Chromium-free leather is good for business, consumers and the environment

The most popular tanning methods in the leather industry are chrome-based. A frequently used form is trivalent chromium, which can, under certain conditions, oxidise to hexavalent chromium. Hexavalent chromium can have negative health and environmental impacts. Spanish SME Incusa is among those leading the way with a new technology, Sanotan, which has replaced chromium compounds with titanium.

Know your chemicals, know your customers

The performance coatings business area at Dutch multinational AkzoNobel has 25 years of experience in finding safer alternatives to hazardous chemicals used in industrial paints.

Finding safer chemicals - the American way

The U.S. Environmental Protection Agency’s Alternatives Assessment Program helps industry to identify and evaluate safer chemicals and offers a basis for informed decision-making when replacing chemicals of concern. Our guest columnists Kathy Hart, Cal Baier-Anderson and Emma Lavoie tell more.

Promoting safer alternatives for biocidal products

Clear exclusion criteria, a process for candidates for substitution and simplified authorisation are some of the examples of how the Biocidal Products Regulation encourages applicants to choose safer active substances for the biocidal products.

Substitution – safer chemicals, benefits for business

One of the main objectives of the European chemicals legislation is to protect human health and the environment both for present and future generations. Replacing harmful chemicals with safer alternatives plays an important role in achieving this aim.

When we talk about replacing harmful chemicals, we should not only focus on substances of very high concern (SVHCs), important though they are. To that end, ECHA, the European Commission and the Member States are working hard to get all the relevant SVHCs on to the Candidate List by 2020. However, substitution does not start and end with SVHCs. The whole system of REACH, CLP and the Biocidal Products Regulation is built towards replacing dangerous chemicals with safer ones. The key drivers for this are registering under REACH, communicating in the supply chain, authorising SVHCs and restricting very hazardous chemicals.

REACH registration is not just about submitting a dossier to ECHA and receiving a registration number to be able to stay on the market. It obliges industry to systematically collect data according to the information requirements of REACH and analyse their hazards and risks. During that process, companies become more aware of what they are producing, using and placing on the market and, in some cases, may come to the conclusion that certain uses are no longer desirable. Taking stock of what you have – that’s the most important part of registration.

Downstream users have an obligation under REACH to check the instructions for the handling and use of chemicals provided in the supplier’s (extended) safety data sheets. The chemicals should be used in line with what has been recommended. In some cases, they might realise that the recommendation they receive from their supplier is not correct or that it is less stringent than what they actually do. This systematic risk management has led downstream users to weigh their options: “Do we really want to use this dangerous substance and bear the consequences of the...
risk management measures or is there a better alternative?” The increased and improved information on the classification and labelling of substances will also help companies to make better informed choices and move towards using safer chemicals.

Another important aspect is the need for article producers to communicate when their articles contain SVHCs included in the Candidate List. This may, in turn, encourage retailers to become more sensitive about the presence of SVHCs in articles they sell, and also enable consumers to make informed purchasing decisions.

Authorisation aims to ensure that risks from SVHCs are properly controlled, and that very hazardous chemicals are progressively replaced. The purpose is to give industry an incentive to substitute SVHCs with safer chemicals or techniques. Enabling companies to apply for authorisation to use an SVHC - if only for a limited period of time - means that it is not an immediate ban: in the long run it strives for substitution, but in the short-term, companies apply for authorisation to continue using the SVHC.

The application for authorisation has to be justified, including an analysis of the availability of alternatives. It is also subject to a public consultation, where more information on substitutes may become available. Our message to companies that are considering to apply for authorisation is to think about its importance from a business perspective – if you can substitute now, you will of course save the cost of the authorisation process.

Under the Biocidal Products Regulation, companies need to have their active substances approved and biocidal products authorised. There are also specific criteria for substituting the most hazardous substances. If these criteria are met, the substance may be considered as a candidate for substitution. Candidates for substitution are identified when applications are made to approve active substances and further considered at the product authorisation stage, where they trigger a comparative assessment of biocidal products.

For ECHA, it is difficult to say how many companies are working towards replacing dangerous chemicals simply because we usually do not receive this information. We do see, however, that there is increased communication in the supply chain, which suggests that companies now have more information on which to base a decision to use - or replace - a substance. In addition, the European Commission has concluded that suppliers have become better informed about their customers’ uses and needs. Overall, REACH provides much better data, which should lead to innovation and give smart companies a competitive advantage and ultimately lead to a better reputation and an enhanced brand.

This Newsletter issue focuses on substitution and innovation. We have included stories and guest columns that show how companies, authorities and organisations are working for safer chemicals and greener innovation. We hope you enjoy it. Please send us your feedback at: echanewsletter@echa.europa.eu.
To help raise awareness about the safe use of chemicals in our daily lives, ECHA launched its revamped ‘Chemicals in our life’ web pages for the World Consumer Rights’ Day on 15 March.

The pages tell consumers how chemicals can be used safely at home and in the work place. There are also tips on how to learn more about the safety of consumer products and background information on chemicals of concern, safer alternatives and current scientific topics.

USE THE ‘RIGHT TO ASK’

The web pages explain in more detail what information consumers can request from retailers and how to do it. The ‘right to ask’ refers to the suppliers’ obligation to tell consumers about the presence of substances of very high concern in their products. The information must be given to the consumer within 45 days of the request and is free of charge.

Many national authorities and consumer organisations have prepared model letters that consumers can use when requesting information.

The right to ask applies to so-called ‘articles’ under REACH, for example, textiles, furniture, shoes, sports equipment, toys or electronic equipment.

It does not cover mixtures such as paints, detergents, medicine, cosmetics or food.

Suppliers must also advise customers on the safe use of the article in question. As a minimum, they have to provide the name of the hazardous substance included in the article. They are only obliged to inform the consumer if the hazardous substance is present in concentrations over 0.1% of the overall weight. They can, however, give information for lower concentrations on a voluntary basis.

ARE THERE SAFER ALTERNATIVES?

The demand for safer products is growing. As information on hazardous chemicals is more readily available and consumer demand for safer chemicals grows, more companies are looking for safer alternatives. The offer of textiles, shoes, clothing, toys and other consumer products with green and toxic free labels is steadily increasing. Consumers should be aware of what and where to buy and check the product labels.

Retailers themselves are also increasing the demand for safer products. Some choose not to sell products containing substances of very high concern.

Companies using safer chemicals and selling safer products are enhancing their brand, which in turn may bring economic benefits.

The updated web pages give an overview of how REACH, CLP and the biocides regulations promote the replacement of hazardous substances and give examples such as the banning of mercury from thermometers, restricting chromium VI in leather articles and requiring the use of musk xylene as an ingredient in fragrances of some household products, to be authorised.

Further information:

ECHA is now on Facebook.
http://facebook.com/EUECHA

Check out the following websites to learn more about safety of consumer products.

Umweltbundesamt’s online tool (in German)
http://www.reach-info.de/verbraucheranfrage.htm

Consumer Product Information Database for USA & Canada
http://www.whatsinproducts.com/

Chemicals health monitor project
http://www.chemicalshealthmonitor.org/
Chromium-free leather is good for business, consumers and the environment

TEXT AND INTERVIEWS BY VIRGINIA MERCOURI

The oldest and most common tanning methods in the leather industry worldwide are chrome-based. A frequently used form is trivalent chromium. Under certain conditions, it can oxidise into hexavalent chromium, which is known for its negative health and environmental impact.

Even if chromium VI is only present in small amounts in the leather, it can cause dermal allergies and asthmatic reactions. In 2011, a Danish study found that almost half of imported leather shoes and sandals contained chromium VI and proposed a restriction under REACH. The restriction has now been published in the Official Journal and will apply from 1 May 2015. From that date, goods or articles containing leather parts that come into contact with the skin, cannot be placed on the EU market if they contain hexavalent chromium in concentrations of 3 mg/kg by weight or more.

The new restriction does not only apply to leather tanneries. Companies importing or manufacturing leather shoes, gloves, clothes, hats and sports equipment as well as furniture, car accessories and straps for watches or bags, may need to change their suppliers or their production process. Industry has 12 months to prepare and decide on which alternative solution to use – or come up with new ones.

**Spanish SME Incusa** is among those leading the way with a new registered technology, Sanotan, which has effectively replaced chromium compounds with titanium.

**WHY TO INNOVATE?**

“Our company employs less than 100 people,” explains Incusa’s sales manager Angel Gomez, “but we have been in the market for bovine leather since 1932 and around 70% of our production is for export. We sell a lot in northern Europe. Some time ago, when Germany banned leather products containing more than 3 mg of hexavalent chromium per kg, our German clients became interested in alternatives. Most of our customers already require chromium-free leather and Sanotan responds to their needs.”

