**PRODUCT DESCRIPTION**

LOCTITE® DRI 2040™ provides the following product characteristics:

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Technology</strong></td>
<td>Acrylic</td>
</tr>
<tr>
<td><strong>Chemical Type</strong></td>
<td>Methacrylate ester</td>
</tr>
<tr>
<td><strong>Appearance (uncured)</strong></td>
<td>Red, homogeneous, viscous liquid[^1^]</td>
</tr>
<tr>
<td><strong>Components</strong></td>
<td>One component - requires no mixing</td>
</tr>
<tr>
<td><strong>Viscosity</strong></td>
<td>Medium</td>
</tr>
<tr>
<td><strong>Cure</strong></td>
<td>Anaerobic</td>
</tr>
<tr>
<td><strong>Application</strong></td>
<td>Threadlocking</td>
</tr>
</tbody>
</table>

LOCTITE® DRI 2040™ is a general purpose medium to high strength pre-applied threadlocker with good substrate compatibility, suitable for use on plain and passivated metal surfaces. The pre-applied film is dry-to-the-touch and remains an inert coating until assembly. During assembly, microcapsules, which are contained within the coating, are crushed thereby releasing an active ingredient which initiates the curing process. LOCTITE® DRI 2040™ prevents loosening of threaded fasteners. It is particularly suitable in situations where threaded parts are required to be ready for immediate use in an adhesive joint in a high volume production environment where it may not be possible to apply a liquid product on line. When cured, this product will also act as a thread sealant.

**TYPICAL PROPERTIES OF UNCURED MATERIAL**

Flash Point - See SDS

<table>
<thead>
<tr>
<th>Viscosity</th>
<th>@ 25°C, mPa·s (cP):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Haake cone &amp; plate:</td>
</tr>
<tr>
<td></td>
<td>PK100 @ 36 S⁻¹</td>
</tr>
<tr>
<td></td>
<td>pH @ °C</td>
</tr>
</tbody>
</table>

**TYPICAL CURING PERFORMANCE**

**Cure Speed vs. Substrate**

This product has a similar cure profile for various metal substrates. The graph below shows the breakaway strength developed with time on M10 X 1.5 black oxide bolts and steel nuts compared to different materials and tested according to ISO 10964.

**TYPICAL PROPERTIES OF CURED MATERIAL**

**Physical Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coefficient of Thermal Expansion, ISO 11359-2, K⁻¹</td>
<td>10×10⁻⁴</td>
</tr>
<tr>
<td>Coefficient of Thermal Conductivity, ISO 8302, W/(m·K)</td>
<td>0.1</td>
</tr>
<tr>
<td>Specific Heat, kJ/(kg·K)</td>
<td>0.3</td>
</tr>
</tbody>
</table>

[^1^]: Data provided in the table is illustrative and may vary depending on specific conditions and testing parameters.
TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties
After 24 hours @ 22 °C

Breakaway Torque, ISO 10964:
M10 X 1.5 steel bolts
N·m ≥12
(lb.in.) 106.2

Prevail Torque, ISO 10964:
M10 X 1.5 steel bolts
N·m ≥17
(lb.in.) 150.4

Breakloose Torque, DIN 267-27:
M10 X 1.5 steel bolts
N·m 27
(lb.in.) 238

Lubricity, K-Factor:
M10 X 1.5 black oxide bolts 0.29
M10 X 1.5 zinc dichromate bolts 0.3

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

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

Breakloose Torque, DIN 267-27:
M10 X 1.5 black oxide bolts and steel nuts

Torque Augmentation
Breakloose torque of an uncoated fastener will normally be 15
to 30% less than the on-torque. The effect of LOCTITE® DRI
2040™ on the breakloose torque is shown in the graph below.

TYPICAL ENVIRONMENTAL RESISTANCE
After 72 hours @ 22 °C

Breakaway Torque, ISO 10964:
M10 X 1.5 steel bolts

Hot Strength
Tested at temperature

% Strength @ 22 °C

Temperature, °C

% of initial strength

Environment °C 100 h 500 h 1000 h
Motor oil (MIL-L-46152) 120 70 70 45
Motor oil (MIL-L-46152) 150 55 50 40
Unleaded gasoline 22 85 80 40
Brake fluid 90 85 80 40
Water/glycol 50/50 120 90 70 40
Transmission fluid 120 70 70 40
Transmission fluid 150 65 55 35
Gear oil 120 75 70 55

Note: This product meets the requirements of DIN 267-27 on
sealed and unseated grade 8.8 M10 mild steel, zinc
dichromate and zinc phosphate bolts. LOCTITE® DRI 2040™
performs close to or surpasses the environmental resistance
requirements of DIN 267-27

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).

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:
1. This coating is produced from an aqueous two component system consisting of a liquid binder and microencapsulated chemical initiators. The components are coated onto threads at approved Loctite® coating centers. Details are available from your local Technical Service Center.
2. The coated fastener is ready for immediate use and can be assembled to its mating threaded component at any time within its on-part shelf life period.
3. For best performance bond surfaces should be clean and free from grease.
4. Product is normally pre-applied to the bolt in sufficient quantity to fill all engaged threads. Very large thread sizes may create gaps which will affect performance.
5. After assembly and cure a fastener coated with Loctite® DRI 2040™ should not be re-used if the joint is disassembled. In the case of disassembly a fastener coated with Loctite® DRI 2040™ or a liquid threadlocker of similar performance should be used.

Loctite Material Specification
LMS dated March 28, 2000. 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 and differing operations 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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Reference 0.2