



ECCOBOND 45/Catalyst 15

June 2010

PRODUCT DESCRIPTION

ECCOBOND 45/Catalyst 15 provides the following product characteristics:

Technology	Epoxy
Appearance (Part A)	Black
Appearance (Part B)	Black
Components	Two component - requires mixing
Cure	Room Temperature or Heat Cure
Product Benefits	<ul style="list-style-type: none"> • General purpose • Easy mix ratio • Extremely flexible • Variable flexibility • Room temperature cure • Fast cure • Excellent shock and peel resistance
Mix Ratio, by weight - Resin : Hardener Rigid Formula	100 : 50
Mix Ratio, by weight - Resin : Hardener Semi-rigid Formula	100 : 100
Mix Ratio, by weight - Resin : Hardener Flexible Formula	100 : 150
Application	Assembly
Operating Temperature Rigid	-40 to 90°C
Operating Temperature Semi-rigid	-55 to 80°C
Operating Temperature Flexible	-55 to 65°C
Surfaces	Metals, Glass, Ceramics and Plastics

ECCOBOND 45/Catalyst 15 is designed as a general purpose, adhesive and is particularly useful when bonding dissimilar substrates such as metal to plastic. It is designed for use where shock and peel resistance are desired.

ECCOBOND 45 can be used with a variety of catalysts. For more information on mixed properties when used with other available catalysts, please contact your local technical service representative for assistance and recommendations.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Part A Properties *Eccobond 45*

Viscosity @ 25 °C, mPa·s (cP)	225,000
Specific Gravity	1.58
Shelf Life @ 18 to 25°C, months	12
Flash Point - See MSDS	

Part B Properties *Catalyst 15*

Viscosity @ 25 °C, mPa·s (cP)	25,000
Specific Gravity	0.97
Flash Point - See MSDS	

Mixed Properties

Rigid Formulation:

Mixed Viscosity @ 25°C, mPa·s (cP)	37,000
Specific Gravity	1.34
Working Time, 100g mass @ 25°C, minutes	120
Shelf Life @ 25 °C, months	6
Flash Point - See MSDS	

Semi-Rigid Formulation:

Mixed Viscosity @ 25°C, mPa·s (cP)	37,000
Specific Gravity	1.24
Working Time, 100g mass @ 25°C, minutes	140
Shelf Life @ 25 °C, months	6
Flash Point - See MSDS	

Flexible Formulation:

Mixed Viscosity @ 25°C, mPa·s (cP)	36,000
Specific Gravity	1.18
Working Time, 100g mass @ 25°C, minutes	160
Shelf Life @ 25 °C, months	6
Flash Point - See MSDS	

TYPICAL CURING PERFORMANCE

Cure Schedule

Cure Temp, °C	Cure Time, Minutes	Cure Time, hours
25		16-24
45		4-6
65		2-4
105	15-30	

The above cure profiles are guideline recommendations. Cure conditions (time and temperature) may vary based on customers' experience and their application requirements, as well as customer curing equipment, oven loading and actual oven temperatures.

TYPICAL PROPERTIES OF CURED MATERIAL

Rigid Formulation

Physical Properties:

Coefficient of Thermal Expansion ASTM D 3386:	
Below Tg, ppm/°C	58
Above Tg, ppm/°C	158
Glass Transition Temperature, ISO 11357-2, °C	48
Thermal Conductivity, W/mk	0.35
Shore Hardness, ISO 868, Durometer D	80
Water Absorption, ASTM D 570, %:	
24 hours	0.2



Electrical Properties:

Dielectric Breakdown Strength, IEC 60243-1, kV/mm	14
Dielectric Constant / Dissipation Factor, IEC 60250:	
60Hz	4.4 / 0.04
1 kHz	4.1 / 0.04
1 mHz	3.4 / 0.03
Volume Resistivity, IEC 60093, Ω -cm	$>1 \times 10^{13}$

Semi-rigid Formulation

Physical Properties:

Coefficient of Thermal Expansion ASTM D 3386:	
Below Tg, ppm/°C	73
Above Tg, ppm/°C	173
Glass Transition Temperature, ISO 11357-2, °C	23
Thermal Conductivity, W/mk	0.35
Shore Hardness, ISO 868, Durometer D	60 to 70
Water Absorption, ASTM D 570, %:	
24 hours	0.5
Tensile Strength, ISO 527-2	N/mm ² 30 (psi) (4,350)
Tensile Modulus, ISO 527-2	N/mm ² 500 (psi) (72,500)
Flexural strength, ASTM D790	N/mm ² 34 (psi) (4,930)
Impact Strength, ASTM-D-256, J/cm	22