His colleague Marivi Galiana, who led the development work for the new technology, points out another very important reason for Incusa’s investment in substitution: the opportunity to eliminate the discharge of toxic chromium residues into waste water. “Our tannery is situated on the border of Albufera lake near Valencia, which is the largest lake in Spain. It is a natural park and protected area, so you can imagine how often we are visited by inspectors and how much we are controlled,” she says.

Ms Galiana mentions that Incusa’s innovation department has played a very important role. “We want to do things differently from the other companies in the sector. We believe that our titanium-based technology is the future.” Another reason for saying that is that the natural reserves of titanium are larger than those of chromium. Titanium is also a sub-product of other industries like ceramics, so it will always be available.

Titanium compounds are still more expensive than chromium compounds, but the Sanotan technology has achieved a reduction in chemical consumption, in water and energy consumption, and in CO2 emissions released in the environment. “This leads to a productivity gain,” Ms Galiana points out.

Changing the production process was not easy and it took nearly two years to get the new technology ready for market. At first, the quality of the leather was not satisfactory, but the company continued with the research. “Our management and commercial departments were very supportive. From the very
beginning, they also realised that this was a fantastic opportunity for Incusa," Marivi Galiana states.

EU FUNDING AND SUPPORT

When the prototype was ready, the Footwear Technological Institute INESCOP helped Incusa to obtain nearly €350 000 in funding from the European Union’s Eco-Innovation Programme to bring the new titanium-based technology to the market. The EU-funded project TiLeather included laboratory testing for quality, which showed that Sanotan leather meets the European eco-label criteria. It avoids most of the environmental problems caused by traditional tanning. It is hypoallergenic and comfortable for wearing.

Three shoe manufacturing companies were also involved in the project to test the new technology for children’s and casual shoes, and for security footwear for professional use. “The results exceeded our expectations,” says project coordinator Joaquin Ferrer from INESCOP.

In 2011 and 2012, one million pairs of Sanotan leather shoes were produced and sold in Spain, France and other EU countries, reducing the use of chromium compounds by 25.5 tonnes and the CO2 emissions by 35 tonnes.

Without the TiLeather project, it would have taken Incusa much longer to introduce the new technology in Europe. “It is not only because of the funding, but also because of the opportunity to work directly with our customers. They were all motivated and came up with very good ideas about how to go ahead. Cooperation was great,” says Angel Gomez.

His advice to other SMEs is to work very closely with their suppliers and customers if they want to succeed – and not only for substitution.

BUSINESS GAINS

Incusa has increased its total sales and Sanotan now represents around 25% of the total production of the company. The EU-funded project ended two years ago and the company has now registered the Sanotan technology as a trademark.

“Using this technology helped us reach a wider range of customers. We are now working with big brands, exporting to the USA and moving to new markets. Some examples are leather straps for Swiss watches, baseball gloves and horse saddles. There has also been interest from the aviation industry,” says Mr Gomez.

Some of Incusa’s clients are even sending Sanotan samples to their suppliers outside the EU, for example, to India and Morocco. “This gives them reassurance that if they have to stock the leather, they will not have a problem to be on the market, since their products will not contain chromium compounds that could oxidise to unauthorised levels of hexavalent chromium”.

Sanotan has already received national and international prizes for protecting the environment and for developing innovative materials for the fashion industry. Angel Gomez sees that the pressure to move away from hazardous chemicals will continue to play an important role in the business strategy of Incusa.

“This is good not only for the environment and our customers, but it also gives a clear direction for our innovation. It helps us to be different and to compete with other tanneries across the world,” he concludes.

Further information:

Commission regulation (EU) No 301/2014, amending Annex XVII of REACH

TiLeather project
http://www.tileather.eu/

Ti my shoes – EuroNews report
http://www.euronews.com/2012/02/03/ti-my-shoes/

List of restrictions table
http://echa.europa.eu/addressing-chemicals-of-concern/restrictions/list-of-restrictions/list-of-restrictions-table

Read more about chromium compounds on page 8 and about EU funding on page 21.

© FOTOLIA
The performance coatings business area at Dutch multinational AkzoNobel has 25 years of experience in finding safer alternatives to potentially hazardous chemicals used in industrial paints.

“We have taken stock of all the materials we use and analysed them. We have checked them against the criteria laid down in Article 57(a-e)* of REACH, which includes the properties of substances to be included in the Authorisation List. These substances can be, for example, carcinogenic, PBTs or vPvBs,” says Dr Luc Turkenburg, Director of R&D Services and Regulatory Affairs.

All materials that might fit the criteria at AkzoNobel have been put on a specific ‘watch list’. “We call them our priority substances. We have been investigating how much we use them, in what formulation and whether there are safer alternatives available. In fact, the number of substances of very high concern (SVHCs) that we use in our products is low, and we work continuously to eliminate them.”

Some examples where SVHCs at AkzoNobel have been replaced are lead pigments and phthalates.

“For the lead pigments, we knew that there were alternatives available. By the end of 2010, we decided to take out all lead pigments from all our paints, not only in Europe but throughout the world. As for the phthalates, we started looking for alternatives in 2008 and we had identified a few. Although phthalates are not a big substance group in my company, we were able to replace them all by 2011. In general, our policy is to replace hazardous substances in the products where technically possible,” Dr Turkenburg explains.

APPLYING FOR AUTHORISATION FOR A SPECIFIC USE IN AEROPLANES

There is one SVHC used in a very specific case where no better replacement has yet been found. The substance is strontium chromate and it is used as the first layer of paint for the construction of aeroplanes.

“Such constructions, like the fuel tanks, will only been seen once during the lifecycle of an aeroplane. When the wings are in place and the tank inside, no one will go back and check whether the paint on the tank is in good shape. It just needs to be. We are dealing here with very high demands from our customers and talking about 30-years’ warranty,” Dr Turkenburg says.

The company has searched for alternatives for strontium chromate since 1989 and has managed to replace the chemical in all of their other products. “We replaced the substance in the paints for tractors, trucks, buses and harvesters. The specific, technically demanding use for the aeroplane was the only case where we could not find an alternative solution. I’m glad that REACH offers a temporary solution for these cases. If you have a solid case, you can apply for authorisation as we will.”

To prepare the application, AkzoNobel joined a consortium which represents the manufacturer, all the formulators of the paint in Europe and a number of end users – including the big airline companies. “It is likely that AkzoNobel will be the one applying for authorisation in 2015 – although this has not yet been decided. We are in the middle of the supply chain, so the application would cover our own uses as well as the uses of our downstream users. We make use of a specialist company to help us in creating the application, to see that the right uses are mentioned and that our customers agree with those,” Luc Turkenburg mentions, and continues, “I’m confident that we will be able to cover all the relevant uses. We know and talk to our customers. In addition, it helps that aerospace coatings are a very specific field.”

OUT WITH THE OLD, IN WITH THE NEW

Making sure that non-hazardous chemicals are used in new products is driving innovation at AkzoNobel.

REACH has changed the way the company looks at new raw materials and ingredients. “All new materials are taken to our laboratory and tested to see whether they fall under the SVHC criteria. In many cases, we will already in the beginning decide which material we will look at further and which we will not,” Dr Turkenburg highlights.
While doing the inventory of chemicals, it became apparent that most of the SVHCs were present in very old products. "We came across substances that we were not aware of. We have replaced those and at the same time retired some of our old products and developed new ones based on chemicals with better profiles. I consider this innovation as well".

Finding alternatives and changing products does, however, require research resources.

"A part of your laboratory capacity will be focusing on replacement rather than on completely new product development. This is a cost. However, the ultimate benefit is that you end up with new and safer products. This is not bad for the economy".

**SUBSTITUTION PAYS OFF**

REACH aims to better protect human health and the environment from hazardous chemicals. This aim is also shared at AkzoNobel.

"We need to move away from the materials we don't want to expose our colleagues or customers to. I'm a chemist, so I know that some substances really have a bad profile. We should continue with our efforts to replace those," Luc Turkenburg says.

* Substances meeting the criteria for classification as carcinogenic, mutagenic or toxic for reproduction category 1A or 1B in accordance with Commission Regulation (EC) No 1272/2008 (CMR substances); and substances which are persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB) according to REACH (Annex XIII).

**AKZONOBEL**

AkzoNobel is a Dutch company producing decorative paints, performance coatings and speciality chemicals. It has activities in more than 80 countries and employs approximately 50 000 people. Their headquarters are in Amsterdam.

