

## **ABSTRACT**(3)

Powder coatings have long been recognized for their superior adhesion and corrosion resistance. Many factors contribute to this extraordinary performance.

In the case of powder coatings, most of the coating properties are determined by the binder, which is comprised of powder coating resin and curing agent.

To make matters worse, many of the coating properties desired are rather contradictory.

Adhesion properties of powder coatings are dependent upon the substrate as well as the binder portion of the coating.

Environmental concerns have curtailed the use of chrome seal rinse for metal pretreatment. This leaves us with pretreatment techniques that do not provide as good adhesion and corrosion resistance for powder coatings.

It is the purpose of this paper to provide information that will help maximize adhesion and corrosion resistance of powder coatings.

## **INTRODUCTION**

For powder coatings to have good corrosion resistance, the powder coating must have good adhesion to the substrate. Without good powder coating adhesion, the coating disbonds from the substrate leaving the substrate unprotected from corrosion.

It was thought that most thin film decorative thermosetting powder coatings in the market place today would pass 1000 hours SALT FOG exposure in accordance with ASTM B-117. This is common knowledge. Unfortunately, this commonly held belief of excellent salt fog performance is dependent upon the polymer characteristics and the pretreatment process.

This paper is based upon the hypothesis that chrome-free pretreatment process and/or unfavorable polymer characteristics do not provide as good adhesion properties as a process utilizing chrome seal rinse.