Painting on residual rust

The durability of a paint system depends as much upon the surface preparation as upon the quality of the coating.
Even the best paint will not give a full protection when applied on a steel surface which is not entirely rust free, and this fact has caused many problems, despite existing techniques available for surface preparation.

Most mechanical surface treatments, such as scraping, hand brushing or power cleaning, do not remove all the rust from the cavities of the surface, and the presence of this residual rust encourages continuation of the corrosion process under paint films subsequently applied.

Blasting the surface to white metal provides an excellent substrate for paint, but a freshly blasted surface is highly reactive, and once exposed to atmospheric humidity, dew or rain, will result quickly. This means that to preserve investment in sandblasting for instance, the freshly blasted surface must be coated immediately.

And for all its acknowledged advantages as a base for paint, sandblasting is often ruled out due to cost, environment protection, inconvenience of rigging, dust and spark potential, limited size of areas to be cleaned, difficulty of arranging blasting/painting cycles, etc.

Similarly acid surface pre-treatment for corroded steel surfaces have shown limited advantage in relieving the problem.
Removal of the rust is extremely difficult under temperature, concentration and application conditions of the field.
Also in many situations, residual acids or salts left in the pores of the rust have caused failure by osmotic blistering of the paint system.
Even under the best field conditions, the use of conventional phosphoric acid based pre-treatment is also unsatisfactory.
Such products do not accomplish a true passivation of the metal surface, and their reaction with the different rust layers is not homogeneous and inefficient.

Since residual rust can encourage further under film corrosion and since acid cleaning in the field is unsatisfactory, an ideal solution would be to completely passivate the tightly bound residual rust, chemically preventing it from participating in further corrosion.

The **KELATE's ®** have been developed with this principle in mind.

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