

SAFETY DATA SHEET

Fluorofab® 170-14S SERIES THERMAL SPRAY MASKING TAPE

SECTION 1 IDENTIFICATION

1.1 Product Identifier

Product name: Fluorofab® 170-14S COPPER

Synonyms: Silicone Rubber Coated Fibreglass Tape with Silicone Adhesive

1.2 Relevant identified use of the product

Use of the Product: Plasma Spray Masking Tape best suited for HVOF Applications

1.3 Details of the supplier of the safety data sheet

Company: Green Belting Industries Limited
 381 Ambassador Drive
 Mississauga
 ON L5T 2J3
 Canada

Telephone: +1 905 564 6712 (09:00 to 17:00 Eastern Standard Time)

Telefax: +1 905 564 6709

E-mail address: sds-support@greenbelting.com

European Union Contact: Biscor Limited
 8 Kingsmark Freeway
 Bradford
 West Yorkshire
 BD12 7HW
 United Kingdom

Telephone: +44 (0)1274 694684 (09:00 to 17:00 UTC/GMT)

Telefax: +44 (0)1274 694685

1.4 Emergency Telephone Number

North American Emergency Telephone Number: +1 905 564 6712 Available between the hours 09:00 to 17:00 (EST)

European Union Emergency Telephone Number: +44 (0)1274 699425 Available between the hours 09:00 to 17:00 (UTC/GMT)

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SECTION 2 HAZARD IDENTIFICATION

2.1 Classification of the Product

European Communities (EC):	Not a classified substance or mixture according to Regulation (EC) No. 1272/2008.
USA:	Not classified as dangerous according to Directive 67/548/EEC.
Canada:	Not a hazardous material as defined by 29 CFR1910.1200, OSHA Hazard Communication Standard.
	Not a controlled product under WHMIS.

2.2. Label elements

Symbol:	None
Signal Word:	N/A
Hazard Statement(s):	N/A
Precautionary Statement:	P261 – Avoid breathing any fume or dust that may be generated P264 – Wash hands thoroughly after handling.

2.3. Other hazards

Use of this product is not normally considered hazardous, however material dust caused by cutting, sawing or sanding may cause eye or skin irritation. Processing at temperatures higher than 300°C will result in thermal decomposition and may release carbon monoxide, and silicon dioxide may also be released. In all cases avoid exposure, move the individual to fresh air and consult a physician if severe.

SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Nature of the Mixture: PTFE coated woven glass fabric with silicone adhesive

3.1 Substances

Not Applicable

3.2 Mixtures

Ingredient Name	CAS Number	% by Weight	Exposure Limits	Symbol	Risk Phrases
Organopolysiloxane Mixture(Silicone Rubber)	63148-62-9	52.7	N/A	None	None
Mixed Metal Oxides	1308-38-9	0.1 – 0.5	N/A	None	None
Polysiloxane Adhesive	68951-93-9	18.3	N/A	None	None
Glass Fibre (fiberglass cloth)	65997-17-3	17.7	OSHA PEL - 5 mg/m ³ ACGIH TLV - 5mg/m ³	None	None
Polyvinyl Chloride (inter-liner)	9002-86-2	11.1	N/A	None	None

The above product(s) are defined under the European Union's REACH (Registration, Evaluation, Authorization and Restriction of Chemicals) regulation as articles, and as such are exempt from the material safety data sheet provisions of 29 CFR 1910.1200(G).

None of the product components are intentionally released during their use when used as intended and in accordance with recommended specifications and parameters.

This product is REACH compliant and does not contain REACH SVHCs (Substances of Very High Concern) materials and is considered non-hazardous when used as intended and in accordance with recommended specifications and parameters.

For full text of the R-phrases mentioned in this Section, see Section 16.

For full text of the H-statements mentioned in this Section, see Section 16.

