



Hysol 3471

November 2012

PRODUCT DESCRIPTION

Hysol 3471 provides the following product characteristics:

Technology	Epoxy
Chemical Type	Epoxy
Appearance (uncured)	Gray, putty
Components	Two part - Resin & Hardener
Mix Ratio, by weight - Resin : Hardener	1 : 1
Mix Ratio, by volume - Resin : Hardener	1 : 1
Cure	Room temperature cure after mixing
Application	Industrial maintenance
Maximum Gap	1.0 mm
Specific Benefit	<ul style="list-style-type: none"> • Low shrinkage properties • Does not rust

Hysol 3471 is a steel filled, two component epoxy adhesive that is ideal for the repair and recovery of worn and damaged machinery. Typical applications include repairing worn parts such as shafts, housings, keyways and flanges as well as broken or damaged parts such as castings, pipes or fabrications. This product can be used for jobs as varied as filling cavities, levelling machinery, repairing cast-steel plates, making core moulds, applying a sacrificial coating or sealing leaking pipes. This product is typically used in applications with an operating range of -20 °C to +120 °C.

TYPICAL CURING PERFORMANCE

Cure Speed

Hysol 3471 develops functional strength at 20 °C after 12 hours. At 10 °C, 24 hours is required:

Open Time

Open Time (mixed), minutes:

@ 10 °C	180
@ 20 °C	60
@ 30 °C	40

TYPICAL PROPERTIES OF CURED MATERIAL

Cured for 7 days @ 22 °C

Physical Properties:

Shore Hardness, ISO 868, Durometer D	85
Linear Shrinkage, ASTM D792, %	0.1
Tensile Strength, ISO 527-2	N/mm ² 60 (psi) (8,700)
Tensile Modulus, ISO 527	N/mm ² 5,000 (psi) (725,000)

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

Cured for 7 days @ 22 °C

Lap Shear Strength, ISO 4587:

Steel	N/mm ² 20 (psi) (2,900)
Aluminum	N/mm ² 20 (psi) (2,900)

Compressive Shear Strength, ISO 10123:

Steel pins and collars	N/mm ² 70 (psi) (10,000)
------------------------	--

TYPICAL ENVIRONMENTAL RESISTANCE

Solvent Resistance

Like most epoxy resin based materials, product has excellent resistance to many liquids and solvents. The following information may be used as a guide:

Type of Liquid/Solvent	Product Performance
Water, Dilute acids, Salt solution	Excellent. Some surface discoloration may occur.
10% Caustic Soda	Excellent.
Gasoline, Hydrocarbon fuels and lubricants	Excellent.
Chlorinated solvents	Good resistance but not recommended for continuous long term contact.
Methanol, Acetone, MEK	Poor resistance.

Note: This information refers to fully cured material. Incomplete cure or inadequate mixing will adversely affect solvent resistance.

GENERAL INFORMATION

This product is not recommended for use in pure oxygen and/or oxygen rich systems and should not be selected as a sealant for chlorine or other strong oxidizing materials.

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



Directions for use

1. For best performance surfaces for bonding should be clean, dry and free of grease. For high strength structural bonds, special surface treatments can increase the bond strength and durability.
2. Stir each component of resin and hardener separately, then measure out equal amounts of each.
3. Stir thoroughly together for up to two minutes until an even mix is achieved.
4. Apply the product to the working area with the spatula provided.
5. For larger breaks or fractures, the product can be applied to glass fiber matting or a similar support and used as a patch or bandage.
6. If used as a molding compound, use a wax, grease or silicone release agent to prevent adhesion to any surface. Functional strength is normally achieved after 10 to 12 hours, with full cure within 72 hours. These times are reduced with high ambient temperatures.

NOTE: Due to heat generation during the curing process, larger quantities tend to cure more rapidly.

7. Excess uncured adhesive can be wiped away with organic solvent (e.g. Acetone).
8. Keep the assembled parts from moving during cure. The joint should be allowed to develop full strength before subjecting to any service loads.
9. After use and before adhesive hardens, mixing and application equipment should be cleaned with hot soapy water.

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.

Storage

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

Optimal Storage: 8 °C to 21 °C. Storage below 8 °C or greater than 28 °C can adversely affect product properties.

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.

Conversions

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

Disclaimer

Note:

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, Resin Technology Group, Inc., or Henkel Canada, Inc. 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 1.2