

# Material Safety Data Sheet

Conf. Reg. 1907/2006/CE, art. 33

Rev: 1 of 11/05/2017

**MATERIAL TYPE: FR4**

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## 1. Chemical product and company identification

**PRODUCT NAME:** FR4

**CHEMICAL FAMILY:** Epoxy resin, glass fabric.

**MANUFACTURER:** MDT Srl  
Via Martelli, 23  
20080 Zibido San Giacomo (MI)  
Tel./Fax: 0238294071  
info@mdtlaminati.com

## 2. Hazard Identification

**EMERGENCY OVERVIEW:** Non-flammable sheet material  
Dust caused by machining may irritate eyes, nose or throat.  
Fumes may cause irritation

**POTENTIAL HEALTH HAZARDS:**

**SKIN:** Dust may cause minor irritation.

**EYES:** Dust may cause minor irritation.

**INHALATION:** Dust may cause minor irritation.

**INGESTION:** None known, one anticipated with normal handling.

**DELAYED EFFECTS:** IARC has categorized continuous filament fiber glass as not Classifiable or probably onn-carcinogenic (Group 3).

## 3. Composition/ Information on ingredients

INGREDIENT NAME	CAS #	% w/w
CONTINUOUS FILAMENT FIBER GLASS	65997-17-3	55 ±5
SEMI-CURED EPOXY RESIN OF TETRABROMOBISPHENOL-A	26265-08-7	45 ±5
DICIANDIAMMIDE	461-58-5	2 ±0,3

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## 4. First aid measures

<b>SKIN:</b>	Wash promptly with soap and running water. Do not rub or scratch. If irritation persists, consult physician. Remove clothing and wash thoroughly before reuse.
<b>EYES:</b>	Flush immediately with plenty of low-pressure water for at least 20 minutes. Do not rub or scratch. If irritation persists, consult physician.
<b>INHALATION:</b>	Move to fresh air, consult physician.
<b>INGESTION:</b>	If large amounts are ingested, , consult physician.
<b>ADVICE TO PHYSICIAN:</b>	Treat symptomatically.

## 5. Fire-fighting measures

<b>EXTINGUISHING MEDIA:</b>	Water, CO <sub>2</sub> , foam, dry chemical, Halon.
<b>EXPLOSION HAZARDS:</b>	May give off toxic hydrogen bromide fumes when thermally decomposed.
<b>SPECIAL FIRE-FIGHTING PROCEDURES:</b>	Wear proper protective equipment and self-contained breathing apparatus.

## 6. Accidental release measures

<b>RESPONSE TO RELEASE:</b>	If material is not contaminated, return to container for use. If material is contaminated, pick up and place in container for disposal. Material is an article. Spill or release to the environment is unlikely.
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## 7. Handling and storage

**NORMAL HANDLING:** Always wear recommended personal protective equipment.**STORAGE:** Store in a cool dry place

## 8. Engineering controls / personal protection

### ENGINEERING CONTROLS

**VENTILATION:**

Adequate ventilation should be provided to keep dust within acceptable exposure limits. Discharge from the ventilation system should comply with applicable air pollution control regulation.

**GENERAL:**

Eyewash fountains and safety showers should be easily accessible.

### PERSONAL PROTECTIVE EQUIPMENT

**SKIN PROTECTION:**

Impervious gloves and clothing should be worn for prolonged or repeated contact.

**EYE PROTECTION:**

Safety glasses

**RESPIRATORY PROTECTION:**

Atmospheric levels of fibrous glass, copper, and other dusts should be maintained below recommended exposure guidelines. If airborne contaminant is likely to exceed acceptable limits, use a NIOSH-approved respirator.

### EXPOSURE GUIDELINES

INGREDIENTS NAME:	CAS #	ACGIH TLV	OSHA PEL	Other limits
FIBER GLASS DUST	65997-17-3	10 mg/m <sup>3</sup>	None	None
COPPER DUST	7440-5-08	1 mg/m <sup>3</sup>	1 mg/m <sup>3</sup>	None

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## 9. Proprietà chimiche e fisiche

<b>APPEARANCE:</b>	Amber, gold, yellow sheet
<b>PHYSICAL STATE:</b>	Solid
<b>ODOR:</b>	None unless heated
<b>BOILING POINT:</b>	N/A
<b>MELTING POINT:</b>	N/A
<b>MOLECULAR WEIGHT:</b>	N/A
<b>CHEMICAL FORMULA</b>	N/A
<b>PH:</b>	N/A
<b>SOLUBILITY IN WATER:</b>	Insoluble
<b>VAPOR PRESSURE:</b>	N/A
<b>VAPOR DENSITY:</b>	N/A
<b>SPECIFIC GRAVITY:</b>	1,6-1,9
<b>EVAPORATION RATE:</b>	N/A
<b>% VOLATILES:</b>	<0,1 %

## 10. Stability and reactivity

<b>NORMALLY STABLE:</b>	Yes
<b>INCOPATIBILITIES:</b>	Not determinated.
<b>HAZARDOUS:</b>	CO, CO,HBr, aromatic or aliphatic hydrocarbons.
<b>DECOMPOSITION PRODUCTS:</b>	Laser processing may result copper fumes.
<b>HAZARDOUS POLYMERIZATION:</b>	None

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## 11. Toxicological information

**IMMEDIATE (ACUTE) EFFECTS:** Dust may cause eye, skin and respiratory irritation.**DELAYED (SUBCHRONIC AND CHRONIC) EFFECTS:** NTP and IARC consider respirable glass wool a possible human Carcinogen.  
IARC consider continuous glass filaments unclassifiable or Non-carcinogenic (Group 3).**OTHER DATA:** Not determined.

## 12. Ecological information

Not biodegradable.

## 13. Disposal considerations

**RCRA HAZARDOUS WASTE:** No**WASTE DISPOSAL METHOD:** Landfill.  
Do not incinerate.  
Recycle copper.  
Disposal must with all local, regional and national regulations.

Information supplied here is for the material as shipped. Use or alteration of the product such as mixing with other materials such as lead solder during the printed circuit boards fabrication process may change the RCRA classification of the mixture and require alternative disposal procedures.

## 14. Transportation information

**US DOT HAZARD CLASS:** Not regulated**USDOT ID NUMBER:** N/A

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## 15. Regulatory information

**TSCA INVENTORY STATUS:** Resin system components used in this product are on the TSCA Inventory list.

**OTHER TSCA ISSUES:** None.

## 16. Other information

The information contained in this sheet is based on our current knowledge and should not be considered as a guarantee for specific areas of use.

The applicable standards and regulations must be observed by the recipient of our products on their own responsibility.