



MATERIAL SAFETY DATA SHEET (MSDS) SAFETY DATA SHEET (SDS)

MSDS Date: October 2, 2014

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

IDENTIFICATION OF PREPARATION: DE104 Prepreg

USE OF PREPARATION: Resin-impregnated woven fiberglass.

COMPANY IDENTIFICATION ISOLA USA Corp.
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Chandler, AZ 85226

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MSDS PREPARED BY: Chemistry & Industrial Hygiene, Inc., (303) 420-8242, on the date shown above.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

EMERGENCY TELEPHONE (24 HOUR): 800-468-1263 (Infotrac)

2. COMPOSITION/INFORMATION ON INGREDIENTS

MATERIAL	CAS NUMBER	EC NUMBER	PERCENT	HAZARD CLASSIFICATION
Woven Continuous Filament Glass Fiber (E-glass) – Nonrespirable	65997-17-3	266-046-0	35-60	X _i , R36/37/38
Proprietary Epoxy Resin	Proprietary	NLP	10-20	X _i , R36/38-43; N, R51/53
Brominated Flame Retardant	Proprietary	xxx-xxx-x	5-10	X _i , R36/37/38
Proprietary Filler	Proprietary	xxx-xxx-x	5-10	Not Classified
Non-Hazardous Ingredients	Mixture	Mixture	30-60	Not Classified

NLP=No longer polymer. See Section 16 for details on Hazard Classifications.

Information regarding proprietary ingredients is available from the manufacturer upon request.

3. HAZARDS IDENTIFICATION

Canadian WHMIS for the preparation:

Class D, Division 2A - Very Toxic Material Causing Chronic Toxic Effect: impaired pulmonary function in rats at 6 mg/m³
Class D, Division 2B - Toxic Material Causing Eye Irritation and Skin Sensitization

EU PREPARATION CLASSIFICATION (1999/45/EC): R10; Irritant (X_i), R36/37/38-43; R52/53

EMERGENCY OVERVIEW: FLAMMABLE! Inhalation of residual organic vapors from uncured resins may be harmful. May cause severe allergic skin reaction. Maybe harmful to the aquatic environment, causing long-term adverse effect.



POTENTIAL HEALTH EFFECTS: No information is available on this specific mixture as a whole. The information presented is based on each of the components present at concentrations greater than 1% (0.1 % for carcinogens or reproductive hazards). This product contains less than one percent total residual solvents (acetone, n-butanone, phenol, and/or 1-methoxy-2-propanol). Exposure to uncured resin vapors may cause eye, skin and respiratory tract irritation, skin sensitization, drowsiness, and dizziness. Dust generated during routine handling, machining, grinding, or sawing may cause mechanical irritation of skin, eyes, nose, and throat.

Machining, grinding or sawing this material may generate harmful dusts. Continuous filament glass fiber is not considered fibrogenic; however, it is woven from E-Glass fibers which are listed by IARC as "special purpose glass fibers" and designated as "possibility of carcinogenic in humans." See Section 8 for exposure controls.

ROUTES OF ENTRY: Dermal: YES Inhalation: POSSIBLE Ingestion: SLIGHT Injection: POSSIBLE

4. FIRST AID MEASURES

SEEK IMMEDIATE MEDICAL ATTENTION IF IRRITATION OCCURS.

INHALATION: Remove the person to fresh air. Treat respiratory distress as appropriate (artificial respiration, etc.) Provide oxygen if necessary. If not breathing, give mouth-to-mouth resuscitation and seek immediate medical attention.

EYES: Immediately flush eyes with large amounts of temperate water for a minimum of 15 minutes. Consult an ophthalmologist for a more detailed medical evaluation.

SKIN: Remove contaminated clothing. Wash skin thoroughly with mild soap and room temperature running water. DO NOT rub or scratch irritated areas, as this may force fibers into the skin. Seek immediate medical attention if irritation continues.

INGESTION: Not expected to be a significant route of exposure based on expected use. If ingestion occurs, seek immediate medical attention.

SYMPTOMS OF EXPOSURE: May include irritation of the skin, eyes, and upper respiratory tract, coughing, wheezing, shortness of breath, headache, drowsiness, dizziness, nausea, and/or vomiting.

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Powder, carbon dioxide, or alcohol-resistant foam. Water may be ineffective as an extinguishing medium, but can be used to cool fire-exposed containers.

FIRE FIGHTING EQUIPMENT: Wear full bunker gear including a positive pressure self-contained breathing apparatus in any closed place.

