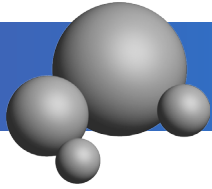


# ND MICROSPHERES® EPOXY

## Locking & Sealing



### DESCRIPTION:

ND Microspheres are microencapsulated, room temperature curing adhesives that can be applied to male or female threaded fasteners of all sizes and configurations.

ND Microspheres remain inert until the coated fastener is assembled to its mating part. The forces of engagement crush the microscopic capsules of epoxy resin, mix the separate reactant components, and initiate a chemical reaction which locks the parts together.

Within minutes of assembly, ND Microspheres forms a substantial bond between the mating surfaces. Curing continues, normally, for 72 hours following installation in order to achieve full strength.

ND Microspheres 593 DPC is available in powder form which, once reconstituted with the recommended solvent, exhibits the same properties as factory supplied liquid material.

### FEATURES:

**Low Prevailing On Torque:** Assembles easily with common hand tools.

**Exceptional Locking Power:** Extensive testing indicates that ND Microspheres provides two to four times greater breakaway torque than conventional “plastic” fastener locking devices.

**Versatile:** ND Microspheres are compatible with most sizes, configurations, materials and finishes.

**Surpasses Industrial Fastener Institute Standards:** ND Microspheres meets or exceeds all performance requirements of IFI 125 and IFI 525 as well as automotive specifications when used on clean, dry and/or dry phosphated surfaces.

**Long Shelf Life:** Once applied, ND Microspheres remains inert until a cure is activated by engagement with a mating thread. Store in cool dry environment.

Competes with 3M® Scotch-Grip®

3M and Scotch-Grip are registered trademarks of Minnesota Mining and Manufacturing Co.



### FEATURES CONTINUED:

**Unaffected By Foreign Substances:** Oil, gasoline, salt-spray, acids, solvents, water, and air have virtually no effect on Microspheres when introduced after a final cure has been achieved. The cross-linked molecular structure of ND Microspheres makes it one of the most resistant types of adhesives.

**Saves Money:** ND Microspheres brand ND-applied thread adhesive is less expensive than applying bottled thread locking compounds at the point of assembly.

**ND Microspheres Epoxy meets or exceeds the performance requirements of the following specifications and/or standards:**

#### AUTOMOTIVE:

- Chrysler: MS-CC76 Type A&C, PF-6616
- Ford: ES-20007-S100, ES-20010-S100, ESS-M11P24-A1 & A2, WSS-M11P45-A1, WX-200
- General Motors: GMW 14657B, GM6175M, GME00151

#### INDUSTRIAL FASTENER INSTITUTE:

- IFI: IFI 125, IFI 525
- DIN: DIN 267

#### OEM:

- Dana: ES-PS-0614, PS-612
- Delphi: DX5204023
- Eaton: PS-005
- Holden: HN1737
- Meritor (Rockwell): Q-43
- TRW: TMS-P-10559, TPS-C-20,089

For a complete list contact ND Industries.

## SPECIFICATIONS:

Bulk Material Properties			
Formula*	ND Microspheres® 593-S	ND Microspheres® 1193-S	ND Microspheres® 593 DPC
Typical Colors (see note 1)	Blue, Yellow, Pink, Green, or Red	Orange or Neutral	Blue or Yellow
Appearance	Liquid	Liquid	Dry Powder
Base	Synthetic Resin	Synthetic Resin	Synthetic Resin
Base Solvent	Toluene	Toluene	Toluene
Flashpoint	40F TCC	40F TCC	N/A
Net Weight	8.6 ± 0.2 lbs./gal	8.6 ± 0.2 lbs./gal	
Viscosity	1600 - 2000 cPs	1600 - 2500 cPs	300-2000 cPs (when mixed w/Toluene)
Solids Content	59.5 ± 2.5%	59.5 ± 2.5%	
Shelf Life**	1 Year	1 Year	1 Year
As Applied Properties			
Primary Usage	Heavy Duty Lock	Heavy Duty Lock	Heavy Duty Lock
Reusability	Limited (Approx. 3 Times)	Limited (Approx. 3 Times)	Limited (Approx. 3 Times)
Installation (on) Torque***	Minimal	Minimal	Minimal
Breakaway Torque***	Exceeds IFI 125 & IFI 525	Exceeds IFI 125 & IFI 525	Exceeds IFI 125 & IFI 525
Prevailing (off) Torque***	Exceeds IFI 125 & IFI 525	Exceeds IFI 125 & IFI 525	Exceeds IFI 125 & IFI 525
Typical Lead Threads	1 to 3	1 to 3	1 to 3
Typical Coating Length	1.5 x Diameter	1.5 x Diameter	1.5 x Diameter
Service Temp Range	-65°F to +300°F	-65°F to +300°F (intermittently 400°F)	-65°F to + 300°F (on bolt after applied)
Competes With	3M Scotch-Grip 2353 & 4844	3M Scotch-Grip 2451 & 2510	
Shelf Life**	2 years	2 years	2 years

\* Data provided is for Liquid Slurry utilizing Toluene as solvent. DPC (Dry Powder Concentrate) version is available for applicators. Contact ND Industries for more information.  
 \*\* When stored in dry, cool environment.  
 \*\*\* On clean, dry or dry phosphated surfaces.

ND Microspheres Epoxy is a product of ND Industries, Inc., U.S.A.



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