Technical Data Sheet
ECCOBOND® 45 / CATALYST 15
General Purpose, Adjustable Flexibility Epoxy Adhesive

Key Feature:	Benefit:
• Easy mix ratio	• Ease of use
• Adjustable flexibility	• Hardness can be adjusted by varying amount of CATALYST 15
• General purpose	• Bonds well to metal, glass and plastic substrates

Product Description:

ECCOBOND 45 / Catalyst 15 is a black, filled epoxy adhesive which, by varying the amount of catalyst used, can adjust the hardness from flexible to rigid. It has an easy mix ratio range and bonds well to a wide variety of substrates.

Applications:

ECCOBOND 45 / Catalyst 15 is designed as a general purpose, adhesive and is particularly useful when bonding dissimilar substrates such as metal to plastic.

Instructions For Use:

Thoroughly read the information concerning health and safety contained in this bulletin before using. Observe all precautionary statements that appear on the product label and/or contained in individual Material Safety Data Sheets (MSDS).

To ensure the long term performance of the bonded assembly, complete cleaning of the substrates should be performed to remove contamination such as oxide layers, dust, moisture, salt, and oils which can cause poor adhesion or corrosion in a bonded part. For information on proper substrate preparation, refer to the reprint "Good Adhesive Bonding Starts With Surface Preparation" available from Emerson & Cuming.

Some separation of components is common during shipping or storage. For this reason, it is recommended that the contents of the shipping container be thoroughly mixed prior to use. Power mixing is preferred to ensure a homogeneous product.

Accurately weigh resin and hardener into a clean container in the recommended ratio. Weighing apparatus having an accuracy in proportion to the amounts being weighed should be used.

Blend components by hand, using a kneading motion, for 2-3 minutes. Scrape the bottom and sides of the mixing container frequently to produce a uniform mixture. If possible, power mix for an additional 2-3 minutes. Avoid high mixing speeds which could entrap excessive amounts of air or cause overheating of the mixture resulting in reduced working life.

Apply the adhesive to all surfaces to be bonded and join together. In most applications only contact pressure is required.

Properties of Material As Supplied:

Property	Test Method	Unit	ECCOBOND 45	CATALYST 15
Chemical Type			Epoxy	Amine
Appearance	Visual		Black	Black
Density	ASTM-D-792	g/cm^3	1.58	0.97
Brookfield Viscosity	ASTM-D-2393	Pa.s cP	225 225,000	25 25,000

Properties of Material As Mixed:

Property	Test Method	Unit	Value		
			Rigid	Semi-rigid	Flexible
Mix Ratio - Amount of Catalyst 15 per 100 parts of ECCOBOND 45		By Weight	50	100	150
Working Life (100 g @ 25°C)	ERF 13-70	minutes	120	140	160
Density	ASTM-D-792	g/cm^3	1.34	1.24	1.18
Brookfield Viscosity	ASTM-D-2393	Pa.s cP	37 37,000	37 37,000	36 36,000

Cure Schedule:

Cure at any one of the recommended cure schedules. Alternate cure schedules may also be possible. Contact your Emerson & Cuming Technical Representative for further information.

Temperature	Cure Time
°C	Time
25	16-24 hours
45	4-6 hours
65	2-4 hours
105	15 - 30 minutes

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Properties of Material After Application:

Property	Test Method	Unit	Value		
			Rigid	Semi-rigid	Flexible
Hardness	ASTM-D-2240	Shore	80D	60D	60A
Tensile Lap Shear Strength Aluminum to Aluminum @ 25°C	ASTM-D-1002	mPa psi	17 2,500	13 1,900	4 600
Aluminum to aluminum @ 65°C		mPa psi	10 1,400		
Water Absorption (24 hours)	ASTM-D-570	%	0.2	0.5	
Coefficient of Thermal Expansion α^1 α^2	ASTM-D-3386	 10^{-6}/°C 10^{-6}/°C	 58 158	 73 173	 87 209
Glass Transition Temperature	ASTM-D-3418	°C	48	23	11
Thermal Conductivity	ASTM-D-2214	W/m.K Btu-in/hr-ft²-°F	0.35 2.4	0.35 2.4	0.35 2.4
Temperature Range of Use		°C	-40 to +90	-55 to +80	-55 to +65
Dielectric Strength	ASTM-D-149	kV/mm V/mil	14 350	14 350	14 350
Dielectric Constant @ 60 Hz @ 1 kHz @ 1 mHz	ASTM-D-150	-	4.4 4.1 3.4	 3.3	
Dissipation Factor @ 60 Hz @ 1 kHz @ 1 mHz	ASTM-D-150	-	0.04 0.04 0.03	 0.06	
Volume Resistivity @ 25°C	ASTM-D-257	Ohm-cm	$>10^{13}$	$>10^{13}$	$>10^{10}$

Storage and Handling:

The shelf life of ECCOBOND 45 / CATALYST 15 is 6 months at 25°C. For best results, store in original, tightly covered containers. Storage in cool, clean and dry areas is recommended. Usable shelf life may vary depending on method of application and storage temperature.

Health and Safety:

The ECCOBOND 45 , like most epoxy compounds possesses the ability to cause skin and eye irritation upon contact. Certain individuals may also develop an allergic reaction after exposure (skin contact, inhalation of vapors, etc.) which may manifest itself in a number of ways including skin rashes and an itching sensation. Handling this product at elevated temperatures may also generate vapors irritating to the respiratory system.

The CATALYST 15 is classified as a corrosive material. Direct contact with unprotected eyes or skin can cause severe burns. Certain individuals may also develop an allergic skin or respiratory reaction after exposure (skin contact, skin absorption, inhalation of vapors, etc.). These reactions may manifest themselves in a number of ways including skin rashes , itching sensation and breathing difficulties. Handling this product may also generate vapors irritating to the respiratory system.

Good industrial hygiene and safety practices should be followed when handling this product. Proper eye protection and appropriate chemical resistant clothing should be worn to minimize direct contact. Consult the Material Safety Data Sheet (MSDS) for detailed recommendations on the use of engineering controls and personal protective equipment.

This information is only a brief summary of the available safety and health data. Thoroughly review the MSDS for more complete information before using this product.

Attention Specification Writers:

The values contained herein are considered typical properties only and are not intended to be used as specification limits. For assistance in preparing specifications, please contact Emerson & Cuming Quality Assurance for further details.