The performance coatings business of AkzoNobel produces paints, for example, for the automotive industry and ships as well as protective coatings for big constructions such as oil platforms. Under REACH, the performance coatings activities of AkzoNobel fall under the roles of formulator, downstream user and importer.

https://www.akzonobel.com
Understanding chemistry

Chromium occurs in the environment primarily in two main states: **trivalent chromium** (Cr III) and **hexavalent chromium** (Cr VI). Exposure to humans and the environment may occur from natural or industrial sources of chromium. Chromium III is considered to be much less toxic than chromium VI, and is an essential element for humans. For example, the German Nutrition Society recommends a daily intake of chromium of 30-100 µg for adults. The human body can detoxify some amounts of chromium VI to chromium III.

Chromium compounds, in either the chromium III or chromium VI forms, are used for chrome plating, the manufacture of dyes and pigments, leather and wood preservation and the treatment of cooling tower water. Smaller amounts are used in drilling muds, textiles and in toners for copying machines.

**Hexavalent chromium** is known to cause cancer. It targets the respiratory system, kidneys, liver, skin and eyes.

One of the most commonly used form of hexavalent chromium is **chromium trioxide**. Chromium trioxide has various toxicological properties, such as acute and chronic toxicity, corrosivity as well as skin and respiratory sensitisation. It is also a reproductive toxicant, a germ cell toxicant and in particular, a carcinogenic substance.

Chromium trioxide is mainly used in metal finishing/surface treatment and as catalysts. Low volumes are also used by professionals as a laboratory agent.

**Chromium III**, although much less toxic than chromium VI, is shown to have moderate toxicity from oral exposure in acute animal tests.

**Sources:**

US EPA
http://www.epa.gov/ttn/atw/hlthef/chromium.html

US OSHA
https://www.osha.gov/SLTC/hexavalentchromium/

ECHA SVHC support document on chromium trioxide
http://echa.europa.eu/documents/10162/bd313eaf-3710-4ff3-9e5e-2f4c6c8e0776
In electroplating, hexavalent chromium compounds form the basis for various processes. These processes are functional chrome plating (hard chrome plating), chrome plating for decorative applications with functional aspects (bright chrome plating or decorative chrome plating), etching in the pretreatment of plastics and chromate conversion coating on zinc layers or aluminium.

In chrome plating and plastic etching, the final product leaving the electroplating process does not contain any hexavalent chromium compounds. Hexavalent chromium is only contained in the layers of conventional chromate conversion coating. In the other processes, chromium layers are reduced to metal. Metallic chromium (Cr 0) is considered non-hazardous.

The plating industry, the chemical process industry and research institutes have been looking for alternatives for more than 15 years to the current methods used in hard chrome and bright chrome plating. They are looking for alternatives to both the chromium layer itself and to replace hexavalent by trivalent chromium electrolytes.

The search for alternatives was triggered already long before REACH, because the oxidative effect of hexavalent electrolytes may harm the material of the plating plant. In addition, the legal requirements for the treatment of wastewater, rinsing processes and exhaust air are far stricter than for other electrolytes.

However, hexavalent electrolytes are still widely used in the coating industry because industry demands properties that cannot be met by other substances.

The reason why hard chrome plating is used is not only that it produces a hard layer. Studies carried out by industry and research institutions show that the required properties are not only hardness but also sandability, anti-adhesive behavior, corrosion resistance, reflectivity, brightness, suitability for food applications and chemical resistance. The industry demands property profiles that differ for each application. Similarly, in the field of decorative or bright chrome plating, brightness is required, as well as abrasion resistance, suitability for food applications, chemical resistance and colour stability during use.

Industry has devoted a lot of time and effort to finding alternative methods, for example, in the fields of nickel plating, alloy plating, hardening, thermal spraying, deposition from trivalent chromium electrolytes, lacquer coating and ceramic layers. The conclusion is that there is currently no marketable alternative available to most of the applications of hexavalent chrome plating. The required property profiles have not been achieved by other methods. This is particularly evident in sanitary fittings, where other surfaces such as lacquer-coated plating, PVD plating and stainless steel look are also used. However, 99% of sanitary fittings sold are chromium-plated - because the market demands it.

It looks as we will not be able to do without hexavalent electrolytes in the future. Decades of dealing with these substances, however, have led to state-of-the-art plant technology that is continuously improved. From the perspective of plant engineering, rinsing technology, handling, recirculation and clean production, this technology allows workers and the environment to be protected from hexavalent chromium compounds so that these remain where they belong - in the electroplating plant.

However, research will continue to try to find safer alternatives in the longer term which would be suitable for applications where hexavalent chromium is involved. However, there will still be applications where the property profiles can only be achieved by plating with hexavalent electrolytes. Aspects of material science and plating mechanisms will build up the borderlines for the alternatives.

Dr Martin Metzner
Head of department for electroplating at the Fraunhofer Institute for Manufacturing Engineering and Automation in Stuttgart

Fraunhofer, founded in 1949, is Europe’s largest application-oriented research organisation. Its research drives economic development and is geared to people’s needs: health, security, communication, energy and the environment. The Fraunhofer-Gesellschaft maintains 66 institutes and independent research units, and employs more than 22 000 staff.

http://www.fraunhofer.de/
Public consultation: tell us about safer alternatives

TEXT BY PÄIVI JOKINEN

You can play an essential role in substituting substances of very high concern (SVHCs) with safer alternatives. You are encouraged to send information to ECHA during the public consultation which takes place after an application for authorisation to use an SVHC has been submitted.

When applying for authorisation, applicants need to demonstrate that the risk from the use of the substance is adequately controlled, or that it has socio-economic benefits that outweigh the risks of continued use. In the latter case, they also need to show that there are no suitable alternative substances or technologies available.

To ensure that potentially suitable alternatives have not been missed, you can step in. You can look at the application and add further information to make sure that all relevant information on alternatives is available for ECHA’s scientific committees to draft their opinion. Your participation in the process encourages applicants to thoroughly assess whether there are any potential alternatives available that replace the hazardous substances with safer ones.

WHO CAN PROVIDE INFORMATION?

Anyone. In most cases, people providing information are companies, competitors, organisations representing industry, civil society, public authorities, and occasionally individual citizens. Even though REACH is European legislation, people from all over the world can take and have taken part.

WHAT INFORMATION IS PUBLISHED FOR THE PUBLIC CONSULTATION?

When launching the public consultation, ECHA publishes information on the applicant and the substance as well as the Broad Information on Uses’ on its website. The Broad Information on Uses includes information about the use applied for; the use descriptors and function; and the information on the conditions of use.

To have a transparent and meaningful consultation the public versions of the analysis of alternatives, substitution plan, socio-economic analysis, and exposure scenarios are also made available.

WHAT TYPE OF INFORMATION IS MOST WELCOME?

You are invited to provide as much information as you can on the alternatives you propose. An accurate substance identity of the alternative substance or mixture and/or description of the alternative technology or process is the minimum. Information on the hazard properties of the substance, the classification and labelling and argumentation on the technical and economic feasibility as well as the availability of the alternative is also very useful. A clear description of an alternative technology would also be helpful.

WHAT HAPPENS DURING AND AFTER THE PUBLIC CONSULTATION?

All public parts of the comments received during the public consultation are published on ECHA’s website during the consultation. The applicant is always given the possibility to provide counter-arguments within two weeks of the end of the consultation. These comments are also published.

The Committee on Risk Assessment (RAC) and the Committee for Socio-Economic Analysis (SEAC) receive all the comments.

Their rapporteurs will assess all the information received and compare it with the information submitted by the applicant. Their assessment is based on the relevance, quality, clarity and completeness of the information received. If necessary, the rapporteurs can also request further information on alternatives from the third party providing information, or from the applicant.

WHAT IS A TRIALOGUE?

The Committees can also arrange a triologue with the applicant, the third party or both if they need additional information. The main purpose of these meetings is to discuss any questions that the committees have on the application as well as issues arising from the public consultation. It gives the rapporteurs the possibility to ask questions and gain a better understanding on the applicability of the suggested alternatives.

HOW CAN WE ENSURE EFFICIENT CONSULTATION?

Since the public consultation is based on voluntary contributions by third parties and the timelines are short, it is important that the information published on the uses applied for is clear and well communicated. This allows you to provide meaningful information to ECHA and also minimises the number of follow-up questions and irrelevant comments.

You can find information on new public consultations by subscribing to ECHA’s e-News or by regularly checking ECHA’s homepage.

