



1. PRODUCT IDENTIFICATION

ARAMID FIBER REINFORCED POLYESTER LAMINATE

- Gillfab[™] 1566 Laminate

2. COMPOSITION - INFORMATION ON INGREDIENTS

Chemical ingredients (% by wt.)

COMPONENT	CAS#	%
Aramid fiber (Poly(para-phenylenediamine terephthalamide))	26125-65-1	55 – 75%
Cured polyester resin	proprietary	20 – 30%
Antimony compounds	proprietary	2 – 3%
Inorganic Arsenic	7440-38-2	<0.015%
Polyvinyl/fluoride polymer containing less than 0.025% nickel	24981-14-4	3 – 12%
antimony titanium yellow pigment as nickel compounds		
Polyol	proprietary	1 – 1.5%

OSHA REGULATORY STATUS

As shipped this material is an inert Aramid fiber/polyester laminate in which ingredients have been cured using a thermoset process. While this material is not classified as hazardous under OSHA regulations, this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of the product.

3. HAZARDS IDENTIFICATION

Flat laminates white on one side and yellow on the other. Heat may cause flammable hazardous decomposition products, which may form toxic materials such as carbon dioxide, carbon monoxide, various low molecular weight hydrocarbons, oxides of phosphorus, biphenyl, organic acids and other toxic gases, acrid smoke, and fumes. Flammable gases and vapors may also be produced during thermal decomposition. Decomposition can be hazardous and uncontrollable.

POTENTIAL HEALTH EFFECTS

- EYE:** Dusts may cause irritation or scratch the surface of the eye. Can cause redness, tearing, blurred vision and pain.
- SKIN:** Skin contact with dust and fibers of this product may produce itching and transient mechanical irritation. Skin irritation is worse when the surface of the skin is moist, as found with perspiration.
- INGESTION:** Ingestion is not expected to be a route of exposure. If ingestion occurs, treat symptomatically.
- INHALATION:** Inhalation of dust may result in itching and upper respiratory tract irritation. Inhalation is considered the primary route of occupational exposure.



CHRONIC EFFECTS/ CARCINOGENICITY

Processing or machining this product may create fiber dust in the air small enough to be breathed into the lungs, which at high concentrations repeatedly over long periods of time may cause fibrosis (lung injury). Release of this material during processing as respirable and non-respirable fibers should be controlled by adequate local exhaust ventilation, good work practices, and use of personal protective equipment as needed.

Para-aramid fibers are listed by IARC as Group 3 - "Not classifiable as to carcinogenicity to humans".

Approximately 20-30% of the product is a cured polyester resin, which has styrene as an ingredient. OSHA PEL of cured polyester resin is not established. ACGIH TLV - none established. The National Toxicology Program (NTP) does not include styrene on its list of chemicals expected to be carcinogenic. ACGIH lists the styrene compounds as (Group A4 - "Not classified as a Human Carcinogen").

Proprietary Antimony Compounds are 2-3% of the final product. The primary route of chronic exposure of antimony compounds is by inhalation. Various studies of human overexposure to various forms of antimony in smelters reported effects primarily including dermatitis, rhinitis, inflammation of the upper and lower respiratory tract (including pneumonitis), with few cases of gastritis, conjunctivitis, and septal perforations. Antimony compounds should be handled as suspect carcinogens because of these findings. Antimony compounds are an I.A.R.C. (Group IIB) suspect carcinogen. Local exhaust ventilation is necessary to maintain employee exposure as far below OSHA permissible exposure limits as practical.

Inorganic arsenic, an impurity found in antimony compounds, is present in a small amount in the final product (< 0.015%). Inorganic arsenic compounds have been studied extensively in relation to cancers found in nickel and copper smelter workers. IARC, NTP, ACGIH, OSHA, EPA and NIOSH classify inorganic arsenic as a known carcinogen. Germany's Deutsche Forschungsgemeinschaft (DFG) lists inorganic arsenic compounds as (A1 - "Compounds capable of inducing malignant tumors as shown by experience with humans"). Compounds in DFG's Category A have no concentration value listed in Section IIa (the main MAK table) since no values have been established for a safe concentration range. According to California Proposition 65, inorganic arsenic is a chemical known by the State of California to cause cancer and reproductive toxicity. Release of this material as inorganic arsenic may occur in trace quantities during processing of the product, but is not expected to present a significant hazard if exposure controls and personal protection practices listed in Section 8 are followed.

