

LOCTITE® ECCOBOND F 253

September 2024

PRODUCT DESCRIPTION

LOCTITE® ECCOBOND F 253 provides the following product characteristics:

Technology	Epoxy
Appearance (unmixed)	Light yellow
Appearance (mixture)	Green/Blue
Appearance (cured)	Reddish-amber
Cure	Heat cure
Product benefits	<ul style="list-style-type: none"> • Low stress • Low viscosity • Excellent wicking • Good high temperature performance • Resistant to mechanical impact • Excellent thermal shock resistance • Tough adhesion to a wide variety of fiber optic and optic materials • Color keyed formulation that indicates cure status
Mix ratio, by weight - resin: hardener	100 : 10
Operating temperature, °C	-60°C to 175°C
Application	Assembly
Typical application	Fiber optic assembly and other optic applications
substrates	Most metals, ceramic, glass and plastics

LOCTITE® ECCOBOND F 253 two-part epoxy is formulated to change color during the cure process to indicate the cure status. LOCTITE® ECCOBOND F 253 bonds offer resistance to water and weathering, gasses and vapors, petroleum products and other organic and inorganic compounds.

LOCTITE® ECCOBOND F 253 passes NASA outgassing standards.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Viscosity, @ 25°C, after mixing, cP	1,750
Thixotropic index	1.0
Specific gravity, mixed	1.2
Solids content, reactive, %	100
Pot life, 25 grams, hour	1
Work life, 25 grams, hours	2
Flash point - see SDS	

TYPICAL CURING PERFORMANCE

Cure schedule

15 minutes @ 100°C or
5 minutes @ 125°C or
1 minute @ 150°C

Percent volatiles

VOC, grams/liter 19.6

An additional post cure of 30 minutes @ 150°C is recommended when application temperatures higher than 150°C are anticipated.

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

TYPICAL PROPERTIES OF CURED MATERIAL

Physical properties

Coefficient of thermal expansion, ppm/°C:	
Below Tg	2.02 x 10 ⁰²
Above Tg	6.27 x 10 ⁰¹
Glass transition temperature, °C	116
Hardness, Shore D	88
Refractive index	1.56
Water absorption, after 24 hours saturation, %	0.004

TYPICAL PERFORMANCE OF CURED MATERIAL

Outgassing properties

Total mass loss, %	0.57
Collected volatile condensable material, %	0.04

Miscellaneous

Lap shear strength, psi	
Aluminum to aluminum	2,700

GENERAL INFORMATION

Please consult the **Safety Data Sheet (SDS)** for safe handling information of this product.

Directions for use

1. Carefully clean and dry all surfaces to be bonded.
2. Remove clamp and thoroughly mix the LOCTITE® ECCOBOND F 253 epoxy adhesive system components in the handy BIPAX mixing-dispenser package until color is uniform throughout.
3. Apply this completely mixed adhesive to the prepared surfaces, and gently press these surfaces together. Contact pressure is adequate for strong, reliable bonds; however, maintain contact until adhesive is completely cured.
4. 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.
5. Some ingredients in this formulation provided in BIPAX, TRA-PAX and bulk packaging may crystallize when subjected to low temperature storage. A gentle warming cycle of 52°C for 30 minutes prior to mixing components may be necessary. Crystallized epoxy components do not react as well as liquid components and should be redissolved prior to use for best results.

Storage

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

Optimal storage: - 40°C

Material removed from containers may be contaminated during use. Do not return product to the original container. Henkel 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 Henkel 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 the specifications of this product.

Conversions

$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$
 $\text{kV/mm} \times 25.4 = \text{V/mil}$
 $\text{mm} / 25.4 = \text{inches}$
 $\mu\text{m} / 25.4 = \text{mil}$
 $\text{N} \times 0.225 = \text{lb}$
 $\text{N/mm} \times 5.71 = \text{lb/in}$
 $\text{N/mm}^2 \times 145 = \text{psi}$
 $\text{MPa} \times 145 = \text{psi}$
 $\text{N}\cdot\text{m} \times 8.851 = \text{lb}\cdot\text{in}$
 $\text{N}\cdot\text{m} \times 0.738 = \text{lb}\cdot\text{ft}$
 $\text{N}\cdot\text{mm} \times 0.142 = \text{oz}\cdot\text{in}$
 $\text{mPa}\cdot\text{s} = \text{cP}$

Disclaimer

The information provided in this Technical data sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. The product can have a variety of different applications as well as differing application and working conditions in your environment that are beyond our control. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product. Any liability in respect of the information in the Technical data sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

In case products are delivered by Henkel Belgium NV, Henkel Electronic Materials NV, Henkel Nederland BV, Henkel Technologies France SAS and Henkel France SA please additionally note the following:

In case Henkel would be nevertheless held liable, on whatever legal ground, Henkel's liability will in no event exceed the amount of the concerned delivery.

In case products are delivered by Henkel Colombiana, S.A.S. the following disclaimer is applicable:

The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product. Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

In case products are delivered by Henkel Corporation, or Henkel Canada Corporation, the following disclaimer is applicable:

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 trademarks in this document are trademarks of Henkel Corporation in the U.S. and elsewhere. ® denotes a trademark registered in the U.S. Patent and Trademark Office.

Reference 2