Further information:
Applications for authorisation
http://echa.europa.eu/addressing-chemicals-of-concern/authorisation/applications-for-authorisation
A growing number of companies are looking for safer chemicals to use in their products, for a variety of reasons - to achieve corporate sustainability goals, meet consumer demand, reduce liability, avoid future supply issues due to new regulations, or satisfy current regulatory requirements. The U.S. Environmental Protection Agency’s Design for the Environment (DfE) Alternatives Assessment Program helps industries to identify and evaluate safer chemicals, and offers a basis for informed decision-making when replacing chemicals of concern. Chemical choices made based on these assessments can minimise the potential for unintended consequences that might occur in moving from a potentially problematic chemical to a poorly understood alternative, which could be even more hazardous.

The Alternatives Assessment Program provides information on the environmental toxicity, human health, and environmental fate of chemicals that may be used as substitutes in a product or formulation. This enables industry and other stakeholders to use this information, along with an analysis of cost, performance and other factors, to choose safer alternatives.

In some cases, a comparison of available alternatives may indicate that there are no preferable alternatives to the chemical being considered for replacement. In this case, the information can guide innovation and product development, by understanding the characteristics needed in a safer alternative.

**DECABROMODIPHENYL ETHER**

An example of an alternatives assessment is that conducted for decabromodiphenyl ether (decaBDE) as part of a multi-stakeholder partnership to identify potentially safer flame retardants. DecaBDE is a flame retardant used in a variety of applications, including textiles, plastics, wiring insulation and building and construction materials. The final alternatives assessment report identified potentially functional and viable alternatives for decaBDE, evaluated their human health and environmental profiles, and will help decision makers to choose safer alternatives: [http://www.epa.gov/dfe/pubs/projects/decaBDE/about.htm](http://www.epa.gov/dfe/pubs/projects/decaBDE/about.htm)

The report shows that some alternatives to decaBDE are anticipated to be safer, and that others have hazards that may pose a concern. As companies that have been using decaBDE in their products prepare to transition to other flame retardants, this alternatives assessment will provide information that will help decision makers consider environmental and human health profiles for available alternatives, so that they can choose the safest possible functional alternatives. This will help to reduce the potential for the unintended consequences that could result if functional, but poorly understood alternatives are chosen.

**BISPHENOL-A IN THERMAL PAPER**

The Program has also conducted a multi-stakeholder assessment of alternatives to BPA in thermal paper, used for example, in cash register receipts: [http://epa.gov/dfe/pubs/projects/bpa/index.htm](http://epa.gov/dfe/pubs/projects/bpa/index.htm).

The BPA report provides an overview of uses, end-of-life scenarios and potential exposure to BPA, and hazard profiles for BPA and possible alternatives. The BPA alternatives assessment did not identify functional chemicals with low concern for all hazard endpoints; all of the alternatives are associated with some hazard trade-offs. However, if used with appropriate control measures, some of the alternatives could provide incremental benefits.

Additional information about the Design for Environment Alternatives Assessment Program can be found online at: [http://www.epa.gov/dfe/alternative_assessments.html](http://www.epa.gov/dfe/alternative_assessments.html)

Kathy Hart, Cal Baier-Anderson and Emma Lavoie.
Venetian glassmakers have been using arsenic trioxide since the late 1600s. It has, however, been classified under the CLP Regulation as a carcinogen and as toxic. It is due to be banned on 21 May 2015 for all uses except those that receive an authorisation from the European Commission. ECHA Newsletter takes a look at the consequences of this ban and the potential solutions for the glassmaking industry of Murano, Italy.

“Arsenic has been used for centuries to endow glass with a particularly fine clarity and as a refining and decolouring agent,” says Sandro Hreglich, a chemist at the Stazione Sperimentale del Vetro (SSV), a scientific research agency of the Venetian Chamber of Commerce that aims to promote innovation in the Italian glass industry.

The ban of arsenic trioxide from May 2015 onwards is a bitter blow for the local economy of Murano where the craftsmanship of glass-making is an essential part of the Italian cultural heritage.

To continue using arsenic, Murano’s glassmakers would need to apply for authorisation. In so doing, they would need to demonstrate that no safer alternatives are available and that the socio-economic benefits for continuing to use the carcinogen outweigh the risks.

The Italian government funded pioneering research to find safer alternatives to replace arsenic trioxide with raw materials that are less toxic to humans and the environment.

In May 2012, two suitable substitutes were found: cerium oxide and ground granulated blast furnace slag (GGBS).

The research carried out by the SSV showed that, as a non-carcinogen, cerium oxide posed less threat to human and environmental health and also found GGBS to be safe. Combining the two raw materials is seen as a viable and safer alternative to using arsenic compounds.

“This substitution project is unique in Europe,” says Pietro Pistolese, a representative of Italy’s REACH authority. Mr Pistolese was able to gather the funding necessary to research and test for possible substitutes. It shows that REACH is working, not only in terms of protecting health and the environment but also in promoting innovation by encouraging governments and local businesses to modernise and replace hazardous chemicals with safer alternatives.

**BENEFITS TO OUTWEIGH THE COSTS?**

However, even two years after the alternatives were identified, the situation in the glassmaking sector remains diverse.

“The alternatives identified were presented to companies. Some are already using them, others are gearing up to, but will only give up arsenic when it is taken off the market,” says Nicola Favaro, a colleague of Mr Hreglich at the SSV.

“The aim of the project was to do away with arsenic in as many production systems as possible. If arsenic is banned tomorrow Murano will not shut down because replacements are being used in a huge variety of formulations,” Mr Hreglich adds.

Mr Alessandro Toso, technical director of Formia, a Murano-based SME, has been involved in testing replacements with the SSV from the start of the project.

“I’ve been with Formia only for a short time, and the use of arsenic has gone down 70% in that time,” he remarks and continues, “The main hurdle was changing mindsets. I suspect it is because change means laying out upfront costs, and that’s especially hard today when all the resources are needed for production. But it is necessary and even unavoidable”.

Mr Toso also sees the financial benefits of substitution. “The price of arsenic has risen out of all proportion recently. Before long, arsenic will be banned and continuing to use it will involve a massive amount of red tape which will bring huge costs,” he says.
The ban of arsenic trioxide from May 2015 onwards is a bitter blow for the Murano glassmakers. To avoid the need for authorisation, the Italian government funded pioneering research to find safer alternatives to replace the chemical with raw materials that are less toxic to humans and the environment.

Smaller producers have been less ready to welcome the idea of substitution. While they appreciate the necessity of replacing arsenic for the protection of health and for the safety of their workers, the costs of doing so are seen as too much of a burden.

This is the view of businessman Alberto Dona who runs a family business with his sons. “Replacing arsenic with cerium oxide means having purification plants and that requires big investments at a time when many SMEs are struggling to survive,” he points out.

Competition from abroad has also had a negative effect on the Murano glass industry. Where there were thousands of workers a few years ago, there are now only about five hundred who are actually working. With rising unemployment and sales being affected, taking action to protect human health and the environment does not always come easily.

The original article 'Murano glass: Italy's pride plays the substitution card' was published in issue 8 of the European Trade Union Institute’s (ETUI) health and safety at work magazine.

You can access the magazine online at: http://www.etui.org/Topics/Health-Safety/HesaMag

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Thinking big about substitution

Gemini Adhesives Ltd is a small British SME manufacturing adhesives for the construction industry. Their products are used to adhere PVC profiles to the edges of resilient flooring in environments such as hospitals and schools to allow thorough cleaning. A worrying recent trend has seen shrinkages and a breakdown of the adhesive bonds with failed areas becoming harbours for potentially dangerous microbes, and requiring major repairs. It was discovered that phthalate softeners were the cause and Gemini found a viable solution - phthalate free profiles.

Managing Director, Andrew Douglas, started the business in a garage with his brother 11 years ago and reached an annual turnover of around € 6 million from manufacturing and selling adhesives around the world. When technical failures started to appear a few years ago, Mr Douglas was baffled and worried that his products may be partly blamed for the problem.

“Our products are rigorously tested and were used without problems for years until the recent failures were noticed. Some arise in newly constructed hospitals so they are not due to the age of the installation. There may be around 5 km of this in a hospital so repair costs are considerable. We had not changed our adhesive formulation and PVC profile suppliers were unaware of changes to their formulations. I therefore analysed the leading profiles to check their chemical constituents and independent laboratories confirmed a consistently high concentration of phthalates. We concluded, together with our scientific consultants, that phthalates were responsible for the technical failures.”

