

FLEET **Maintenance**

Best Practices for Maintenance Management



KEEPING Clean

Corrosion may never go away, but here are some tips on how to keep it from ruining your day

Can corrosion ever be completely prevented or eliminated? That's the question we posed to technical experts recently, in the hopes that they might offer some hope in the endless fight against rust. Alas, they couldn't promise that rust will ever go away, but they did offer some helpful information that could add life to your fleet vehicles.

"The best way to prevent corrosion is to be proactive," says Dan Williams, technical sales manager of Eureka Chemical Company, makers of Fluid Film coatings. "Preventative maintenance is much more cost-effective than dealing with corrosion after the fact. Regular washings and keeping a car dry are important maintenance practices, as are proper storage of vehicles when not in use and the use of an undercoating and corrosion preventive."

John Lewis, brand manager for commercial transportation coatings

for PPG, says, "Corrosion will always be there. We do the best we can to try to slow down corrosion, whether it be by pre-treating the metal or putting a coating or physical barrier between dissimilar metals, but it is an ongoing chemical process; if you have oxygen and water and dissimilar metals touching, you will begin the corrosion process."

DUTY CYCLES

The sad truth is that many fleet vehicles operate in conditions and applications that promote corrosion.

"Environment is a big factor for corrosion issues," Williams says. "The worst areas for vehicle corrosion are areas of high moisture such as marine environments or areas of heavy rain or snow melt off."

"Vehicles that are on the road more in harsh environments—where there is more chipping and cracking and damage to the coatings themselves, that opens up sites of corrosion more readily," says Lewis. "If the vehicles are routinely rinsed down, washing the material off is a good way to prevent the chemical cycle from continuing."

"What we see with ambulances, say, in Chicago, that are literally out on the street 24 hours a day, they don't get washed like a fire truck that goes out to a fire, comes back and gets washed, rinsed, polished, buffed—those are the two duty-cycle extremes that you'll see with work vehicles," he says.

"What has really exacerbated the problem is the growing use of magnesium chloride by municipalities," Lewis goes on. "It is cheaper to use, but it is reportedly many times more aggressive in terms of corrosion. What makes it potentially worse is the presence of a 'stick-um,' a resinous material that helps it stick to the road, and creates a greater potential for corrosion. It can get up inside vehicles and if experiences moisture it will continue to corrode."

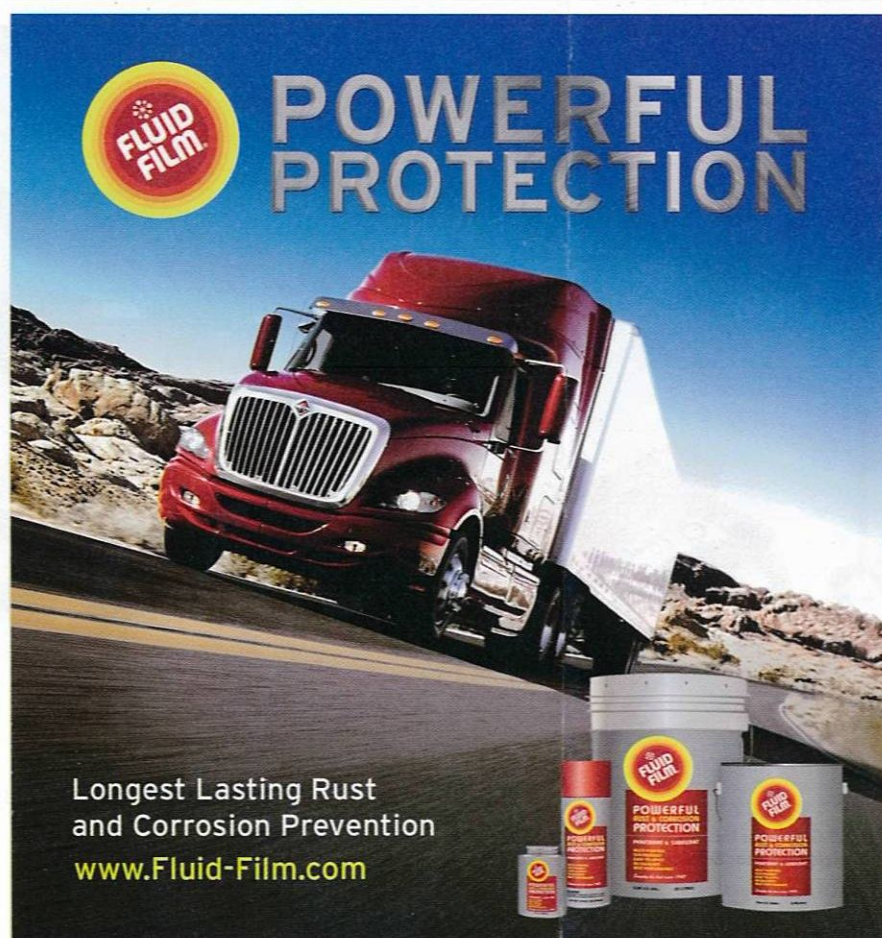
Unfortunately, that advice about frequent vehicle washes may not hold water where magnesium chloride is concerned, because it may come to rest in areas of the vehicle that are inaccessible to the wash.

