Burke Industrial Coatings Technical Bulletin

CONVENTIONAL VS STAINLESS COATINGS

When a chemist formulates a high quality coating, there are basically four components to the coating; the resin, the pigment, the solvent and the additives. Typically, when the coating is well cured and in service, two of those components are left, the resin and the pigment. In high quality industrial coatings, there should be sufficient resin in the dried film to have good adhesion to the underlying substrate, as well as encapsulate and protect the pigment. In conventionally pigmented coatings, the pigment in the formulations tend to have various shapes and sizes, so that the dried film looks much likes like the side view in drawing number one. In BIC stainless formulations, we use only 316L grade stainless steel flake that are of very consistent size and shape, so that the dried film looks much like the side view in drawing number two.

After initial application, with the exception of far superior U.V. resistance of the stainless coating, both pigment systems are protected by the layer of resin, but as erosion takes place, whether by normal exterior exposure or chemical attack, that resin is slowly eroded, to expose the pigment underneath. The irregular particle size and shape of the conventional paint allows molecules of moisture and contaminants to easily penetrate through the porous film and work their way down to the underlying metal. In addition, the conventional pigments have no inherent chemical resistance in and of themselves. On the other hand, the plate like lamellar** structure of the 316L stainless steel flakes forms a very tight, non-porous film which greatly reduces the permeability of the coating. And, of course, 316L stainless steel is widely recognized throughout the world to have excellent chemical resistance.

In our 37 years of experience in formulating stainless steel coatings, once we add stainless steel flake to any resin system, we can expect anywhere from **7 to 10 times** the life out of that system when compared to the same system with conventional pigment.

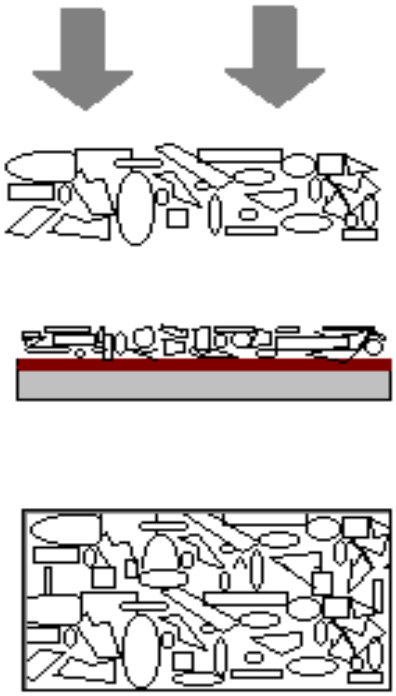
The following verbiage goes with the drawings on the next page:

The top row, first drawing, depicts the odd and variable sizes in a conventionally pigmented coating with the second drawing depicting the even size and consistency of stainless steel flakes.

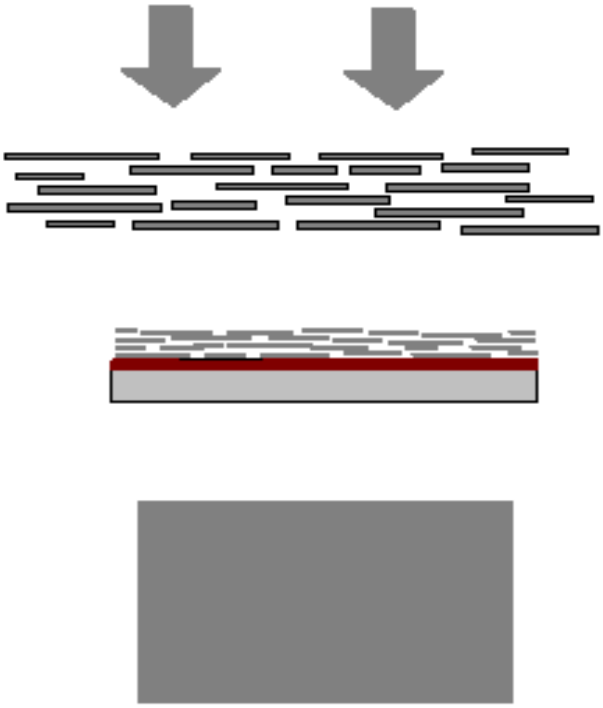
The second row shows a side view of these systems over a primer on a metal surface. Note the porosity of the conventional pigment and the tight lamellar structure of the stainless coating.

** Lamellar means a thin plate or layer laminated one over the other – an example would be the scales on a fish.

Drawing 1



Drawing 2



As shown by the arrows, contaminants attacking each film could move easily through the porous surface of the conventional coating while those same contaminants would have a more difficult time working their way through the much tighter stainless film.

The bottom row shows a top view of a conventional coating and a stainless coating that has eroded. In the case of the conventional paint, what is exposed is the porous pigment allowing contaminants to easily wick into the coating. In the case of the stainless paint, what is exposed is essentially a sheet of 316L grade stainless steel glued to the underlying primer and metal by the resin. The lamellar action of the stainless steel flake allows for the flakes to "plate" over one another making a very tight film with little porosity.

Burke Industrial Coating Inc. (800) 348-3245 www.burkeindustrialcoatings.com