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## HIGH-SOLIDS COATINGS TECHNOLOGY

Continental Products (CPC) has developed a variety of high solids paints in both primer and topcoat formulas (bake and air dry) that provide heavy-duty performance. These paints are used in a wide variety of applications for such diverse manufacturing industries as compressors, chillers, pumps, tractors, etc.

High-solids chemistry was developed in response to EPA restrictions limiting the use of traditional solvents in solvent-based paints. One of the benefits of having petrochemical solvents in a paint system is that they can, in a limited fashion, solubilize (dissolve) oils and other contaminants on a metal surface. The paint's solvent-dissolving action on oils and other contaminants will allow the paint film to adhere better to such a surface without having to clean it to the degree that other paint chemistries require.

High-Solids technology still preserves the chemistry of a solvent-based system, but the difference is that the resin solids of the paint system are higher and require fewer petrochemical solvents, which in turn lower its VOC's. This does not mean that proper surface preparation is not necessary to achieve good paint adhesion for high solids paint, but it does mean that such paint is not as sensitive to surface contaminants as are other paint chemistries and particularly water-based systems. Consequently, high solids paint can be a bit more forgiving over a slightly contaminated surface than other paint systems. Additionally, because the solids in such a paint system are higher, they will generally deposit a thicker film and more coverage per gallon in a single pass than paints with lower solids.

## **HIGH SOLIDS vs LOW SOLIDS**

In general, high solids refers to a paint that has a higher resin content and a lower volatile organic compound (VOC) content. Coatings with a high solids content contain at least 65 percent solid components, which include binders, pigments, and additives.

Low solids coatings, on the other hand, are specifically formulated to contain more solvents. This increased solvent concentration facilitates application, reduces manufacturing costs, and simplifies storage. However, these solvents evaporate rapidly after application, resulting in a coating with a significantly smaller coverage area than a high solids coating.

## **SOLIDS CONTENT AND WET & DRY FILM THICKNESS**

The difference between the initial application of a coating and the cured coating is referred to as the coating's wet thickness (WT) and dry thickness (DT). Due to the solvents evaporating after application, cured coatings containing 50% solids require two coats to achieve the same thickness as cured coatings containing 100% solids. While the majority of low solids coatings require solvents for application, considerable research and development has been conducted to develop coatings that are 100 percent solids and can be applied without solvents.

A coating that is 100 percent solids also means that there are no volatile organic compounds (VOCs) present. As a result of the reduced solvent discharge during the curing process, the formula is more environmentally friendly. Solvent-based coatings are a significant source of carcinogenic volatile organic compounds (VOCs).