

#### PRODUCT DESCRIPTION

LOCTITE® Product Dri-Loc® 2010 is a pre-applied coating with good high temperature, heat ageing and solvent ageing resistance for use on threaded fasteners and fittings. 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.

#### TYPICAL APPLICATIONS

Prevents loosening of threaded fasteners. 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 use a liquid product.

#### PROPERTIES OF UNCURED MATERIAL

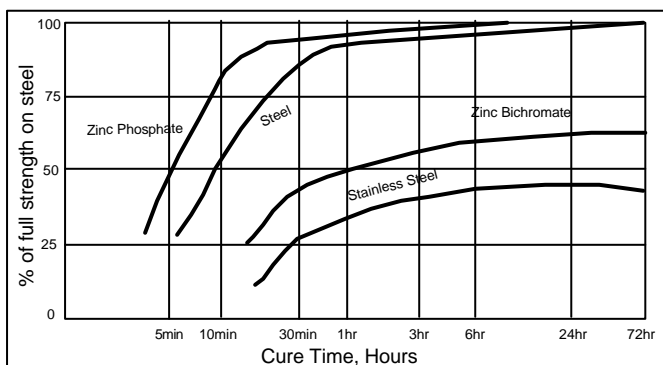
Pre-applied (Dry film) coating

	Value	Typical Range
Chemical Type	Dimethacrylate	
Appearance	Soft dry yellow pre-applied film	
Flash Point (TCC), °C	>100	

#### TYPICAL CURING PERFORMANCE

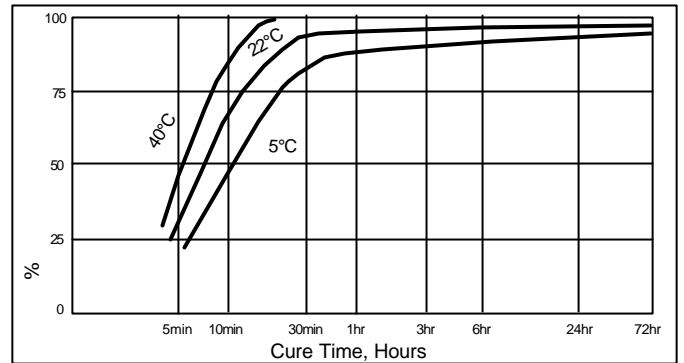
##### Cure speed vs substrate

The rate of cure will depend on substrate used. The graph below shows the breakaway strength developed with time on M10 steel nuts and bolts compared to different materials and tested according to ISO-10964.



##### Cure speed vs temperature

The rate of cure will depend on the ambient temperature. The graph below shows the breakaway strength developed with time at different temperatures on M10 steel nuts and bolts and tested according to ISO-10964.



#### TYPICAL PROPERTIES OF CURED MATERIAL

##### Physical Properties

Coefficient of thermal expansion, ASTM D696, K <sup>-1</sup>	10 <sup>-4</sup>
Coefficient of thermal conductivity, ASTM C177, W.m <sup>-1</sup> K <sup>-1</sup>	0.1
Specific Heat, kJ.kg <sup>-1</sup> K <sup>-1</sup>	0.3

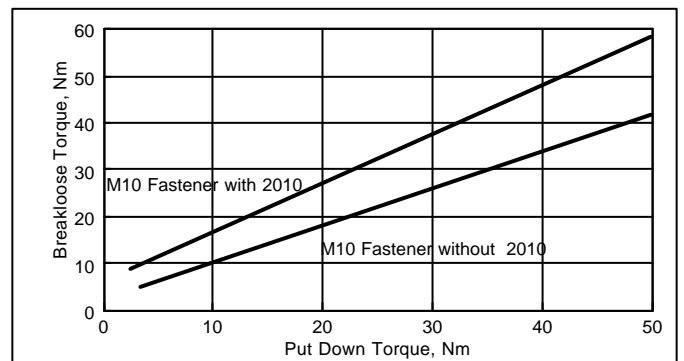
#### PERFORMANCE OF CURED MATERIAL

(After 24 hr at 22°C on M10 steel and Zn phosphate nuts & bolts)

	Value	Typical Range
Breakaway Torque, ISO 10964, N.m	12	7 to 17
(in.lbs)	(105)	(60 to 150)
Prevail Torque, ISO 10964, N.m	21	16 to 26
(in.lbs)	(190)	(140 to 230)
Breakloose Torque, DIN 54454, N.m	16	4 to 28
(in.lbs)	(140)	(35 to 245)
Prevail Torque, DIN 54454, N.m	15	5 to 25
(in.lbs)	(130)	(45 to 220)

#### Torque Augmentation

Breakloose torque of an uncoated fastener will normally be 15 to 30% less than the on-torque. The effect of LOCTITE 2010 on the breakloose torque is shown in the graph.