Electrical Properties:

Dielectric Breakdown Strength, IEC 60243-1, kV/mm	14
Dielectric Constant / Dissipation Factor, IEC 60250:	
1 mHz	3.3 / 0.08
Volume Resistivity, IEC 60093,	$>1 \times 10^{13}$

Flexible Formulation

Physical Properties:

Coefficient of Thermal Expansion ASTM D 3386:	
Below Tg, ppm/°C	87
Above Tg, ppm/°C	209
Glass Transition Temperature, ISO 11357-2, °C	11
Thermal Conductivity, W/mk	0.35
Shore Hardness, ISO 868, Durometer A	60

Electrical Properties:

Dielectric Breakdown Strength, IEC 60243-1, kV/mm	14
Volume Resistivity, IEC 60093, Ω -cm	$>1 \times 10^{10}$

TYPICAL PERFORMANCE OF CURED MATERIAL

Rigid Formulation

Lap Shear Strength, ISO 4587:

Aluminum:

Tested @ 25 °C	N/mm ² 17 (psi) (2,500)
Tested @ 65 °C	N/mm ² 10 (psi) (1,400)

Semi-Rigid Formulation

Lap Shear Strength, ISO 4587:

Aluminum:

Tested @ 25 °C	N/mm ² 13 (psi) (1,900)
----------------	---------------------------------------

Flexible Formulation

Lap Shear Strength, ISO 4587:

Aluminum:

Tested @ 25 °C	N/mm ² 4 (psi) (600)
----------------	------------------------------------

GENERAL INFORMATION

For safe handling information on this product, consult the Material Safety Data Sheet, (MSDS).

DIRECTIONS FOR USE

1. 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.
2. Some separation of components is common during shipping and storage. For this reason, it is recommended that the contents of the shipping container be thoroughly mixed prior to use.
3. Power mixing is preferred to ensure a homogeneous product.
4. Mix ECCOBOND 45 in the can in which it is received.
5. Accurately weigh ECCOBOND 45 and Catalyst 15 into a clean container in the recommended ratio.
6. Blend components by hand, using a kneading motion, for 2 to 3 minutes and scrape the bottom and sides of the mixing container frequently to produce a uniform mixture.
7. If possible, power mix for an additional 2 to 3 minutes. Avoid high mixing speeds which could entrap excessive amounts of air or cause overheating of the mixture resulting in reduced working life.
8. Application is by brush, knife or roller. Apply and squeeze out excess.
9. Apply adhesive to all surfaces to be bonded and join together.
10. In most applications only contact pressure is required.
11. Clean up solvent is alcohol, acetone, or methyl ethyl ketone (MEK).
12. To prevent adhesion, use MOLD RELEASE 122 S.

Storage

Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.

Optimal Storage: 18 to 25 °C

Material removed from containers may be contaminated during use. Do not return product to the original container. Henkel Corporation cannot assume responsibility for product which has been contaminated or stored under conditions other than those previously indicated. If additional information is required, please contact your local Technical Service Center or Customer Service Representative.

Not for product specifications

The technical data contained herein are intended as reference only. Please contact your local quality department for assistance and recommendations on specifications for this product.

Conversions

$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$
kV/mm $\times 25.4 = \text{V/mil}$
mm / 25.4 = inches
N $\times 0.225 = \text{lb}$
N/mm $\times 5.71 = \text{lb/in}$
N/mm² $\times 145 = \text{psi}$
MPa $\times 145 = \text{psi}$
N·m $\times 8.851 = \text{lb}\cdot\text{in}$
N·m $\times 0.738 = \text{lb}\cdot\text{ft}$
N·mm $\times 0.142 = \text{oz}\cdot\text{in}$
mPa·s = cP

Note

The data contained herein are furnished for information only and are believed to be reliable. We cannot assume responsibility for the results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In light of the foregoing, **Henkel Corporation specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Henkel Corporation's products. Henkel Corporation specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits.** The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from domination of patents owned by others or as a license under any Henkel Corporation patents that may cover such processes or compositions. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide. This product may be covered by one or more United States or foreign patents or patent applications.

Trademark usage

Except as otherwise noted, all marks used above on this data sheet are trademarks and/or registered trademarks of Henkel and/or its affiliates in Germany and elsewhere.

Reference 0.2