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Technical Data Sheet

Medium Strength Threadlocker BLUE Gel

INDUSTRIAL

PRODUCT DESCRIPTION

S.I.N.: 834-300

PERMATEX® Medium Strength Threadlocker BLUE Gel is a **medium strength** anaerobic threadlocking material, supplied as a **gel-type** product conveniently packaged in a new Gel Twist™ applicator. The product, like its liquid counterpart, is a single component, anaerobic material that cures when confined in the absence of air between close fitting metal surfaces, ideal for all 6mm to 25mm (1/4 inch to 1 inch) diameter threaded assemblies. Excellent chemical resistance and temperature resistance range of -54°C to +149°C (-65°F to +300°F). The assembly is easily removable with hand tools for servicing requirements. NSF White Book registered.

PRODUCT BENEFITS

Improved Reliability

- Eliminates vibration issues
- Seals against leakage
- Prevents rusting of threads
- Cures without cracking or shrinking
- Adjusts or disassembles with hand tools

Easy Application

- No mess Gel Twist™ applicator
- Gel-type product does not drip when applied
- Single component
- No curing outside of joint
- Thixotropic: resists dripping from threads during assembly
- No torque compensation required during assembly

TYPICAL APPLICATIONS

Prevents loosening and leakage of threaded fasteners. Particularly suitable for applications such as:

- Belt tensioner bolts
- Pulley bolts
- Cup and core plugs
- Fan hub bolts
- Visor mount bolts
- Starter mounting bolts
- Alternator Mounting Bolts
- Intake Manifold Bolts
- Valve Cover Bolts
- Vacuum Adjustment Screws
- Oil Pan Bolts
- Axle Cover Screws
- Drive Shaft Bolts
- Disc Brake Caliper Bolts
- Gearshift Knobs

DIRECTIONS FOR USE

For assembly

1. Clean all threads (bolt and hole) with a cleaning solvent such as Permatex® Brake and Parts Cleaner and allow to dry.
2. Determine if the threads to be bonded are **Active** or **Inactive Metals** (Ref: Cure Speed vs. Substrate on the second page). If material is an **Inactive Metal**, spray all threads with Permatex® Surface Prep™ and allow 30 seconds to dry. Activator is not required if the material is an **Active Metal**. If unknown, it is always best to use the activator.
3. Remove the translucent protective cap by pulling off at an angle.
4. Turn the dial on the bottom of the container until 3mm to 6mm (1/8" to 1/4") of material protrudes from the top of the application tip. Note: First time use may require 3 to 4 full turns of the dial before material appears in the tip.
5. Apply threadlocker to the leading edge threads of the male fitting, applying to 5 to 6 threads.
6. Assemble parts and tighten to recommended torque.
7. If unused gel contacts metal threads, do not retract threadlocker back into the tube. Wipe off with a clean towel.
8. Replace protective cap.

For Cleanup

1. Residual liquid films and/or fillets outside the joint are readily soluble in Permatex® Brake and Parts Cleaner.
2. Cured product can be removed with a combination of soaking in Permatex® Gasket Remover and mechanical abrasion such as a wire brush.

For Disassembly

1. Remove with standard hand tools.
2. In the rare instance where hand tools do not work, because of excessive engagement length, apply localized heat to nut or bolt to approximately 232°C (450°F). Disassemble while hot.

For Reassembly

1. Remove loose product from nut and bolt.
2. Apply primer to all threads, regardless of metal type.
3. Assemble and tighten as usual.

PROPERTIES OF UNCURED MATERIAL

	Typical Value
Chemical Type	Anaerobic Dimethacrylate Ester
Appearance	Opaque Blue Fluorescent Gel
Specific Gravity	1.15
Viscosity @ 25°C, cP	
Brookfield RVF, spindle #3, @ 20 RPM	Gel
Flash Point (TCC), °C (°F)	>93 (>200)

NOT FOR PRODUCT SPECIFICATIONS.

THE TECHNICAL DATA CONTAINED HEREIN ARE INTENDED AS REFERENCE ONLY.

PLEASE CONTACT PERMATEX, INC., TECHNICAL SERVICE DEPARTMENT FOR ASSISTANCE AND RECOMMENDATIONS FOR YOUR SPECIFIC APPLICATION.
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TYPICAL CURING PERFORMANCE

Cure speed vs. substrate

The rate of cure will depend on the material used. PERMATEX® Medium Strength Threadlocker BLUE will react faster and stronger with **Active Metals**. However, **Inactive Metals** will require the use of an activator (Surface Prep™) to obtain maximum strength and cure speed at room temperature.

Active Metals	Inactive Metals
Soft Steel Iron	Bright Platings
Copper	Anodized Surfaces
Brass	Titanium
Manganese	Zinc
Bronze	Pure Aluminum
Nickel	Stainless Steel
Aluminum Alloy	Cadmium

Cure speed vs. temperature

The rate of cure will depend on the ambient temperature. **Full cure** is attainable in 24 hours at room temperature, 22°C (72°F), or 1 hour at 93°C (200°F).

Cure speed vs. activator

Where cure speed is unacceptably long, or large gaps are present, applying an activator (Surface Prep) to the surface will improve cure speed. A 3/8-16 steel nut and bolt assembly will fixture in 5 minutes using a primer, while fixturing will occur in 20 minutes without a primer. Full cure in 24 hours for both procedures. The graph below shows the breakaway strength developed with time using Permatex® Surface Prep™ Activator.

PERFORMANCE OF CURED MATERIAL

(After 24 hr at 72°F on 3/8-16 steel Grade 8 Nuts and Grade 5 bolts)

	Typical	
	Value	Range
Breakaway Torque, Nm, (in.lbs)	12 (110)	8 to 17 (70 to 150)
Prevail Torque, Nm (in.lbs)	5 (43)	3 to 7 (25 to 60)

Where Breakaway Torque is the force required to initiate the fastener movement and Prevail Torque is the force required to disassemble the fastener once Breakaway Torque has occurred.

TYPICAL ENVIRONMENTAL RESISTANCE

Temperature Resistance

Product temperature range from -54°C to +149°C (-65°F to +300°F). The breakaway and prevailing torque values decrease as temperature increases, however the assembly remains effective against vibration and leakage.

Chemical / Solvent Resistance

Aged under conditions and tested at 22°C(72°F)

% Initial Strength retained after time	Temp	500hr	1000hr
Hot air	150°C		
Motor oil (SL)	125°C		
Gasoline	23°C		
Antifreeze	87°C		
Ethanol	23°C		
Acetone	23°C		

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 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). It is recommended to confirm compatibility of the product with such substrates.

ORDERING INFORMATION

Part Number	Container Size
24010	10 gm Gel Twist™ Applicator, carded

STORAGE

Products shall be ideally stored in a cool, dry location in unopened containers at a temperature between 8° to 28°C (46° to 82°F) unless otherwise labeled. Optimal storage is at the lower half of this temperature range. To prevent contamination of unused product, do not return any material to its original container.

NOTE

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