



SAFETY DATA SHEET

This SDS complies with REACH Regulation (EC) No 1907/2006 and OSHA 29 CFR 1910.1200

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

1.1 Product Identifier: RO4000® Series Prepregs

1.2 Relevant identified uses of the substance or mixture and uses advised against: Resin impregnated woven fiberglass used in the manufacture of printed circuit boards.

1.3 Date Prepared: December 31, 2015

1.4 Details of the Supplier of the Safety Data Sheet: Rogers Corporation
100 South Roosevelt Avenue
Chandler, AZ 85226-3415
Phone: 001-480-961-1382
Fax: 001-480-961-4533
Email: msdsinfo@rogerscorporation.com

1.5 Emergency Telephone Number: 800-424-9300 (U.S. & Canada) Chemtrec
001-703-527-3887 (International – Call Collect)
4001-204937 (China: In-Country)

2. HAZARDS IDENTIFICATION

2.1 GHS Hazard Class: This product does not meet the criteria for classification in any hazard class according to Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures. However a safety data sheet is being supplied for it on request as it contains a component for which there is a Community workplace exposure limit.
Not a dangerous substance or mixture according to the Globally Harmonized System (GHS).

2.2 Signal Word: NA
Hazard Statement: NA
Precautionary Statements: Prevention No Precautionary Statement
Response No Precautionary Statement
Storage No Precautionary Statement
Disposal No Precautionary Statement

2.3	Fire and Explosion:	Not considered flammable or combustible, but this product will burn if involved in a fire.
	Potential Health Effects:	<90 % of mixture consists of ingredients of unknown acute toxicity. Possible routes of entry include skin & eye contact and process vapor or dust inhalation. Product emits toxic fumes when burned.
	INGESTION:	May be harmful if swallowed.
	INHALATION:	May be harmful if inhaled. Causes respiratory tract irritation.
	SKIN CONTACT:	May cause skin irritation.
	EYE CONTACT:	Eye irritation may result.
	OTHER:	This product does not meet the criteria for classification in any hazard class according to Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures. However a safety data sheet is being supplied for it on request as it contains a component for which there is a Community workplace exposure limit.

Improper handling by heating over 150 °C or contact with strong acids and basic compounds can result in the formation of toxic compounds. Temperatures above 500 °C in air can cause chemical decomposition resulting in the formation of toxic compounds - compounds see chapter 16.1. Strong acids or bases may cause the formation of soluble toxic compounds. Grinding debris and other waste of glass must be disposed consistent with applicable regulations. Processing of glass, damage or breakage can result in sharp edges. This may cause cuts. Processing of glass can result in glass dust. Acute effects: Respiratory irritation. Chronic effects: Possible pneumoconiosis effects.

CHRONIC EFFECTS OF OVEREXPOSURE:	None
APPEARANCE:	White to Tan to Brown Solid

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances:

<u>Chemical Name</u>	<u>CAS No.</u>	<u>EINECS /ELINCS</u>	<u>%</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>
Xylene	1330-20-7	215-535-7	<1.5	50ppm	50 ppm
Titanium Dioxide	13463-67-7	236-675-5	0 - 7	15 mg/m ³ (Total Dust)	10 mg/m ³
Silica (Amorphous Fused)	60676-86-0	262-373-8	<55	10 mg/m ³ / %SiO ₂ + 2 (Resp. Dust)	0.1 mg/m ³
Continuous Filament Glass Fiber	65997-17-3	266-046-0	<35	5 mg/m ³ (Resp. Dust)	1 fiber/cc (inhalable)

The material contains no other hazardous ingredients as defined in OSHA's Hazard Communication Standard 29 CFR 1910.1200 or Regulation (EC) No 1272/2008, and do not present a health or environmental hazard.

