mcu coatings
best in corrosion protection

THE PROBLEM WITH ZINC RICH SYSTEMS

Zinc Rich - Resin Poor

AS/NZ 2312 defines 'Zinc Rich' systems as having a minimum 85% zinc loading. Quite a few manufacturers even load their primers >90%

Here's a few issues with the heavily loaded primers that no one really talks about:

- Zinc rich means resin poor
- Resin poor means poor wetting out
- The standard makes no mention of zinc purity
- The standard makes no mention of particle sizing
- Due to their specific gravity the large zinc particles will fall out of suspension and settle directly onto the substrate, thereby displacing the resin before it sets
- Resin does not chemically bond with zinc particles, so there are open pathways on the resin interface for contaminants to travel through the primer and reach the surface. Therefore the higher the loading the more porous the primer is
- There are no resin bridges to impede the flow of contaminants through the coating
- The primers are more brittle because of the lack of resin
- The shortage of resin affects the primer's adhesion to the substrate

Traditional coating systems specify 70 µm – 125 µm primer coating thicknesses

Typical adhesion is between 3 Mpa – 5 Mpa

MCU-Coatings

MCU-Zinc coatings only have a 83% zinc / MIO loading

- MCU-Coatings include only fine grain (less than 3µm) zinc and micaceous iron oxide additives / pigments
- The smaller additive / pigment sizing keeps the additives in suspension and also improves the wetting out
- The micaceous 'platelets' align and are encapsulated by the resin
- The platelets sit flat, overlap and create multiple layers of protection
- MCU-Coatings have a better balance between the resin and zinc/MIO loading because there is enough resin to wet the substrate and develop exceptional adhesion
- There are no open pathways between the resin and micaceous particles because the particles are in suspension and encapsulated
- The resin coating is thin enough so that it does not impede the electron flow between the cathode and anode
- The resin is thin enough to release the CO_2 gasses generated by the curing reaction and enable a 200µm film build
- Uses high purity pigments

MCU-Coatings 2-coat specification is based on a 170µm MCU-Zinc primer so it has between 20% - 50% more zinc than most traditional coating systems

Typical adhesion is around 15 Mpa - 25 Mpa on suitably prepared surfaces