



Isola Laminate Systems Corp. 230 North Front Street P.O. Box 1448 La Crosse, WI 54602-1448 608-784-6070

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1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: FR 404

OTHER/GENERIC NAMES: Glass Epoxy Laminate

PRODUCT USE: Military: GFK NEMA: N/A
(Substrate for printed circuitry)

MANUFACTURER: Isola Laminate Systems Corp.
230 North Front St.
P.O. Box 1448
LaCrosse, WI 54602-1448

FOR MORE INFORMATION CALL:

(Monday-Friday, 8:00am-5:00pm)
(608) 784-6070

IN CASE OF EMERGENCY CALL:

(24 Hours/Day, 7 Days/Week)
(608) 784-6070

2. COMPOSITION/INFORMATION ON INGREDIENTS

Table with 3 columns: INGREDIENT NAME, CAS #, WEIGHT %. Rows include Continuous Filament Fiber Glass, Copper, Epoxy Resin, and Proprietary ingredient **.

Trace impurities and additional material names not listed above may also appear in the Regulatory Information section (#15) towards the end of the MSDS. These materials may be listed for local "Right to Know" compliance and for other reasons. ** See "Additional Regulatory Information" on last page.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: A nonflammable, brown sheet material. Dust, when machined or punched may cause irritation. Fumes, if decomposed may irritate eyes, nose, and throat.

POTENTIAL HEALTH HAZARDS:

SKIN: Dust may cause moderate skin irritation.

EYES: Dust may cause moderate eye irritation. Fumes may irritate eyes.

INHALATION: Fibrous glass dust may be released from the fiber-glass cloth substrate when machined. ACGIH TLV is 10 mg/m3 TWA for particles .5 microns in diameter.

INGESTION: Not a normal route of entry

DELAYED EFFECTS: Our product is reinforced with continuous filament fiber glass. Dust generated from the cutting, grinding, machining, etc., would not be expected to produce respirable particles. IARC considers continuous glass filaments as unclassifiable or probably non-carcinogenic.

Ingredients found on one of the OSHA designated carcinogen lists are listed below.

Table with 4 columns: Ingredient Name, NTP Status, IARC Status, OSHA List. Row shows None for all categories.

4. FIRST AID MEASURES

SKIN: Wash dust off in flowing water or shower. Change contaminated clothing.

EYE: Irrigate with flowing water for 15 minutes. If irritation persists, consult a physician.

INHALATION: If overcome by dust or smoke, remove to fresh air. If not breathing, give mouth-to-mouth resuscitation. Call physician.

INGESTION: If large amounts are ingested, consult physician.

ADVICE TO PHYSICIAN: Treat symptomatically

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

FLASH POINT: N/A
FLASH POINT METHOD: N/A
AUTOIGNITION TEMPERATURE: 775 deg. C.
UPPER FLAME LIMIT (Volume % in air): N/A
LOWER FLAME LIMIT (Volume % in air): N/A
FLAME PROPAGATION RATE (Solids): UL-94-VO
OSHA FLAMMABILITY CLASS: N/A

EXTINGUISHING MEDIA: Water, CO2 and dry chemical

UNUSUAL FIRE AND EXPLOSION HAZARDS: May give off toxic hydrogen bromide gas when thermally decomposed.

SPECIAL FIREFIGHTING PRECAUTIONS/INSTRUCTIONS:

Firemen should wear proper protective equipment and positive pressure self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

IN CASE OF SPILL OR OTHER RELEASE: (Always wear recommended personal protection equipment)
Not applicable, material is an article.

Spills and releases may have to be reported to Federal and/or local authorities. See the Regulatory Information section (#15) regarding reporting requirements.

7. HANDLING AND STORAGE

NORMAL HANDLING: (Always wear recommended personal protective equipment.)

The primary exposure route is inhalation of dust when machined/punched or from fumes or vapors when heated.

STORAGE RECOMMENDATIONS: N/A

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS Use local exhaust ventilation to control dust.**PERSONAL PROTECTIVE EQUIPMENT:****SKIN PROTECTION:** For brief contact to dust, no precautions other than clean body-covering clothing should be needed. Use gloves and aprons when prolonged or frequently repeated contact occurs.**EYE PROTECTION:** Use appropriate eye protection (safety glasses) when machining material.**RESPIRATORY PROTECTION:** Atmospheric levels of Fibrous glass, Copper and other dusts should be maintained below exposure guidelines. When respiratory protection is required for certain operations, use a NIOSH-approved dust respirator.**ADDITIONAL RECOMMENDATIONS:** N/A**EXPOSURE GUIDELINES:** (Guidelines exist for the following ingredients)

<u>Ingredient Name</u>	<u>CAS. NO.</u>	<u>ACGIH TLV</u>	<u>OSHA PEL</u>	<u>Other Limit</u>
Copper Dust	(7440-50-8)	1 mg/m ³	1 mg/m ³	N/A
Fiber Glass Dust	(65997-17-3)	10 mg/m ³	None	*1 f/cc<5u long and 3.1 aspect ratio, TWA
Proprietary ingredient **		2mg/m ³	2mg/m ³	

*Limit established for Isola Laminate Systems internal use.