NOT FOR PRODUCT SPECIFICATIONS.

THE TECHNICAL DATA CONTAINED HEREIN ARE INTENDED AS REFERENCE ONLY.

PLEASE CONTACT LOCTITE CORPORATION QUALITY DEPARTMENT FOR ASSISTANCE AND RECOMMENDATIONS ON SPECIFICATIONS FOR THIS PRODUCT.

NEWINGTON, CT FAX: +1 (203)-280-3558

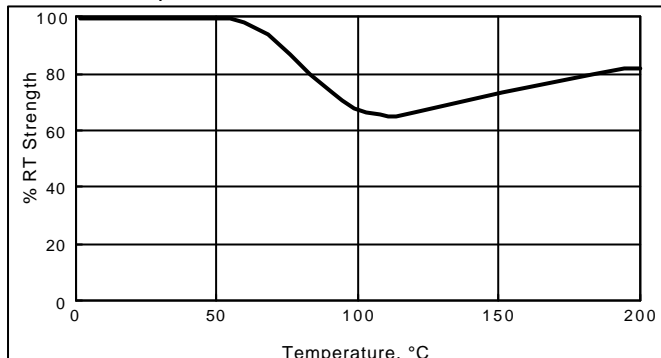
DUBLIN, IRELAND FAX: +353-(1)-451-9494

**TYPICAL ENVIRONMENTAL RESISTANCE**

Test Procedure : Breakloose Torque, DIN 54454  
 Substrate: M10 Zinc Phosphate Nuts & Bolts  
 Cure procedure: 1 week at 22°C

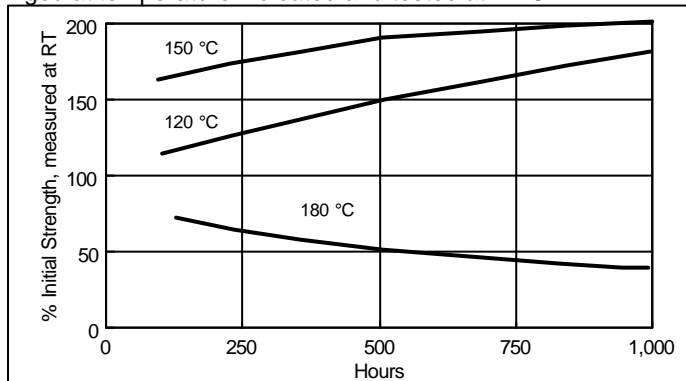
**Hot Strength**

Tested at temperature.



**Heat Ageing**

Aged at temperature indicated and tested at 22°C.



**Chemical / Solvent Resistance**

Aged under conditions indicated and tested at 22°C.

Solvent	Temp.	% Initial Strength retained at		
		100 hr	500 hr	1000 hr
Motor Oil (MIL-L-46252)	150°C	165	175	170
Unleaded Petrol	22°C	95	125	130
Brake Fluid	22°C	110	125	120
Water/Glycol (50%/50%)	120°C	150	200	140
Transmission Fluid	150°C	155	195	160
Gear Oil	150°C	155	190	200

**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 oxidising materials.

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

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

**Specifications**

This product has been tested to and passes the DIN specification DIN 267 part 27 on seated and unseated M10 Zinc Phosphate Nuts & Bolts. For seated assemblies the ratio of break torque to put down torque is greater than 1. For unseated assemblies the break torque is greater than 10 Nm.

**Directions for use**

The product is a three component system consisting of two liquid binders and microencapsulated chemical initiators. Usually these components are mixed in specific ratios, applied to fasteners and dried at an intermediate converter company. From there they are sent to the end user. Sometimes the converter and end user are the same company. Guidelines on recommended mixing and drying conditions are available to converter companies through the local Technical Service Centre.

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. For best performance the mating surface should be clean and free of grease. Product is normally pre-applied to the bolt in sufficient quantity to fill all engaged threads by agreement between the converter and the end user. This product performs best in thin bond gaps, (0.05mm). Very large thread sizes may create large gaps which will affect cure speed and strength.

After assembly and cure a fastener coated with 2010 should not be re-used if the joint is disassembled. In the case of disassembly a new fastener coated with 2010 or a liquid threadlocker of similar performance should be used.

**Storage**

Coated fasteners shall be ideally stored in a cool, dry location at a temperature between 10°C - 21°C (50°F - 70°F). The on-part shelf-life period of a coated component is 12 months based upon date of application of coating. For further specific shelf-life information, contact your local Technical Service Centre.

**Data Ranges**

The data contained herein may be reported as a typical value and/or range (based on the mean value  $\pm 2$  standard deviations). Values are based on actual test data and are verified on a periodic basis.

**Note**

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. 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 licence under any Loctite 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.