Phthalates are the most common plasticisers and do not chemically bond with the PVC polymer. Under certain conditions, they migrate from the product into the surrounding environment and shrinkage occurs. Upon entering the adhesive, they break down the bond.

THE SAFER ALTERNATIVE

Mr Douglas admits to, at first, hardly knowing anything about phthalates or the REACH Regulation. “I quickly learnt that some plasticisers are so hazardous to human health that they have been placed on the list of substances of very high concern (SVHCs).”

This was a turning point for the future of Gemini. “I realised that not only were we providing adhesives for installations which may fail, but we were actually working with materials which were potentially unsafe for people working or living with them. I concluded that the way forward to overcome failures and to avoid toxicity issues was to make our own phthalate free profiles.”

In arriving at his conclusion, Mr Douglas had reviewed information from ECHA on Bis (2-ethylhexyl) phthalate (DEHP). This is the most common plasticiser used in flooring profiles and has already moved from the Candidate List to the Authorisation List, which means that after 21 February 2015 it can only be placed on the market for authorised uses. Some manufacturers have replaced DEHP with other phthalates.

However, Gemini found these replacements on non-governmental organisations’ (NGOs) lists of hazardous substances which may move on to the REACH SVHC list. Gemini needed a formulation requiring little change in the foreseeable future. After extensive research, Mr Douglas chose Tioctyltrimellitate (TOTM) as the substitute for three important reasons. “Firstly, it is not on the REACH or NGO lists and is approved for food contact packaging and for medical devices. Secondly, it has a heavy molecular weight and will not easily migrate into the adhesive or the environment thus avoiding failures and significantly reducing potentially harmful emissions into the building’s atmosphere. Finally, we could manufacture and supply it at the current market price. We therefore created a new manufacturing facility and launched our phthalate free profiles with a written lifetime performance guarantee.” He points out that manufacturing and supplying the profiles and the adhesives together has many advantages.

THE BUSINESS CASE

The next step was marketing. The company advertised the new profiles in the flooring industry’s professional magazine where, by chance, Mr Douglas found an article on phthalates by sustainability consultant Alan Best. “I quickly got in touch with him, because we were preaching the same message and he could help me to hit the flooring supply chain,” he says.

Alan Best was both enthusiastic and cautious. He liked the concept but wanted to know more about TOTM and its safety claims. He submitted the case study to the Substitution Support Portal (SUBSPORT) to have it scrutinised by their toxicologists.
They confirmed the TOTM claims and published the case. Mr Best also recommended replacing Gemini's carbon black pigment which is classified as Group 2B and possibly carcinogenic to humans, and this was implemented.

The next step was to research the potential market. "From a commercial perspective would anybody care if Gemini says that their product was phthalate free? Who will buy it and at what price? This knowledge is vital," Alan Best says.

They contacted Skanska, a world leading construction group, who have strong commitments to green construction products. Skanska gave great encouragement and advised Gemini to expand from a small number to a full range of phthalate free profiles. Gemini took the advice and decided to invest further time and money in their project and also added a water based adhesive to their range.

**RAISING THE GAME**

With Skanska and other major players confirming interest, Gemini committed to raising its profile as a professional company. Together with Alan Best, Gemini prepared a business strategy targeting niche segments such as hospitals instead of competing on price alone in a saturated market. The first major achievement was accreditation under ISO 9001 and ISO 14001 standards for quality assurance and environmental management.

"REACH and other legislation are certainly increasing interest and demand for safer chemicals so we created an eco graphic for the profiles claiming ‘safer chemicals content’ and Gemini now use this in promotional materials. This is compliant with ISO 14021 for self-declared environmental claims. We wanted to create something for safer chemicals that customers could recognise as readily as the logo for recycling. ISO 14021 ensures that green claims are credible and supported by readily available third party evidence,” Mr Best explains.

Gemini has added a recycling service for their adhesives which come in metal containers. These now display a phone number for their free collection and recycling. Gemini PVC profiles are also recyclable without any concerns regarding DEHP content. Mr Best also convinced Gemini to sign up to the Carbon Action Standard demonstrating a commitment to reducing energy consumption and carbon emissions, which are important factors for example to architects.

"In order to offer all these advantages for the same market price as other companies we have been re-investing profits from our adhesives business into creating the PVC profiles venture. We did this both out of necessity to protect our business and from our belief that the listing of DEHP on the SVHC list is creating a business opportunity for better and safer substitute products,” Mr Douglas says, and adds, “We moved ahead one step at a time, starting with a limited range which sold well and then expanding to the full range now available. The more we produce the lower our costs become.”

The company has already sold over one million metres of phthalate free profiles and its business is growing. It originally employed only 10 staff, but is now recruiting more to meet demand.

“It’s been quite a journey and I am glad to see that we have reached this far. All the money we have invested is ours, so it is good to see that it is now coming back. We are, however, far from complacent and there is still much to do.”

**RECIPES FOR SUCCESS**

Andrew Douglas’ advice to other small companies thinking about substitution is to just go for it. “There is plenty of help available. Some of it is free, some at low cost. Look, for example, at SUBSPORT. It is pretty good. If you want to check ideas for alternative chemicals, use the internet, it’s all there. The most important thing is to think ahead. If you are looking to change don’t substitute with a potential problem chemical otherwise it could cost you a fortune to repeat the exercise”.

Mr Best is convinced that this example of commercial success based on a viable substitute should give confidence to other small companies currently dependant on SVHCs to give substitution a try.

*PVC: Poly(vinyl chloride) is the third-most widely produced polymer, after polyethylene and polypropylene. PVC is used in construction because it is more effective than traditional materials such as copper, iron or wood in pipe and profile applications. It can be made softer and more flexible by the addition of plasticisers, the most widely used being phthalates.*

Further information:

Gemini Adhesives Ltd
http://geminiadhesivesgroup.com

Gemini case studies on SUBSPORT


Video
http://www.youtube.com/watch?v=C55XFqCgyU

**INDUSTRY EXAMPLE**
Clear exclusion criteria, a process for candidates for substitution and simplified authorisation are some of the examples of how the Biocidal Products Regulation encourages applicants to choose safer active substances for biocidal products.

In addition to improving the functioning of the biocidal products market in the EU, the Biocidal Products Regulation aims for a high level of protection for humans and the environment. To reach this, there is a two-step approval and authorisation process to ensure the safe use of biocidal products. Firstly, the active substance needs to be approved and only after that can the biocidal product be authorised.

EXCLUSION CRITERIA FOR ACTIVE SUBSTANCES

The Biocidal Products Regulation includes specific exclusion criteria for active substances that are harmful for human health and/or the environment. The basic principle is that active substances that fulfill any of the criteria cannot be approved, except if specific conditions are met.

Therefore, active substances that are
• carcinogenic, mutagenic or toxic for reproduction (category 1);
• endocrine disrupting;
• persistent, bioaccumulative and toxic;
• or very persistent and very bioaccumulative will not be approved.

However, the regulation includes a derogation that states that an active substance that fulfills at least one of the exclusion criteria can be approved for a short period of time if it is needed to prevent serious harm to human health, animal health or the environment, or if not approving it would have a disproportionately negative impact on society. It also requires strict risk mitigation to make sure that any exposure of humans, animals and the environment to the biocidal product containing a harmful active substance is minimised.

This also affects the applicant when they apply for product authorisation. Union authorisation and simplified authorisation cannot be granted for products that contain active substances meeting any of the exclusion criteria.

SUBSTITUTION CRITERIA FOR ACTIVE SUBSTANCES

The regulation also introduces substitution criteria which encourages applicants to replace harmful active substances used in their biocidal products with safer ones.

An active substance will be considered as a candidate for substitution if:
• it meets at least one of the exclusion criteria;
• it is classified as a respiratory sensitizer;
• its toxicological reference values are significantly lower than those of the majority of approved active substances for the same product-type and use;
• it meets two of the criteria to be considered as persistent, bioaccumulative and toxic;
• it causes concern for human or animal health and for the environment even with very restrictive risk management measures; or
• it contains a significant proportion of non-active isomers or impurities.

For the active substances that meet any of the substitution criteria, a public consultation is organised as part of the approval process.
PUBLIC CONSULTATION DURING ACTIVE SUBSTANCE APPROVAL

It is the evaluating competent authority that assesses the active substance, analyses if it fulfils any of the substitution criteria and indicates in their evaluation report whether it is a potential candidate for substitution. The assessment is based on the intrinsic properties of the active substance in combination with the use.

