

## Chromium trioxide

February 2017

### Use of chromium trioxide (= hexavalent chromium / Cr VI)

GROHE is a “down-stream user” of chromium trioxide (= hexavalent chromium / Cr VI), applying this substance in the electroplating processes (galvanics) for faucets, shower systems, and accessories. This substance is used for electroplating base materials like brass, zinc and plastic which are covered with metallic layers to create long-lasting, corrosion and wear resistant surface. As final layer the chrome (Cr “0”) surface creates a surface quality which GROHE is world renowned for.

### Risks

Risks associated with the use of chromium trioxide at GROHE are specifically limited to the electroplating production process. During the electrolytic process in the chrome bath a metallic chrome layer (Cr “0”) is produced out of a liquid chromium trioxide solution (chromic acid / Cr VI), which is completely free of chromium trioxide (Cr VI) and as such poses no risk to the end users of faucets, shower systems, and accessories.

A second application of chromium trioxide (Cr VI) is an etching production step for plastics as a base material, where chromic acid is being used as a pre-production step prior to creating the metal layers. In this case extended rinsing cleans the surface prior to the metal layers being deposited; and as such removes all traces of chromium trioxide from the surfaces. The water used in the cleaning and electroplating processes is treated in complex treatment processes before leaving the production facilities.

### REACH - European chemical legislation

Due to its carcinogenic and mutagenic properties chromium trioxide has been included on the authorization list for chemicals in Europe (REACH, Annex XIV). According to the REACH legislation, the use of chromium trioxide for production purposes in Europe will not be possible after 21. September 2017 (“sunset date”), unless an authorisation is granted by the European Commission.

### Alternatives

GROHE is continuously engaged in an analysis of alternatives, trying to identify reliable alternatives that would be able to replace the existing technology, match the existing quality specifications, and market expectations on GROHE surface quality.

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Unfortunately, GROHE could not find any alternative substances or technologies, which are currently available for use on an industrial scale and which are able to provide similar properties, referring to appearance, longevity, corrosion and wear resistance as well as market acceptance.

## Application for authorisation

Therefore GROHE has already filed an application for authorisation in 2015 to use chromium trioxide beyond the “sunset date” (21.09.2017). ECHA, the European Chemicals Agency in Helsinki, Finland, as addressee, evaluated the filed application in 2016 and forwarded a recommendation for decision (“final opinion”) to the European Commission in Brussels, Belgium.

GROHE applied for an authorization period of 12 years beyond the sunset date for electroplating and 10 years for etching (a sub-process in the electroplating of plastic base materials).

## Both authorisation periods were granted by the European Commission in a decision, dated 8. February 2017.

*An Application for Authorization (AfA) is expected to cover specific aspects like a Chemical Safety Report (CSR), an Analysis of Alternatives (AoA) and a Socio-Economic Analysis (SEA), allowing the ECHA to gain a broad picture of the substance, the use, potential alternatives, the company and the markets.*

*The AfA documentation includes, as well, a clear presentation of Operating Conditions (OC) and Risk Minimization Measures (RMM) for the GROHE production sites, to minimize risks to staff and neighboring communities.*

*The applicant is expected to request a specific time period for the authorization. Both, the ECHA as well as the European Commission can decide to overrule the applicant, e.g. if they come to the conclusion that feasible alternatives will be available sooner than the applicant assumes.*

In the decision, dated 8. February 2017, the ECHA as well as the European Commission are acknowledging, that there are no feasible alternatives in the market and that the operating conditions and risk management in place at all GROHE facilities are appropriate to protect the health of the staff and neighboring communities.

The following authorisation numbers apply:

REACH/17/5/0 (Electroplating), until 21.09.2029 (12 years)

REACH/17/5/1 (Etching), until 21.09.2027 (10 years)

## Research & Development

GROHE is still heavily engaged in the research of feasible alternatives, considering different substance combinations in electroplating. But as long as we are not able to provide a competitive and reliable solution, we will not be able to switch to alternative technologies.