Technical Data Sheet

LOCTITE® DRI STS

Known as LOCTITE® Dri-Loc STS™
August 2016

PRODUCT DESCRIPTION

LOCTITE® DRI STS provides the following product characteristics:

Technology	Acrylic
Chemical Type	Methacrylate ester
Appearance (uncured)	Creamy light blue dispersion[LMS]
Components	Two-component
Viscosity	Medium
Cure	Anaerobic
Application	Thread sealing
Strength	Medium

LOCTITE® DRI STS is a pre-applied adhesive/sealant coating for threaded fasteners and fittings. The product, as a pre-applied film, is dry-to-the-touch and remains an inert coating until assembly. During assembly of the fitting/fastener, a microencapsulated activator is then released, thereby initiating the cure process. Straight Thread Sealant™ possesses high lubricity to minimize friction for a more controllable torque tension relationship. The resin fills all the voids in the threads and cures to securely lock and seal the assembly. Straight Thread Sealant™ prevents loosening through vibration to provide locking and sealing of straight threaded assemblies including: ring gear bolts, carburetor screws, transmission nuts, head bolts, truck axle bolts, tower bolts, transmission bolts and pipe plugs and fittings.

NOTE: LOCTITE® DRI STS is not recommended for use on copper or brass surfaces.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Flash Point - See SDS

Viscosity, Brookfield - RVF, 25 °C, mPa·s (cP):
Spindle 5, speed 2 rpm — 35,000 to 100,000[LMS]

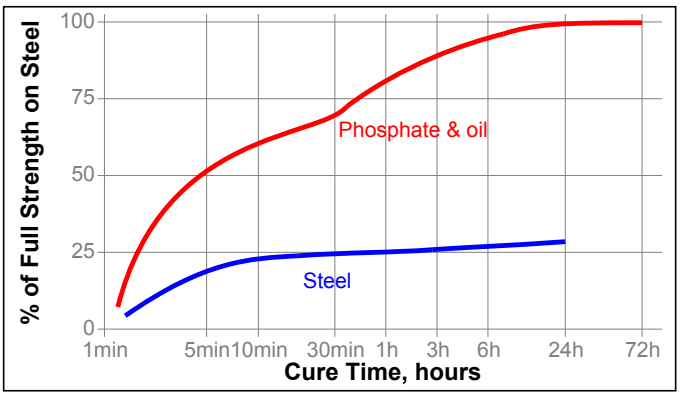
On Part Life, years — 4

TYPICAL CURING PERFORMANCE

Fixture Time, minutes — 10
On Part Life, years — 4

Cure Speed vs. Substrate

The rate of cure will depend on the substrate used. The graph below shows the breakaway strength developed with time on 3/8 x 16 nuts and bolts from different materials. compared to different materials and tested according to MIL-S-46163.



TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

After 24 hours @ 22 °C

On - Torque, ISO 10964:

3/8 x 16 phosphate and oil grade 2 nuts and grade 5 bolts	N·m (lb.in.)	≤0.6[LMS] (≤5.3)

Breakaway Torque, ISO 10964:

3/8 x 16 phosphate and oil grade 2 nuts and grade 5 bolts	N·m (lb.in.)	≥17.0[LMS] (≥150.4)

After 72 hours @ 22 °C

Breakloose Torque, ISO 10964, Input Torque = 50 N·m:

M10 x 1.5 Steel with Anti-Rust grade 10.9 bolts and grade 8 steel zinc plated nuts	N·m (lb.in.)	45 (395)
M10 x 1.5 Steel Zinc plated grade 10.9 bolts and grade 10 steel zinc plated nuts	N·m (lb.in.)	42 (375)
M10 x 1.5 Steel Magni 554 plated grade 8.8 bolts and grade 8 steel zinc plated nuts	N·m (lb.in.)	39 (350)

Breakaway Torque, ISO 10964:

3/8 x 16 phosphate and oil grade 2 nuts and grade 5 bolts	N·m (lb.in.)	≥22.6[LMS] (≥200)
M10 x 1.5 Steel with Anti-Rust grade 10.9 bolts and grade 8 steel zinc plated nuts	N·m (lb.in.)	11 (94)

