

Promoting substitution of hazardous chemicals by bringing together the whole value chain and organisations supporting substitution – the example of the January 2017 Finnish chrome platers workshop

Introduction

ECHA is looking for possibilities to support substitution of hazardous chemicals. Two of the elements often required for successful substitution are i) funding for innovation research and ii) collaboration among actors in the supply chain. ECHA contributed to the organisation of an “innovation workshop” to promote substitution of Chromium trioxide (CrO_3) in the Finnish plating industry. The aim was to create and test mechanisms for funding and industry collaboration that could serve as an example in other Member States, other sectors and even at the EU level.

Companies producing articles or components requiring surface treatment do this either as part of their own operations or they purchase the plating from specialised companies ('platers'). The specifications and requirements for the surface are usually set by the end customer. These can be the company producing the article/component or their customer further down the supply chain.

Different business models exist. Unique properties required from the plating affect the possibilities for substitution. A plater providing services for several customers from different industrial sectors is usually unable to find an alternative solution that would be applicable for all of its customers. Thus, the technological solutions and costs related to the introduction of an alternative method are different between the companies.

Workshop

Organisation

Aalto University Design Factory and Finnish Plating Association (SGY) organised a one-day innovation workshop in Finland on 25 January 2017. Others helped in the organisation: the representatives from the European Chemicals Agency, Finnish funding and innovation organisations and industrial branch associations representing the customers of the platers (i.e. producers of articles requiring chromium VI plating) and chemical suppliers.

Objective

The objective of the workshop was to promote the development and introduction of an environmentally friendly and safe technology in decorative and hard chrome plating. It offered the opportunity for the industry to look for alternative solutions together and discuss with organisations supporting substitution. The ultimate goal was to get concrete project ideas from the workshop and to identify elements that should be repeated in other workshops.

Methodology and programme

The workshop started with introductory presentations in the morning and continued with "world café" type of discussions in smaller groups in the afternoon. All the groups discussed each of the themes of the introductory presentations in tables facilitated by a chairperson nominated and instructed by the organising committee.

The programme with the presentations in Finnish are available at the SGY website¹. The introductory presentations covered the following topic:

- Changing the technical requirements for end products: the effects for the platers (end-user: European Space Agency)
- The role of product design in innovation (Aalto University)
- Alternative technologies for hexavalent chromium: hard chrome plating and decorative plating, including three presentation by providers of alternative substances and technologies (Finnish Plating Association (SGY), companies: Oerlikon, Savroc, Coventya)
- Research and development innovation funding, including a case study by industry (Finnish Funding Agency for Innovation (TEKES), company: Hydrolin)
- Co-operation in research and development in the value chain (innovation support platform DIMECC)

Each chairperson steered the discussions to develop project ideas from the perspective of the theme. In addition, the participants in the groups looked for project ideas during the discussions. After the group discussions, organisers gathered all the project ideas for further discussion with all participants.

Outcome and next steps

In total 55 experts from industry, innovation supporters, academia and authorities participated in the workshop. The workshop succeeded in providing a platform, where participants throughout the value chain exchanged views on possibilities for substitution in the coming years. The participants developed several project

¹ See <http://sgy-ry.fi/tiedotteet/120-tyopaja-ymparistoystavallisen-kromauksen-kehittamiseksi-materiaalit>

ideas in the discussions. These ideas are overlapping to some extent and could be covered in one wider project:

1. Validation of alternative technologies against the specifications and requirements of the end customers. The whole value chain should be represented and the project would benefit also from university partners.
2. Establishing testing or production scale plating lines for trivalent chromium technologies in hard chrome plating. There are limited possibilities to test new technologies for the end customers. Small job platers cannot invest to alternative technologies alone, but this could be possible together or in co-operation with the providers of the alternative technologies.
3. Choosing an alternative coating. Having an industry-specific portal of alternatives and alternative providers, including information on the properties, costs and possible applications areas could facilitate substitution.
4. The small Finnish job platers could organise themselves to co-operate. Together they could save in research expenses. Co-operation possibilities exist for example in introducing alternative technologies together and in screening the customers' requirements and in activating the end customers to collaborate.
5. Substituting chromium (VI) successfully requires co-operation in the value chain. Brainstorming together may identify possibilities that were not known before. Discussions and innovation may require a specific platform or facilitation by experienced expert.

Based on the feedback gathered from the participants, the workshop managed to fulfil their expectations.

- All the participants considered the workshop either useful (46%) or somewhat useful (54%).
- More than half of the participants responded that there is a 50-100% probability that they would contribute money or time if an interesting project will be implemented. Only 8% responded that the probability is less than 25%.

After the workshop, the organisers distributed the project ideas with the contact details of the participants to the participants for further action.

Key findings and messages

- This type of workshop was very useful in promoting the introduction of alternatives by bringing together the whole supply chain and organisations supporting substitution. Several participants said that such occasions happen rarely, and in particular, too seldom.
 - The communication on possibilities for substitution does not take place automatically in the value chain. It is crucial to have the whole value chain to meet and to get to know each other.
 - It is challenging to get the right companies and persons to participate. Industry associations often have the necessary contacts. Organisers should reserve time and effort to find and activate the right persons. SGY provided good contacts to the platers and contact points to their customers.
 - Facilitation was helpful to focus the discussion. The facilitator can achieve the participants to discuss “who does what next”. This element was thought to be crucial to commit and encourage participants to follow up on the planned activities. The workshop could have devoted even more time on this.
 - Existing industry networks and innovation platforms were and are helpful partners when organising a workshop.
 - The earlier workshops like this are organised before regulatory action takes place (e.g. the Authorisation List of the REACH Regulation), the better possibilities they provide for companies to consider what research they should carry out and what information they should include in the applications.
 - Comparative risk assessment on the chemical of concern and alternative technology needs to be carried out as part of the research and development of the alternative to avoid undesirable substitution.
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