

TECHNICAL BULLETIN

CHROM EX (GOLD) RESEARCH PROGRAM

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Chrom EX is a superior chromate coating process that is achieving over 5000 hours of salt spray corrosion resistance, per ASTM B-117. Prior technology would have only achieved a level of 400 – 500 hours – per ASTM B 117

BACKGROUND

Zinc coating of iron and steel has been practiced for many years. Zinc protective coating alone will corrode with time and exposure to a corrosive environment. It was found that by applying a chromate conversion coating to the zinc surface, corrosion resistance has been materially increased far beyond that expected for galvanizing alone. Many examples of chromate treated parts are found in the automotive field, in hydraulics, electronic and combustion materials.

CHROMATE CONVERSION RESEARCH PROGRAM

Structa Wire Corp. research into the development of chromate technology started in 2005. The initial results were disappointing. A major challenge was faced in effectively removing lubricants that were embedded in the zinc as well as zinc oxides. A series of trials utilizing various cleaning solutions, acids and processes were tried.

As various hurdles were overcome, initial corrosion resistance results were in the order of 500 hours. The company was pleased with these results and proceeded to construct an automated line with a PLC controlled hoist that processes the product through the sequence of steps in the line. This line was commissioned in 2008. The products are long (10ft) and therefore the tanks are 12 ft. long.

Further research and experimentation have continued with this new facility. Chemistry of baths has been altered, allowing multiple sequential chromate dips.

Optimization of the chemistry, baking of the coating and post processing has been implemented. These proprietary improvements have increased hardness and durability of the coating as well as corrosion resistance. Salt Spray hours (in accordance with ASTM B 117) have increased **ten-fold** to 5,000 hours – plus.

Without any chromate, Salt Spray tests with typical zinc coating weights of the 0.15 oz/ft² fail in 24 hours, and G 60 (.3 oz/ft²) fail in 75 – 80 hours

The research program to further understand the remarkable Salt Spray results continues

Summary:

Structa Wire has demonstrated that their proprietary process for chromate conversion has resulted in a dramatic improvement in corrosion resistance at an economical cost. The technology is applied to both stucco reinforcing lath and corner reinforcements.

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