

## Threadlocker T42

Technical Data Sheet

---

### GENERAL INFORMATION:

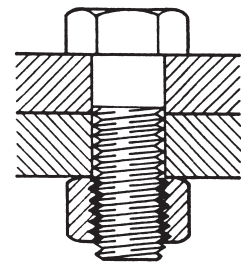
**SAF-T-LOK** anaerobic adhesive/sealants are a specialized series of single component, solvent free compounds that are individually formulated for locking, sealing, retaining and bonding metal parts and assemblies.

Stable in the presence of air, these products cure when placed between two mating parts where metal is present and oxygen is excluded. They form a resilient, vibration-proof, polymer shim between the parts. **SAF-T-LOK** products provide the user with additional performance characteristics, including not only fluid sealing, but resistance to corrosion and galvanic attack of the mated parts, as well as solvent resistance. Furthermore, after curing **SAF-T-LOK T42** allows parts to be disassembled with normal tools, if desired.

### PRODUCT DESCRIPTION:

**SAF-T-LOK T42** is a medium strength locking and sealing grade, developed for key fits, splines, and similar applications, as well as removable applications. This product satisfies the requirements of MIL Spec. S46163 Type II Grade N as well as ASTM D5363 AN0321.

**SAF-T-LOK T42** is a thixotropic formulation to reduce run-off, or reduce migration of product prior to assembly. It was also designed to provide predictable assembly lubricity and results in the same torque tension relationship that would result from use of as-received fasteners. This product satisfies many application requirements where a medium strength is required. Selection of this product assures fluid sealing of parts as well as the most reliable medium threadlocking strength possible.



### BENEFITS:

#### IMPROVED EQUIPMENT RELIABILITY

Improves reliability by providing more holding power under vibration than lock screws and lock washers etc.

Offers precision torque for the exact degree of holding required.

Also provides substantial cost savings over mechanical locking methods.

#### APPLICATION EASE

No mixing (one part adhesive), wide variety of application methods designed to suit your specific needs.

Low odor product for a safe work place, and easy clean-up after the job is completed.

**PHYSICAL CHARACTERISTICS:**

**T42**

**Uncured**

MIL-S-46163	Type II: Grade N
Resin	Dimethacrylate
Color (Fluorescent)	Blue
Viscosity (Thixotropic) Brookfield LVT	1800 cps. @ 12 rpm (3200 cps. @ 6 rpm)
Specific Gravity	1.09 gm/cc
Flash Point	>300°F (>100°C)
Temperature Range	-65° to 350°F (-54°F to 177°C)
Toxicity	Low
Corrosivity	None
Storage Stability	12 mo. @ <80°F
Gap Filling	.002-.006 in.
Thread Filling	1/4" to 3/4"
Chemical Resistance	Excellent

