

Press release

ZVO Press release Impact assessment authorisation chromium trioxide

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Head:

Authorisation via end products and sectors – an impact assessment

Anyone who has been following the events surrounding the authorisation of chromium trioxide under the REACH Regulation must realise that the discussion about applications for authorisation in the surface sector has become difficult to understand. Especially the so-called upstream authorisations of large consortia are facing altered requirements compared to the beginning of the process.

Originally, the aim was to obtain authorisation for the use of chromium trioxide in the electroplating industry. The rules of the authorisation procedure require the applicant to present the benefits of the use of chromium trioxide in relation to the risk posed by the respective type of use of the hazardous substance. If the benefit of the application is greater than the risk, which can be quantified in monetary terms, this is an important argument for the continued authorisation of this use of the hazardous substance. However, this so-called socio-economic consideration allows for completely different interpretations, depending on the point of view.

For the representative of an electroplating company, the added value results directly from the coating process using chromium trioxide. In theory, this should be the only aspect an applicant from this sector has to consider, as this is his sole responsibility.

On the other hand, chromium-plated components have a particularly wide range of applications across various industrial sectors, and cannot be replaced by other processes without causing certain drawbacks. Examples are higher costs, lower quality or restriction to special base materials.

During trials with ECHA in Helsinki – an assessment workshop with application bodies, ECHA representatives and other stakeholders – it became apparent that the definition of the use of chromium trioxide can differ significantly depending on the viewpoint of the observer. While users in the electroplating industry distinguished between the different chromium plating processes and thus between exposure scenarios, non-industry stakeholders tended to focus on the uses of the chromium plated products after the manufacturing process in specific applications, such as the military or aerospace industries.

Meanwhile, the focus seems to have shifted towards obtaining permission to rework products of the industries that are the end users of products with a chromium trioxide layer.

Examples:

Upstream-Submissions		
subm.-No.	title	Comment
0032-02	“Functional chrome plating”	The function of chromium trioxide is fulfilled by applying a wear protection layer

		on any kind of component; the subsequent use of this component is irrelevant for the coating process.
0032-03	“Functional chrome plating with decorative character”	The function of chromium trioxide as a substance to be transformed into an easy-to-clean, low-wear, highly decorative metallic layer only becomes clear on the component when it is used; subsequent use is irrelevant to the coating process.
0032-03	“Surface treatment for applications in the aeronautics and aerospace industries, unrelated to Functional chrome plating or Functional chrome plating with decorative character”	In this case, there is a direct link to the customer industry with industry-specific components.
0050-01	“Functional chrome plating of piston rings for two-stroke and four-stroke large bore engines as applied in the industrial sectors Construction & Industry, Power Generation, Railway and Maritime”	Application exclusively for unique components for specific industries.
0053-01	“Hard chrome plating for gasoline and diesel injection applications”	Industry-related components for which the authorisation may become worthless after the ban on the combustion engine.

Controlling the risks of the actual technology no longer seems to be the focus of the assessment. Instead, a transformation of the manufacturing chains is expected. This immediately raises the question as to whether the authorisation obligation is imposed on the appropriate addressee, because the coater has no influence in this regard. Often, he has insufficient knowledge about the intended subsequent use of the component he is ordered to produce a coating for.

Usefulness of the approach

It is clear that it is not the coating process itself that determines the required chemical and mechanical properties, because these are defined by the specifications set by the customer regarding the chemical composition - and thus its properties - of the elemental chromium surface. However, the substitution plans required on the part of the competent authorities of the EU (COM and ECHA) inevitably deal with the technical modification of the end products. For where chromium(III)-based electroplated coatings are technically not applicable, a substitution of chromium(VI) in electroplating would not be possible because the customer expects a chromium coating made from this substance. Nevertheless, the responsible bodies and the EU Commission demand a discussion of alternative coatings for the end product; even if this involves technology that an electroplating company cannot even assess. In many cases, only the company that ultimately uses the component can determine how great the benefit of the specific surface is. The decorative real metal chrome plating of a perfume bottle cap should serve as an example. This could also be made from the cheapest plastic without a coating, but it is manufactured elaborately for high-end products in order to sell it for a

higher price to the customer . Only the perfume manufacturer himself is able to judge to what extent this elaborate coating is economical for him. The electroplater cannot determine whether an alternative surface can meet the market requirements and how much lower or higher the price to be obtained for the alternative end product is. The electroplating company is therefore supposed to anticipate the technical requirements of its customers and, if necessary, question itself as a supplier.