This product contains a small amount (<0.025%) of the following chemical: Nickel Antimony Titanium yellow pigment This material is regulated as a nickel compound and is listed as a carcinogen by IARC (Group 1 - "Carcinogenic to Humans: sufficient evidence of carcinogenicity"), NTP (Group 2A - "Limited evidence of carcinogenicity from studies in humans which indicates that causal relationship is credible" and (Group 2B - "Sufficient evidence of carcinogenicity from studies in experimental animals.")). ACGIH lists nickel compounds as (Group A1 - "Confirmed Human Carcinogen). Germany's Deutsche Forschungsgemeinschaft (DFG) lists nickel compounds as (A1 - "Compounds capable of inducing malignant tumors as shown by experience with humans"). Compounds in DFG's Category A have no concentration value listed in Section IIa (the main MAK table) since no values have been established for a safe concentration range. Release of this material as soluble/insoluble nickel compound may occur in trace quantities during processing of the product, but is not expected to present a significant hazard.

MEDICAL CONDITION GENERALLY AGGRAVATED BY EXPOSURE

Persons with a history of chronic lung disease may be at increased risk from exposure to excessive levels of nuisance dusts. Persons with medical conditions generally aggravated by mechanical irritants in the air or on the skin may be at increased risk for a worsening of the underlying condition if exposed.

POTENTIAL ENVIRONMENTAL EFFECTS

This product as shipped is inert and should pose no significant hazard to the environment.



4. FIRST AID MEASURES

EYE:	Flush with water for 15 minutes. Seek medical attention if irritation persists. Eye contact with dust may produce mechanical irritation.
SKIN:	Wash exposed area with soap and cool to tepid water. Do not rub or scratch irritated area. Seek medical attention if fibers become embedded or if irritation persists after contact stops.
INGESTION:	Avoid ingestion. Treat symptomatically.
INHALATION:	Move individual to fresh air. Administer oxygen if breathing is difficult. Seek medical attention if irritation persists. Inhalation of dust may result in itching and upper respiratory tract irritation.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

FLASH POINT: Not known

FLAMMABLE LIMITS LFL: Not applicable
UFL: Not applicable

EXTINGUISHING MEDIA: Water, foam, carbon dioxide, dry chemical.

FIRE AND EXPLOSION HAZARDS: Can decompose in a fire emitting toxic fumes and gases of CO, CO₂, various low molecular weight hydrocarbons, oxides of phosphorous, biphenyl, organic acids and other toxic gases, acrid smoke.

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

6. ACCIDENTAL RELEASE MEASURES

Avoid generating excess dust. HEPA vacuum or wet wipe dusts and place in a disposable container. It is your duty to dispose of the chemical materials and/or their containers in accordance with the Clean Air Act, the Clean Water Act, the Resource Conservation and Recovery Act and all state and local laws/ regulations regarding disposal.

7. HANDLING AND STORAGE

When handling, wear a long-sleeve shirt, rubber gloves and chemical safety goggles. Wear proper respiratory protection where potential exposure to dust may occur (approved by NIOSH/ MSHA). Avoid breathing dust. Minimize dust generation and accumulation. Store indoors in dry, well-ventilated area to protect material. DO NOT store in open, unlabeled or mislabeled containers.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Provide local exhaust ventilation to maintain airborne levels below the exposure limits. Minimize dust generation and accumulation.

RESPIRATORY PROTECTION: Where dust is generated use a NIOSH approved half or full face air purifying respirator with dust/mist filter cartridges. Use in accordance with OSHA regulations under 29 CFR 1910.134

SKIN PROTECTION: Wear chemical resistance gloves that afford proper protection to the hands, such as: neoprene, rubber, latex, etc. Wear loose fitting, long sleeved clothing and long pants.

EYE PROTECTION: : If dust is generated, wearing chemical goggles in compliance with OSHA regulations is advised. However, OSHA regulations also permit other type safety glasses (consult your safety equipment supplier), or wear full-face respirator with dust/mist filter cartridges.



