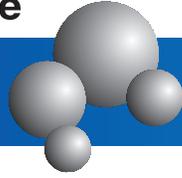


ND MICROSPHERES[®]

Fastener Adhesive

PreApplied

Epoxy Type



Automotive Approved

ND[®]
INDUSTRIES

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 which can only be broken with a wrench. Curing continues for up to 72 hours following installation.

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 materials and finishes.
- ❑ **Surpasses Industrial Fastener Institute Standards:** Microspheres meets or exceeds all torque requirements of IFI 125 and IFI 525, as well as all automotive specifications.
- ❑ **Long Shelf Life:** Once applied, ND Microspheres remains inert until a cure is activated by engagement with a mating thread.
- ❑ **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 Microspheres makes it one of the most resistant types of adhesives.



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

ND Industries is committed to customer convenience. We can apply Microspheres to your fasteners at any one of our six regional service centers or we can supply you with fasteners pre-coated with Microspheres.

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

AUTOMOTIVE

- ❑ Chrysler PF-6616 & MC-CC-76
- ❑ Ford ES-20007-S100, ES-20010-S100
ESS-M11P24-A1 & ESS-M11P24-A2
- ❑ General Motors GM6175M, GM6193M

INDUSTRIAL FASTENER INSTITUTE

- ❑ IFI 125
- ❑ IFI 525

OEM

- ❑ Detroit Diesel 80K15
- ❑ Rockwell International Q-29
- ❑ Caterpillar 1E2486
- ❑ International Harvester PF-200

For a complete list contact ND INDUSTRIES

PROPERTIES SUMMARY:

Liquid Bulk Properties:

Formula*	ND Microspheres® 593-S	ND Microspheres® 1093-S
Color	Blue (Other Colors Avail. Upon Request)	Orange or Neutral (Other Colors Avail. Upon Request)
Base	Synthetic Resin	Synthetic Resin
Flashpoint	40°F TCC	40°F TCC
Net Weight	8.6 ± 0.2 lbs./gal.	8.6 ± 0.2 lbs./gal.
Viscosity	1600 - 2000 cPs	1600-2500 cPs
Solids Content	59.5 ± 2.5%	59.5 ± 2.5%
Shelf Life	1 year**	1 year**

As Applied Properties:

Primary Usage	Heavy Duty Lock	Heavy Duty Lock
Reusability	Limited (Approx. 3 Times)	Limited (Approx. 3 Times)
Installation (on) Torque	Minimal	Minimal
Breakaway Torque	Exceeds IFI 125 & IFI 525	Exceeds IFI 125 & IFI 525
Prevailing (off) Torque	Exceeds IFI 125 & IFI 525	Exceeds IFI 125 & IFI 525
Typical Coating Length	1.5 x Diameter	1.5 x Diameter
Lead Thread Requirement	2 ± 1	2 ± 1
Temperature Range	-65°F to +150°F	-65°F to +275°F
Competitor Equivalent	3M Scotch-Grip*** 2353 & 4844	3M Scotch-Grip*** 2510
Shelf Life	2 years**	2 years**

Note: See MSDS for Safety & Material Handling Instructions.

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* Data provided is for Liquid Slurry utilizing Toluene as solvent. DPC (Dry Powder Concentrate) version is available to applicators... contact ND Industries for more information.

** Varies due to storage conditions.

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

**For more information on ND Microspheres, or any of ND Industries
other quality fastening products, contact your nearest ND Service Center:**

**ND Technologies Group
Liquid Product Sales**
1893 Barrett Road
Troy, Michigan 48084
Phone: 248-362-0592
FAX: 248-362-1979

**ND Midwestern Fastener Processing
Division/Chicago**
1840 Raymond Drive
Northbrook, Illinois 60062
Phone: 847-498-3600
FAX: 847-498-1582

**ND Midwestern Fastener Processing
Division/Cleveland**
9051 Dutton Drive
Twinsburg, Ohio 44087
Phone: 216-425-3167
FAX: 216-425-3065

**ND Western Fastener
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13929 Dinard Avenue
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FAX: 562-926-4266

**ND Midwestern Fastener Processing
Division/Detroit**
1893 Barrett Road
Troy, Michigan 48084
Phone: 248-362-1200
FAX: 248-362-2737

**ND Southeastern Fastener
Processing Division**
2220-C Center Park Drive
Charlotte, North Carolina 28217
Phone: 704-329-0033
FAX: 704-329-0975

**ND Southwestern Fastener
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3611 Dalworth Street
Arlington, Texas 76011
Phone: 817-633-2788
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Solutions For Fastening Technology

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Microspheres-2

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