



SAXONIA GALVANIK

Current status on the authorization and substitution of chromium trioxide at SAXONIA Galvanik

Since September 2017, companies that handle hexavalent chromium compounds in their production must have applied for authorization for the corresponding use.

However, even with this approval, the days of chromium(VI)-containing substances in industry are numbered. In perspective, these compounds must be replaced by alternatives. Therefore, with the availability of suitable alternatives, a conversion of the current chromium(VI) processes is imperative. In the specific case of plastic chrome plating, this applies not only to chrome plating, i.e. the deposition of the metallic chromium end layer. It also applies to the processes for pretreating (edging) ABS, ABS/PC and polyamide. In addition to the full-surface coating, these processes for plastic pre-treatment must also perform the selective coating of ABS and ABS/PC.

To safeguard our interests and to be fully capable of delivering at all times, SAXONIA Galvanik has been involved in applications for approval for the continued use of chromium trioxide since 2015.

The applications for authorization have been positively assessed by the European Chemicals Agency (ECHA) since 2017, with recommended review periods of 12 and 4 years:

(1) Plating on plastics for automotive applications ("FGK application", right holders: Gerhardt Kunststofftechnik GmbH, SAXONIA Galvanik GmbH et al. and other FGK members).

The authorization for further use of chromium trioxide refers to all products, which we manufacture for our customers in the automotive sector.

(2) Functional chrome plating with decorative character (authorization holder: Chemservice GmbH, previously: LANXESS Deutschland GmbH et al.)

The authorization includes SAXONIA Galvanik as a downstream user and all products manufactured by us.

Unfortunately, the final decision by the EU Commission has been delayed and is still pending. Recently, additional substitution plans were requested. Separate substitution plans were developed for the two process steps pre-treatment and chromium deposition and submitted in 2020. A first assessment of the substitution plans by ECHA took place. The FGK application was classified as "credible" and comprehensible. According to the now known timeline, a final decision by the EU Commission as legislator is expected for 2022 at the earliest.

At the same time, SAXONIA Galvanik has used the timeframe created to push ahead with the substitution of chromium(VI). In addition to the development of possible alternative processes, the integration into the in-house series production lines is a major challenge. Electroplating is used to deposit the final layer from chromium(III) electrolytes, which are now already established on the market and do not show any visual differences from the established processes. This makes it possible to mix conventional and chromium(VI)-free coated components in an assembly or vehicle. Currently, these processes have already been implemented in 2 of 4 series production plants. The conversion of another series plant will take place at the turn of the year 2021/2022.

However, great progress has also been made in chromium(VI)-free plastic pretreatment, which is now ready for series production. As a result, various high-quality product ranges have been successively converted to the new processes. This was preceded by intensive development and optimisation processes, which SAXONIA Galvanik GmbH has actively pursued together with chemical suppliers since 2018. In the meantime, some of our facilities have been converted in order to be able to coat plastic parts completely free of chromium(VI) in parallel to the proven processes. Further production line conversions up to the complete conversion of all machines are being planned. Since the production start of the new processes, more than one million single and multi-component parts made of ABS or PC/ABS and more than four million polyamide parts have been completely chromium(VI)-free electroplated under series conditions with very good quality. The common tests for adhesion according to OEM standards were passed - both in internal tests and in laboratory tests of involved OEMs.

The conversion of further plants as well as the complete changeover of production to chromium(VI)-free processes will strongly depend on how quickly the approvals in the supply chains are obtained. In order to safely meet the expected legal deadlines of 2024, these processes must be focused and accelerated. Here we hope for support from the supply chain up to the active participation of the OEMs. Despite positive test results and high qualities, projects may not be converted without approval along the supply chain. Unfortunately, these changeover processes are still very slow. The start-up of new projects is already planned for the new processes.

In addition to coating the usual plastics, the new pre-treatment also succeeds in refining certain PP types. This opens up an exciting range of applications for the future.

A re-sampling of existing series parts can usually be done without changes to the injection moulding or the basic material, which makes it easier to convert existing series projects. We are therefore confident that galvanized/chrome-plated plastic parts can be produced with the same high quality standards in the future, regardless of decisions from Brussels.

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