6. ACCIDENTAL RELEASE MEASURES

GENERAL: FLAMMABLE! Vapors may form explosive concentrations when mixed with air. Avoid contact with skin, eyes or clothing. Sweep or scrape into approved container for proper disposal.

7. HANDLING AND STORAGE

HANDLING: FLAMMABLE! May contain volatile organic compounds. Avoid contact with eyes, skin and clothing. The use of appropriate gloves is recommended to minimize the potential for skin contact (See Section 8). Provide adequate ventilation to minimize exposure. Provide proper NIOSH- or local authority-approved respirators if exposure limits are exceeded. Use only non-sparking tools and equipment.



STORAGE: Store in tightly closed containers in a well-ventilated area. Avoid contact with incompatible materials. Keep from ignition sources, such as sparks and flames. NO SMOKING.

8. EXPOSURE CONTROLS /PERSONAL PROTECTION

MATERIAL	EXPOSURE LIMITS*		
	OSHA PEL ^(a)	ACGIH TLV ^(b)	NIOSH REL ^(c)
Woven continuous filament glass fibers (including special purpose glass fibers)	15 mg/m ^{3(d)} TWA ^(e) Total Dust (PNOR) ^(f) 5 mg/m ^{3(d)} TWA ^(e) Respirable Dust ^(g)	1 f/cc ^(h) TWA ^(e) Fibers ⁽ⁱ⁾ 5 mg/m ^{3(d)} TWA ^(e) Inhalable Dust ^(g)	3 f/cc ^(h) TWA ^(e) Fibers ⁽ⁱ⁾ 5 mg/m ^{3(d)} TWA ^(e) Respirable Dust ^(g)
Proprietary Epoxy Resin	None Established	None Established	None Established
Brominated Flame Retardant	None Established	None Established	None Established
Proprietary Filler	20 mppcf ^(j)	2 mg/m ^{3(d)} TWA ^(e) Respirable Dust ^(g)	2 mg/m ^{3(d)} TWA ^(e) Respirable Dust ^(g)

*See Section 15 for additional Occupational Exposure Limits (OELs).

(a) U.S. Department of Labor, Occupational Safety and Health Administration, permissible exposure limit; (b) American Conference of Governmental Industrial Hygienists', threshold limit value; (c) National Institute for Occupational Safety and Health, recommended exposure limit; (d) milligrams per cubic meter; (e) time-weighted average over an 8-hour day, 40-hour work week for OSHA PELs and ACGIH TLVs, or up to a 10-hour day, during a 40-hour work week for NIOSH RELs; (f) Particulates Not Otherwise Regulated; (g) particles in the size range that are hazardous when deposited in the gas-exchange region of the lungs; (h) fibers per cubic centimeter; (i) Respirable fibers longer than 5 microns and having an aspect ratio of $\geq 3:1$; (j) millions of particles per cubic foot of air, based on impinger samples counted by light-field techniques..

ENGINEERING CONTROLS:

Use local exhaust to minimize exposures and maintain airborne dust and uncured resin vapor concentrations below occupational exposure limits, especially where heating or machining/grinding/sawing operations occur.

PERSONAL PROTECTIVE EQUIPMENT:

RESPIRATORY PROTECTION: In the absence of adequate general or local ventilation, use a NIOSH- or local authority-approved respirator appropriate for the contaminant if exposure limits are exceeded. Consult an industrial hygienist for assistance as needed.

SKIN PROTECTION: Avoid skin contact! Use impervious gloves, and splash-resistant clean body-covering clothing to minimize exposure. Due to the combination of chemical ingredients, an industrial hygienist should be consulted to select appropriate glove material for specific product application. Wash contaminated clothing before reuse.

EYE PROTECTION: Use chemical resistant goggles when handling, and safety glasses or a face shield when machining, grinding or sawing.

WORK/HYGIENE PRACTICES: Good personal hygiene should be exercised by all users of this product to minimize potential dermal and inhalation exposures.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Off-white resin impregnated woven glass fibers
Odor: Not Applicable
Odor Threshold: Not Applicable
Boiling Point: Not Applicable

Physical and Chemical Properties (continued)

Flash Point:	-17°C/1.4°F (Acetone)
Auto-ignition Temperature:	465°C/869°F (Acetone)
Lower Explosive Limit (LEL):	2.5% (Acetone)
Upper Explosive Limit (UEL):	13% (Acetone)
Vapor Pressure:	Not Applicable
Specific Gravity:	Not Applicable
Total Volatile Organic Compounds (TVOC) (G/L):	Not Applicable
Solubility in Water:	Not Applicable
Partition Coefficient:	Not Applicable
Viscosity of Solution:	Not Applicable
Vapor density (Air=1.0):	Not Applicable
Percent Volatility of Solution:	Less than 1% Volatile Organic Compounds

10. STABILITY AND REACTIVITY

This material is stable under expected conditions of use, handling and storage.