4. FIRST-AID MEASURES

4.1	Description of First Aid Measures:	Inhalation:	Remove to fresh air. If not breathing, provide CPR (cardio pulmonary resuscitation). Get immediate medical attention.
		Eye Contact:	Immediately flush eyes and eyelids thoroughly with water for at least 15 minutes while lifting upper and lower eyelids. Obtain medical attention if symptoms persist.
		Skin Contact:	Immediately flush skin with plenty of soap and water for at least 15 minutes. Remove contaminated clothing.
		Ingestion:	If swallowed do not induce vomiting, give large quantities of water to drink. Never give anything to an unconscious person. Get immediate medical attention.
4.2	Most important symptoms and effects, both acute and delayed.	NA	

4.3 Indication of any immediate medical attention and special treatment needed. NA

5. FIRE-FIGHTING MEASURES

Flash Point:	Not applicable °C (°F)	Flammable Limits:	LEL	NA	UEL	NA
Method Used:	Not applicable					
Auto Ignition Temperature:	NA					
5.1 Extinguishing Media:	Foam, Dry Chemical Powder, or Carbon Dioxide					
5.2 Special hazards arising from the substance or mixture:	Decomposition in a fire may cause Toxic Fumes to be emitted. Refer to Section 10.					
5.3 Advice for firefighters:	Firefighters should be equipped with self-contained breathing apparatus and turnout gear.					

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures: In case of fire, toxic fumes are emitted. Use Self-contained Breathing Apparatus in fire conditions.

6.2 Environmental Precautions: Prevent from entering sewer system, surface water or soil.

6.3 Methods and materials for containment and cleaning up: Sweep or shovel spills into appropriate container for disposal. Avoid creating airborne dust. Disposal should be made in accordance with federal, state and local regulations.

6.4 Reference to Other Sections: Refer to Section 8 for Control Parameters.

7. HANDLING AND STORAGE

7.1 Precautions for Safe Handling: Wear suitable protective equipment, refer to Section 8.

7.2 Conditions for Safe Storage, Including Any Incompatibilities: Keep in a cool, well-ventilated area. Store out of direct sunlight. Avoid excessive heat and ignition sources.

7.3 Specific End Use(s): Resin impregnated woven fiberglass used in the manufacture of printed circuit boards.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters:

Chemical Name	CAS No.	EINECS /ELINCS	BEL PEL	BEL TLV
Titanium Dioxide	13463-67-7	236-675-5	15 mg/m ³ (Total Dust)	10 mg/m ³
Silica (Amorphous Fused)	60676-86-0	262-373-8	NE	0.1 mg/m ³
Fiberglass	65997-17-3	266-046-0	NE	NE
Xylene	1330-20-7	215-535-7	50ppm	50 ppm

8.2 Exposure Controls:

RESPIRATORY PROTECTION: If mechanical ventilation is absent or inadequate to maintain exposure levels below those listed in Section 3, use NIOSH/MSHA approved respirators.

VENTILATION:

Provide general ventilation and local exhaust ventilation to meet TLV requirements of individual ingredients (see Section 3) and to control dusting conditions. If cutting or trimming with power equipment, dust collectors and local ventilation should be used. Avoid unnecessary exposure to dust and handle with care. Keep work area clean of dust and fibers by using an industrial vacuum cleaner with high efficiency filter or wetting down area with water. Never use compressed air and avoid dry sweeping.

PERSONAL PROTECTION

HAND:

EYE:

Cut resistant gloves to prevent mechanical irritation.

Wear safety glasses with side shields. Always provide good general, mechanical room ventilation where this chemical/material is used.

RESPIRATORY PROTECTION:

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or the CEN European Standards (EU). Use a NIOSH/MSHA or European Standard (EN) approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

SKIN:

Suitable protective clothing to prevent skin contact.

WORK/HYGIENE PRACTICES:

Provide good personal hygiene after handling. Avoid contact with eyes. Wash hands after handling.

EXPOSURE LIMITS:

Reference Section 2

OTHER EQUIPMENT:

Safety shower/eyewash in the area if potential exposure to materials.

9. PHYSICAL AND CHEMICAL PROPERTIES**9.1 Information on basic physical and chemical properties:**

Appearance:

White Cloth Like Sheet (could be tan or brown)

Odor:

Mild Characteristic odor.

Physical State:

Solid

Boiling Point:

Not Available for product.

Flash Point:

Not Available for product.

Melting Point:

Not Available for product.

Freezing Point:

Not Available for product.

Water Solubility:

Insoluble

Vapor Pressure:

Not Available for product.

Specific Gravity:

1.5-1.8 (Water = 1)

Partition Coefficient:

Not Available for product.

Explosive Properties:

Not Available for product.

Evaporation Rate:

Not Available for product.

Density:

Not Available for product.

Viscosity:

Not Available for product.

Ignition Temperature:

Not Available for product.

pH:

Not Available for product.

Flammability:

Not Available for product.

Oxidizing Properties:

Not Available for product.

9.2 Other Information:

Not Available for product.

