

FLEET **Maintenance**

Best Practices for Maintenance Management

Welcome to Voltageville

**City Fleet reaps
huge rewards from
going electric**



BY DAN WILLIAMS, PRODUCT MANAGER, EUREKA CHEMICAL COMPANY

Eureka Chemical Company has been at the forefront of the battle against corrosion for the past 70 years, since the development of their premier product Fluid Film® for marine warfare applications. Modified over time to adapt to environmental and application considerations, their corrosion inhibitors have been proven in some of the most severe conditions: industrial, agricultural, raw-terrain construction, and of course, transportation.

Rust Prevention

A primer on fighting road de-icing chemicals

Q: "WINTER HIGHWAY MAINTENANCE is tearing up my truck. What can I do to fight the new road chemicals they are using?"

A: IN THE PAST DECADE, corrosion issues have dramatically increased due to the use and application of new, aggressive snow-fighting chemicals. The use of calcium and magnesium chlorides, among other acetones, has led to a major change in procedure for road maintenance crews.

With the use of these new chemicals, pre-emptive strikes with heavy salting have helped prevent hazardous driving conditions before snowfall even occurs. While these new procedures may make driving conditions safer, they also drastically increase metal exposure to these corrosion-causing materials.

Equipment manufacturers who recognize the problem are already using more corrosion-resistant materials in the manufacturing process, such as adding chrome plating, paint or preventive coatings to metals especially susceptible to corrosion.

Keeping trucks clean and dry is another preventive step that can assist in the corrosion battle. Unfortunately, driving routes and conditions may make this more wishful thinking than anything else. The use of power washers can also lead to more corrosion problems, not less, due to high-pressure blasting which can allow water to permeate truck bodies or blow seals, so care should be taken when they are in use.

Regular, consistent maintenance is really the key to avoiding serious corrosion problems. The use of corrosion pre-

ventives to block and prevent salt exposure may be one of the easiest and most cost effective methods to prevent rust from taking root in metal crevices and underbodies. A solvent-free corrosion preventive and lubricant will not evaporate or get tacky. It leaves a soft, self-healing coating that actually imbeds into the pores of the metal, creating a barrier that cuts off all oxygen, blocking moisture. It also will not freeze, continuing to work in sub-zero temperatures. Soft coatings traditionally provide better protection than paint for underbody applications, which can chip and trap moisture.

Electrical connections and trailer wiring are another big problem from calcium and magnesium chlorides, which can infect the entire wiring system, leading to shorts or failure if left unprotected. A higher load is placed on the electrical system during the winter months, and if batteries are not taking a charge, the end result could be premature alternator failure. The use of a non-conductive grease to fully encapsulate connections, plugs, battery terminals and sockets is critical to prevent rapid corrosion throughout the system.

The continued use of aggressive snow-fighting chemicals will eventually lead to more aggressive changes in the fleet manufacturing process. Until that day arrives, though, the most cost-effective method to combat corrosion is with a highly refined maintenance program. The use of corrosion preventive materials can drastically cut down on damage caused by the added exposure to new chemicals. **FMX**

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WHEN TO INSPECT

While most consumers don't notice problems with their HVAC systems until the spring and summer months, Johnston advises fleets to conduct regular inspections regardless of the season to catch problems before they cause major trouble.

"You'd probably want to look at the system every 50,000 miles in

Provided by the Mobile Air Conditioning Society

detail, to really determine if the A/C is pulling the temperature down like you'd expect in a hot environment," he says. "You know, sniff it for leaks, look for evidence of leaks involving dye or oil, leaking around some of the joints or the compressor. At maybe 75,000 miles actually evacuate the system with one of the newer machines, measure how much is in there, and then recharge it."

According to Johnston, R134a refrigerant doesn't lose its effectiveness over time. The material will last forever inside the closed-loop A/C system as long as it's never exposed to the outside environment.

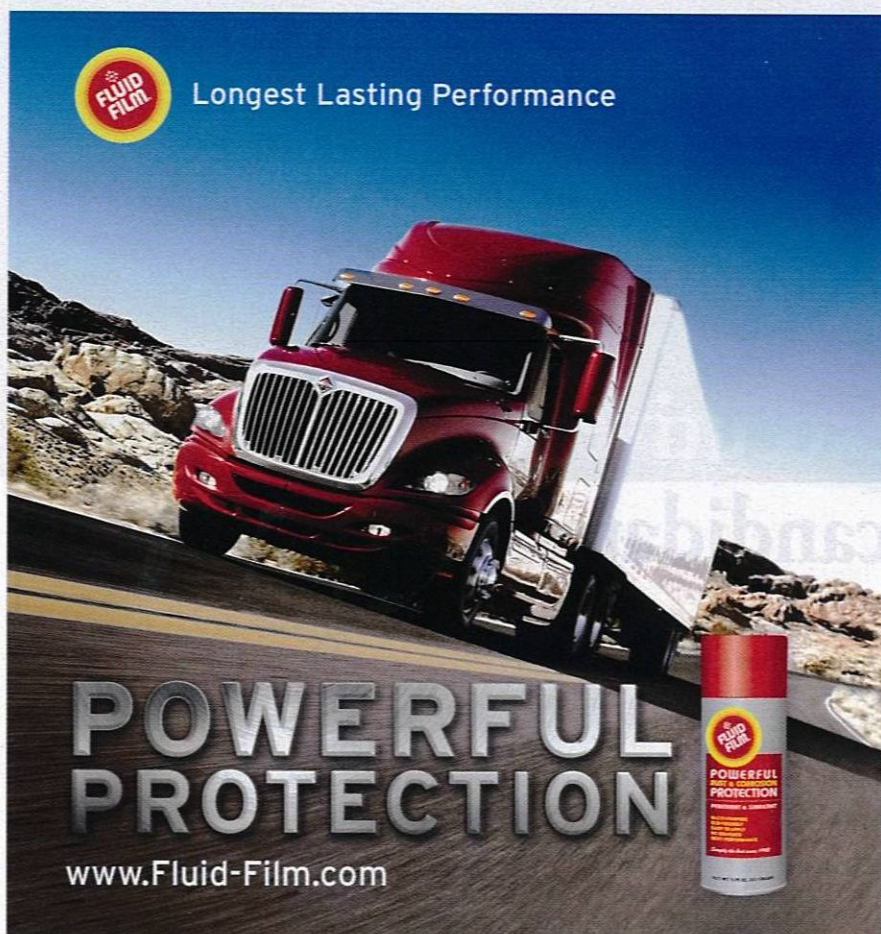
"If it's leaking, you'll lose some amount of refrigerant," he explains. "The A/C system has a peak performance amount of refrigerant; we do a lot of tests to determine what that amount is on a vehicle. If you have a vehicle that's at 25 ounces as its peak performance, it may leak very slowly, and at 50,000 miles you may be down to 20 ounces of refrigerant. It's not going to perform as well at 20 ounces. If it's a really hot, humid day out there, the customer's going to notice that five ounce degradation in refrigerant level."

Of course, in a cold winter climate, even with the windshield defroster on, the driver may not notice any difference until the damage is done.

"If there's a leak, as you lose charge, there's less refrigerant, which means there's less oil being circulated," Johnston says. "The compressor starts to heat up, and it develops more friction. Eventually, given a low enough refrigerant level, and low enough oil in circulation, you have a failure of the compressor."

ONE SIMPLE RULE

If your technicians ever need to replace refrigerant or oil in an HVAC system, MACS' DeGuiseppe has one simple rule for them to remember: Always follow the OE's recommendations concerning tools,



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