



Fastener Adhesives 2510, 2510N

Technical Data Sheet

October 2012

Supersedes Tech Data Sheet dated April 2009

General Description



3M™ Fastener Adhesives 2510 (orange) and 2510N (neutral) are microencapsulated, room-temperature-curing adhesives that enhance the anchorage of threaded fasteners. The adhesives are designed to be coated on the fasteners and dried; they remain dormant until the shearing action of engaging the fastener into a nut or threaded cavity breaks the capsules and allows the adhesive to cure. Typical applications are fasteners for the engine compartment or safety-related parts.

Plastics prone to stress-cracking should not be used in proximity to 3M Fastener Adhesives.

3M Fastener Adhesives 2510 and 2510N are designed for applications where the service temperature might reach continuously up to 149°C (300°F) or intermittently up to 204°C (400°F).

**The 2510/2510N products can be exposed to temperatures as high as 177°C (350°F). At the higher temperatures there will be loss of adhesion but no damage to the adhesive. When the temperature is lowered again, adhesion will be regained.*

Physical Properties

Bulk Adhesive	2510/2510N
Solvent base	Toluene and Isopropyl Alcohol

Bulk Adhesive Storage and Handling

Container Sizes	18.9 liter (5 gallon) pails
Shelf life	Fifteen months from date of manufacture. Rotate inventory on FIFO (first-in, first-out) basis.
Storage conditions	Store pails at 4°- 38°C (40°- 100°F) Store in a facility rated for storage of flammable liquids. Check local codes. PROTECT FROM FREEZING. Exposure to low temperatures makes a component of this formulation less soluble in toluene. When the adhesive solids settle quickly and sink below the toluene dilution solvent, correct by adding Isopropyl Alcohol (IPA).*
	*Note: When using solvents, extinguish all ignition sources, including pilot lights and follow the manufacturer's precautions and directions for use.
Mix before use	Adhesive solids settle to bottom of pail. Mix prior to use. Use stirrer, pail-shaker or pail-tumbler rated for flammables.
Dilution to target viscosity	Dilute with 90/10 mixture of toluene/IPA. Dilution with toluene only will cause rapid settling of solids once the IPA concentration becomes too low.

Coated Fasteners Storage and Handling

Shelf life	One year from date of adhesive application. Shelf life can be as long as four years, depending on the storage conditions. Fasteners which are more than one year from the date of adhesive application should be checked for performance prior to use.
-------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Technical Data Sheet

3M™ Fastener Adhesives 2510, 2510N

Page 2

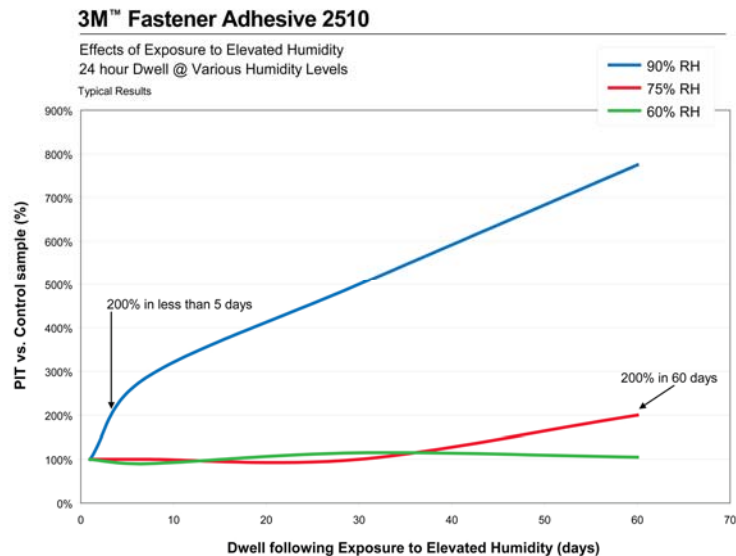
Coated Fasteners Storage and Handling (continued)

Storage conditions

Store coated fasteners at 4°-38°C (40°- 100°F) at or below 60% relative humidity (RH).

PROTECT FROM HUMIDITY; exposure to condensation or high humidity precures the adhesive. Use plastic bags and absorbent to protect coated fasteners from humidity. 24 hours at 75% RH shortens shelf-life to 30 days, with Prevailing In Torque (PIT) doubling by 60 days. Increased PIT is accompanied by decreased out torques. Higher humidity speeds the precure: 24 hours at 98% RH doubles PIT in only four days.

