

Strategy to promote the substitution of hazardous chemicals – a thought starter

1. Background

In its Programming Document for 2017-19 ECHA proposed to develop a multi-year strategy for supporting the substitution of hazardous chemicals in the EU. In this context, ECHA asked the Lowell Centre for Sustainable Production (LCSP) to support the further elaboration of the substitution strategy. LCSP's report (Annex 1) outlines 13 strategic actions centred around three themes – networking, engagement and capacity. ECHA has used this report to prepare this 'thought starter' for a strategy around four main action areas to substitute hazardous chemicals.

This paper presents the current thoughts of ECHA on how to promote substitution, in addition to the stimulus provided by EU chemicals legislation (e.g. REACH). Besides legislation, other instruments may give an additional boost to the sustainable substitution of chemicals of concern.

The strategy on the substitution of hazardous chemicals is also linked to the current general EU priorities around the circular economy, sustainable manufacture and the use of chemicals and ECHA's forthcoming Strategic Plan for 2019-23. One proposed strategic priority is focussed on the safe and sustainable use of chemicals by industry. Knowing the properties and uses of substances is essential for companies to understand the long-term viability of their chemicals portfolio. With this knowledge, companies can better integrate substitution as part of their business model. Being proactive and staying at the forefront of technological developments will help European businesses in becoming more competitive. Furthermore, investors start to include sustainable chemistry as an integral part of their risk assessment and business planning, and retailers and consumers increasingly demand safer products.

In the draft Strategic Plan for 2019-23, ECHA has identified several strategic areas of operation, which are relevant for substitution:

- Promoting best practice examples of increased substitution of hazardous substances, green chemistry and sustainability in the supply chain;
- Promoting a mind-set and behavioural change within industry towards sustainable and safer chemicals. Collaborating with industry associations in raising awareness in developing and providing tools for sustainability assessments of chemical supplies;

ECHA co-chairs the Ad Hoc Group on Substitution of Hazardous Chemicals of the OECD and will increasingly collaborate with several institutions and Member States to advance substitution. These comprise, for instance, the International Sustainable Chemistry Collaborative Centre (ISC3) in Germany, the proposed centre to promote substitution in Sweden, the INERIS Helpdesk on substitution in France, the ChemSec's Marketplace for safer alternatives and the COSME project on substitution of the Commission (DG GROW). The latter project puts emphasis on the innovative and competitiveness driven approaches for SMEs to find alternatives. These external activities will need to be considered as part of a strategy on substitution to ensure that synergies are realised and that ECHA's activities add value. The use of the European Enterprise Network (more than 400 institutions in the EU) could also be considered for dissemination of best practices examples.

Substitution is a business critical consideration. Changing the mind-set of industry and government agencies is essential to building a stronger cultural foundation for substitution in the EU. The mind-set change embraces the view that substitution is part of an innovation activity that creates business opportunities and has environmental and health benefits. Substitution can therefore be seen as an essential building block for reaching the UN 2020 and 2030 Sustainable Development Goals.

Significant benefits in implementing the strategic action areas described below could emerge if high-level leadership was given to support substitution. They could highlight how innovation is intrinsically linked with substitution in the context of circular economy and the sustainable use of chemicals. This could take place in events in which decision makers of companies participate. The development of a narrative which provides a clear and understandable message on a modern approach to use chemicals sustainably could be seen as a strategic action on its own. For this, ECHA could develop the content, in the form of supporting documents and presentations, which could be used to spread the message to downstream industry, formulators as well as the suppliers of chemicals, adaptable to the needs of different audiences. These presentations would link to efforts to promote sustainable chemistry throughout the EU.¹

2. Goal

Substitution contributes to the overarching EU objectives for a non-toxic environment and a circular economy wherein innovation and sustainable production and consumption are key elements. The progressive substitution of substances of very high concern by suitable alternatives is also one of the aims of REACH authorisation.

The overall goal of a substitution strategy is to support informed and meaningful substitution of chemicals of concern in the EU and to boost the availability and adoption of safer alternatives² through increased capacity, innovation support, and networking.

This 'thought starter' presents ECHA's current thinking of what it could do to boost substitution in addition to the stimulus provided by EU chemicals legislation (e.g. REACH). While the overall goal is to make sustainable substitution happen, ECHA's role in this is not yet clear, including its relationship with other actors. Thus, the goal of this thought starter is to receive feedback from stakeholders and Member States on the ideas presented here and on how they can participate in these and other actions to support substitution. Based on this feedback, ECHA will be able to plan in a more informed manner how it might prioritise and deploy its staff and resources in the years to come.

3. Action areas

It would seem helpful to develop a substitution strategy in a stepwise approach. Based on the lessons learnt from the strategic action areas, the substitution strategy would be further developed. Following this adaptive approach, the following four action areas could build ECHA's substitution strategy:

1. Capacity building through supply chain interaction workshops;
2. Facilitating access to financing and support;
3. Facilitating the use of registration, classification and risk management data for sustainable substitution;
4. Development networks related to substitution of chemicals of concern.