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SECTION 4 FIRST AID MEASURES

4.1 Description of First Aid Measures

General Advice:	Never give anything by mouth to an unconscious person. When symptoms persist or in all cases of doubt seek medical advice.
Inhalation:	N/A for material as supplied at room temperature and used as intended and in accordance with recommended specifications and parameters. Product - processing at high temperature may result in thermal decomposition and may release carbon monoxide, carbon dioxide and silicon dioxide. Remove to fresh air and consult a physician if severe. Inter-liner – if PVC decomposes due to overheating or contact with fire, remove affected persons to fresh air. In case of irritation of respiratory system or if feeling unwell after prolonged exposure, seek medical attention.
Skin Contact:	Not normally considered hazardous, for material as supplied at room temperature and used as intended and in accordance with recommended specifications and parameters. Product - skin contact with the adhesive or material dust caused by cutting, sawing or sanding may cause skin irritation. Wash with plenty of soap and water. If irritation persists get medical attention. Inter-liner – If contact with hot (melt) product occurs, wash with plenty of water and treat as for thermal burn.
Eye Contact:	Product - material dust caused by cutting, sawing or sanding may cause eye irritation. Wash with plenty of soap and water. If irritation persists get medical attention. Inter-liner – After contact with hot (melt) product, immediately flush eyes with water for several minutes at least and get medical attention.
Ingestion:	If swallowed get medical advice. Do not induce vomiting unless instructed to do so by medical personnel.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms:	Local irritation. Potential health effects of acute inhalation include mechanical irritation of the mouth nose and throat. Skin contact may cause temporary irritation, itching and inflammation usually caused by any fibres present. Dust from this product may cause temporary irritation to the eyes. Inhalation of decomposition products from overheating may cause lung irritation or shortness of breath. For inter-liner, after inhalation of decomposed products, symptomatic treatment (decontamination, vital functions), if necessary take action against irritation of the mucous membranes by HCl.
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4.3 Indication of any immediate medical attention and special treatment needed

Treatment:	Treat symptomatically.
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SECTION 5 FIRE FIGHTING MEASURES

5.1 Extinguishing Media

Suitable extinguishing media: Water spray, Carbon dioxide (CO₂), Foam, Dry Chemical

5.2 Special hazards arising from the product

Specific hazards during fire-fighting: Hazardous thermal decomposition products.
 For product carbon oxides and silicon dioxide.
 For PVC inter-liner – hydrogen chloride which upon contact with water forms hydrochloric acid.
 Exposure to decomposition products can be a hazard to health.

5.3 Advice for firefighters

Special protective equipment for firefighters: Wear self-contained breathing apparatus and protective suit. Wear neoprene gloves during cleaning up work after a fire.

Further information: For inter-liner protect from hydrogen chloride fumes which react with water to form hydrochloric acid.
 Inter-liner will not burn without a flame (self-extinguishing).
 Observe local regulations when contaminated water and burning waste are removed.

SECTION 6 ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment, and emergency procedures

Personal precautions: For solid product none required.
 For dusts and fibres generated during fabrication use protective equipment to prevent the contamination of skin, eyes, and clothing.

6.2 Environmental Precautions

Environmental Precautions N/A - solid product

6.3 Methods and materials for containment and cleaning up

For solid product collect with hands broom and shovel and place in non-hazardous waste collection container for disposal.

For dusts and fibres generated during fabrication vacuum up and containerise.

6.4 Reference to other sections

For disposal instructions see section 13.

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SECTION 7 HANDLING AND STORAGE

7.1 Precautions for safe handling	
<p>Advice on safe handling:</p>	<p>Solid product which presents minimal hazards to personnel when handling in accordance with operating and storage recommendations.</p> <p>The primary health hazards associated with this product are the generation of dust during fabrication and the inhalation of thermal decomposition products when the product is subjected to temperatures greater than 300°C.</p> <p>Provide appropriate exhaust ventilation at places where dust or volatiles can be generated and always wash hands thoroughly after handling.</p> <p>For inter-liner avoid overheating the material, as it decomposes to gaseous components (see section 5). Thermal degradation does not occur at low temperatures, but becomes faster at higher temperatures.</p>
<p>Advice on protection against fire and explosion:</p>	<p>Dispose of in accordance with local regulations as a solid non-hazardous waste and avoid inappropriate disposal practices.</p> <p>Provide appropriate exhaust ventilation at places where dust or volatiles can be generated.</p> <p>For inter-liner take precautionary measures against static discharge (i.e. using proper grounding techniques) when handling rolls or sheets in dry rooms (especially to avoid harm to people). Polyvinyl chloride (PVC) is not dust explosive in its delivered state.</p> <p>Do not incinerate PVC waste.</p>
7.2 Conditions for safe storage, including any incompatibilities	
<p>Requirements for storage areas and containers:</p>	<p>No special precautions necessary, but recommend storing in a dry cool place and protecting from contamination.</p>
<p>Advice on common storage:</p>	<p>No special restrictions on storage with other products.</p>
<p>Storage temperature:</p>	<p>Store in cool, dry conditions and avoid excessive temperatures.</p>
<p>Other data:</p>	<p>Do not store in direct sunlight or in conditions of high humidity.</p>