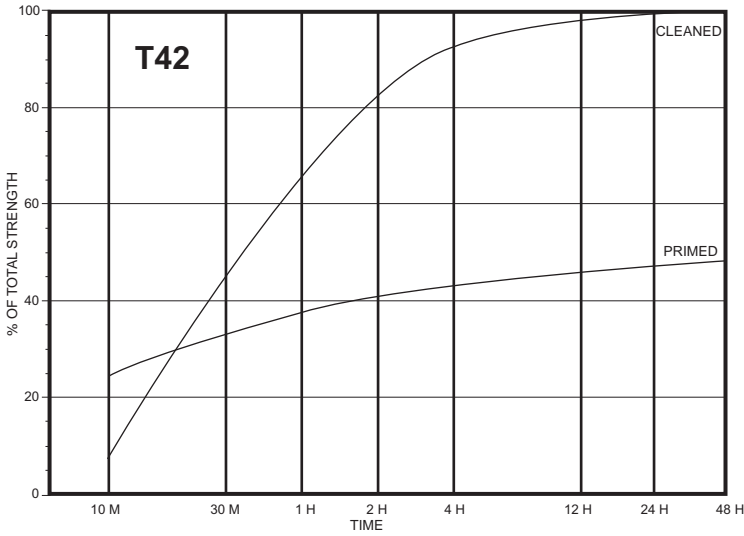
**Cured**

**Steel      Cadmium      Zinc      Aluminum**

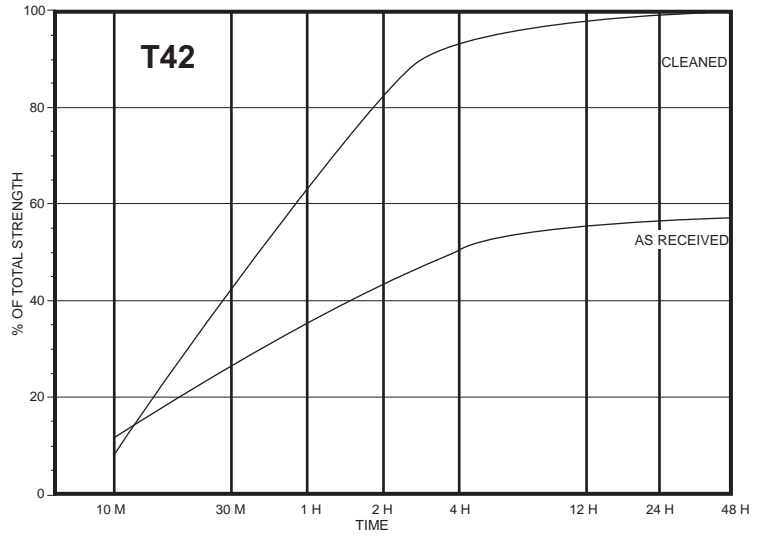
Shear Strength(psi)	1200			
Locking Torque: (24 hrs. @ 70°F on 3/8" x 16, Class 2)				
	Free Spinning (per MIL-S-46163) Cleaned	*Strength reduction up to 50% on "As Received" fasteners		
	Breakaway	150 in.lbs. 16.9 Nm	100 in.lbs. 11.3 Nm	70 in.lbs. 7.9 Nm
	Prevailing	50 in.lbs. 5.6 Nm	50 in.lbs. 5.6 Nm	40 in.lbs. 4.5 Nm
	Pre-torque (220 in.lbs.) "As Received"			
	Breakaway	220 in.lbs. 24.9 Nm	230 in.lbs. 26.0 Nm	220 in.lbs. 24.9 Nm
Cure Speed: (@70°F on 3/8" x 16, Class 2) Free Spinning				
	As Received			
	Fixture	5 min	10 min	10 min
	Full	4 hrs	8 hrs	12 hrs
	Cleaned	See Rate of cure plots on following page		
	Primed	See Rate of cure plots on following page		
	Fixture	<5 min	<5 min	<5 min
	Full	1 hr	1 hr	2 hrs
Heat Aging (1000 hr. at 250°F per MIL-S-46163)				
	Breakaway	216 in.lbs. 24.4 Nm		
	Prevailing	84 in.lbs. 9.5Nm		
Hot Strength (2 Hours at 250°F per MIL-S-46163)				
	Breakaway	100 in.lbs. 11.2 Nm		
	Prevailing	60 in.lbs. 6.8 Nm		

