

Protection upgraded

SurTec® 640

Conversion Coating

Chromium-Free Conversion Coating for Aluminium

Properties

- reference pre-treatment for optimal adhesion and corrosion resistance
- pre-treatment for aluminium prior to powder resp. wet painting and chemical resp. adhesive bonding
- forms a colourless conversion layer
- applicable in spray and flooding application in horizontal and vertical lines as well as in immersion application
- proven track record as aluminium pre-treatment in the building, automotive supplier, electronics and wheel industry
- based on Bulk Chemical Technology
- Qualicoat Approval: A-073
- global No. 1 chromium-free technology for aluminium
- enhances the corrosion resistance when used as post-seal for phosphate alternative or phosphate layers

Application

SurTec 640 can be used in immersion, flooding and spray application.

make-up value:	1-2 %vol
temperature:	room temperature (15-30 °C)
application time:	40 s (30-60 s)
spray pressure:	1 bar (0.5-1.5 bar)
agitation:	not necessary
tank material:	stainless steel or acid-resistant plastic
filtration:	recommended; 2 circles per hour, pore size: 20 µm
heating:	not necessary
exhaust:	recommended for worker's protection
drying temperature:	150 °C (max. temperature on the surface)
layer weight:	0.08 g/m ² (0.05-0.15 g/m ²)
hints:	Prior to SurTec 640 conversion coating, the aluminium surface must be carefully cleaned and deoxidised. The "water film" on the surface must be homogeneous and without break. To protect the bath it is recommended to use deionised water with a conductivity < 30 µS/cm for the last rinse before using SurTec 640.

For optimal results the treated parts must be painted directly after drying, at the latest after 16 hours.

The drying temperature should not exceed 150 °C on the surface of the parts.

An excess of the layer weight can degrade the painting adhesion.

Do not store SurTec 640 below 0 °C.

Technical Specification

(at 20 °C)	Appearance	Density (g/ml)	pH-value (at 20 ml/l)
SurTec 640	liquid, colourless to light yellow, turbid	1.010 (0.99-1.03)	2.75 (2.5-3.0)

Maintenance and Analysis

Check the pH-value regularly. Analyse and adjust the concentration of SurTec 640 regularly.

Sample Preparation

Take a sample at a homogeneously mixed position and let it cool down to room temperature. If the sample is turbid, let the turbidity settle down and decant or filter the solution.

SurTec 640 - Analysis by Titration

reagents:	0.1 N sodium hydroxide solution (NaOH solution) indicator: bromocresol purple
procedure:	1. Pipette 10 ml bath sample into a 250 ml Erlenmeyer flask. 2. Add some drops of indicator. 3. Titrate with 0.1 N sodium hydroxide solution from colourless to purple.
calculation:	consumption in ml · 3.3 = ml/l SurTec 640

Determination of the Bath Aging - Analysis by Titration

reagents:	0.1 N sodium hydroxide solution (NaOH solution) indicator: phenolphthalein
procedure:	1. Pipette 10 ml bath sample into a 250 ml Erlenmeyer flask. 2. Add some drops of indicator. 3. Titrate with 0.1 N sodium hydroxide solution from colourless to a persistent pink.
correction:	The consumption must be below 4.0 ml. If the consumption is higher than 4.0 ml, it is necessary to renew the bath.

Determination of the Layer Weight

- equipment: analytical balance (+/- 0.1 mg)
- reagents: 2 N oxalic acid
- procedure:
1. Passivate a test part with known surface (in m²) with SurTec 640 and dry it with compressed air at room temperature.
 2. Weigh the dry part (within 3 hours after passivation) with the analytical balance. (= M₁ in g)
 3. Remove the conversion coating in 2 N oxalic acid. (4 min at 20-25 °C)
 4. Rinse with deionised water and dry with compressed air at room temperature.
 5. Weigh the dry part with the analytical balance again. (= M₂ in g)
- calculation: $(M_1 - M_2) / \text{surface} = \text{layer weight in g/m}^2$
The layer weight should be in the range of 50-150 mg/m².

Consumption and Stock Keeping

The consumption depends heavily on the drag-out. To determine the exact amounts of drag-out, see [SurTec Technical Letter 11](#).

In order to prevent delays in the production process, per 1,000 l bath the following amount should be kept in stock:

SurTec 640 50 kg

Product Safety and Ecology

Classification and designation are noted in the Material Safety Data Sheets (according to European legislation). The safety instructions and the instructions for environmental protection have to be followed in order to avoid hazards for people and environment. Please consider the explicit details in our Material Safety Data Sheets.

Warranty

We are responsible for our products in the context of the valid legal regulations. The warranty exclusively accesses for the delivered state of a product. Warranties and claims for damages after the subsequent treatment of our products do not exist. For details please consider our [general terms and conditions](#).

Further Information and Contact

If you have any questions concerning the process, please contact your local technical department.

For further information and contact details please visit our homepage:

<http://www.SurTec.com>