CONDITIONS TO AVOID: Avoid sparks, flames and excessive heat. Hazardous polymerization will not occur.

INCOMPATIBLE MATERIALS: Strong acids, strong oxidizers, strong mineral and organic bases, and halogenated hydrocarbons. This product may attack some plastic materials.

HAZARDOUS DECOMPOSITION: Dense smoke, acrid vapors and fumes, hydrocarbons of variable composition, bromine, hydrogen bromide, CO_x, NO_x.

EXOTHERMIC REACTION FIGHTING PROCEDURES: Dissipate heat by spreading material apart and dousing with water. Contain vapors with local exhaust.

11. TOXICOLOGICAL INFORMATION

NO DATA AVAILABLE ON THE SPECIFIC MIXTURE.

CONTINUOUS FILAMENT GLASS FIBERS

NIOSH RTECS No.:

Acute Effects of Overexposure: Exposure to dust may cause irritation to skin, eyes, and respiratory system.

Effects Chronic of Overexposure: Repeated or prolonged contact with skin may cause dermatitis. Tumors have been detected in experimental animals but may not be relevant to humans.

Target Organs: Skin, lungs.

Carcinogenicity: ACGIH A4, IARC Group 3

Special purpose glass fibers: ACGIH A3, IARC Group 2B

Toxicity Data: No LD50 data available.

PROPRIETARY EPOXY RESIN

NIOSH RTECS No.: Not Listed.

Acute Effects of Overexposure: May cause eye, skin or respiratory irritation and possible allergic reaction.

Chronic Effects of Overexposure: May cause skin sensitization.

Target Organs: Skin, lungs.

Carcinogenicity: Not listed as a carcinogen by IARC, ACGIH, NTP, OSHA, or NIOSH.

Toxicity Data: ORL-RAT LD50 1140 mg/kg
SKN-RBT LD50 >2000 mg/kg



TOXICOLOGICAL INFORMATION (continued)

BROMINATED FLAME RETARDANT

NIOSH RTECS No.:

Acute Effects of Overexposure: None Known

Chronic Effects of Overexposure: None Known

Target Organs: None Known

Carcinogenicity: Not listed as a carcinogen by IARC, ACGHI, NTP, OSHA, or NIOSH.

Toxicity Data: IHL-RAT LC50 >10,920 mg/m³/4h ORL-RAT LD50 >5,000 mg/kg
IHL-RAT LC50 >2,550 mg/m³/2h SKN-RAB LD50 >2,000 mg/kg
IHL-MUS LC50 >500 mg/m³/8h

Proprietary Filler

NIOSH RTECS No.: WW2710000

Acute Effects of Overexposure: Exposure to dust may cause eye and respiratory tract irritation.

Chronic Effects of Overexposure: Long-term or repeated inhalation of dust may have adverse effects on the lungs, resulting in talc pneumoconiosis.

Target Organs: Lungs.

Carcinogenicity: Not listed as a carcinogen by IARC, ACGIH, NTP, OSHA, or NIOSH.

Toxicity Data: No additional data available.

12. ECOLOGICAL INFORMATION

NO DATA AVAILABLE ON THE SPECIFIC MIXTURE.

CONTINUOUS FILAMENT GLASS FIBERS (E-GLASS)

No available data.

PROPRIETARY EPOXY RESIN

Ecotoxicity: LC50(96h) 1.5-7.7 mg/l Rainbow Trout
EC50(24h) 1.1-3.6 mg/l Daphnia Magna
EC50(96h) 220 mg/l Green Algae

Mobility: No additional information.

Persistence and Degradability: Slightly biodegradable.

Bioaccumulation Potential: No additional information.

BROMINATED FLAME RETARDANT

Ecotoxicity: LC50(96h) 0.4 mg/l Rainbow trout
EC50(48h) 0.96 mg/l Daphnia magna
EC50(96h) >5.6 mg/l Freshwater Algae

Mobility: Insoluble in water.

Persistence and Degradability: Not readily biodegradable.

Bioaccumulation Potential: Has the potential to bioaccumulate.