GENERAL HYGIENE CONSIDERATIONS:

The health hazards associated with this material when used as recommended are mechanical skin, eye and respiratory irritation associated with the generation of fiberglass composite dusts during machining or cutting. The following general hygiene considerations are recognized as common, good industrial hygiene practices:

- Wash hands after use and before eating
- Shower at the end of the workday.
- Wash work clothes separately and wipe out washer at the end of the cycle.
- Avoid breathing dust
- Wear safety goggles

EXPOSURE GUIDELINES

There are no hazardous components in this material as received, however, cutting, milling, drilling, routing, or otherwise fabricating this material may produce the following:

COMPONENT	CAS#	OSHA PEL TWA	ACGIH TLV	DuPont AEL
Aramid fiber	26125-65-1	None Established	None Established	2 fibrils/cc-8hr TWA, respirable Fibrils** 5 mg/m ³ total dust
Cured polyester resin	proprietary	N/A	N/A	
Antimony Compounds	proprietary	0.5 mg/m ³ (as Sb)	0.5 mg/m ³ (as Sb)	
Inorganic Arsenic	7440-38-2	0.01 mg/m ³	0.01 mg/m ³	
Nickel Antimony Titanium	24981-14-4	Insoluble 1 mg/m ³	Insoluble 0.2 mg/m ³	
Yellow pigment as nickel compounds		Soluble 1 mg/m ³	Soluble 0.1 mg/m ³	

*AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits lower than the AEL are in effect, such limits shall take precedence.

**Respirable fibrils are particles <3um diameter, 5-60um long, with aspect ratios >3.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Flat sheets, white in color on one side and yellow on the other.
ODOR:	No odor
BOILING POINT:	Not applicable
VAPOR PRESSURE	Not applicable
SOLUBILITY IN WATER:	Not applicable
SPECIFIC GRAVITY:	1.26 g/cc
pH:	Not applicable
UEL:	Not applicable
LEL:	Not applicable

10. STABILITY AND REACTIVITY

STABILITY:	Stable
MATERIALS TO AVOID:	Strong oxidizing agents, strong acids and bases, especially oxalic and hydrofluoric acid, halogens, and acyl halides.
HAZARDOUS DECOMPOSITION PRODUCTS:	CO, CO ₂ , formaldehyde, phenol, hydrogen bromide, hydrogen cyanide, oxides of nitrogen, ammonia and small amounts of aromatic and aliphatic hydrocarbons.
HAZARDOUS POLYMERIZATION:	Will not occur



11. TOXICOLOGICAL INFORMATION

For detailed toxicological information on the components of this material, contact the address listed in Section 1 of this MSDS

12. ECOLOGICAL INFORMATION

None found

13. DISPOSABLE CONSIDERATIONS

If material as supplied becomes a waste, incinerate or landfill in accordance with local, state, and federal laws and regulations. Incinerate only if incinerator is operated at high temperature and is capable of scrubbing out acidic combustion products. Contact your local or state environmental agency for specific rules.

14. TRANSPORT INFORMATION

DOT: Not Regulated
IMO: Not Regulated
IATA: Not Regulated

15. REGULATORY INFORMATION

INVENTORY STATUS – fiberglass

<u>Inventory</u>	<u>Status</u>
United States (TSCA)	Listed

CERCLA/SUPERFUND, 40 CFR 117.302: This material contains Reportable Quantity (RQ) Substances: Antimony Compounds, Nickel Compounds.

SARA HAZARD CATEGORY: This material has been reviewed according to the EPA Hazard Categories promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered to meet the following categories:
None.

SARA 313 INFORMATION: This material contains no substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR Part 372. These products do not contain any components exceeding the de minimis amount subject to reporting under Section 313 of the Emergency Planning and Community Right-to-know act of 1986 and of 40 CFR 372.

CALIFORNIA PROPOSITION 65: The following statement is made in compliance with the California Safe Drinking and Toxic Enforcement Act of 1986: substances known to the State of California to cause cancer, birth defects or other reproductive harm: Nickel compounds.

16. OTHER INFORMATION

MSDS STATUS: Revised all sections re: ANSI Z400.1-1998 format
MSDS PREPARED BY: **M.C. Gill Corporation** 10/1/02
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M.C. Gill Corporation provides this information as a customer service. While the information contained in this MSDS is believed to be correct, no guarantee or warranty of any kind is made with respect to this information.

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