** See "Additional Regulatory Information" on last page.

Other exposure limits for the decomposition products normally associated with product use are as follows:
See Section 10 on next page.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Brown sheet material, possible with copper both sides.**PHYSICAL STATE:** Solid**MOLECULAR WEIGHT:** N/A**CHEMICAL FORMULA:** N/A**ODOR:** None, unless heated**SPECIFIC GRAVITY:** (Water = 1.0) 1.0 +/- 0.5

SOLUBILITY IN WATER: (Weight %) Negligible in water

pH: N/A

MELTING POINT: N/A

VAPOR PRESSURE: N/A

VAPOR DENSITY: (Air = 1.0) N/A

EVAPORATION RATE: N/A Compared to: N/A

% VOLATILES: N/A

FLASH POINT: N/A

(Flash point method and additional flammability data are found in section 5.)

10. STABILITY AND REACTIVITY

NORMALLY STABLE? (conditions to avoid Stable

INCOMPATIBILITIES: Unknown

HAZARDOUS DECOMPOSITION PRODUCTS: CO, CO₂, HBr, Oxides of nitrogen if heated in excess of 300 deg. C. Laser drilling or cutting may result in copper metal fume.

HAZARDOUS POLYMERIZATION? None known

11. TOXICOLOGICAL INFORMATION

IMMEDIATE (ACUTE) EFFECTS: Dust may cause moderate eye and skin irritation.

DELAYED (SUBCHRONIC & CHRONIC) EFFECT NTP has determined that respirable size glasswool may be reasonably anticipated to be a carcinogen. IARC has also classified glasswool as a possible carcinogen. Our product is reinforced with continuous filament fiber glass. Dust generated from the cutting, grinding, machining, etc., would not be expected to produce respirable particles. IARC considers continuous glass filamen as unclssifiable or probably non carcinogenic.

OTHER DATA: The Dermal LD50 and single dose oral LD50 has not been determined.

12. ECOLOGICAL INFORMATION

Not Biodegradable

13. DISPOSAL CONSIDERATIONS

RCRA:

Is the unused product a RCRA hazardous waste if discarde Not a hazardouse waste.

OTHER DISPOSAL CONSIDERATIONS: Disposal must be made in accordance with all applicable Local, State and Federal regulations. Copper should be recycled

The information offered here is for the product as shipped. Use and/or alterations to the product such as mixing with other materials may significantly change the characteristics of the material and alter the RCRA classification and the proper disposal method.

14. TRANSPORT INFORMATION

US DOT HAZARD CLASS: Not regulated

US DOT ID NUMBER: N/A

For additional information on shipping regulations affecting this material, contact the information number found on the first page.

15. REGULATORY INFORMATION

TOXIC SUBSTANCES CONTROL ACT (TSCA):

TSCA INVENTORY STATUS: The resin system components used to make this article are on the TSCA inventory list.

OTHER TSCA ISSUES: N/A

SARA TITLE III/CERCLA:

RQs & TPQs:

Reportable Quantities" (RQs) and/or "Threshold Planning Quantities" (TPQs) exist for the following ingredients.

<u>Ingredient</u>	<u>SARA/CERCLA RQ(lbs)</u>	<u>SARA EHS TPQ(lbs)</u>
N/A	N/A	N/A

Spills/releases resulting in the loss of any ingredient at or above its RQ requires immediate notification to the National Response Center (1-800-424-8802) and to your Local Emergency Planning Committee.

SECTION 311 HAZARD CLASS: N/A

SARA 313 TOXIC CHEMICALS:

The following ingredients are SARA 313 "Toxic Chemicals". CAS #'s and wt.% are found in section #2.

<u>Ingredient</u>	<u>CAS. NO.</u>	<u>Comment</u>
Copper	(7440-50-8)	Recycle

STATE RIGHT TO KNOW This product may contain the following ingredients, known to the State of California to cause cancer.

In addition to the ingredients found in section 2, the following are listed for state right-to-know purposes:

<u>Ingredient</u>	<u>Wt.%</u>	<u>Comment</u>
Crystalline Silica Arsenic	Trace amounts	As an impurity
Cadmium Lead		

ADDITIONAL REGULATORY INFORMATION:

Isola Laminate Systems Corp. does not use polybromide-biphenyls or polybromide-biphenyloxides as a fire retarda in any of our epoxy or phenolic resin systems. ** Where proprietary ingredient shows, the identity may be made available as provided in the OSHA Standard (1910.1200)

WHMIS CLASSIFICATION (CANADA): Not a controlled substance

FOREIGN INVENTORY STATUS: Article

16. OTHER INFORMATION

CURRENT ISSUE DATE: 11/26/01

PREVIOUS ISSUE DATE: 12/7/98

CHANGES TO MSDS FROM PREVIOUS ISSUE DATE ARE DUE TO THE FOLLOWING:

Product Name Changed From FR404 G, and one ingredient has now been classified as proprietary. Dates have been updated to satisfy Canada's regulatory compliance. Addition of reference to copper metal fume.

There is an ingredient contained in the formulation of this material considered a trade secret as defined in Appendix C to Section 1910.1200 of the Occupational Safety & Health Administration manual 29 CFR Ch. XVII (7-1-89 Edition). Inquiries to the specific nature of these ingredients and the potential health and safety issues associated with them should be directed to a Manager of Health, Safety & Environmental Services.

"Although the information and recommendations in this Material Safety Data Sheet ("information") are presented in good faith and believed to be correct as of the date stated above. Isola Laminate Systems Corp. makes no representation or warranty as to the completeness or accuracy of this information. This information is supplied with the condition that the persons receiving it will make their own determination as to its suitability for their purpose prior to implementation."

For additional information, please contact our Customer Service Department