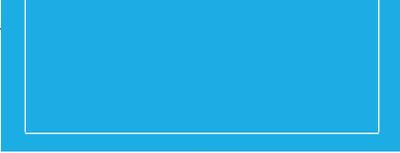


Case study



# **SILSBOND PRETREATMENT AS A REPLACEMENT OF ZINC PHOSPHATING FOR GENERAL INDUSTRIES**

# Client & paint point

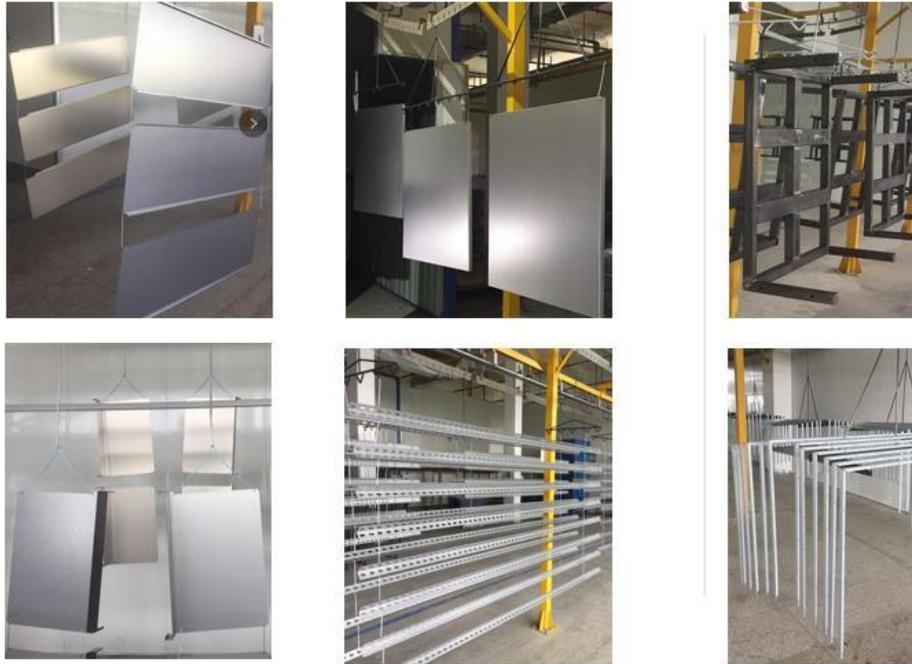


Figure 1. Metal workpieces to be painted

- **Client:** Shanghai Fufu Machinery Technology Co., Ltd. (China). It is a manufacturer for making metal parts for general industries. It makes workpieces with different geometries and various types of metals. They include metal shelves, bars, bottom plates, TV back panels, frames, etc.(Figure 1). An 8-step zinc phosphate pretreatment had been successfully used for years to enhance paint adhesion of the workpieces.
- **Pain point:** In 2016, the company was notified by the local EPA that the zinc phosphate pretreatment would no longer be allowed to use in their town due to the environmental concern of the zinc phosphate waste solution discharge. The company then started to evaluate alternatives to zinc phosphate pretreatment. They tested nano-ceramic pretreatments with good results, but a new issue emerged, that is, pretreated steel parts had severe flash rust during humid environments, especially in summer. This flash rusting issue is detrimental to the subsequent paint adhesion.

# Our solution & outcomes

**Our solution:** In 2018, our team visited this plant and recommended a 5-step SILSBOND 01 hybrid pretreatment to replace their 8-step zinc phosphate pretreatment and to solve the flash rusting issue caused by nano-ceramic pretreatments. As a “drop-in” product, the use of SILSOND 01 does not need any changes in their production line.

◦ **Outcomes:** SILSBOND 01 pretreatment provides excellent corrosion protection for steel parts. In addition, the use of SILSOND 01 not only helps the customer replace the zinc phosphate pretreatment but also eliminates the flash rust issue caused by using nano-ceramic pretreatment. (Figure 2). A 1000-hr salt spray test (SST) result for the powder painted cold rolled steel test panels shows no delamination in the scribes, indicating SILSBOND 01 offers excellent paint adhesion and corrosion resistance during salty and humid environment.



Nano-ceramic pretreated steel panels, with yellow-brownish appearance



SILSBOND 01 pretreated steel panels with original metal appearance

Figure 2. Elimination of flash rust problem by using SILSBOND 01