These action areas are described in more detail below. Based on feedback and further analysis each area needs to be planned as part of the implementation of the strategy. Some elements of the proposed action areas are already taking place, in particular in the action area "facilitating the use of data". Others are new, at least with a substitution focus.

¹ Depending on capacity, around 12 interventions from ECHA could be foreseen (Executive Director and senior management) in 2018. It would be highly desirable that high representatives of relevant authorities in the EU or Member States made such interventions.

² For clarity, the alternatives can be other substances or alternative technologies.

3.1. Capacity building through supply chain interaction workshops

During the preparation of the strategy, ECHA and LCSP have identified several needs from government and industry in terms of substitution. It has become evident that capacity in companies and authorities with regards to substitution should improve. Traditional “classroom” type training might not be a very productive, engaging or effective approach to increase this capacity, though. Instead, ECHA could collaborate with Member State and EU-level authorities, industry associations and possibly NGOs working on substitution, to organise workshops on specific substitution challenges. These workshops could take place at Member State or EU-level.

The aim of the workshops would be to initiate a dialogue among the various concerned actors across the supply chain (from top to bottom and with a special emphasis on downstream users and SMEs) about the opportunities and challenges of substitution. The purpose is to better understand needs, and make progress on the targeted substitution issues, ideally resulting in concrete innovation projects (link with strategy portions “I3” and “I4” in the LCSP report). In January 2017, ECHA facilitated a pilot workshop of this kind together with the Finnish Galvanisation Association and the Aalto University Design Factory and participants found the event very useful³.

These events would be an occasion to learn about the technology/functional needs and needs for capacity building/training at the operational level of companies. The activities are in concordance with several parts of the LCSP report: substitution/innovation thinking (C2a), the basics for initiating and conducting a search and analysis of alternatives (C2b), and informing about early alerts of regrettable substitution (link with I2a and action 3 of this paper – “Facilitating access and utilisation of data for a sustainable use of chemicals”).

A European or national industry association, Member State Competent Authority (MSCA) or possibly an interested NGO or academic/technical research organisation, would normally take the lead in initiating and organising workshops on substitution. ECHA could give advice and support in organising the workshops. It is likely that the workshops would be organised at a sectoral or chemical functional level⁴, gathering companies operating at different levels of a particular supply chain, specialised R&D institutions and (private and public) fund providers, MSCAs and other relevant stakeholders.

The benefit of this approach is that such workshops would be tailored directly to the needs of those companies and authorities that hold the key to substitution. ECHA could develop a standard package of methods and content, which would be used as a basis for the organisation of the workshops. The material could be translated into different languages. ECHA could also provide practical support to the organisers of the workshops.

A couple of pilot workshops in early 2018 would provide an opportunity to refine the approach; it would be good to hold about a dozen workshops in 2018. This target recognises the critical importance of helping to support follow up activities coming out of these workshops to ensure effective progress and increased understanding of the needs for additional knowledge, sharing of experience, funding and support.

The workshops would not only increase the capacity for the participants. They would also allow ECHA and other interested parties to gain experience and learn how different (e.g. organisational, managerial, technical, economic, HSE-related) skills could be fostered in companies and Member State CAs to identify and analyse alternatives and thus to find suitable substitutes.

³ See the report at https://echa.europa.eu/documents/10162/13630/finnish_crvi_workshop_en.pdf/e55d3063-00c2-c69c-004c-48d584257110.

⁴ Examples of topics are alternatives to chrome VI plating in a particular Member State, alternatives to perfluorinated substances in the textile industry, substitution issues in car industry at the EU level, etc.

Since the insights and learnings from the workshops could be helpful to people who did not participate in them, special attention needs to be paid to establish an effective way of communicating the aggregated learnings of these workshops to interested stakeholders to create replicable collaborative models.

The learnings from the workshops would help in further developing the substitution strategy from 2019 onwards.

3.2. Facilitating access to financing and support

The purpose of this strategic action area is to facilitate additional funding to substitution/sustainable chemistry projects at EU and Member State level both from public and private funding organisations. The increased funding could be to both innovation driven R&D as well as for adapting existing substitution solutions in companies. The purpose is also to improve the links between industry's R&D needs and funding. The LCSP report discusses this in section I3.

In order to expand opportunities for research funding necessary to replace chemicals of concern, ECHA could discuss with both public and private funding institutions on the drivers and needs for support on substitution. The involvement from ECHA could in part be a "promotor" of how substitution could be financed in existing funding "windows" or programmes (i.e. using "old money" more effectively). Another possibility could be to promote the creation of new "windows" or funding mechanisms ("new money") for R&D or adapting technologies for substituting away from chemicals of concern.

