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LOCTITE

Technical Data Sheet

LOCTITE® GRD AV™

Known as LOCTITE® 087™
December 2017

PRODUCT DESCRIPTION

LOCTITE® GRD AV™ provides the following product characteristics:

Technology	Acrylic
Chemical Type	Dimethacrylate ester
Appearance (uncured)	Red liquid[LMS]
Fluorescence	Positive under UV light[LMS]
Components	One component - requires no mixing
Viscosity	Medium
Cure	Anaerobic
Application	Threadlocking
Strength	High

LOCTITE® GRD AV™ is used to lock and seal large coarse threaded nuts, bolts and studs in a wide variety of applications where high locking strength is required.

Mil-S-22473E

LOCTITE® GRD AV™ is tested to the lot requirements of Military Specification Mil-S-22473E. **Note:** This is a regional approval. Please contact your local Technical Service Center for more information and clarification.

ASTM D5363

Each lot of adhesive produced in North America is tested to the general requirements defined in paragraphs 5.1.1 and 5.1.2 and to the Detail Requirements defined in section 5.2.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 25 °C	1.07
Flash Point - See SDS	
Viscosity, Cannon Fenske, ISO 3104, mPa·s (cP)	100 to 250[LMS]

TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties:

Coefficient of Thermal Expansion, ISO 11359-2, K^{-1}	100×10^{-6}
Coefficient of Thermal Conductivity, ISO 8302, W/(m·K)	0.1
Specific Heat, kJ/(kg·K)	0.3

Electrical Properties:

Dielectric Breakdown Strength, IEC 60243-1, kV/mm	9.8

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

After 6 hours @ 22 °C

Prevail Torque, ISO 10964:		
3/8 x 24 steel nuts (grade 2) and bolts (grade 2)	N·m (lb.in.)	5.7 to 28.3[LMS] (50 to 250)

After 24 hours @ 22 °C

Breakaway Torque, ISO 10964:		
3/8 x 24 steel nuts (grade 2) and bolts (grade 2)	N·m (lb.in.)	7 (60)
Prevail Torque, ISO 10964:		
3/8 x 24 steel nuts (grade 2) and bolts (grade 2)	N·m (lb.in.)	11.3 to 28.3[LMS] (100 to 250)

TYPICAL ENVIRONMENTAL RESISTANCE

Cured for 72 hours @ 22 °C

Breakaway Torque, ISO 10964:

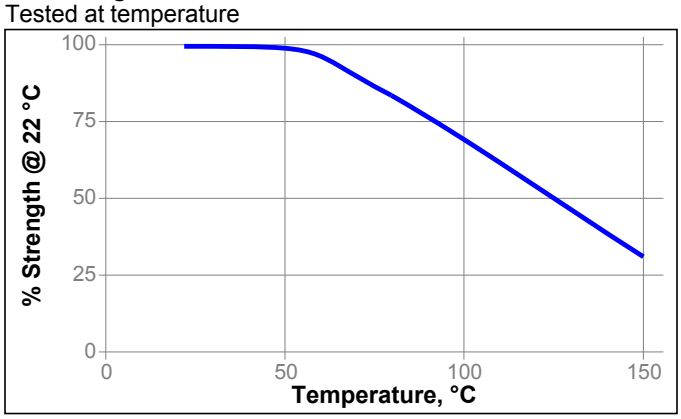
3/8 x 24 steel nuts (grade 2) and bolts (grade 2)

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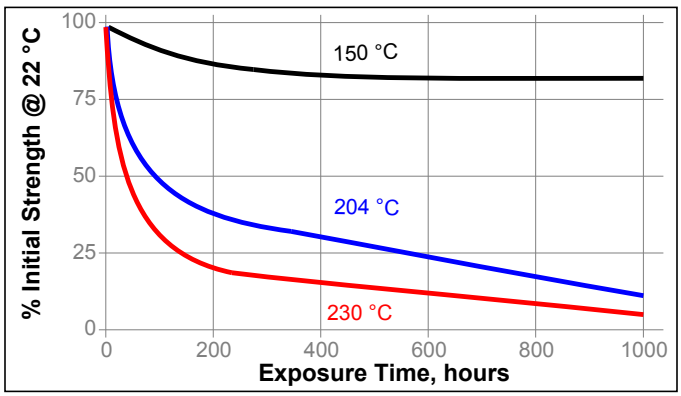
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Hot Strength
Tested at temperature



Heat Aging
Aged at temperature indicated and tested @ 22 °C



Chemical/Solvent Resistance
Aged under conditions indicated and tested @ 22 °C.

		% of initial strength
Environment	**°C**	**300 h**
Motor oil (MIL-L-46152)	93	100
Phosphate ester	93	100
Water	93	110
Ethylene glycol	93	110
Ethanol	22	115
Acetone	22	115

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 Safety Data Sheet (SDS).

Where aqueous washing systems are used to clean the surfaces before bonding, it is important to check for compatibility of the washing solution with the adhesive. In some cases these aqueous washes can affect the cure and performance of the adhesive.

This product is not normally recommended for use on plastics (particularly thermoplastic materials where stress cracking of the plastic could result). Users are recommended to confirm compatibility of the product with such substrates.

Directions for use:

For Assembly

1. For best results, clean all surfaces (external and internal) with a LOCTITE® cleaning solvent and allow to dry.
2. If the material is an inactive metal or the cure speed is too slow, spray all threads with Activator 7471™ or 7649™ and allow to dry.
3. Shake the product thoroughly before use.
4. To prevent the product from clogging in the nozzle, do not allow the tip to touch metal surfaces during application.
5. **For Thru Holes**, apply several drops of the product onto the bolt at the nut engagement area.
6. **For Blind Holes**, apply several drops of the product down the internal threads to the bottom of the hole.
7. **For Sealing Applications**, apply a 360° bead of product to the leading threads of the male fitting, leaving the first thread free. Force the material into the threads to thouroughly fill the voids. For bigger threads and voids, adjust product amount accordingly and apply a 360° bead of product on the female threads also.
8. Assemble and tighten as required.

For Disassembly

1. Apply localized heat to nut or bolt to approximately 250 °C. Disassemble while hot.

For Cleanup

1. Cured product can be removed with a combination of soaking in a LOCTITE® solvent and mechanical abrasion such as a wire brush.

Loctite Material Specification[LMS]
LMS dated September 01, 1995. Test reports for each batch are available for the indicated properties. LMS test reports include selected QC test parameters considered appropriate to specifications for customer use. Additionally, comprehensive controls are in place to assure product quality and consistency. Special customer specification requirements may be coordinated through Henkel Quality.

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.

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Conversions

(°C x 1.8) + 32 = °F
kV/mm x 25.4 = V/mil
mm / 25.4 = inches
µm / 25.4 = mil
N x 0.225 = lb
N/mm x 5.71 = lb/in
N/mm² x 145 = psi
MPa x 145 = psi
N·m x 8.851 = lb·in
N·m x 0.738 = lb·ft
N·mm x 0.142 = oz·in
mPa·s = cP

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.
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