# FACTORS AFFECTING CURE RATE AND STRENGTH

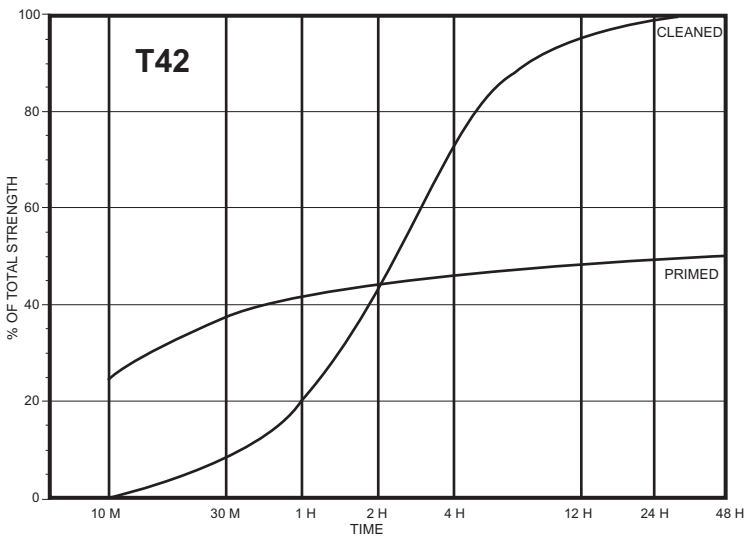
Graph I: Rate of cure on Grade 5 Steel 3/8 x 16 UNC Fasteners



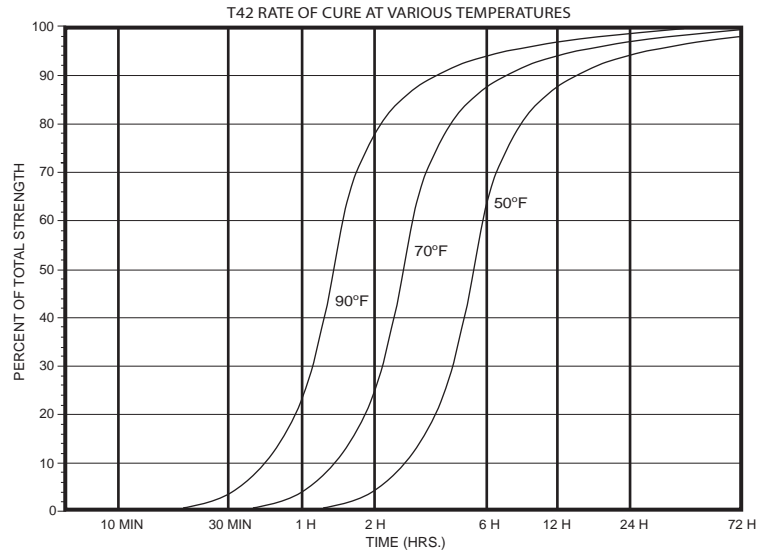
Graph IV: Rate of cure vs. oily "As Recived" steel fasteners



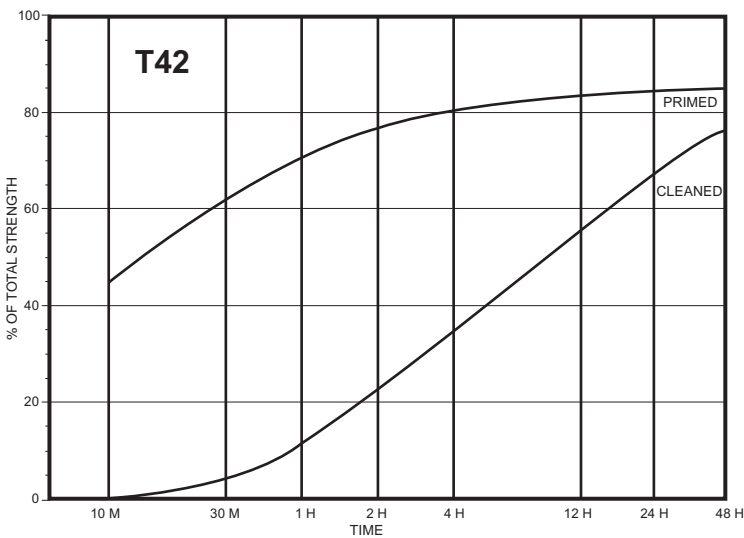
Graph II: Rate of cure on Cadmium plated 3/8 x 16 UNC Fasteners



