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ND Industries Article – Expand-A-Seal ESO105®:

### **Expand-A-Seal ESO105®: An Amazing Two-in-One Locking and Sealing Advancement**



ND Industries has been, and continues to be, a leader in the field of Pre-Applied fastening technology, bringing you powerful locking products like Epoxy-Lock and ND Microspheres® and advanced sealing products like ND Mastics® and ND Expandables®. Now ND is pleased to present the latest breakthrough in microencapsulated locking and sealing technology: ND Expand-A-Seal.

Most Pre-Applied fastener coatings are designed to serve a single purpose extremely well. ND Epoxy-Lock, for example, is unsurpassed with regards to its locking ability, while ND Expandables provide an excellent seal against air and liquid leakage at a fastening point. With this understanding it is easy to see how the most effective locking technology may not provide the most effective seal, while the most effective sealing technology may not improve a fastener's locking power.

There is a solution. ND's research and technology experts, working from the basis of the superior locking and sealing products, have developed the ultimate locking **and** sealing fastener coating – Expand-A-Seal ESO105, a totally unique, Pre-Applied, high powered epoxy thread-locking solution that also provides a total air and water tight seal even under extremely high pressures.

Like ND Microspheres, Expand-A-Seal is a microencapsulated product. Through the microencapsulation process, epoxy type hardener and resin is contained within and kept separate by microscopic spheres. These spheres are then applied to the threads of a fastener in the form of a powder. ND's microencapsulation technology allows Expand-A-Seal to remain inert until mated into its corresponding part. One immediate advantage of microencapsulization is that no special handling of the coated fasteners is required. Even rough handling will not activate Expand-A-Seal. When the coated fastener is mated the microscopic spheres burst open, activating the locking power of the adhesive agents. Expand-A-Seal can be applied to interior or exterior threaded fasteners of all sizes. And, because it contains both of the components of the adhesive needed for activation, Expand-A-Seal only needs to be applied to either one of any two mating, threaded parts for effective sealing and locking.

Expand-A-Seal has low prevailing on torque, so assembles easily with common hand tools. However, the chemical reaction that takes place upon mechanical fastening is so rapid, and its strength so considerable, even before fully cured, that exceptional breakaway torque values are achieved within as short a time as one hour. No heat curing is required for fasteners coated with Expand-A-Seal. Full cure is achieved in 24 hours at room temperature. As a locking agent, fully cured Expand-A-Seal creates a bond comparable in strength to most epoxy threadlockers.

Expand-A-Seal ES0105 exhibits phenomenal sealing action. Though some threadlockers have limited sealing capabilities, even the most formidable bonds created by threadlockers leave miniscule spaces within the threads of a seated fastener, allowing for gas and fluid leakage. Gas and fluid leakage can become a particularly difficult problem at fastening points when subjected to high pressure conditions, such as in compression tanks or air brakes. With the implementation of Expand-A-Seal, concern about leakage becomes a thing of the past. When Expand-A-Seal's chemical locking agent is activated it simultaneously expands volumetrically 20-50% filling any gaps and voids within the fastener threads and creating a positive seal against air and most automotive fluids. Expand-A-Seal will even effectively fill gaps resulting from the use of oversized fastener threads or fastener deformation that occurs during welding. The seal created will endure even under the most extreme pressures. Expand-A-Seal has been successfully tested under the strain of 115psi without compromise to its sealing capacity.

The cross-linked molecular structure of Expand-A-Seal makes it one of the most resistant types of fastener adhesive available. Fully cured, Expand-A-Seal's locking and sealing power is unaffected by exposure to foreign substances, including: oil, gasoline, salt-spray, acids, solvents, water and more.

ND's pre-applied process ensures that Expand-A-Seal is more cost effective and less hassle than bottled threadlockers applied at the point of assembly. Since Expand-A-Seal coated fasteners remain inactive until assembled, their shelf-life is practically indefinite.

Expand-A-Seal can be used to lock and seal almost any critical application where shock, vibration and fluid or air pressure could cause a fastener to loosen or a joint to leak. Typical applications include: engine pipe plugs, air filtering connectors, compressor fittings, cooling connectors and much more.

For more information contact ND Industries at 248-288-0000 or visit:  
[www.ndindustries.com](http://www.ndindustries.com)