The supply chain workshops (see action area 1) could provide good occasions to see to what extent (a lack of) R&D funding might support (or impede) innovation and thus substitution.

ECHA recognises the importance of providing support to companies, including SMEs, in testing the identified potential alternatives to the chemicals of concern before these can be adopted and a new product may enter the market. However, this support is often highly technical and would require knowledge of the companies' circumstances. Thus, it is likely that such technical support could be better organised at a national, regional or even local level. Hence, in providing technical oriented support ECHA could be a facilitator and multiplier to organisations operating at national or regional level. It should be clear, though, that ECHA's own technical knowledge in industrial uses is very limited.

It should be recognised that facilitating funding and support do not belong to ECHA's core activities. However, if ECHA can help, the leveraging effect could be substantial.

3.3. Facilitating the use of registration, classification and risk management data for sustainable substitution

Many of ECHA's data processes form the core of a safe and sustainable use of chemicals and substitution activities. ECHA seeks to ensure that registrations and C&L notifications as well as the analyses of alternatives in applications for authorisation and restrictions are of adequate quality. At the same time, this activity will require a considerable effort from ECHA.

Indeed, sustainable substitution requires a proper understanding of the hazards and risks associated with the substance(s) to be substituted and, when a chemical is substituted by another, of the hazards and risks of the alternative(s). ECHA has worked for many years to both have the quality of incoming dossiers further improved and make the data available. REACH and C&L data are disseminated via ECHA's website and directly to authorities, providing much more information than what was available before REACH. Information on registrations of single substances enables their grouping based on their chemical structures or functions. ECHA intends continuing to make the data available and strives to do so in a way that facilitates substitution away from chemicals of concern. In this vein, ECHA has

invested in the OECD QSAR Toolbox⁵, which is a software intended to fill gaps in (eco-)toxicity data needed for assessing the hazards of chemicals. The QSAR Toolbox incorporates information and tools from various sources into a logical workflow. It is used by many industry users in the development of new products and chemicals in order to avoid regrettable substitution.

Structural similarity may be used by industry to avoid regrettable substitution in cases where the information on the hazard properties of the alternative(s) is not complete enough to allow sufficient assessment. Similarly, authorities increasingly address groups of substances instead of single substances and, by doing so, help avoiding substitution with substances posing a similar level of concern. Generally speaking, the integration of the different REACH/CLP processes from early on enhances regulatory consistency and predictability for the stakeholders. This is why ECHA has increased the early information on those (groups of) substances which are under scrutiny by the authorities.

ECHA intends to further develop the integration, interpretation and public access to such data so that relevant stakeholders can make timely and well-informed decisions about the manufacture and use of new substances. Depending on the availability of resources, ECHA might be able to develop projects which would allow an easier access to information collected via the REACH or CLP processes:

- For registration data it might be possible to search by uses as well as sectors of use;
- For applications for authorisation and for restrictions it would be possible to have the key information on the analysis of alternatives in the dossiers as well as the key information on alternatives obtained during public consultation both stored in a searchable database;
- ECHA could also set up an open-ended public web-form for the submission of information on alternatives, outside any REACH regulatory process to constitute a database on potential alternatives. The resource, logistical and ICT related challenges would need to be analysed should there be a genuine need for such a database;
- ECHA could monitor activities and options for substitution of substances on the market by analysing submission data including notifications. Should there be indications of regrettable substitution, ECHA could engage in a preventive dialogue with industry.

3.4. Development of networks related to substitution of chemicals of concern

Networks – multi-stakeholder, supply chain, government authorities - can play an important role in coordinating and advancing the practice of substitution. During the development of this 'thought starter' suggestions for forming and maintaining networks have been made. These comprise i) networks for the analysis of alternatives/substitution technical experts, ii) multi-stakeholders networks on strategic and programmatic activities or iii) networks between authorities to exchange information, knowledge and experience (see LCSP strategic approaches E2 to E5).

At this stage, ECHA believes that is unclear what or which networks would add real value to those participating in the network(s) or to contribute to substitution in a meaningful manner. Therefore, it is proposed that, as part of the Workshop on commenting and developing this substitution strategy in October 2017, a significant part would be devoted to collecting views and suggestions on what or which networks would be helpful and what the role of ECHA and other actors should be in them.

⁵ See: <https://www.qsartoolbox.org/>

4. Next steps

After having received the comments from the CARACAL meeting of June 2017, a more elaborated version of the strategy proposal will be developed and discussed at a dedicated workshop before finalisation for ECHA's Management Board's attention at the end of 2017. This workshop would be organised with key stakeholders to collect feedback on the substitution strategy in general and on the types of networks (see action area 3.4) which would be most useful to support and develop the strategy. This workshop is tentatively planned to be held in Helsinki on 9 (pm) and 10 (am) of October 2017.

Annex

Annex 1: LCSP strategy report