

Protection upgraded

Comparison Chromium(III) to Chromium(VI)



Kunststofftechnik Bernt GmbH relies on the Chromium(III) process SurTec 883 XT

Customer

Kunststofftechnik Bernt GmbH

Region

Germany

Industry

Automotive, Household Appliances & Sanitary

Application

Decorative Electroplating

Plant Specifications

Rack Application

Summary

Since September 2019, Kunststofftechnik Bernt GmbH (KTB) has been gradually converting the previous Chromium(VI) processes to the more environmentally friendly Chromium(III) process developed by surface specialist SurTec. SurTec's new process is not only impressive in terms of colour and quality, but the cost of the chemicals is also approximately comparable.



About Kunststofftechnik Bernt GmbH

Kunststofftechnik Bernt GmbH (KTB) has extensive expertise at all stages of the value chain, from parts development and tool design to mould construction, plastic injection moulding and surface finishing in its own electroplating plants. The range of services extends from manufacturing precise technical parts to surface finishing, often including the production of complete assemblies. Thanks to extensive modernisation and expansion investments, KTB today has a state-of-the-art production facility in Kaufbeuren industrial park, Germany.

Goals of the production with SurTec 883 XT

In selecting the best supplier, Kunststofftechnik Bernt GmbH formulated the following requirements:

- Deposited layer thickness of 0.2 µm to 0.3 µm with a maximum exposure time of six minutes
- Corrosion requirements according to CASS test 120 hours or according to NSS test 1200 hours
- Colour stability over the entire current density range
- Colour values (measured with Konica Minolta CM-700d):
 - L*-Value = 83 to 85
 - a*-Value = -0.5 to -0.8
 - b*-Value = -0.5 to -1.5

After extensive testing, the decision was made in favour of SurTec 883 XT, which is the only process that represents a 100% Chromium(VI) replacement.

Success Factors

- 100% free of Chromium(VI)
- REACH-compatible
- easy waste water treatment
- identical colour values as Chromium(VI)

Why SurTec?

- excellent service
- environment-friendly products
- great process knowledge
- very good availability

“With SurTec 883 XT a full replacement for decorative Chromium(VI) bright Chromium has been developed which fully meets the market requirements. SurTec also offers suitable ion exchange resins and patented anode technology for Chromium(III) processes.”

Peter Böttcher
SurTec Deutschland GmbH

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Colour measurement with Konica Minolta CM-700d

Satisfying results

After almost a year of production with a throughput of almost 27,000m² at 500,000Ah so far using the new process, KTB is pleased with the positive results:

- The colour of the surface is stable and identical to the Chromium(VI) colour tone, as the colour measurement proves
- Special anode technology enables long service life
- 50% lower current density enables energy savings
- Stability: reproducible colour and corrosion resistance values in series production
- Automotive approvals about to be granted

Results of the colour measurement

SurTec 883 XT:

L = 84.33
a = -1.05
b = -1.28

Chromium(VI):

L = 80 to 84
a = -0.5 to -1.1
b = -0.5 to -1.7

SurTec 883 XT is the first and only 100% Chromium(VI) replacement in colour and function available on the market. Approximately comparable process costs and easy integration into existing plants are only a few of the numerous advantages. In total, more than half a million liters of Chromium(III) electrolytes are in use worldwide. SurTec's latest developments include in particular Chromium(III) electrolytes in all colour variants from light (L* value 85) to dark (L* value below 50).