

PRODUCT DESCRIPTION

LOCTITE® Product Dri-Loc® 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.

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 apply a liquid product on line. When cured this product will also act as a thread sealant.

PROPERTIES OF UNCURED COATING MATERIAL

Pre-applied (Dry film) coating

Chemical Type	Methylacrylate Ester
Appearance	Soft dry pink, fluorescent preapplied film
Flash Point (TCC), °C	> 100
Lubricity, DIN 946	K factor (Torque/Tension)
M10 x 1.5 Black Oxide Bolts	0.29
M10 x 1.5 Zinc dichromate Bolts	0.30

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.

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 x 1.5 black oxide bolts and steel nuts and tested according to ISO-10964.

TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties

Coefficient of thermal expansion, ASTM D696, K ⁻¹	10 ⁻⁴
Coefficient of thermal conductivity, ASTM C177, W.m ⁻¹ K ⁻¹	0.1
Specific Heat, kJ.kg ⁻¹ K ⁻¹	0.3

PERFORMANCE OF CURED MATERIAL

After 24 hr at 22°C on unseated nuts & bolts DIN 267 pt. 27 using M10 x 1.5 steel bolts.

	Typical	
	Value	Range
Breakaway Torque, DIN 267 Part 27, N.m	16	13-18
Loosening Torque, DIN 267 Part 27, N.m	27	23-31

Torque Augmentation

Breakloose torque of an uncoated fastener will normally be 15 to 30% less than the on-torque. Using LOCTITE 2040, breakloose torque is at least 20% greater than the on torque as shown in the graph below.

TYPICAL ENVIRONMENTAL RESISTANCE

Test Procedure : Breakaway Torque Unseated
 Substrate: M10
 Cure procedure: 72 hours at 22°C

Hot Strength

Steel M10x1.5 tested at temperature per ISO 10964.

Heat Ageing

Steel M10 x 1.5 aged at temperature, tested at 22°C, ISO 10964

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.

This product is not normally recommended for use on brass or copper surfaces or 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

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 centres. Details are available from your 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. Very large thread sizes may create gaps which will affect performance.

After assembly and cure a fastener coated with 2040 should not be re-used if the joint is disassembled. In the case of disassembly a fastener coated with 2040 or a liquid threadlocker of similar performance should be used.

Storage

Coated fasteners shall be ideally stored in a dry location at a temperature between 8°C - 28°C (46°F - 82°F). 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 ±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 involved in the handling and use in light of the foregoing, Loctite Corporation specifications including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Loctite Corporation products. Loctite 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 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.

Chemical / Solvent Resistance

Unseated M10 x 1.5 black oxide bolts and steel nuts were allowed to cure for 72 hours and then aged under conditions indicated and tested at 22°C according to DIN 267 part 27.

Solvent	Temp.	% Initial Strength retained at		
		100 hr	500 hr	1000 hr
Motor Oil	120°C	70	70	45
Motor Oil	150°C	55	50	40
Unleaded Petrol	22°C	85	80	40
Brake Fluid	90°C	85	80	40
Water/Glycol (50%/50%)	120°C	90	70	40
Transmission Fluid	120°C	70	70	40
Transmission Fluid	150°C	65	55	35
Gear Oil	120°C	75	70	55

Standards

This product meets the requirements of DIN 267 part 27 on seated and unseated grade 8.8 M10 mild steel, zinc dichromate and zinc phosphate bolts. Product DL2040 performs close to or surpasses the environmental resistance requirements of DIN 267 part 27.