

# ECCOBOND<sup>®</sup> 45 W 1

## Two Component, Room Temperature Curing Epoxy Adhesive With Variable Flexibility

Key Feature	Benefit
Easy mix ratio	Quick handling
Different mix ratios possible	Adjustable flexibility
High shock and peel resistance	Longer life

### Product Description :

ECCOBOND 45 W 1 is a controlled flexibility epoxy adhesive. ECCOBOND 45 W 1 can be cured at room temperature or rapidly at elevated temperatures. To prevent adhesion, use MOLD RELEASE 122 S. The flexibility of ECCOBOND

45 W 1 is determined by the amount of CATALYST 15 which is used. Application is by brush, knife or roller. Clean up solvent is alcohol, acetone or methyl ethyl ketone (MEK). The colour of ECCOBOND 45 W 1 is black, but other colours are available.

### Applications :

ECCOBOND 45 W 1 is designed for use where shock and peel resistance are desired. Adhesion to metals, glass, ceramic, and plastic is excellent.

### Instructions For Use :

The semi rigid formulation given below is the one which is generally used.

#### Rigid Formulation

100 parts ECCOBOND 45 W 1  
50 parts CATALYST 15

#### Semi Rigid Formulation

100 parts ECCOBOND 45 W 1  
100 parts CATALYST 15

#### Flexible Formulation

100 parts ECCOBOND 45 W 1  
150 parts CATALYST 15

#### Twin Packs

1 by 1 in volume  
or 150 to 100 by weight

1. Clean the surfaces to be bonded.
2. Mix ECCOBOND 45 W 1 in the can in which it is received and then weigh out the desired amount. Add the correct weighed amount of CATALYST 15 dependent upon the formulation chosen. Mix thoroughly. Pot life is approximately 2 hours at room temperature.
3. Apply and squeeze out excess. Cure is effected within 8 hours at room temperature. Bond strength will increase during the following 24 hours. Rapid curing is possible for example, 1/2 hour at 70°C or 15 minutes at 105°C.

Note : During storage at room temperature for long periods, it is possible that the viscosity of ECCOBOND 45 W 1 can increase and may exceed its upper specification limit. The viscosity can be brought back to the normal level by moderate mixing.

**Properties Of Material As Supplied :**

Property	Test Method	Unit	Typical Value
Chemistry			epoxy
Appearance Part A Part B	TP-76W		Black Black
Density Part A Cured	TP-13W	g/cm <sup>3</sup> g/cm <sup>3</sup>	1,56 – 1,62 1,56 – 1,62
Viscosity at 25°C Part A Mixed	TP-10W	Pa.s Pa.s	200 - 250 30 - 50

**Cure Schedule :**

Please refer to the instructions for use above.

**Properties Of Material After Application (Semi-Rigid Formulation) :**

Property	Test Method	Unit	Typical Value
Hardness	TP-49W	Shore D	60 – 70
Flexural Strength	ASTM-D-790	MPa	34 minimum
Tensile Strength Measured For 150 to 100 Ratio (Twin Pack)	ASTM-D-638	MPa	30 minimum
Impact Strength	ASTM-D-256	J/cm	22
Volume Resistivity	TP-544W at 25°C	Ohm.cm	3,4 x 10 <sup>13</sup>
Dielectric Constant at 50 Hz to 1 MHz	TP-545W		5,0 to 3,0
Dissipation Factor at 50 Hz to 1 MHz	TP-545W		0,1 to 0,019
Dielectric Strength	ASTM-D-149	Kv/mm	15,6
Service Temperature Continuous Use Intermittent Use		°C °C	-55 to +90 -55 to +120
Young's Modulus	ASTM-D-638	MPa	+/- 500
Tensile Lap Shear Strength	TP-21W	MPa	12 minimum
Volume Shrinkage During Cure	TP-549W	%	3 to 4
Glass Transition Temperature	TP-526W	°C	37
Surface Resistivity	TP-544W	Ohm	3,1 x 10 <sup>16</sup>
Coefficient of Linear Thermal Expansion	TP-525W	10 <sup>-6</sup> K <sup>-1</sup>	50

**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

NATIONAL STARCH MAKES NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, CONCERNING THE SUITABILITY OF THESE MATERIALS FOR USE IN IMPLANTATION IN THE HUMAN BODY, OR FOR ANY OTHER USE. These materials are not designed or manufactured for use in implantation in the human body. National Starch has not performed clinical testing of these materials for implantation. National Starch has neither sought, nor received, approval from the FDA for the use of these materials in implantation in the human body. No representative of ours has any authority to waive or change the foregoing provisions but, subject to such provisions, our engineers are available to assist purchasers in adapting our products to their needs and to the circumstances prevailing in their business. Nothing contained herein shall be construed to imply the non-existence of any relevant patents or to constitute a permission, inducement or recommendation to practice any invention covered by any patent, without authority from the owner of this patent. We also expect purchasers to use our products in accordance with the guiding principles of the Chemical Manufacturers Association's Responsible Care® program.

# ECCOBOND<sup>®</sup> 45 W 1

## Two Component, Room Temperature Curing Epoxy Adhesive With Variable Flexibility

### Properties Of Material After Application (Semi-Rigid Formulation) (Continued) :

Property	Test Method	Unit	Typical Value
Modulus (DMA)	TP-526W		
	at 35°C		124
	at 50°C		21
	at 100°C		13
Water Absorption	TP-546W		
	after 24 h at 25°C	%	0,98
	after 7 days at 25°C	%	4,1

### Storage And Handling :

Store ECCOBOND 45 W 1 in well sealed, unopened containers at temperatures between 18°C and 25°C.

Storage Temperature (°C)	Usable Shelf Life
18 to 25	1 year

### 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 generally consistent with the properties of the material and should not be used in the preparation of specifications, as it is intended for reference only. This technical information has been derived from one batch of material and may not exactly match the properties of each individual delivered batch. For assistance in preparing specifications, please contact your local Emerson & Cuming office for details. Please contact Emerson & Cuming Quality Assurance for test method details.

(ECCOBOND<sup>®</sup> is a registered trademark of National Starch and Chemical Company)

E23/03/2004-LM/JS/R&D