Based on the competent authority’s assessment, ECHA launches a public consultation on the potential candidate for substitution. The aim of the public consultation is to gather any relevant information, including suitable alternatives for the harmful active substance, from any interested party.

Public consultations last for 60 days and ECHA will take the information received into consideration when drafting its opinion on active substance approval.

The European Commission will not approve any active substances which are candidates for substitution for more than seven years at a time. If the active substance meets one or more exclusion criteria it can only be approved for five years at a time.

The first public consultations under the Biocidal Products Regulation were launched at the end of 2013 and completed during the first months of 2014. All non-confidential information received during the public consultations is published on ECHA’s website.

The input containing confidential information is only made available to the Biocidal Products Committee, its working groups and the Member State competent authorities.

ASSESSING HAZARDS BEFORE PRODUCT AUTHORISATION

The hazardousness of a biocidal product is evaluated when an application for product authorisation is made.

The evaluating competent authority carries out a comparative assessment for any biocidal product containing active substances that are candidates for substitution before finalising their evaluation report.

This means that the evaluating competent authority assesses whether there are other authorised biocidal products or non-chemical control or prevention methods available with significantly lower risk for human and animal health and the environment.

The new biocidal product will not be approved if there is an alternative which is sufficiently effective and does not cause significant economic or practical disadvantage. There must also be sufficient chemical diversity among the active substances to minimise the occurrence of resistance.

For a biocidal product containing an active substance that is a candidate for substitution, an authorisation can be granted for a maximum of five years at a time. However, the authorisation can contain restrictions, meaning that the biocidal product is authorised, for example, for only certain specified uses.

SIMPLIFIED AUTHORISATION ENCOURAGES THE USE OF SAFER PRODUCTS

To encourage the use of safer biocidal products with more favourable environmental and human and animal health profiles, the Biocidal Products Regulation introduced simplified authorisation which is a new and faster way of obtaining product authorisation.

To be eligible for simplified authorisation, all the active substances contained in the biocidal product must be listed in Annex I of the regulation. Additionally, the product cannot contain any substances of concern or any nanomaterials; it must be sufficiently effective; and handling of the product must not require personal protection equipment.

Further information:

Active substances which are candidates for substitution

Public consultations on potential candidates for substitution

Exclusion criteria for active substances

Simplified authorisation

31 May 2018

Third REACH registration deadline

Chemicals produced or imported from 1 to 100 tonnes per year
Denmark advises on how to limit phthalates of concern

INTERVIEW BY HANNA-KAISA TORKKELI

The Danish guidance targets those companies who market products for businesses or consumers. It primarily aims to help industry and retailers to phase out the four phthalates (DEHP, BBP, DBP and DIBP), which are currently on the REACH Authorisation List before the national ban takes effect in 2015, but also has a more general purpose, which makes it useful for phasing out other phthalates not yet subject to authorisation.

The guidance helps Danish importers and foreign exporters to identify whether there are phthalates of concern in the articles they are buying or selling. It also informs companies about the requirements they must meet if they wish to market these articles, how to engage in dialogue with their suppliers and how to start assessing whether these chemicals can be replaced.

“We issued a national restriction on the four phthalates in consumer products in 2012. The ban was initially supposed to take effect in December 2013. However, we realised that these chemicals are used in so many different products and applications that it would be challenging to stop using them with such short notice, especially for importers. Therefore, we decided to delay the ban and launch a series of initiatives to help companies. This guidance is one of those initiatives,” says Henrik Søren Larsen, Head of the Chemicals Division at the Danish Environmental Protection Agency.

Industry has been active in discussions together with the authorities on how to promote the replacement of the phthalates in the whole EU.

“We have thought about whether voluntary labelling or claims could be a way of promoting substitution and what the legal challenges are for companies that want to claim that their products are phthalate-free. Clearly, care should be taken to avoid unwarranted ‘green washing’,” Henrik Søren Larsen says.

The Danish EPA started analysing the problems industry and retailers have in replacing the four phthalates. “The issues identified include the timing of the ban, definitions of indoor and outdoor use, definitions of placing on the market, complex articles such as electronic equipment, and the availability of spare parts,” Mr Larsen says.

DENMARK ACTIVE IN GREEN TECHNOLOGIES

In addition to their activities on phthalates, the Danish authorities have been driving for safer chemicals for many years.

“We have a national programme called the Development and Demonstration of Green Technologies. Part of this programme – which is broader than just chemicals – supports substitution efforts by companies. We focus particularly on the development of concrete products, such as alternatives to lead in fishing gear, non-fluorinated textiles or identifying suitable alternatives to substances on the REACH Candidate List, for example NMP and DMAC,” Henrik Søren Larsen says.

The Danish EPA supports initiatives that promote or ease substitution, such as the development and access to QSAR tools or guidance on how to manage SVHC obligations.

“Last year, our government and the parliament agreed on a new four-year plan on chemicals. One of the new actions is to establish a facility to support the substitution of hazardous chemicals. We are currently scoping out the details of such a facility and expect that it will be up and running this summer,” Mr Larsen highlights.

Consumer campaigns are another area where Denmark can be considered as a forerunner in Europe. “We are assessing our consumer articles regularly, and are launching information campaigns towards the general public as a result. We have had, for example, a campaign for pregnant women and a campaign for parents and grandparents of two-year olds, where we included a recommendation to be careful with soft PVC to avoid phthalates that may harm the reproductive system”.

Danish Business guidance on phthalates.
Phthalates are widely used as plasticisers to make plastic flexible. Some phthalates are classified as harmful to reproduction and included in the Candidate List under REACH. These are DEHP, BBP, DBP, DIBP, DMEP, DIHP, DHNUP, DPP, n-pentyl-isopentylphthalate and di-isopentylphthalate.

Of these, DEHP, BBP, DBP and DIBP are subject to authorisation and cannot be used without permission from 21 February 2015 onwards.

Seven phthalates are also included in the Community rolling action plan (CoRAP) 2012-2014 for substance evaluation. Denmark is evaluating five of them.

In 2011, Denmark proposed to restrict the use of DEHP, BBP, DBP and DIBP in consumer articles in the EU. ECHA’s Risk Assessment Committee, however, concluded that the “available data does not indicate that there is currently a risk from combined exposure to the four phthalates” and did not support the restriction. In its opinion, RAC pointed out that the existing regulatory measures and the consequential reduction in use would already reduce exposure.

The national ban for the four phthalates in consumer articles takes effect in Denmark in 2015.

A recent survey of 13 Danish associations and 39 companies concerning the replacement of the four phthalates shows that in most PVC-containing products, it would be technically possible to replace phthalates with other types of plasticisers. In many cases, it will even be possible to use other types of plastics without any plasticisers.

However, manufacturers and importers of electronic products will face problems as there are still applications, where the development of alternative components has not yet been finished. There are also technical challenges in terms of temperature resistance and flexibility of PVC-containing components.

The survey also notes that international brand manufacturers will not change their products to comply with specific national regulation. This means that there may be difficulties in relation to supply of products from international brands and spare parts for products already on the market after the implementation of the Danish phthalate regulation.

European-wide network supports innovative SMEs

INTERVIEW BY HANNA-KAISA TORKKELI

The Enterprise Europe Network (EEN) is the largest European network of business support organisations. It helps small companies to make the most of their market opportunities by matching companies to work together and guiding them to financial resourcing. SMEs faced with business challenges arising from the chemicals legislation can benefit from the support of the network.

“Our local network partners can help small companies facing technological, research-related or commercial challenges by offering different types of services, amongst others cooperation with foreign companies, institutes or organisations,” says Elke Rivière, a Project officer from the Executive Agency for Small and Medium-sized Enterprises (EASME).

The EEN maintains a database of more than 18 000 collaboration profiles.

“A company wanting to find a technical solution to a problem or searching for collaboration on a technological area can see extracts of these profiles online for example on the Network’s homepage and express an interest. These requests are forwarded to the nearest network partners, who will try to match the company together with another company, organisation or institution that may be able to help.”

The network can also help to set up virtual or physical meetings between companies, and arrange company missions. “If the companies decide to work together, they sign a partnership agreement,” Ms Rivière adds.

These partnering services offered by the Network can be beneficial to SMEs dealing with chemicals or products containing chemicals.

“The Network also offers legal information and advisory services to help SMEs facing challenges due to REACH phasing out some chemicals they are using. It will put a particular emphasis on services that help companies to prepare for alternative solutions. REACH can have a huge impact on the daily business of smaller companies, on their costs and supply chain and, in general, their business model. Many of them don’t have the internal resources to do this by themselves. Fortunately, the Network’s services are free-of-charge,” Ms Rivière says.