VULNERABLE PARTS

Keeping vehicles corrosion-free would be a lot easier if the vehicles never came into contact with the ground. That, of course, is where all the trouble starts.

The parts of a vehicle that are closest to the ground—brakes, axles, brake lines—are the ones at greatest risk of corrosion, but Lewis suggests that technicians look beyond the obvious.

"You also need to consider the structural integrity of the vehicle," he says. "The structural part of the underside of the vehicle, since it's mostly going to be chipped and abraded by rocks and sand, is going



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done by Battelle Memorial Institute puts the average annual cost of corrosion to the automotive industry at about \$23.4 billion dollars per year.

"While this study was first conducted in the mid 1970's, the figure appears to still hold true due to the increased electronic components in today's vehicles," he explains. "There was also a study conducted by CC Technologies for the Federal Highway Administration in 2001 that put the figure closer to 29.7 billion, although that figure estimated

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corrosion costs for the whole transportation industry."

Against those numbers, what can one fleet maintenance manager do?

"The best strategy for corrosion prevention is awareness," says Williams. "Being at the forefront of this battle has taught us one thing: preventive maintenance is the key to avoiding serious corrosion issues. I've never understood why people will spend thousands

of dollars on expensive equipment, and then avoid spending ten minutes ensuring it will not lose its value.

"Foreign materials such as salts, tree sap, and bird droppings can damage painted surfaces," he says. "One should clean these types of materials off a vehicle as soon as possible. Care should also be taken when nicks from rocks or debris chip away at the paint. It's an invitation for rust to take root."

EDUCATE YOURSELF

"The challenge is to understand a little about corrosion and a little about coatings, so you know what to ask for, and you know how to audit the vehicles, to make sure that what you're sending back out on the road is going to meet your end-use requirements," says Lewis. "PPG does have authorized shops, and they have to be audited, the technicians have to be trained and retraining, and we go in and perform audits. Those kinds of options are available for customers who want to make sure they're getting the right type of paint maintenance on the vehicles that they're sending out."

Until the day that we have self-repairing paint finishes that can erase their own scratches (and, yes, they are being researched today, according to Williams), fleet maintenance managers and their technicians will have to ever vigilant.

Have you washed your fleet vehicles today?



to corrode over time. Although it may not be as dramatic as a brake system part failing, certainly it's something that is very important in terms of maintenance and checking."

Here's PPG's list of the most vulnerable structural materials:

- Anything made out of cold-rolled steel
- Anything made of iron
- Anything made with a bimetallic configuration, such as stainless steel to aluminum, or stainless steel to cold-rolled steel

Beyond that, galvanized steels are better than non-galvanized steels at resisting corrosion, and aluminum is even better than galvanized steels.

Add to that the fact that many structural underbody components aren't painted or coated, and you can see why the vehicle's construction is going to play a key part in the development of corrosion.

THE COST OF RUST

According to Williams, a study



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