M10 x 1.5 Steel Zinc plated grade 10.9 bolts and grade 10 steel zinc plated nuts	N·m (lb.in.)	12 (105)
M10 x 1.5 Steel Magni 554 plated grade 8.8 bolts and grade 8 steel zinc plated nuts	N·m (lb.in.)	14 (120)
Prevail Torque, ISO 10964:		
3/8 x 16 phosphate and oil grade 2 nuts and grade 5 bolts	N·m (lb.in.)	≥7.9[LMS] (≥69.9)
M10 x 1.5 Steel with Anti-Rust grade 10.9 bolts and grade 8 steel zinc plated nuts	N·m (lb.in.)	7.6 (67)
M10 x 1.5 Steel Zinc plated grade 10.9 bolts and grade 10 steel zinc plated nuts	N·m (lb.in.)	8.1 (72)
M10 x 1.5 Steel Magni 554 plated grade 8.8 bolts and grade 8 steel zinc plated nuts	N·m (lb.in.)	8.4 (74)

Total Coefficient of Friction (DIN 946):
These values are only valid for tested combinations of fasteners. Friction coefficients are based on :
- Surface finish
- Surface roughness
- Fitting quality of bearing surface
- Lubrication
- Assembly conditions (e.g. screw-in speed)
- Design (e.g. dimensions, geometry of threads)

M10 x 1.5 Steel with Anti-Rust grade 10.9 bolts and grade 8 steel zinc plated nuts	0.15
M10 x 1.5 Steel Zinc plated grade 10.9 bolts and grade 10 steel zinc plated nuts	0.14
M10 x 1.5 Steel Magni 554 plated grade 8.8 bolts and grade 8 steel zinc plated nuts	0.11

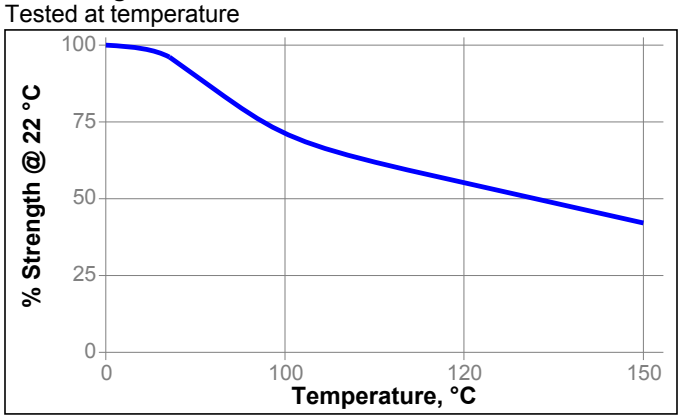
TYPICAL ENVIRONMENTAL RESISTANCE

Cured for 72 hours @ 22 °C

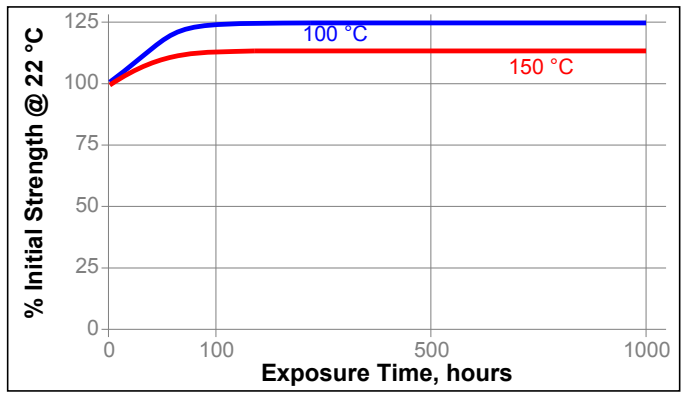
Breakaway Torque, MIL-S-46163:

3/8 x 16 phosphate and oil nuts and bolts

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**	**100 h**	**500 h**	**1000 h**
Motor oil	125	105	105	102
Motor oil	87	119	124	126
Gasoline (unleaded)	22	109	116	118
Brake fluid	22	105	109	110
1,1,1 Trichloroethane	22	103	116	115
Water/glycol 50/50	87	124	116	110

CORROSIVITY

LOCTITE® DRI STS may stain or discolor some metals. However, this does not effect its performance or the materials to which it is applied.

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:

Application Method:

LOCTITE® DRI STS is applied to threaded parts by authorized converters who have automatic fastener cleaning, feeding, coating, rust proofing and drying equipment. Quantities can be handled promptly with minimum turnaround time. Sample bolts should be sent to the nearest authorized converter where they will coat your

parts and return them to you for evaluation. SAMPLE TESTS ARE RECOMMENDED TO OBTAIN DESIRED RESULTS ON YOUR PARTS. Contact the nearest LOCTITE® Technical Service Center for the authorized converter nearest to you.

Loctite Material Specification[LMS]
LMS dated May 28, 2004. 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.
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