SECTOR GROUPS EXCHANGE INFORMATION

To assist the local network partners, the EEN has 17 different sector groups, which meet regularly to discuss current topics. One of the groups is called BioChemTech Sector Group, which focuses on biotechnology and chemistry. “This group consists of experienced people. They meet and exchange information on, for example, the regulatory framework that companies have to be aware of, the technological challenges and collaboration opportunities particular for the field,” Elke Rivière says.

Also, most of the other sector groups cover areas of relevance to the EU chemicals legislation, such as environment, healthcare, textiles, sustainable construction and nano- and micro-technologies.

COOPERATION WITH NATIONAL REACH, CLP AND BIOCIDES HELPDESKS

In some countries such as Italy and France for example, the EEN has already developed close working relations with the national REACH and CLP helpdesks. This cooperation could be extended to all countries and to the recently established biocides helpdesks. “It could benefit companies if the national helpdesks knew that there is a lot of technological and commercial knowledge and expertise available through the Network. For example, if they learn that a company is on the lookout for alternative substances or technologies, they can direct the company to the local EEN partner who will have the means to help.”

Further information:

EEN website: http://een.ec.europa.eu


DID YOU KNOW?

- EEN aims to boost growth and jobs within the European Union through increased opportunities for European small and medium-sized enterprises (SMEs)
- Consists of close to 600 business support organisations from 50 countries.
- Launched in 2008 by the European Commission’s Directorate-General for Enterprise and Industry
- Managed by the EU Executive Agency for Small and Medium-sized Enterprises (EASME) http://ec.europa.eu/easme/
Funding opportunities for SMEs

European Union programmes have already provided funding and will continue to support innovation such as the substitution of hazardous chemicals under the new multiannual financial framework of the EU (2014-2020).

ECO-INNOVATION INITIATIVE

The Eco-innovation initiative supports innovation among SMEs and aims to improve their competitiveness. Its budget has been used to support organisations that have developed an environmental product, service, management practice or process which has a proven track record, but is not fully marketed due to residual risks. This has helped SMEs to turn products and processes that protect the environment into commercial success stories.

The Eco-innovation initiative has, under the new EU budget (2014-2020), been integrated in the Horizon 2020 programme for research and innovation under the theme ‘Climate, Action, Environment, Resource Efficiency and Raw Materials’. It is managed by EASME.

Example of a substitution project: SAMDOKAN – Eco-friendly pretreatment for plastic chrome plating
http://www.samdokanproject.eu/

Further information:
http://ec.europa.eu/easme/sme_en.htm

HORIZON 2020

Horizon 2020 is a new EU funding programme for research and innovation running from 2014 to 2020 with an €80 billion budget. The first calls for proposals for projects were published in December 2013. All calls for proposals can be found online at http://ec.europa.eu/programmes/horizon2020/en/how-get-funding

The programme has one part designed specifically for single or groups of innovative SMEs with international ambitions, determined to turn business ideas into winners on the market. The instrument provides full-cycle business innovation support from business idea conception and planning to business plan execution and demonstration and finally commercialisation. Participants can also get business innovation coaching for the duration of their project. This programme is managed by EASME.

More information about the SME instrument:
http://ec.europa.eu/easme/sme_en.htm

Further information:
http://ec.europa.eu/programmes/horizon2020/

THE ENVIRONMENT AND CLIMATE ACTION PROGRAMME (LIFE)

LIFE is the EU’s financial instrument supporting environmental and nature conservation projects throughout the EU. It has a budget of €3.4 billion until 2020 to finance projects which contribute to sustainable development and to the implementation of the 7th Environment Action Programme.

‘Environment and Health’ is one of the main themes of LIFE. Calls for proposals under this theme will cover support activities for the implementation of REACH and the BPR to ensure safer, more sustainable or economical use of chemicals, including nanomaterials. LIFE will soon be managed by EASME.

Oxatan project for oxazoline tanned leather http://www.oxatan.eu

Further information:
http://ec.europa.eu/environment/life/

NEW COHESION POLICY

Between 2014 and 2020, the reformed cohesion policy will make available up to €351.8 billion to invest in Europe’s regions, cities and the real economy. It will be the EU’s principle investment to achieve the goals of smart, sustainable and inclusive economic growth by 2020.

This will be helped through targetting the European Regional Development Fund at key priorities such as support for small and medium-sized enterprises where the objective is to double the investments from €70 to €140 billion over the seven years.

Funding will be used to support innovative start-ups; to tap into business know-how and advice; to mitigate entrepreneurial risk; to exploit new sources of growth, such as the green economy; and to train entrepreneurs, managers and workers to adapt to new challenges.

Further information:

Contacts of the managing authorities in the Member States:

To find out more about other EU Programmes, visit:
http://ec.europa.eu/contracts_grants/grants_en.htm
NGO view on substitution

Downstream users can put pressure on their suppliers

INTERVIEWS BY PÄIVI JOKINIEMI

Public interest and environmental organisations active in the chemicals field play an important role in awareness raising, pressing policy makers to act in the interest of their supporters and guarding the implementation of the legislation. What do these organisations think of substitution and innovation under REACH and CLP? ECHA Newsletter asked the views of three NGO representatives.

In addition to the Candidate and Authorisation Lists and the criteria for substances of very high concern (SVHCs), REACH has made downstream users more aware of chemical safety. They increasingly consider which substances and technologies they choose to use in their products.

“REACH encourages companies to proactively innovate and produce alternative technologies to avoid risks arising from the use of hazardous substances,” says Vito Buonsante from environmental NGO ClientEarth.

Anne-Sofie Andersson from the International Chemical Secretariat (ChemSec) and Tatiana Santos from the European Environmental Bureau (EEB) agree. Downstream users need to respond to consumers’ questions related to the safety of their products, and therefore have the power to request safer alternatives from their suppliers.

However, substitution is not only the responsibility of the manufacturer. “Innovation for chemicals safety should be a joint responsibility between users and producers,” says Ms Andersson. She would like to see innovation as an interactive process between the different actors and points out that this has proven to be more efficient than being stuck with a linear innovation process. The chemicals manufacturing industry should not bear the responsibility for finding new alternatives alone. “However, interactive innovation requires increased transparency from the upstream suppliers,” she says.

According to Ms Andersson and Ms Santos, the usefulness of the authorisation process is still unclear. “Years or even decades may pass from the time when the substance was placed on the Candidate List until it has gone through the authorisation process and its review period,” Ms Santos argues.

Ms Andersson worries that the resources invested in applying for authorisation might be taken away from innovating for safer alternatives.

Whereas REACH has its Candidate and Authorisation Lists, the CLP Regulation offers an easy way to evaluate and compare the hazardousness of substances. “Classification is a clear signal of the hazards posed by a substance and it may trigger efforts within the supply chain to replace the substance,” Ms Andersson explains.

“Classification also has an important role in occupational legislation which forbids the use of carcinogenic and mutagenic substances in the workplace if substitution is technically feasible,” Ms Santos continues.

BENEFITS FOR SOCIETY AND ECONOMIC ADVANTAGES FOR BUSINESS

The three NGO representatives agree that safer products will become a competitive advantage for companies in the future.

As citizens are becoming more and more aware of the hazardous chemicals, they will reward manufacturers who are able to give them safer and more sustainable alternatives. “Companies need to take the critical need for research and innovation in the development of cleaner, less hazardous or damaging technologies seriously,” Vito Buonsante says.

In addition to benefits for society and wellbeing, safer products will bring economic advantages for innovative companies. Anne-Sofie Andersson argues that – on the contrary to some industry claims – REACH does not stifle innovation.

“Just last week, two large downstream users told me that the American and Japanese companies fear that REACH will make EU-based companies so innovative that they will leave their competitors behind.”

In the future, she hopes that companies could also make use of the non-hazardousness of their products in their marketing.
DEVELOPING TOOLS AND SPREADING INFORMATION

NGOs promote substitution by spreading information, raising awareness and by developing tools that help companies to find safer alternatives to those currently in use.

ChemSec is involved in developing the Substitution Support Portal (SUBSPORT) that can be used as a first entry point by those interested in substitution.

Another important project for ChemSec is the SIN List, which identifies substances that fulfill the criteria for SVHCs. This list is being expanded and a new, more user-friendly version will be launched later this year.

“Our SIN List is a useful tool for companies who would like to anticipate which substances may need to be substituted in the future,” Ms Andersson highlights. Her organisation is also currently developing a tool for small textile producers. “The aim is to make it easier for the textile industry to start working with chemical issues and find their way forward in a concrete way,” she says.