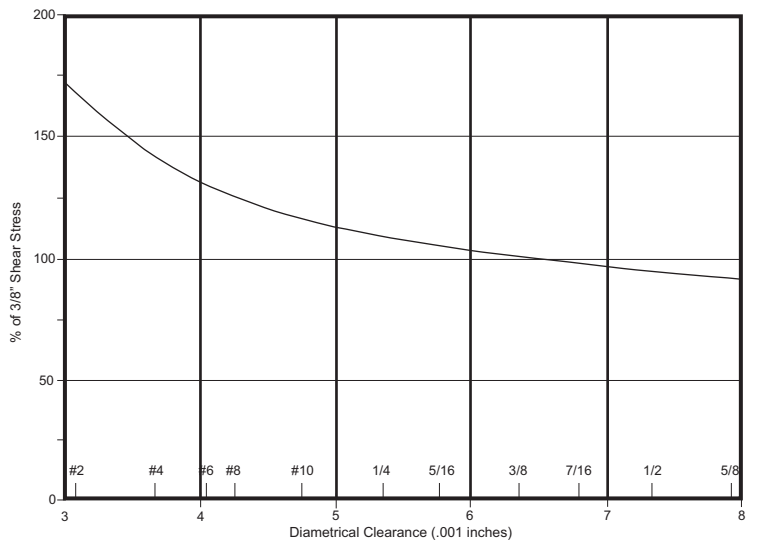
Graph V: Rate of cure various temperatures



Graph III: Rate of cure on Zinc plated 3/8 x 16 UNC Fasteners



Graph VI: Percent of reported strength vs. fastener diameter



**SAF-T-LOK T42** threadlocker is a thixotropic liquid. The thickness or viscosity of all thixotropic products is dependent upon the shear applied or the speed of the measuring equipment. Lower shear results in higher viscosities. This property insures that runoff is reduced, thus simplifying application.

An additional benefit to the use of this product is the effect on the torque-tension relationship. Unlike other threadlocking liquids, which lubricate the assembly, this product will maintain a direct proportionality between tension and torque. That is, for a given torque applied to the fastener the same tension is achieved as with an average "as received", or slightly oily fastener. **All thixotropic products must be shaken before use.**

#### **TORQUE TENSION RELATION:**

**SAF-T-LOK** threadlockers generally increase bolt tension. That is for a given torque on a bolt a greater tension will result with the use of the threadlocker, due to the lubricating qualities of the liquid. However, use of **SAF-T-LOK T42** will result in tension torque values within 10 percent of as received fasteners, and they also provide a more consistent relationship between tension and torque than is provided by "as received" fasteners. Tension in the fasteners can be controlled by regulating the applied torque. The relationship between tension and torque can be expressed as follows: **T= CDF**

**T** = Torque (Nm)

**C** = Constant for specific nuts and bolts used

**D** = Bolt diameter (m)

**F** = Tension or clamping force (N)

"C" values for various metals follow:

Steel	.16	Phosphate	.14	Cadmium	.14
Zinc	.18	Stainless	.22	Aluminum	.17

If tension of a bolt is critical, testing with the precise method and fastener should be considered.

#### **SOLVENT RESISTANCE:**

Fasteners or piping connections to which T42 has been applied and allowed to cure were immersed in various fluids at elevated temperatures. A reduction in strength frequently occurs. As a general guide the following percent of strength was obtained after 30 days at 188°F or (87°C):

Air Reference @ 188°	100 %
Motor oil (% of Ref)	95
Water (% of Ref)	31
Glycol / Water (% of Ref)	49
Transmission fluid (% of Ref)	109
Gasoline (% of Ref)	95
Skydrol (% of Ref)	95

---

**IMPORTANT NOTICE:** All statements and technical data contained herein are based on tests we believe to be reliable, but the accuracy of completeness thereof is not guaranteed. It is recommended that the buyer test this product to determine its suitability for his application before use. **SAF-T-LOK International Corporation** is not responsible for loss, claim or damages resulting from use of its products.