

Today's Machining World's

"Shop Doc" column taps into our vast contact base of machining experts to help you find solutions to your problems.

We invite our readers to contribute suggestions and comments on the Shop Doc's advice. If you consider yourself a Shop Doc or know a potential Shop Doc, please let us know.

Have a technical issue you'd like addressed? Please email noah@todaysmachiningworld.com. We'll help solve your problem, then publish both the problem and solution in the next issue of the magazine.

Dear Shop Doc,

We're an extrusion equipment manufacturer shipping extrusion barrels reaching 10-12 feet in length. For rust prevention we have been applying cosmoline and oils using a long, makeshift broom caked with oil. The process takes a lot of manpower, workers and customers often complain about the smell of the oil, customers have to use mineral spirits to remove the oil from the metal, and sometimes the parts still rust. Some of our equipment can be valued at as much as \$100,000 per piece. Is there a better way to prevent rust?

Oily in Memphis, TN

Dear Oily,

We brought your question to David Yancho – vice president of Armor Protective Packaging, a manufacturer of corrosion inhibiting & rust removal products, to discuss some different options.

Oils and cosmoline are tried and true products that certainly do the job in terms of rust prevention, but I've heard some accounts of the messy and labor-intensive nature of the applications. They've also been known to be a contaminant for dust and other particles that gravitate to them.

Water-based rust preventative (RP) liquids are the closest alternative to what you're using now. They provide similar benefits to oils, but can be easier to apply and remove because they're water-based. That means they're safer for the worker as well as the environment. They still can be messy, have an odor, may be difficult to remove, and possess disposal challenges. Also, RP liquids flow to high and low spots in the metal, resulting in less than full surface coverage.

Another product to prevent rust is desiccant. Desiccants are designed to adsorb moisture from an enclosed environment. They're good because they're clean, easy to use and remove from the package after use, which eliminates the need for removing liquids off of the part. However, desiccants don't do much to affect the surface of the metal. They focus on the moisture in the air. They lack the ability to prevent con-

taminant, salt or other causes of corrosion. Once they adsorb their allotted amount they no longer help prevent moisture from entering the area.

Another rust prevention product that's been available since the late 1940s is vapor/volatile corrosion inhibitors (VCI) packaging. VCI prevents rust from forming on metals without using greases or oils, and it will eliminate your odor problem. VCI is a class of chemical compounds which emit a safe rust-inhibiting vapor into an enclosed airspace to prevent corrosion on a metal product. VCIs are typically impregnated or coated into packaging materials such as paper, film, fiberboard, foam or other emitting substances so that the part can remain clean and dry. The packaging becomes the carrier for the VCI chemical to the metal part. Good VCI packaging can be used for shipping, long-term storage or export applications. If you only compare the cost of VCI packaging with oil on a per unit basis, it would appear that VCI is more expensive than other methods. However, you must account for the packaging that is incorporated into the VCI and the overall cost associated with applying oil and removing it. We've helped many customers with strikingly similar situations to yours – shipping everything from small parts to extruding heads to large engines.

David Yancho-Vice President
Armor Protective Packaging®
Manufacturers of corrosion inhibiting
& rust removal products