

LOCTITE® 5810F™

December 2008

PRODUCT DESCRIPTION

LOCTITE® 5810F™ provides the following product characteristics:

Technology	Formed-In-Place Gasketing
Chemical Type	Polyacrylate
Appearance (uncured)	Black paste ^{LMS}
Fluorescence	Positive under UV light ^{LMS}
Cure	Moisture cure
Components	One component - requires no mixing
Thixotropic	Reduced migration of liquid product after application to substrate
Application	Sealing

LOCTITE® 5810F™ is a single component, non-silicone, oxime-free, polyacrylate based adhesive/sealant that cures with moisture at room temperature. It is designed with a heavy body viscosity for on line, low air pressure tests to be carried out before product begins to cure. The non-silicone based resin does not promote foaming in lubricants and exhibits excellent resistance to powertrain fluids. LOCTITE® 5810F™ is primarily designed for flange sealing with excellent oil resistance. Typical applications include cast metal, stamped steel, and molded plastic covers for engines, transmissions and axles. This product also works well for sealing plastic and metal housings on electronic components.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 20 °C	1.25 to 1.45
Flash Point - See SDS	
Extrusion Rate, g/min:	
Pressure 0.6 MPa, temperature 25 °C:	
Semco Cartridge	25 to 85
Blow Out Resistance, seconds:	
6 mm Flange, 1.0 mm Gap @ 0.014 MPa	10

TYPICAL CURING PERFORMANCE

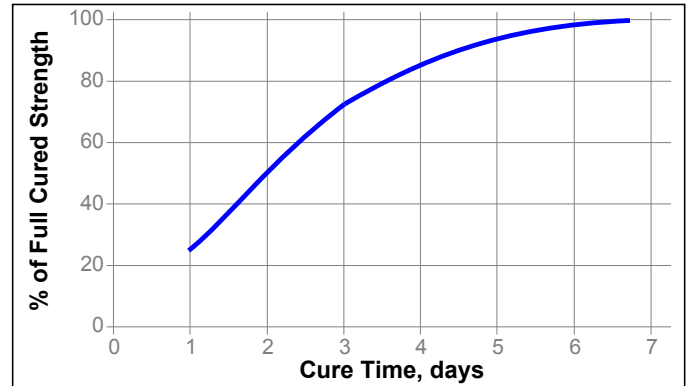
Skin Over Time

Skin over time is the time the surface of the adhesive forms a skin upon exposure to atmospheric moisture at 25 ± 2 °C, 50 ± 5% RH.

Skin Over Time, minutes	≤120 ^{LMS}
-------------------------	---------------------

Cure Speed vs. Time

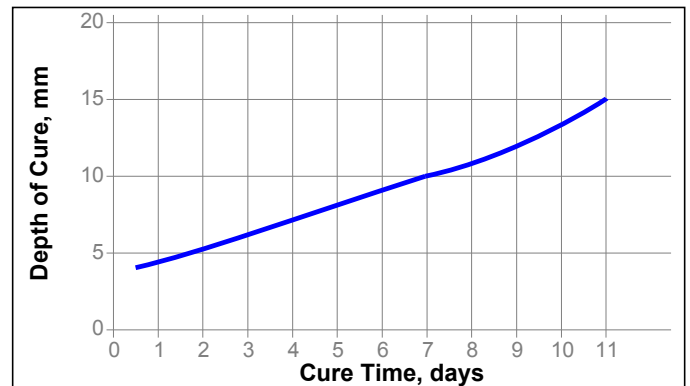
The graph below shows shear strength developed with time on Aluminum (Alclad) lapshears at a bond gap of 1.0 mm. Cure condition 25±2 °C / 50±5% RH. Strength is determined according to ISO 4587.



Depth of Cure

The depth of cure depends on temperature and humidity. Depth of cure was determined by filling a 15 mm deep cup and removing the cured film of material. The cured section of product is measured to determine depth of cure.

The graph below shows the increase in depth of cure with time at 25±2 °C / 50±5 % RH.



TYPICAL PROPERTIES OF CURED MATERIAL

Cured for 1 week @ 25 °C / 50±5 % RH

Physical Properties:

Glass Transition Temperature, °C	-45
Shore Hardness, ISO 868, Durometer A	18 to 35
Elongation, at break, ISO 37, %	≥150 ^{LMS}
Tensile Strength, ISO 37	N/mm ² ≥1.0 ^{LMS} (psi) (≥145)

TYPICAL PERFORMANCE OF CURED MATERIAL**Adhesive Properties**

After 7 days @ 25±2 °C / 50±5 % RH and 1.0 mm gap

Lap Shear Strength, ISO 4587:

Alclad to Mild steel	N/mm ² 1.1 (psi) (160)
Alclad to Alclad	N/mm ² ≥1.0 ^{LMS} (psi) (≥145)

TYPICAL ENVIRONMENTAL RESISTANCE**Environmental Aging - Effect on bulk properties**

Cured for 7 days @ 25±2 °C / 50±5% RH and 2 mm thick film

Tensile strength, ISO 37, N/mm² (Elongation, at break, %):

Environment	100 h	500 h	1000 h
Control, 22 °C	1.5(206)	-----	-----
ATF, 150 °C	2.0(141)	2.2(149)	2.0(111)
SF105 engine oil, 150 °C	1.9(123)	1.9(140)	2.1(110)
Synthetic gear oil, 150 °C	1.9(138)	2.0(136)	2.2(103)
Air at 150 °C	2.7(203)	2.6(168)	2.7(137)

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).

Directions for use:

1. For best performance bond surfaces should be clean and free from grease.
2. Assemble parts within 60 minutes. When joint is assembled, pressure should be applied to spread the adhesive out and fill the joint completely.
3. The bond should be allowed to cure (e.g. seven days), before subjecting to heavy service loads.
4. Excess material can be easily wiped away with non-polar solvents.

Loctite Material Specification^{LMS}

LMS dated December 03, 2008. 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.

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.

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 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 0.2