Authorisation of use with service managers

Electroplating is not specialised in certain industries. Instead, industrial electroplating is essentially limited by component sizes, i.e. the installed apparatus size. The benefit that the parts later fulfil for the customer is secondary for the coating company.. The surface coater offers a chemically and physically defined surface and the customer must decide whether its properties meet his specific requirements. This is especially true for contract coaters, who act as service providers for broad sectors of industry and trade. They are the ones who have predominantly joined forces in order to seek approval in the upstream authorisations. This is because these companies are far too small to clear the bureaucratic hurdles themselves and at the same time sift through entire manufacturing chains to find technologies for customer sectors that they cannot offer themselves.

Authorisation of the use of chromium trioxide for the coating of industry-specific components or for in-house coaters

Recent developments by authorities and industry suggest that it is the aim to increasingly grant authorisations for specific uses. This is not only shown by the discussions about the applications already submitted. For example, applications from in-house electroplating plants, which can work very precisely with risk and benefit considerations, taking into account the total value added of the finished part, have already been approved. Various industry-specific mergers are trying to secure the urgently needed chromium-plated components, at least for their own needs.

At the same time, the EU Commission is focusing on the next upcoming regulatory approach: "essential use". According to this principle, only those hazardous substances should be allowed to be used that are applied for the manufacturing of a product that is considered indispensable – i.e. "essential" – for society. This allows a very large and, above all, hardly predictable scope for interpretation. What appears to be essential for one person in Europe may be superfluous or too dangerous for another.

For many coaters, this would mean that only a part of their coating orders would remain. This would be tantamount to a corresponding loss of turnover. Neither the Commission nor the customer consortia seem to realise that this loss of turnover could quickly jeopardise the economic existence of the electroplating shops, making the production of authorised components obsolete. Compensation from other sectors is not possible due to the limiting authorisation.

Potential effects

The direction currently being taken by the EU authorities with regard to the authorisation of chromium trioxide is likely to have at least the following side-effects:

1. service-providing companies (contract coaters) without a firmly defined product framework will possibly lose major parts of their coating turnover, since they will not profit from the added value of their customers generated by the subsequent uses of the products;

2. product diversity will decrease. At the same time a consolidation of companies will have to take place; start-ups, also for value-creating production chains, will be hardly possible any more due to the lack of long-term planning. This will lead to a monopolisation or oligopolisation of the markets. These effects can already be observed in chemical companies.
3. defensive research and development will often lead to a decline in the quality of the changed products; decades of development will be reversed. Also, new developments that would have sufficient added value for authorisation will not even be developed because later usability cannot be ensured - because contrary to the assumption in the EU Commission's "Green Deal", there is no such thing as "toxic-free".
4. the reduced quality, in particular a shortened lifespan, causes increased resource and energy demand;
5. numerous effects on downstream processes (e.g. transport, manufacturing processes, mechanical engineering) will only become visible with a delay.

The extent to which these side-effects are intentional or are condoned cannot be decided at this point. Together with the many other transformations in industry and society, the consequences in many areas of life are hardly foreseeable and not necessarily positive. Instead of banning chemicals, the EU should rather focus on defining and monitoring conditions of use. To this end, national and local authorities must implement the requirements of the legislation, most of which already existed before REACH.

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About the Zentralverband Oberflächentechnik e.V. (ZVO):

The Zentralverband Oberflächentechnik e.V. (ZVO) represents the interests of suppliers of raw chemicals and processes, plant manufacturers, component manufacturers, service providers, coaters and electroplating firms within Germany's electroplating and surface technology sector. Its members are active in the field of surface processing with metals or metal alloys from liquid process media. The ZVO acts as a central port of call for user industries, politicians and authorities with questions concerning the financial, environmental, energy-related and education policy aspects of electroplating and surface technologies.

About electroplating and surface technologies:

The electroplating and surface technologies sector is an industrial sector that is shaped by small and medium-sized firms, with around 440,000 employees in Europe, 60,000 of whom are based in Germany. The sector generates turnover of around EUR 7.5 billion in Germany alone. The structure of electroplating businesses is dominated by SMEs, with just a small proportion of firms having more than 100 employees. The surface technology sector is a key industry: its services are crucial for the functionality of components, devices and machines in almost every other sector. As part of this, electroplating prevents corrosion damage of around EUR 150 billion each year. Electroplating technology enables an array of diverse components to function reliably: nowadays, no car leaves the conveyer belt without significant parts of it having been subjected to surface coating. Modern medical technology would not be possible without cutting-edge surface technology processes, and the same can be said of the construction and sanitation industries, electrical technology and the electronics industry, and the aviation industry.

Further information: www.zvo.org

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Many thanks in advance for sending an author's copy or publication links.

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