

Global Business Briefing

GUEST COLUMN:

Getting mercury under control - pages 19-21

18-19 OCTOBER, WASHINGTON DC

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Twenty-five years of ecolabels

The European Commission has given a strong endorsement to the continuing value of these schemes



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Vanessa Zainzinger
Reporter

The rise of ecolabels began in the early 1990s, when a handful of initiatives first appeared, with the aim of helping companies consider the human health, environmental and economic effects of chemicals and technologies in their products. Many of these schemes have since become household names and their certifications adorn thousands of products.

However, while those behind these initiatives see them as agents for change, businesses and consumers do not always agree on the value of certifications. Some say this has been lost in the myriad of labels now found on products.

Companies have criticised them for requiring too much of their time and money, while NGOs say their endorsements do not demand enough. Is it worth the effort? Do people and the environment benefit? Do companies?

According to the European Commission, the answer to all those questions is 'yes'. On 30 June, it renewed its commitment to the EU Ecolabel scheme for another 25 years. The Commission 'fitness check' of its functioning and performance concluded that the label is a win-win for consumers, the environment, and the economy, winning praise from NGOs.

"The Ecolabel is one of the EU's most tangible successes for consumers," says Monique Goyens, director general of the European Consumer Organisation (Beuc). "It is great news that the flower label will keep guiding consumers towards the greenest detergents, textiles and many more products and services."

European Environmental Bureau (EEB) policy director Pieter De Pous echoes this. "For the past 25 years, the EU Ecolabel has promoted the manufacture and expansion of more resource-efficient products and services. It's an invaluable, yet simple instrument to improve the daily lives of millions of people by helping them to make the right choice for them and for the planet," he said.

The EU Ecolabel is an invaluable, yet simple instrument to improve the daily lives of millions of people by helping them to make the right choice for them and for the planet

Pieter De Pous, EEB

However, while Beuc and the EEB urge the Commission to "remain ambitious" in the Ecolabel's criteria, the chemical industry has often asked for them to be simplified. The trade associations Cefic and Eurometaux previously called for more "workable" requirements to be introduced in the EU Ecolabel review.

Ecolabels

According to Article 6(6) of the REACH Regulation, the Ecolabel cannot be awarded to goods containing substances, preparations or mixtures meeting the criteria for classification as toxic, hazardous to the environment, carcinogenic, mutagenic or toxic for reproduction (CMR) in accordance with the CLP Regulation, or to those containing substances classified as SVHCs. Cefic and Eurometaux wanted the option to derogate REACH candidate list substances and a definition in the label legal text that focuses on the most hazardous chemicals first.

PlasticsEurope has also asked for fewer criteria and a simple verification process, which, it said, would lower the costs of the label and make it more attractive to companies. "There needs to be consistency between already existing legislation and the criteria being developed, and when it comes to chemicals in particular, alignment with REACH is essential, thus using a risk-based approach rather than a hazard one," the trade body wrote in a 2012 position paper.

Challenging but achievable

Finding the right balance between criteria that are tough enough to create change but still achievable enough to attract industry commitment has been one of the biggest challenges ecolabels in general have had to face in the past 25 years, says Niclas Rydell, director at the sustainability certification body for IT products, TCO Certified.

Since it was founded in Sweden in 1992, TCO Certified has become the most widespread sustainability certification for the IT sector. Its chemical criteria have helped to phase out halogenated substances and several other flame retardants, PVC and mercury before restrictions on them were written into European chemical law.

Although these phase-outs had a significant impact on many products, TCO Certified made it a priority to keep its certification realistic. "We set the criteria so that 30-50% of products on the market could pass. When we implemented the certification, our strategy was to incrementally drive industry in a sustainable direction; if it is too hard to achieve, then that won't happen," says Mr Rydell.

Finding the right balance for chemical risk criteria is tricky for every ecolabel. In the US, the chemical industry has criticised the EPA's Safer Choice programme for taking a hazard-based approach to its criteria.

"Chemicals in commerce should be assessed based on their risk and exposure," says Cal Dooley, president and CEO of the American Chemistry Council (ACC). "We will oppose any assessment of chemicals that is based on a hazard-only approach."

Mr Dooley cites the example of a cold-water detergent which did not qualify for the Safer Choice label because it contained two

chemicals that pose a greater hazard than are allowed under the programme's criteria. He argues that it should have been certified for reducing energy consumption in use.

The Consumer Specialty Products Association (CSPA), by contrast, says that risk-based chemical analyses could allow Safer Choice labelling to be based on a wider spectrum of chemicals' health and environmental effects than may be possible through the hazard-based toxicity and environmental effects criteria currently used.