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SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control Parameters

<p>In situations in confined spaces where the temperature of the fabric polymer exceeds 500°F (260° C), thermal degradation products may be produced. Exposure limits for these products, which include carbon monoxide, carbon dioxide and silicon dioxide, must not be exceeded.</p>				
		TLV TWA	TLV STEL	IDLH (NIOSH)
<p>In situations in confined spaces where the temperature of the inter-liner exceeds 248°F (120° C), thermal degradation products may be produced. Exposure limits for these products, which include hydrogen chloride, must not be exceeded.</p>	hydrogen chloride	2ppm ceiling	5ppm ceiling	50ppm
<p>PVC is recognized as safe, however it may contain trace amounts of vinylchloride monomer (VCM), CAS-N. 75-01-04, EINECS-No. 2008310. MAK-Value:2ppm (5mg/m³) Germany as TRK-value according to TRGS 102). For supplied inter-liner, a VCM value of ≤ 0.5ppm is guaranteed. Given the special precautions mentioned in section 7, these traces present no toxic risk to the processing personnel. Gloves should be worn when handling hot material. Safety glasses are normally recommended for all industrial workplaces when handling hot material.</p>				
		<u>OSHA-PEL</u>	<u>ACGIH-TLV</u>	<u>Other</u>
<p>In situations where high levels of airborne dust/glassfibres are present specified exposure limits must not be exceeded.</p>		5mg/m ³ – nuisance dust PEL (respirable dust fraction) 15mg/m ³ – 8 hour TWA (total dust fraction)	5mg/m ³ - 8 hour TWA (inhalable) 1 fibre/cm ³ - 8 hour TWA (respirable)	3 x 10 ⁶ fibres/m ³ - 10 hour TWA (NIOSH)

8.2 Exposure Controls

Engineering measures:	If cutting, sawing or sanding of the product is necessary, to maintain exposures below recommended limits, a properly designed dust collection system is recommended at the operation source. Adequate ventilation must be provided when working with the product at elevated temperatures.
Eye protection:	Throughout basic product handling processes, and whenever handling materials containing fiberglass, safety glasses, goggles or face shields should be worn.
Hand protection:	Throughout basic product handling processes, leather or synthetic fibre gloves are recommended to minimize cuts and abrasions.

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Skin and body protection:	The wearing of a loose fitting long sleeved shirt that covers to the base of the neck and long trousers is recommended to minimise exposure to fiberglass. Skin irritation from exposure to fiberglass is known to occur mostly at pressure points such as around the neck, wrist and waist.
Hygiene measures:	<p>Handle in accordance with good industrial hygiene and safety practices. Wash hands immediately after handling the product and do not contaminate tobacco products.</p> <p>Be careful not to rub or scratch areas irritated from fiberglass exposure, as fibres may be forced into the skin. Wash off any fiberglass in contact with the skin, and consider the use of barrier creams which can minimise irritation.</p> <p>Always use vacuum equipment to remove fibres and dust from clothing and never use compressed air.</p> <p>Contaminated clothes should always be washed separately.</p>
Respiratory protection:	<p>Not required for normal use of the product.</p> <p>In situations where high levels of airborne dust/glassfibres are present and which exceed permissible exposure limits, or irritation occurs, then a correctly fitting NIOSH/MHSA approved disposable dust respirator should be used.</p> <p>In situations in confined spaces where the temperature of the polymer exceeds 500°F (260° C), an air supplied respirator should be used.</p> <p>In situations where high levels of airborne dust/glassfibres or fume, use industrial hygiene monitoring to ensure that TLV or PEL values are not exceeded.</p> <p>Excessive exposure to thermal degradation products could result in delayed pulmonary edema and in some cases, and on very high exposure damage to the liver and kidneys.</p>

