ECCOBOND Ò 104

Two Component, Elevated Temperature Curing Epoxy Adhesive With High Service Temperature

Key Feature	Benefit

Product Description :

ECCOBOND 104 is a two component epoxy adhesive which exhibits outstanding physical and dielectric properties at service temperatures up to 230°C. It may be used at temperatures up to 290°C for short periods or intermittent use.

Applications :

ECCOBOND 104 contains no solvents or volatile matter and is suitable for bonding a wide variety of porous or non porous materials. Excellent adhesive properties can be achieved to materials such as aluminum, stainless steel, carbon steel, brass, ceramics, glass and many thermoset plastics.

The resistance of ECCOBOND 104 to a wide variety of solvents and chemicals is substantially better than can be obtained with more conventional adhesives (see table below).

Properties :

Typical Solvent and Chemical Resistance Percent Weight Change After 7 Days Immersion at 24°C :

Chemical	% Weight Change
30 % H_2SO_4	+ 0,19
3 % H_2S0_4	+ 0,26
10 % NaOH	+ 0,11
1 % NaOH	+ 0,22
95 % C_2H_5OH	+ 0,7
50 % C_2H_5OH	+ 0,18
Acetone	+ 0,06
Ethyl Acetate	+ 0,00
CCl_4	+ 0,04
Toluene	+ 0,04
Heptane	+ 0,02
JP-4	0
10 % NaCl	+ 0,21
5 % Phenol	+ 0,23
Distilled H_20	+ 0,20
10 % HNO_3	+ 0,23
10 % HCl	+ 0,22
5 % CH_3COOH	+ 0,24
10 % NH_4OH	+ 0,76
2 % Na_2CO_3	+ 0,22
3 % H_2O_2	+ 0,23
10 % Citric Acid	+ 0,22
Oleic Acid	+ 0,09
JP-5	0

Instructions For Use :

1. ECCOBOND 104 Part A is a medium viscosity black syrup which should be mixed to a uniform consistency before removing from the container. ECCOBOND 104 Part B is a white finely divided powder.
2. Weigh out the required amount of Part A and add 64 parts by weight of Part B for each 100 parts of Part A.
3. Blend Part A and Part B to a uniform consistency. Modest heating of Part A up to about 60°C will make blending easier. Heating above 60°C is not recommended as the pot life will be reduced substantially. The pot life of the blended material at room temperature is at least 12 hours.
4. Clean the surfaces to be bonded. Roughening with emery paper and a wash with acetone or methyl ethyl ketone is recommended for optimum adhesion.
5. Apply the prepared ECCOBOND 104 to both surfaces - join them and squeeze out excess material. Only contact pressure is required.
6. Please refer to the cure schedules mentioned below.

Properties Of Material As Supplied :

Property	Test Method	Unit	Value
Chemistry			epoxy
Appearance	Visual		black
Density	ASTM-D-792	g/cm^3	1,4 - 1,6
Mixed Viscosity at 25°C	ASTM-D-2392	Pa.s	TBD

Cure Schedule :

For optimum performance at temperatures above 205°C a post cure of 12 hours at 260°C is recommended.

Cure Temperature (°C)	Cure Time (h)
120	6
150	3
180	2
200	1

Properties Of Material After Application (Cured At Minimum 150°C) :

Property	Test Method	Unit	Value
Hardness	ASTM-D-2240	Shore D	90 minimum
Flexural Strength	ASTM-D-790	MPa	TBD
Flexural Modulus	ASTM-D-790	MPa	TBD
Tensile Strength	ASTM-D-638	MPa	TBD
Impact Strength	ASTM-D-256	J/cm	TBD
Thermal Conductivity	ASTM-D-2214	W/m.K	TBD
Coefficient Of Linear Thermal Expansion	ASTM-D-3386	10^{-6} K^{-1}	49
Linear Shrinkage During Cure	ASTM-D-2566	%	TBD
Volume Resistivity	ASTM-D-257 at 25°C at 180°C	 Ohm.cm Ohm.cm	 10^{15} minimum 10^{13} minimum
Dielectric Constant at 10^2 to 10^{10} Hz	 ASTM-D-150		 TBD
Dissipation Factor at 10^2 to 10^{10} Hz	 ASTM-D-150		 TBD
Dielectric Strength 3 mm Thick Sample	 ASTM-D-149	 kV/mm	 15,6
Moisture Absorption In 7 Days	ASTM-D-570	%	TBD
Machinability			TBD

Europe
Nijverheidsstraat 7
B-2260 Westerlo
Belgium
☎ +(32)-(0) 14 57 56 11
Fax: +(32)-(0) 14 58 55 30

North America
45 Manning Road
Billerica, MA 01821
☎ 800-832-4929
☎ (978) 436-9700
Fax: (978) 436-9701

Asia-Pacific
100 Kaneda, Atsugi-shi
Kanagawa-ken, 243
Japan
☎ (81) 462-25-8815
Fax: (81) 462-22-1347

ECCOBOND® 104

Two Component, Elevated Temperature Curing Epoxy Adhesive With High Service Temperature

Properties Of Material After Application (Cured At Minimum 150°C) (Continued) :

Property	Test Method	Unit	Value
Service Temperature			
Continuous Use	ASTM-D-794	°C	230
Intermittent Use	ASTM-D-794	°C	290
Young's Modulus	ASTM-D-638	MPa	TBD
Tensile Lap Shear Strength, Aluminum to Aluminum	ASTM-D-1002		
	at 25°C	MPa	10 minimum
	at 150°C	MPa	12 minimum
	at 230°C	MPa	6,8 minimum
	at 290°C	MPa	4,2 minimum
Heat Distortion Temperature	ASTM-D-648	°C	260 minimum

Storage And Handling :

Store ECCOBOND 104 in well sealed, unopened containers at temperatures between 18°C and 25°C.

Storage Temperature (°C)	Usable Shelf Life
18 to 25	6 months

Health & Safety :

It is recommended to consult the Emerson & Cuming product literature, including material safety data sheets, prior to using Emerson & Cuming products. These may be obtained from your local sales office.

Attention Specification Writers :

The technical information contained herein is consistent with the properties of the material and should not be used in the preparation of specifications, as it is intended for reference only. For assistance in preparing specifications, please contact your local Emerson & Cuming office for details. Please contact Emerson & Cuming Quality Assurance for test method details.

E29/09/99-RVH (0735s)