomposition increases rapidly above 750°F and processing at these temperatures for prolonged periods of time is not recommended.
MATERIALS TO AVOID:	NE
HAZARDOUS POLYMERIZATION:	Does not occur.
HAZARDOUS DECOMPOSITION PRODUCTS:	Tetrafluoroethylene (above 800°F) Hexafluoropropylene (above 825°F) Perfluoroisobutylene (above 885°F) Carbonyl Fluoride (above 930°F)

11. TOXICOLOGICAL INFORMATION

CARCINOGENIC STATUS:	IARC has classified Glass filament, continuous as Class 3 (not classifiable as to its carcinogenicity to humans).
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12. ECOLOGICAL INFORMATION

ECOTOXICITY:	NE
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13. DISPOSAL CONSIDERATION

PHYSICAL/CHEMICAL PROPERTIES AFFECTING DISPOSAL:

ENVIRONMENTAL TOXICITY DATA: NE
 WASTE DISPOSAL METHOD: Dispose of in accordance with applicable federal, state, provincial, and local laws and regulations.

14. TRANSPORT INFORMATION

UN NUMBER: Not Regulated
 UN PROPER SHIPPING NAME: Not Regulated
 HAZARD CLASS (ES): Not Regulated
 PACKING GROUP: Not Regulated
 ENVIRONMENTAL HAZARDS: NE

15. REGULATORY INFORMATION

INTERNATIONAL REGULATIONS:
 Canadian (DSL/NDSL): Article - exempt
 Australian (ACIS): Article - exempt
 Korea (KECI): Article - exempt
 Japan (ENCS, MITI): Article - exempt
 China (IECSC): Article - exempt
 EU Directive 2011/65/EC (RoHS): Does not contain any intentionally added substances mentioned by the RoHS directive.

European:
 Symbol: Not classified according to directive 1999/45/EC & 2001/60/EC (dangerous preparations).

R-Phase(s): NA
 S-Phase(s): NA
 TSCA: All materials are listed or exempt from TSCA listing.
 (*Toxic Substances Control Act*):
 CERCLA: NA
 (*Comprehensive Emergency Response, Compensation, and Liability Act*):
 SARA TITLE III: NA
 (*Superfund Amendments and Reauthorization Act*):
 311/312 HAZARD CATEGORIES: None
 This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and 40 CFR 372:

<u>CAS #</u>	<u>CHEMICAL NAME</u>	<u>PERCENT BY WEIGHT</u>
7429-90-5	Aluminum	Varies
7440-50-4	Copper	Varies
7440-66-6	Zinc	Varies

16. OTHER INFORMATION

NA = Not Applicable
 NE = Not Established
 NC = Not Classified
 Date Prepared: 05/06/2014

FILE: 99039-RT Duroid 5870 Laminates-02192018
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 REVIEWED BY: Michal Werbecki
 REVIEWED BY: EHS Department

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