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance:	Coloured silicone, with yellow liner.	Flammability (solid, gas):	N/D
Physical state:	Solid	Upper/lower flammability or explosive limits:	N/A
Odour:	Odourless	Vapour pressure:	N/A
Odour threshold:	N/A	Vapour density:	N/A
pH:	N/A	Relative density:	N/D
Melting point/freezing point:	N/A to product Inter-liner softening temperature 60-90°C Glass transition temp approx. 80°C	Solubility(ies):	Product - Insoluble Inter-liner soluble in tetrahydrofuran and cyclohexanone, partly soluble in some aromatic hydrocarbons

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Initial boiling point and boiling range:	N/A	Partition coefficient: n-octanol/water:	N/A
Flash point:	N/A	Auto-ignition temp:	N/A
Evaporation rate:	N/A	Decomposition temp:	Product 572°F (300°C) Inter-liner -> 150°C (long term contact) >200°C (short term contact)
Viscosity:			

SECTION 10 STABILITY AND REACTIVITY

10.1 Reactivity:	Stable at normal ambient temperature and pressure
10.2 Chemical stability:	Product is chemically stable
10.3 Possible hazardous reactions:	Stable under recommended storage conditions
10.4 Conditions to avoid:	Avoid heating for prolonged periods above the recommended upper usage limit
10.5 Incompatible materials:	Strong bases, Hydrofluoric Acid.
10.6 Hazardous decomposition products:	May include carbon monoxide, carbon dioxide and hydrogen chloride (for the inter-liner).

SECTION 11 TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute oral toxicity	Dusts may cause mechanical irritation to skin and eyes. Dust inhalation may cause coughing, nose and throat irritation or sneezing. PVC (inter-liner) –recognised as safe and biologically inert.
Irritation	
Skin	Dust from this product may cause temporary irritation to the skin.
Eyes	Dust from this product may cause temporary mechanical irritation to the eyes.
Respiratory	Dust from this product may cause temporary mechanical irritation to the nose, throat and respiratory tract.
Sensitisation	
Skin	No data available
Respiratory	No data available
Repeated Dose Toxicity	No data available
Mutagenicity assessment	No data available
Carcinogenicity assessment	No data available
Reproductive assessment	No data available

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STOT-Single exposure	No data available
STOT-Repeated exposure	No data available
Aspiration hazard	Not applicable
Potential acute health effects	
Inhalation	No known significant effects or critical hazards
Ingestion	No known significant effects or critical hazards
Skin contact	No known significant effects or critical hazards
Eye contact	No known significant effects or critical hazards
Symptoms related to the physical, chemical and toxicological characteristics	
Inhalation	No specific data
Ingestion	No specific data
Skin contact	No specific data
Eye contact	No specific data
General	No known significant effects or critical hazards
Carcinogenicity	No known significant effects or critical hazards
Mutagenicity	No known significant effects or critical hazards
Teratogenicity	No known significant effects or critical hazards
Development effects	No known significant effects or critical hazards
Fertility effects	No known significant effects or critical hazards

SECTION 12 ECOLOGICAL INFORMATION

12.1 Toxicity	The substance is a polymer and is not expected to produce toxic effects. PVC (inter-liner) is not soluble in water (WKG 0 by supplier self-declaration). PVC is harmless in contact with fish and bacteria. In a water treatment plant, PVC can be separated mechanically.
12.2 Persistence and degradability	no data available
12.3 Bio-accumulative potential	no data available
12.4 Mobility in soil	no data available
12.5. Results of PBT and vPvB assessment	no data available
12.6. Other adverse effects	
Additional ecological information	no data is available on the product itself.

