

SUREBOND[®] G50

INTRODUCTION

Almetron **SUREBOND G50** produces a conversion coating free of hexavalent chrome and providing excellent passivation on the surface of aluminium alloys, galvanised steel and zinc surfaces, producing an **iridescent to clear surface finish**.

The product is suitable for application by spray, cascade or immersion.

SUREBOND G50 has undergone accelerated corrosion testing according to MIL-DTL 5541F standard, ASTM-B117-07, and ISO 9227: 2006 displaying excellent results conforming to all requirements.

EQUIPMENT

The recommended material of construction for tanks and pipe work is 316L stainless steel, or plastics such as polypropylene and polyethylene.

PROCESS

An essential requirement for an even application of the **SUREBOND G50** coating is a chemically clean surface; free of oil/grease, any residual oxide film, and any smut that has been formed during surface etching stages. The aluminium can be alkali cleaned and etched, followed by an acid desmut/etch or completely by an acid cleaner/etch system.

The decision as to which cleaning/etching system is employed will depend on many factors but for example etching to a minimum mass loss of 1 g/m² is recommended for processing aluminium.

For galvanised work, any white rust or oil should be removed in a suitable cleaning solution (suitable cleaning and etching products can be recommended from the Almetron range).

Freshly galvanised material may be passivated in **SUREBOND G50** solution with no intermediate treatment required.

For optimum performance and solution life, it is recommended to rinse the etched/cleaned surface in demineralised water ahead of the **SUREBOND G50** stage, controlling the conductivity at < 800 µS/cm.

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PROCESS CONTROL

MAKE UP

A **SUREBOND G50** bath used as a pre-treatment prior to painting or powder coating should be made up in water by adding about 25 to 50 litres of the **SUREBOND G50** per 1000 litres of bath volume which will produce in the range a 2.5 to 5% vol/vol solution

The bath solution should be analysed after thorough mixing to ensure that the correct concentration has been obtained.

As corrosion protection for unpainted material, a 10 to 25 % v/v solution is recommended, i.e. 100 to 250 litres per 1000 litres of bath volume.

OPERATION

The **SUREBOND G50** is operated at temperatures between 20°C and 35°C, with processing times of between 1 and 3 minutes.

For spray application the shorter processing times and lower recommended concentrations are advisable.

The coating weight and depth of surface colouration is dependent upon increasing one or all of the operating parameters within the specified ranges.

After treatment in the **SUREBOND G50** rinsing in demineralised water is preferred, with the conductivity kept below 50 μScm^{-1}

It is recommended that the **SUREBOND G50** pre-treatment is dried off as soon as possible using a temperature not exceeding 60°C. Recesses containing entrapped moisture should be blown dry with a jet of clean oil free air.

LABORATORY TESTING

SUREBOND G50 Concentration

Take a 100ml bath sample and add 10-12 drops of bromothymol blue indicator solution. Titrate against 0.1M sodium hydroxide solution until the colour changes from yellow to a deep blue.

$$\text{Titre} = \% \text{ v/v } \text{SUREBOND G50}$$

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The bath should be controlled between 2.5 and 5% v/v for pre-treatment prior to painting, and between 10 and 25% if the work is unpainted.

COATING WEIGHT

The coating weight can be checked by measurement of weight loss on a panel that has passed through the process and been dried at approx. 60°C.

Weigh the panel before stripping the coating by immersion in 60% nitric acid for 10 minutes followed by rinsing and drying. Re-weigh the panel to calculate the coating weight.

Ideally before paint application the **SUREBOND G50** coating weight is between 50 to 120 mg/m².

Heavier coatings may be used for the corrosion protection of unpainted metal surfaces.

The **SUREBOND G50** coating weight may also be evaluated using XRF techniques and colorimetric techniques. These testing methods are available by contacting Almetron.