10. STABILITY AND REACTIVITY

10.1 Reactivity: Reactive

10.2 Chemical Stability: Unstable

10.3 Possibility of Hazardous Reactions: Does Not Occur

10.4	Conditions to Avoid:	Do not exceed melt temperature recommendations in product literature. In order to avoid autoignition/hazardous decomposition of thick masses of plastic purging's should be collected in small, flat, shapes or this strands to allow for rapid cooling. Quench in water.
10.5	Incompatible Materials:	Strong Oxidants
10.6	Hazardous Decomposition Products:	Possible products of combustion may include hydrogen bromide, acrolein, halogenated compounds, ketones, aldehydes, methane, methanol and oxides of carbon.

11. TOXICOLOGICAL INFORMATION

11.1	Information on Toxicological Effects:	
	Carcinogenic Status:	IARC has listed glass wool fiber as a class 2B possible human carcinogen based on laboratory studies. (Wool fiber may be exposed during grinding and routing operations.)
	Acute / Chronic:	Acute Toxicity
	Reproductive Hazards:	NA

12. ECOLOGICAL INFORMATION

12.1	Toxicity:	No information is available.
12.2	Persistence and Degradability:	No information is available.
12.3	Bioaccumulative Potential:	No information is available.
12.4	Mobility in Soil:	No information is available.
12.5	Results of PBT and vPvB Assessment:	No information is available.
12.6	Other Adverse Effects:	No environmental hazards were identified based on a review of available data for the ingredients in this product. Not all of the ingredients have been tested for Ecotoxicity.

13. DISPOSAL CONSIDERATIONS

13.1	Waste Treatment Methods:	Do not dispose of rinse water containing product in a sanitary sewer system or storm water drainage system.
	Waste Disposal Method:	Dispose of in accordance with applicable, federal, state, provincial, and local laws and regulations.
	Container Disposal Method:	Recommend contaminated packaging material should be disposed of as stated above for residues and unused product.

14. TRANSPORT INFORMATION

14.1	UN Number:	Not Regulated
14.2	UN Proper Shipping Name:	Not Regulated
14.3	Transport Hazard Class(es):	Not Regulated
14.4	Packing Group:	Not Regulated
14.5	Environmental Hazards:	Not Regulated
14.6	Special Precautions for User:	Not Regulated
14.7	Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code.	Not Regulated
	DOT/ADR Classification:	Not Regulated
	RID Classification:	Not Regulated
	IMDG Classification:	Not Regulated
	ICAO / IATA Classification:	Not Regulated
	Environmental Hazards:	Not Regulated

15. REGULATORY INFORMATION

15.1	Safety, health and environmental regulations / legislation specific for the substance or mixture.	
Canadian (DSL/NDSL):	NE	
Australian (ACIS):	NE	
Korea (KECI):	NE	
Japan (ENCS, MITI):	NE	
Directive 2011/65/EC (RoHS):	Does not contain any intentionally added substances mentioned by the RoHS directive.	
European Union:	This product has been reviewed for compliance with the following European Community Directives: REACH Regulation (EC) No 1907/2006; Regulation (EC) No 1272/2008 on classification, labeling and packaging (CLP) of substances and mixtures.	
15.2	Chemical Safety Assessment	NE
TSCA (<i>Toxic Substances Control Act</i>):	This product is in compliance with rules, regulations, and orders of TSCA. All components are listed on the TSCA Inventory.	
CERCLA (<i>Comprehensive Emergency Response, Compensation, and Liability Act</i>):	Xylene (CAS 1330-20-7) RQ = 100 lbs.	
SARA TITLE III (<i>Superfund Amendments and Reauthorization Act</i>):	NA	
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>
1330-20-7	Xylene	<1.5

16. OTHER INFORMATION

NA = Not Applicable	FILE:	99037-RO4000 Prepregs US and EU Format-12312015
NE = Not Established		99037
NC = Not Classified	PREPARED BY:	Michal Werbecki

REVIEWED BY: Curtis Kempton and Kristof Wielfaert

H-Health Sentences for Xylene:	H226 Flammable liquid and vapor. H304 May be fatal if swallowed and enters airways. H312 Harmful in contact with skin. H315 Causes skin irritation. H319 Causes serious eye irritation. H332 Harmful if inhaled. H335 May cause respiratory irritation. H373 May cause damage to organs through prolonged or repeated exposure.
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