

FR-2 FR-3 EN-1 EN-3 Flexible Cu-Clad

FR-2 COPPER-CLAD LAMINATE

COBRISOL 607 OF - Antimonium free

(Code 606)

DESCRIPTION

NEMA FR-2 UL-V0 paper-phenolic laminate, possessing low odour, with very good thermal behaviour, flame stability, and balanced x,y,z-linear thermal expansion coefficients. Room temperature punching grade, with outstanding quality. The base laminate complies to IEC-249-2-7. Ecological antimonium free grade.

PROPERTIES		TEST CONDITIONS	UNITS	TYPICAL VALUES
Flammability UL-94, 1,5 mm	Sx/x mater. Class	A	sec	28/6 V-0
Time to blister at 260°C		A	sec	40
Peel strength, after heat shock 10 sec/260°C		A	N/mm	2,3
Pull-off strength		A	N	150
Water absorption, 1,5 mm		D-24/23	mg	39
Flexural strength, Lengthwise		A	Mpa	180
Crosswise		A	Mpa	160
Surface resistance after damp heat and recovery		C96/40/92	Mohm	5,0E+03
Volume resistivity after damp heat and recovery		C96/40/92		5,0E+04
		C96/40/92	-	4,7
		C96/40/92	-	0,045
Dissipation factor after damp heat and recovery 1MHz				A/B 1,2
Corrosion at the edges				
Punchability DIN 33488 at 25°C, Lengthwise/Crosswise		A		0,5/0,5
Bow and twist, 1,5 mm (etched)		E 0,5/150	%	1,4
Punching force, 1,3 mm punch diameter		A	N/mm thick	450
Stripping force, 1,3 mm punch diameter		A	N/mm thick	190
Dimensional stability, Lengthwise		E-0.5/150	ppm	-800
Crosswise		E-0.5/150	ppm	-850
Comparative Tracking Index (CTI)	Laminate side	A	V	200
	Copper side	A	V	225
Odour release at 20 °C (1)		A	o.u./m ² /day	<165
x,y,z-linear thermal expansion coefficients (TMA, 30 + 90°C)		A	ppm/°C	14/20/260

Tests according IEC-249-1

(1) Tested on 900 cm² sample, clad one side, after 3 days, according TNO (o.u. = odour unit)

The data is based on typical values of standard production and should be considered as a general information. Our Company reserves the right to future changes. It is the responsibility of the user to ensure that the product complies with his requirements.

AVAILABILITY

Standard sheet sizes, mm : 2144 x 1160; 1070 x 1160
2340 x 1070; 1270 x 1070
2760 x 1270; 930 x 1270
2050 x 1060; 1025 x 1060

Tolerance: +5/-0 mm
Squariness: 3 mm maximum, as difference
between diagonal measurements

Also available in cut to size panels

Standard size tolerance in cut panels: $\pm 0,3$ m

Material marked by red logo: VO - VR
Colour: Light brown



PRODUCT SAFETY DATA SHEET ACCORDING TO EEC/91/155 RULES

PRODUCT:
ISSUE DATE: 3/0/97
DATE: 1/2/99
VERSION: 2

COBRISOL 607 OF

1. PRODUCT AND COMPANY DATA

PRODUCT NAME (OR TRADE NAME): COBRISOL 607 OF

PRODUCT DESCRIPTION:

Cellulose paper-thermosetting phenolic resin laminate, cladded one or both sides with copper foil. Main intended use: base material for printed circuits.

COMPANY ADDRESS:

AISMALIBAR S.A.
 Carreter de Ripollat nº 1
 E-08110 Montcada i Reixac (Barcelona)

EMERGENCY PHONE: (34)-93-5656300
FAX: (34)-93-5656327

2. CHEMICAL COMPOSITION. DATA ON COMPONENTS

Roughly percentage excluding copper:

50%	Cellulose paper
50%	Plasticised phenolic resin

Copper content in standard laminate 1,5 mm, 1 side clad 36 µm, is around 13 %

DANGEROUS COMPONENTS:

DANGER CLASS:

SAFETY PHRASES:

3. HAZARDS IDENTIFICATION

None

4. FIRST AID MEASURES

Not applicable

5. FIRE FIGHTING MEASURES

All the available fire-extinguishing systems could be used. The material is rated as fire resistant. In the event of fire, cautions must be taken with the fumes. Heavy fumes containing phenols, formaldehyde, and hydrogen bromide will be released at temperatures higher than 300°C

6. MEASURES IN CASE OF SPILLAGE

Not applicable

7. HANDLING AND STORAGE

Can be stored in any indoor climate conditions

8. PERSONAL PROTECTION AND LIMITS OF EXPOSURE

INHALATION:

THRESHOLD LIMIT VALUE:

Not applicable

*Work in good ventilated rooms during machining or heating processes
Provide of dust safety suction systems during machining processes
Use personnel dust mask in systemic or prolonged dust exposures*

EYES:

Not applicable

SKIN AND HANDS:

Not applicable

GENERAL HYGIENIC RECOMMENDED RULES

*Keep working clothes clean of dust, by some safety suction device
Wash the hands before eat or drink during working breaks*

9. PHYSICAL AND CHEMICAL PROPERTIES

NATURE: *Solid, polymeric matrix*
COLOR: *Yellowish*
ODOR: *Slightly aromatic*

SPECIFIC GRAVITY:	1,54	kg/m ³	(BULK MASS)
SOLUBILITY IN WATER:	<i>insoluble</i>		
IGNITION POINT:	>250	°C	

THERMAL DECOMPOSITION FUMES:

See paragraph 5.

10. STABILITY AND REACTIVITY

The product is stable and unreactive in the normal storage and process conditions

11. TOXICOLOGICAL INFORMATION

N/A

12. ECOLOGICAL INFORMATION

The product is not easily biodegradable
Standard lixiviation tests over material in granular form gives levels lower than 20 mg of free phenol/liter

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL

Material could be disposed in underground allowed sites, or incinerated under controlled conditions. The product is free from dibenzodioxines and dibenzofuranes precursor components, and antimonium compounds. Checking of the local environmental regulations is strongly recommended

14. TRANSPORT REQUIREMENTS

None

15. REGULATORY INFORMATION

N/A

16. OTHER INFORMATION

International standards covering the product:

**IEC-240-2-7
NEMA FR-2**