Proprietary Filler

No information available

13. DISPOSAL CONSIDERATIONS

GENERAL: Follow all applicable local, national, provincial, territorial, and international regulations. This material is regulated as a hazardous waste under the US EPA Resource Conservation and Recovery Act (RCRA). Storage, disposal, treatment, and transportation of this material are regulated by the USEPA. Refer to the European Waste Catalog (EWC) for appropriate waste code(s).



14. TRANSPORT INFORMATION

Not regulated by US DOT, ICAO/IATA, RID/ADR, IMDG, Canada TDG

15. REGULATORY INFORMATION

Canadian Environmental Protection Act: All of the components of this product are listed on the Canadian Domestic Substances List (DSL).

EPA Toxic Substances Control Act (TSCA) Status: All of the components of this product are listed on the TSCA inventory.

European Inventory of Existing Commercial Chemical Substances (EINECS): All of the components of this product are listed on the EINECS inventory, are no long polymers (NLP), or are polymer exempt .

ADDITIONAL OCCUPONAL EXPOSURE LIMITS (OELs). There are currently no international OELs for the Proprietary Bisphenol A-based Epoxy Resin or the Brominated Flame Retardant. See Section 8 for OSHA, ACGIH and NIOSH OELs.

	CONTINUOUS FILAMENT GLASS FIBERS (based on mineral wool)	Proprietary Filler (no asbestos, less than 0.1% crystalline silica)
Arab Republic of Egypt	Not Listed	Not Listed
Australia	0.5 f/cc TWA Fibers 2 mg/m ³ TWA Dust	2.5 mg/m ³ TWA
Austria	0.5 f/cc TWA Fibers	5 mg/m ³ MAK
Belgium	Not Listed	2 mg/m ³ TWA
Denmark	1 f/cc TWA Fibers, Carcinogen	None Listed
Finland	10 mg/m ³ TWA Dust	5 mg/m ³ TWA
France	1 f/cc TWA Fibers	None Listed
Germany	0.25 f/cc TWA (Non-exonerated Fibers) 6 mg/m ³ TWA Dust	2 mg/m ³ MAK
Hungary	Not Listed	None Listed
India	Not Listed	None Listed
Italy	<1 f/cc TWA Fibers 5 mg/m ³ TWA Dust	None Listed
Japan	2.9 mg/m ³ Dust (administrative control level)	None Listed
The Netherlands	2 f/cc TWA Fibers	1 mg/m ³ MAC-TGG
Norway	1 f/cc TWA Fibers	None Listed
The Philippines	Not Listed	None Listed
Poland	Not Listed	None Listed
Russia	Not Listed	None Listed
Sweden	1 f/cc TWA Fibers	None Listed
Switzerland	0.5 f/cc Fibers	2 mg/m ³ MAK-W Respirable Dust



ADDITIONAL OELs (continued)

	CONTINUOUS FILAMENT GLASS FIBERS (based on mineral wool)	Proprietary Filler (no asbestos, less than 0.1% crystalline silica)
Thailand	Not Listed	None Listed
United Kingdom	2 f/cc TWA Fibers 5 mg/m ³ TWA Dust	1 mg/m ³ TWA Respirable Dust
Argentina, Bulgaria, Colombia, Jordan, Korea, New Zealand, Singapore, Vietnam	Not Listed	See ACGIH TLV

SOURCE: The Registry of Toxic Effects of Chemical Substances (RTECS), National Institute for Occupational Safety and Health (NIOSH).

16. OTHER INFORMATION

HAZARD CLASSIFICATIONS:

X_i=Irritant

N=Dangerous to the environment

R-PHRASES:

R10-Flammable

R36/38-Irritating to eyes and skin

R36/37/38-Irritating to eyes, respiratory system and skin

R43-May cause sensitization by skin contact

R51/53-Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

R52/53-Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Current MSDS Date: October 2, 2014

Previous MSDS Date(s): June 26, 2006

NOTE: This product contains uncured resin(s). Curing should only be done in well-ventilated or closed systems. In accordance with good industrial hygiene, handle with care and avoid unnecessary personal contact.

DISCLAIMER: The information contained in this MSDS relates specifically to the product as a whole and may not be valid if used in combination with other materials or in any specified process. The information on DE104 is accurate to the best of our knowledge but does not purport to be all inclusive and should only be used as a general guide. It is the user's responsibility to ensure that the product will be suitable for particular usage. The user assumes all responsibility for compliance with applicable Federal, State and Local Regulations. We do not accept liability for damage or loss that may occur from the use of this information.