SECTION 13 DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product	Where possible, recycling is preferred to disposal or incineration. Dispose of in accordance with local regulations. Incinerate only if incinerator is capable of scrubbing out acidic combustion products.
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SECTION 14 TRANSPORT INFORMATION

	14.1 UN Number	14.2 Proper Shipping Name	14.3 Transport Hazard Class(es)	14.4 Packing Group	14.5 Environmental Hazards
DOT	Not Applicable	Not Applicable	Not Applicable	Not Applicable	None
ADR	Not Applicable	Not Applicable	Not Applicable	Not Applicable	None
IATA/ICAO	Not Applicable	Not Applicable	Not Applicable	Not Applicable	None
IMO/IMDG	Not Applicable	Not Applicable	Not Applicable	Not Applicable	None
14.6 Special precautions for user:		Not classified as dangerous in the meaning of transport.			
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code:		Not applicable			

SECTION 15 REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

USA	
TSCA Status:	All ingredients in the product are listed in the TSCA inventory
SARA Title III	
Sec. 303/304:	None
Sec. 311/312:	Not applicable
Sec 313:	Not applicable
CERCLA RQ:	Not applicable
California Prop 65:	This product does not contain chemicals known to the State of California to cause cancer of the reproductive system.
State Right-to-Know Lists:	Massachusetts, New Jersey, Pennsylvania: This product does not contain any chemicals listed for state right to know purposes.
Canada	
	This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.
WHMIS Classification: (for workplace exposures)	Not controlled
New Substance Notification Regulations:	All ingredients in this product are listed, as required, on Canada's Domestic Substances List (DSL).
NPRI Substances:	Not applicable.

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EC Classification for the Substance/Preparation

Symbol: This product is not classified as dangerous according to Directive 1999/45/EC and its amendments.

German Water Hazard Class German Water Hazard Class WGK nwg. Non-water polluting substance.

Other regulations: Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

15.2 Chemical Safety Assessment

No data available

SECTION 16 OTHER INFORMATION

Text of R-phrases referred to in Section 3: N/A

Text of H-Statements referred to in section 3: N/A

Preparation Information:

Prepared by: Green Belting Industries Limited
www.greenbelting.com

Revision Date: 12 November 2013

Revision Summary: Review of regulatory, hazard classification, exposure and toxicology data. No revisions to date.

Abbreviations and acronyms:

Section	Abbreviation	Description
2	CFR	Code of Federal Regulations
3	CAS	Chemical Abstracts Services
3	OSHA	Occupational Safety and Health Administration USA
3	ACGIH	American Conference of Governmental Industrial Hygienists
3	PEL	Permissible Exposure Limit
3	TLV	Threshold Limit Value
3	SVHC	Substances of Very High Concern
8	TWA	Time Weighted Average
8	STEL	Short-Term Exposure Limit
8	IDLH	Immediately Dangerous to Life or Health (NIOSH)
8	NIOSH	National Institute for Occupational Safety and Health
8	ppm	Parts per Million
8	ppb	Parts per Billion
11	LD ₅₀	"Lethal Dose, 50%" or median lethal dose (amount of substance required by body weight to kill 50% of the test population)

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11	STOT	Specific Target Organ Toxicity
12	PBT	Persistent, Bio-accumulative and Toxic
12	vPvB	Very Persistent and Very Bio-accumulative
14	DOT	Department of Transport
14	ADR	Agreement on Dangerous Goods
14	IATA	International Air Transport Association
14	ACAO	International Civil Aviation Organisation
14	IMO	International Maritime Organization
14	IMDG	International Maritime Dangerous Goods
14	TSCA	Toxic Substances Control Act
15	SARA	Superfund Amendments and Reauthorization Act
15	CERCLA RQ	Comprehensive Environmental Response Compensation and Liability Act
15	WGK	German Water Hazard Class
15	WHMIS	Workplace Hazardous Materials Information System
Disclaimer:	The information provided in this Safety Data Sheet is correct to the best of our knowledge, information, and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal, and release and is not to be considered a warranty or quality specification. The above information relates only to the specific material(s) designated herein and may not be valid for such material(s) used in combination with any other materials or in any process or if the material is altered or processed, unless specified in the text.	