Informed citizens can put pressure on chemicals companies. Both Mr Buonsante and Ms Santos emphasise the importance of raising awareness and educating people.

“Our SIN List is a useful tool for companies who would like to anticipate which substances may need to be substituted in the future,” Ms Andersson highlights. Her organisation is also currently developing a tool for small textile producers. “The aim is to make it easier for the textile industry to start working with chemical issues and find their way forward in a concrete way,” she says.

Informed citizens can put pressure on chemicals companies. Both Mr Buonsante and Ms Santos emphasise the importance of raising awareness and educating people.

“ClientEarth believes in the power of information. ECHA is already taking important steps towards providing better information to consumers about the chemicals they are exposed to and the companies putting them on the market by improving its chemicals database,” Mr Buonsante says.

The EEB is active in sending proposals for promoting substitution to ECHA. In addition, it supports and promotes SUBSPORT.

“We also find it important to give visibility to all public consultations on alternatives and encourage third parties to submit relevant information,” she says.

DID YOU KNOW?

Anne-Sofie Andersson is the Director of The International Chemical Secretariat, ChemSec. ChemSec is a non-profit organisation founded in 2002 by four environmental organisations. Their aim is to make the world free from harmful chemicals.

http://www.chemsec.org/

Vito Buonsante is a Law and Policy Advisor on Health and Environment at ClientEarth. ClientEarth was founded in 2006 and is an organisation of activist lawyers with the aim of bringing together law, science and policy to create practical solutions to key environmental challenges.

http://www.clientearth.org/

Tatiana Santos is a Senior Policy Officer on chemicals and nanotechnology at the European Environmental Bureau. The EEB was created in 1974 and is now Europe’s largest federation of environmental organisations. EEB’s goal is a healthy environment and rich biodiversity for all of Europe.

http://www.eeb.org/
National helpdesk promoting innovation

INTERVIEW BY HANNA-KAISA TÖRKKELI

The Luxembourgish REACH and CLP helpdesk supports companies not only in the implementation of the chemicals legislation, but also by providing concrete advice and tools to the national industry, mainly downstream users and small and medium-sized enterprises (SMEs), facing legal pressures to look for safer chemicals.

“We want to help Luxembourgish companies to develop products and processes that are safer for human health and the environment, and at the same time innovative and competitive,” says Dr Ruth Moeller from the national helpdesk.

The helpdesk regularly informs companies on their website and through a monthly newsletter about substances that are facing regulatory scrutiny on the EU level. It also arranges awareness raising events and training sessions on risk management and substitution. “We want companies to anticipate the upcoming regulatory constraints well in advance for those chemicals which may play a crucial role for their business.”

The Luxembourgish helpdesk is in a unique position to be able to offer research, development and innovation (RDI) support to companies that may need to find alternative solutions to replace their hazardous chemicals. “We are located in a public research centre (Centre de Recherche Public Henri Tudor) that promotes innovation and sustainability of businesses. As part of its Resource Centre for Environmental Technologies and through its Manufacturing Innovation Programme, we actively support companies in their RDI activities. SMEs and downstream users are especially challenged by the regulatory constraints as they lack skills and only have limited resources. We offer them advice, tools and solutions to turn these constraints into innovation opportunities and maybe even gain competitive advantages,” Dr Moeller says.

The helpdesk has undertaken a study of the local businesses impacted by REACH and CLP. Their analysis has given them an overview of the different sectors and roles under REACH and CLP, and of those companies running RDI activities. A more detailed follow-up analysis of the current challenges will be done this year. “To help SMEs, we are also preparing an update of our REACH Excel Tool which includes a list of relevant databases and up-to-date information to allow companies to keep an eye on their key substances easily. The tool is free-of-charge and can be downloaded in either French or German.”

Helping companies to reduce uncertainty related to their chemicals and to encourage innovation are of particular importance and a growing task of the helpdesk. Dr Moeller sees many benefits in substitution: “Companies are able to enhance their competitiveness, get a better reputation and work environment as well as improve consumer protection. In addition, by substituting, they save the costs for regulatory compliance and risk management measures and reduce the risk for supply chain interruptions and market restrictions,” she says.

The objectives of REACH – protecting human health and the environment and improving competitiveness – don’t cancel each other out. On the contrary, they complement each other by driving for greener chemicals and technologies while opening new market opportunities.

Further information:
REACH and CLP Helpdesk http://www.reach.lu/


Upcoming event:

A research and technology organisation, which promotes innovation through applied research and policy support.

Includes four RDI departments responding to market needs through cross-disciplinary innovation programmes: Advanced Materials and Structures (AMS); Resource Centre for Environmental Technologies (CRTE); Resource Centre for Health Care Technologies (SANTEC); and the Service Science and Innovation (SSI) department.

Hosts the national REACH and CLP helpdesk. This enables a comprehensive support to the Luxembourgish chemical downstream user, SME and RDI community in innovation and finding sustainable solutions. http://www.tudor.lu/en
Thomas Regout - a case of sustainable entrepreneurship

INTERVIEW BY PÄIVI JOKINEN"
receives a manual that describes how the product should be used. It also gives a reference to the material safety data sheet where the customer can find more detailed information.

**DEMANDING SAFER MATERIALS**

The example of Thomas Regout shows that downstream users can play a role in getting the hazardous substances replaced with safer alternatives. According to Mr Stroucken they can put pressure on suppliers by demanding safer materials. “All our suppliers must be REACH and CLP compliant. Each supplier must undergo an audit before we can accept them. If we notice that our supplier cannot deliver what we are asking, we will change suppliers. This is something that we have done during the past couple of years, when we have seen that a certain product does not comply with REACH and, therefore, cannot fulfil our requirements.”

As an example, Mr Stroucken mentions that they are now asking their suppliers to provide passivation without cobalt and if possible also without chromium. However, he continues, “I think we are too early on this and the suppliers are not yet ready with those developments.”

**KEEPING UP WITH THE REGULATORY ENVIRONMENT**

The Candidate and Authorisation Lists are followed very carefully and every time there are updates, the company cross-checks the lists with the substances used in their products. In addition, the government in the Netherlands has a website (InfoMil) that informs industry of any updates or changes to the regulatory environment. These changes are also communicated through a weekly newsletter.

“We are happy with the cooperation from the government – they also provide tools and information to improve the sustainability of Dutch companies,” Mr Stroucken and Mr Verspaandonk say.

Even though Thomas Regout does not need to apply for any authorisations, some of its suppliers will. The uses, which concern basic chemicals, preparations, oils and greases, will be covered by the application of the supplier.

**CULTURE OF THINKING IN SUSTAINABLE WAYS**

Although some of the customers do not yet notice the investments made to sustainable entrepreneurship, there are more and more industries, such as the automotive industry, that appreciate the approach.

Mr Verspaandonk explains the importance of an overall company culture that supports sustainable thinking. “It is the responsibility of the whole company and all of its employees,” he says.

As an example, Mr Verspaandonk mentions a project they carried out to reduce the amount of metal waste, which made the employees aware of the importance of sustainable thinking and smart ways of working.

“We make our decisions based on the principle of the three Ps – People, Planet and Profit. Therefore, each investment we make must give us benefits on all Ps. Only then we can work in a sustainable way,” he concludes.

Further information:

InfoMil – website and Twitter
[http://www.infomil.nl/](http://www.infomil.nl/)

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**THOMAS REGOUT INTERNATIONAL B.V.**

Thomas Regout was founded in 1834 when it was manufacturing nails and spikes for the shipping industry. In the 1950s, the company moved to producing and designing customised telescopic slides as their main product.

These slides are used in, for example, the automotive and furniture market, industrial applications and ATM machines worldwide. The headquarters of Thomas Regout International B.V. is located in Maastricht, in the Netherlands. [http://www.thomasregout.com/](http://www.thomasregout.com/)

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**Upcoming**

**April - June 2014**

PIC workshop: 7 May
ECHA Stakeholders’ Day: 21 May
Committee for Risk Assessment: 2-6 June
REACH Art 117(3) report on the use of alternatives to testing on animals: beginning of June
Committee for Socio-economic Analysis: 9-13 June
Member State Committee: 9-13 June
Update to the Candidate List of SVHC: mid-June
ECHA Management Board: 17-18 June
Biocidal Products Committee: 16-19 June
Enforcement Forum: 24-26 June

PBT expert group meeting: 28-29 April
Seminar on applications for authorisation: 28-29 April
Workshop on applications for authorisation: 29-30 April

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