

Simplifying corrosion protection for grinders and finishers

Flash corrosion is an undying foe for metal finishers. It especially likes to attack just when metal surfaces are at their finest: freshly ground, polished, and cleaned. A common protection strategy is to dip rust-prone parts into oily rust preventatives immediately after machining or cleaning. This prevents corrosion while parts await the next stage of processing, such as quality inspection. A typical routine for the QC team would be to clean the parts, inspect them, and dip them in rust preventative again before sending them off to the shipping department. While this method is effective, it becomes more time consuming the more parts there are. Each additional step slows the manufacturing process, requiring extra labour time and creating additional costs for the disposal of hazardous oil-based rust preventatives.

Applying flash corrosion inhibitors during cleaning

A variety of solutions to streamline the manufacturing and corrosion prevention process has been developed by US-based corrosion inhibitor manufacturer Cortec Corporation, a global leader in VpCI technology. Rather than requiring two separate steps for cleaning and corrosion protection, Cortec has developed several alkaline washes in its VpCI-400 series that contain flash corrosion inhibitors. These flash corrosion inhibitors allow the cleaned parts to sit in the open air corrosion-free for one or two days. Unlike a traditional rust preventative, the flash inhibitors do not need to be removed before further processing or use of the parts. Depending on the workflow, this can allow enough time



for quality inspection or transport to the next stage in the manufacturing process.

When metal parts are cleaned in parts washers where foaming can be a problem because of agitation, a low foaming cleaner such as VpCI-418 LM should be used. This is a heavy duty alkaline cleaner that can be diluted for cost effectiveness. In addition to containing flash corrosion inhibitors and minimising foaming, VpCI-418 LM is also much safer than trichloroethylene, a common cleaning agent used to remove oily rust preventatives.

Dry corrosion protection in temporary storage

If metal parts are left exposed for more than two days, another option is to use special corrosion inhibiting papers and films to wrap parts or line the bins in which they are temporarily stored. Papers such as VpCI-146 and plastic film such as VpCI-126 rely on vapour-phase corrosion inhibitors coated on the paper or embedded in the film to create a corrosion inhibiting environment within an enclosed space. VpCI-130 series foam or BioPads provide additional protection if needed for larger areas. As the corrosion inhibitors vapourise off the paper or out of the film or foam, they fill the enclosed space and adsorb on metal surfaces. This protective molecular layer is invisible and keeps the metal from interacting with corrosive elements such as moisture, air, or chlorides. While the metals are enclosed in the VpCI packaging, they are protected. When they are needed for inspection or rework, they can be taken out of the packaging and directly worked on without the additional cleaning that would be needed for an oily rust preventative.

Reducing cleanup with dry film rust preventatives

Rust preventatives are still a viable option for extended periods of protection because they leave a protective coating that stays on the metal whether or not it is enclosed in packaging. The use of dry film RPs can be



very advantageous over oily rust preventatives because they create less mess and minimise or eliminate the hassle of rust preventative removal and disposal.

VpCI-377 is a water-based concentrate that can be diluted and applied by dipping or spraying, or by metering into parts washers and rinse tanks. It dries into a clear



hydrophobic film that often does not need to be removed and can even be painted over. If desired, the film can easily be removed by rinsing with water or an alkaline cleaner in place of a petroleum solvent cleaner.

VpCI-277 is a solvent-based, ready-to-use version of VpCI-377 that was specially developed to meet the specs of a major automotive company. It is ideal for use on precision components with tight tolerances.

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