

ABR ORGANICS LIMITED

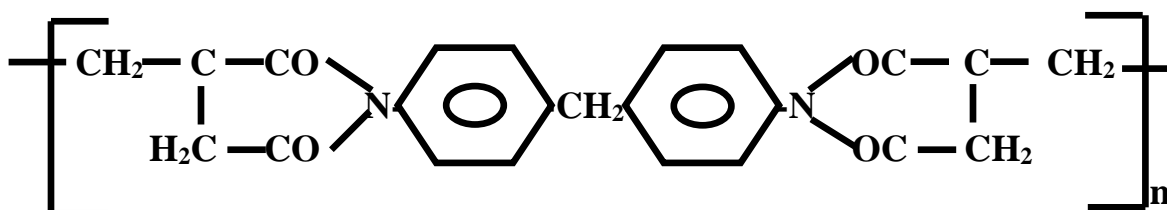
(An ISO 9001:2015 Certified Company)

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PRODUCT NAME : ABRON R 750
PRODUCT TYPE : POLYIMIDE RESIN
(Bis-itaconimide type)



Polyimides are high and low temperature resistance polymers rendering service from -250 to +350 °C. Polyimides are intractable, infusible and insoluble polymers resulting in processing of polyimides as impracticable. Extensive research has taken place in finding out ways and means of getting processable Polyimides without jeopardizing the thermal stability and mechanical properties at extreme temperatures. Indian Space Research Organisation has put considerable amount of R & D in this line and has successfully come out with a prepolymer of polyimide which has excellent processability, stability at room temperature and with moderate cure temperatures. The composite made with this prepolymer have yielded components for space and aerospace applications. ABRON-R 750 is being manufactured by M/s. ABR ORGANICS LIMITED, with the license from Indian Space Research Organisation.

ABRON-R 750 is highly amenable for polar & filament winding technology also. The prepregs made from ABRON-R 750 has a long shelf life of 3 to 6 months at room temperature.

SPECIFICATIONS OF ABRON-R 750

State	:	Fine Powder
Colour	:	Light Pinkish Brown
Specific Gravity at 25°C	:	1.1
Solubility	:	NMP / DMF
Bulk viscosity of 40% Solution	:	40 - 100 CPs
Shelf life	:	6 months at Ambient Temperatures ($< 40^{\circ}$ C)
Short Service Temperature	:	-200 to +300°C
Continuous Use Temp	:	-200 to 220°C
Cure Temperature	:	200°C to 230°C
Dielectric Constant	:	80 - 90 KV/mm
Surface Resistivity at 25 °C	:	0.5×10^{14} Ohm.cm
Volume Resistivity at 25 °C	:	2.9×10^{14} Ohm.cm
Tan σ at 25 °C	:	0.004
Volume Resistivity at 200 °C	:	4.7×10^{12} Ohm.cm
Tan σ at 200 °C	:	0.025

MECHANICAL PROPERTIES OF LAMINATES (ASTM D.1184)

CARBON FIBRE (UNIDIRECTIONAL)

TENSILE STRENGTH	:	$8 \times 10^3 \text{ kg/cm}^2$
FLEXURAL STRENGTH	:	$5.5 \times 10^3 \text{ kg/cm}^2$
INTERLAMINAR SHEAR STRENGTH	:	305 kg/cm^2

GLASS FIBRE (UNIDIRECTIONAL)

TENSILE STRENGTH	:	$5.2 \times 10^3 \text{ kg/cm}^3$
FLEXURAL STRENGTH	:	$5.0 \times 10^3 \text{ kg/cm}^3$
INTERLAMINAR SHEAR STRENGTH	:	135 kg/cm^2

ELECTRICAL PROPERTIES OF GLASS-POLYIMIDE COMPOSITE

1. Dielectric Constant at 10 KHz frequency with 3.3 mm thick laminate = 2.1
2. Dissipation factor at 10 KHz frequency with 3.3 mm thick laminate = 0
3. Electromagnetic radiation transparency with unidirectional glass / PI laminate at 11.9 GHz
----- 89%

THE MECHANICAL PROPERTIES OF ABRON-R 750/E-GLASS
POLYIMIDE SYSTEM AS DETERMINED AT AN INDEPENDENT,
GOVT. OF INDIA AGENCY:

- | | |
|---------------------------------|------------------|
| 1. Tensile strength | :400 MPa |
| 2. Flexural strength | :450 MPa |
| 3. Inter Laminar Shear strength | :25 MPa |
| 4. Resin content | :26 to 28% only |
| 5. Density | :1.8 - 1.9 gm/cc |

The above properties meet the requirement of composites upto 220 °C for continuous operation and up to 300 °C for short duration application.

MECHANICAL PROPERTIES OF LAMINATES BASED ON
ABRON-R 750

Composite systems	Tensile strength 10 ³ kg/cm ² Av S.D	Flexural strength 10 ³ kg/cm ² Av. S.D	Interlaminar shear Strength kg/cm ² Av. S.D
ABRON R 750/carbon Unidirectional	8.094 0.055	5.79 0.565	305.55 23.22
ABRON R 750/glass Unidirectional	-	8.614 1.15	325.9 6.30
ABRON R 750/glass Cloth	-	3.62 0.11	250.9 5.8

MECHANICAL PROPERTIES OF THERMALLY AGED COMPOSITES

Temperature ° C	Flexural strength (Kg/cm ²)	1LSS (MPa)
	ABRON R 750	ABRON R 750
30	3022	325
150	2840	-
175	2806	-
200	2741*	291.5
250	2530	300

- Value obtained after soaking the sample for 100 hrs at 200° C.

The product information or recommendations offered, either in writing or verbally, is a part of service information to our customers, and these are based on test results carried out by us based on the current state of our knowledge. Customers are requested to independently evaluate the suitability of the ABROL products for each application. The information provided is for the use by persons having technical skill, at their discretion & risk and no liability can be accepted in respect of information provided and no warranties are intended as the condition of application are beyond our control.