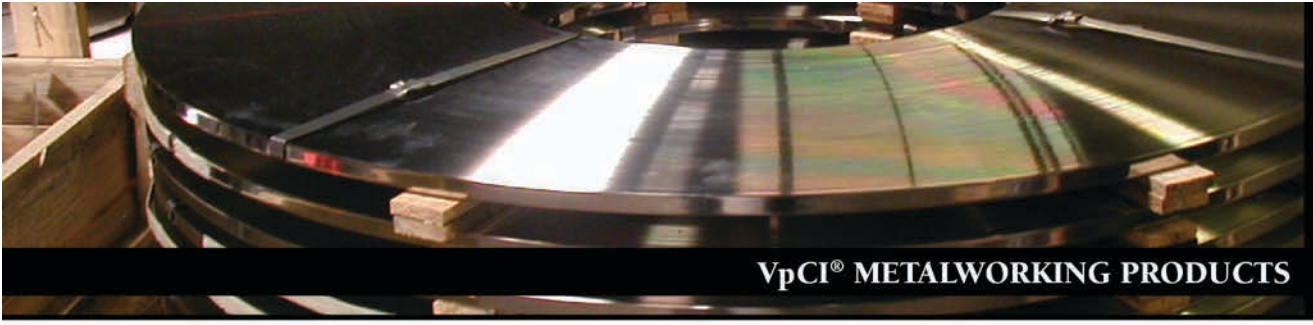
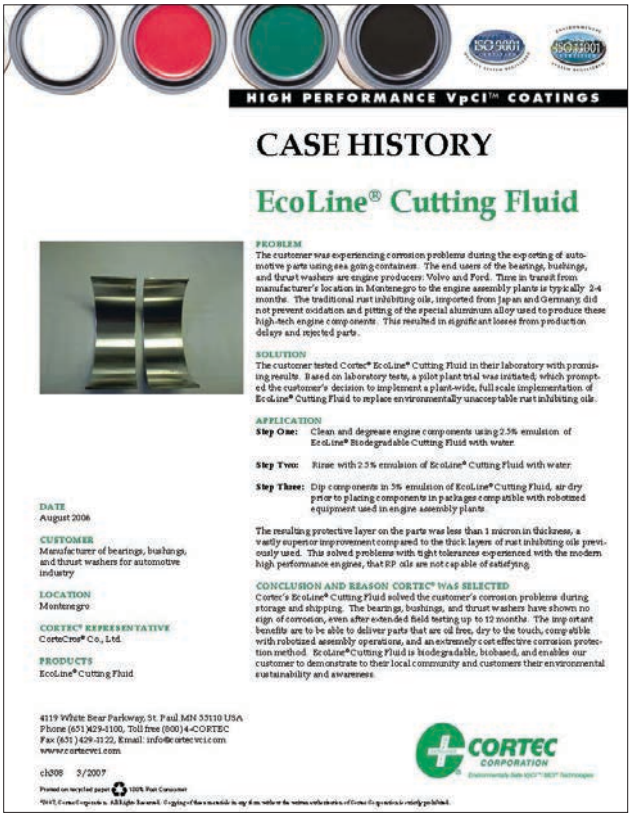


CASE HISTORY SPOTLIGHT

Case History #308: Solving Corrosion on Auto Bearings, Bushings, and Thrust Washers



HIGH PERFORMANCE VpCI™ COATINGS

CASE HISTORY

EcoLine® Cutting Fluid

PROBLEM
The customer was experiencing corrosion problems during the exporting of automotive parts using sea going containers. The end users of the bearings, bushings, and thrust washers are engine producers: Volvo and Ford. Time in transit from manufacturer's location in Montenegro to the engine assembly plants is typically 2-4 months. The traditional rust inhibiting oils, imported from Japan and Germany, did not prevent oxidation and pitting of the special aluminum alloy used to produce these high-tech engine components. This resulted in significant losses from production delays and rejected parts.

SOLUTION
The customer tested Cortec® EcoLine® Cutting Fluid in their laboratory with promising results. Based on laboratory tests, a pilot plant trial was initiated, which prompted the customer's decision to implement a plant-wide, full scale implementation of EcoLine® Cutting Fluid to replace environmentally unacceptable rust inhibiting oils.

APPLICATION
Step One: Clean and degrease engine components using 2.5% emulsion of EcoLine® Biodegradable Cutting Fluid with water.

Step Two: Rinse with 2.5% emulsion of EcoLine® Cutting Fluid with water.

Step Three: Dip components in 5% emulsion of EcoLine® Cutting Fluid, air dry prior to plating components in packages compatible with robotized equipment used in engine assembly plants.

The resulting protective layer on the parts was less than 1 micron in thickness, a vastly superior improvement compared to the thick layers of rust inhibiting oils previously used. This solved problems with tight tolerances experienced with the modern high performance engines, that RP oils are not capable of satisfying.

CONCLUSION AND REASON CORTEC® WAS SELECTED
Cortec's EcoLine® Cutting Fluid solved the customer's corrosion problems during storage and shipping. The bearings, bushings, and thrust washers have shown no sign of corrosion, even after extended field testing up to 12 months. The important benefits are to be able to deliver parts that are oil free, dry to the touch, compatible with robotized assembly operations, and an extremely cost effective corrosion protection method. EcoLine® Cutting Fluid is biodegradable, biobased, and enables our customer to demonstrate to their local community and customers their environmental sustainability and awareness.

DATE
August 2006

CUSTOMER
Manufacturer of bearings, bushings, and thrust washers for automotive industry

LOCATION
Montenegro

CORTEC® REPRESENTATIVE
CorteCros® Co., Ltd.

PRODUCTS
EcoLine® Cutting Fluid

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A manufacturer of bearings, bushings, and thrust washers for the automotive industry was having trouble with oxidation and pitting on the special aluminum alloy used to make these high-tech engine components. The parts were shipped in seagoing containers and commonly spent two to four months in transit to the engine assembly plants. Unfortunately, the manufacturer was experiencing significant loss from delays and parts rejection because their traditional rust inhibiting oils were not preventing corrosion.

After a promising lab test and a pilot plant trial of EcoLine® Cutting Fluid, the manufacturer decided to implement Cortec's biobased corrosion inhibitor plant wide. An emulsion of EcoLine® Cutting Fluid at low concentration was used to clean, degrease, and rinse the components. The last step was to dip components in an emulsion of EcoLine® Cutting Fluid at a slightly higher concentration, leaving it to dry as a protective layer less than 1 micron thick.

EcoLine® Cutting Fluid remedied the manufacturer's corrosion issues while also solving problems with tight engine tolerances, which the traditional oils could not satisfy. With EcoLine® Cutting Fluid, the parts could be delivered dry to the touch and compatible with robotized assembly operations using an environmentally responsible and extremely cost-effective corrosion protection method.

To read the full case history, please visit: https://www.cortec-casehistories.com/?s2member_file_download=access-s2member-level1/ch308.pdf

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