Effects of Elevated Humidity



Performance Properties

Prevailing In Torque (PIT) - Initial¹	2 ft-lbs (2.7 Nm)
Break-Loose Torque (BLT) - Initial¹	35 ft-lbs (47.6 Nm)
Break-Away Torque (BAT) - Initial¹	12 ft-lbs (16.3 Nm)
Heat aging ²	25 ft-lbs (34.0 Nm)
Cycles ³	32 ft-lbs (43.5 Nm)
Water immersion ⁴	33 ft-lbs (44.9 Nm)
Gasoline immersion ⁵	24 ft-lbs (32.6 Nm)
Hot motor oil immersion ⁶	23 ft-lbs (31.2 Nm)
Transmission fluid immersion ⁷	32 ft-lbs (43.5 Nm)
Anti-freeze immersion ⁸	25 ft-lbs (34.0 Nm)
At 275°F/135°C	7 ft-lbs (9.5 Nm)
Prevailing Out Torque (POT) - Initial¹	9 ft-lbs (12.2 Nm)

NOTE: These properties are representative of the products' performance and are supported by laboratory test data. However, the values reported are not intended to be used for specification purposes. All testing, unless otherwise stated, was performed on 3/8" x 16" plain steel bolts with matching plain steel nuts.

¹ 72 hours at room temperature

² 3 weeks at 150°C (302°F)

³ Conditioned under 3 of the following cycles: 1 hour at 150°C, 2 hours at -30°C (-22°F), and 1 hour at 24°C (75°F)

⁴ Immersion in distilled water for 1 week at 24°C (75°F)

⁵ Immersion in regular, unleaded gasoline for 1 week at 24°C (75°F)

⁶ Immersion in SAE 30 motor oil for 1 week at 150°C (302°F)

⁷ Immersion in transmission fluid for 1 week at 150°C (302°F)

⁸ Immersion in a 50% solution of ethylene glycol in water for 1 week at 100°C (212°F)

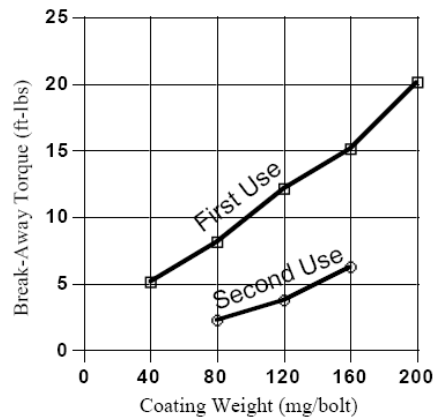
Technical Data Sheet

3M™ Fastener Adhesives 2510, 2510N

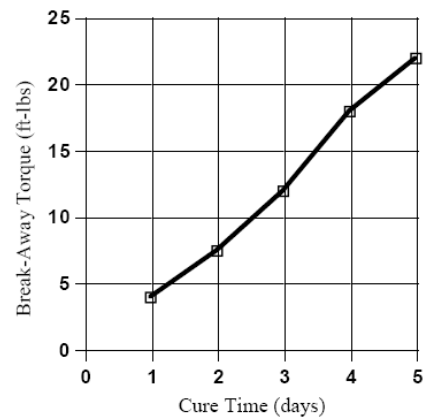
Page 3

Performance Properties (continued)

Break-Away Torque (initial) vs Adhesive Coating Weight



Break-Away Torque vs Cure Time (at room temperature)



Features, Advantages, Benefits

Product Features	Performance Advantages	Customer Benefits
Epoxy chemistry	<ul style="list-style-type: none"> High torque values on coated fasteners Environmental resistance (to heat, automotive fluids, vibration, thermal and mechanical shock) 	Robust, structural bonding performance
Two part (microencapsulated)	<ul style="list-style-type: none"> Extended shelf life (bulk adhesive and coated fasteners) Controlled reactivity (adhesive activates and cures upon insertion) Reusability (additional capsules break with each re-insertion) 	Convenient handling by the end-users
Flow coatable formula	<ul style="list-style-type: none"> Allows controlled application to fasteners; viscosity can be adjusted to achieve target coating weights Penetrates oil coatings Fast drying Bonds to a broad range of fastener finishes 	Broad handling, dispensing and drying windows for the applicators

Technical Data Sheet

3M™ Fastener Adhesives 2510, 2510N

Page 4

3M is a Trademark of 3M Company

Technical Information: The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

Product Use: Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application.

Warranty, Limited Remedy, and Disclaimer: Unless an additional warranty is specifically stated on the applicable 3M product packaging or product literature, 3M warrants that each 3M product meets the applicable 3M product specification at the time 3M ships the product. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY OR CONDITION ARISING OUT OF A COURSE OF DEALING, CUSTOM OR USAGE OF TRADE. If the 3M product does not conform to this warranty, then the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price.

Limitation of Liability: Except where prohibited by law, 3M will not be liable for any loss or damage arising from the 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability.

3M

Automotive Division

3M Center, Building 223-1S-02
St. Paul, MN 55144-1000
www.3M.com/autosolutions

© 3M 2012
Printed in the U.S.A.
75-3467-7172-0



ISO/TS 16949:2002
File No. 00932