That said, the CSPA has also shown its support for the programme for encouraging innovation in its sector. Meanwhile, NGOs such as Safer Chemicals, Healthy Families have said that a hazard-

based assessment gives the label the upper hand as a science-led programme, rather than one relying on estimating risks.

Verification

Choosing the right criteria is worth little if they are not verifiable, TCO Certified's Mr Rydell adds. Verification can be expensive and time-consuming, especially when it comes to chemical criteria.

In the TCO Certified programme, around 5% of the certified products are purchased for independent spot-check control every year against the criteria in the certification. Most ecolabels – such as Cradle to Cradle Certified, the Nordic Swan or the Blue Angel – choose to carry out audits and send samples to independent laboratories.

The EU Ecolabel uses competent bodies across the 28 member states to ensure that products are verified "by a party independent from the operator being verified, based on international,

European or national standards and procedures". The Safer Choice programme opts for requiring full ingredient disclosure from manufacturers of products carrying the label, backed up by occasional audits.

Whether these methods of verification are reliable remains questionable and a major challenge for the teams behind the ecolabels. Cradle to Cradle Certified said that it hopes to develop tools that will make assessing and verifying materials more cost-effective.

Its most immediate goal is the launch of Material Wise, a material health database that is meant to expand access to safe, healthy, commonly used materials and the chemicals in them.

The database will hold material health data at every state of the production process, including screening (identifying and prioritising known hazards), assessment (hazard and exposure profiles against 24 human and environmental endpoints) and optimisation (eliminating chemicals of concern).



A cold water detergent failed the Safer Choice criteria, despite offering energy savings

Ecolabels

Lewis Perkins, president of Cradle to Cradle Certified’s products innovation institute, thinks that reliable data about the chemical make-up of materials will fast-forward the scheme’s efforts to create a circular economy, based on products carrying the certification. “In our current system, access to reliable data is often a barrier to positive design,” he says. “The Material Wise initiative will help to change that by giving manufacturers cost-effective access to verified, actionable data about the materials and the chemicals they use.”

25 years on

Ecolabels can be a valuable tool for consumers and product specifiers to quickly understand the environmental, social and human health impacts of the products they choose. But after 25 years of new labels spreading across Europe and the US, their proliferation can be confusing to consumers and manufacturers and can devalue the potential benefits of ecolabelling and product standards.

Cradle to Cradle Certified’s Mr Perkins says that labels should go beyond simply expanding the volume of certified products across industry sectors and turn to educating and engaging consumers, materials suppliers and other manufacturers about the value of products that follow greener requirements. In turn, this helps companies committed to a label to recognise the return on their investment.

Engaging more manufacturers in product standards is vital, Mr Perkins says. In particular, getting influential industry sectors to collaborate on materials that can be optimised for a certification can make a difference.

“Many ecolabels are focused on making products ‘less bad’ rather than offering roadmaps that help companies create products that have

a more positive impact on people and planet. In the future, we plan to help manufacturers and designers in other industry sectors with collaborative efforts to transform their supply chains and materials.”

NGOs echoed these hopes for the future of ecolabelling when the Commission renewed its commitment to its scheme in June. “Thanks to the EU Ecolabel, both consumers and the environment are better protected against toxic chemicals,” says Beuc and EEB ecolabel

In our current system, access to reliable data is often a barrier to positive design

Lewis Perkins, Cradle to Cradle Certified

coordinator, Blanca Morales. Asking manufacturers to replace hazardous substances with safer alternatives whenever possible is what makes an ecolabel more robust and reliable, she adds.

“Take as an example the new criteria for detergents. To be able to display the [EU Ecolabel], manufacturers will have to ban problematic substances, such as phosphates, microplastics, preservatives or fragrances dangerous for the environment or health. This is great news because detergents are the Ecolabel’s flagship product group, with over 4,500 products available on the market and some major retailers using it.”

Beuc’s Monica Goyens adds that labels must aim to stay ambitious and only reward the greenest of products. “Only a robust and reliable label can win the trust of consumers,” she says.

Chemical requirements of five major ecolabels

Established in 1978, the **Blaue Engel** (Blue Angel) label is one of the longest-standing certifications in Europe. Its main focus is on examining the impact that products and services have on the climate, resources, water, soil and air.

Certified products must be manufactured from sustainably produced raw materials and avoid dangerous substances for the environment or people’s health, or limit them to a minimum. Its chemical requirements differ, depending on the product type. For example, the label is awarded to wall paints which release as few plasticisers and as little formaldehyde as possible, or to low-solvent roof coatings.

The **Safer Choice** label evaluates each ingredient in a formulation against master and functional-class criteria documents, which define the characteristics and toxicity thresholds for ingredients that are acceptable in Safer Choice products. The

criteria are based on EPA evaluations of the physical and toxicological properties of chemicals and include authoritative lists of chemicals of concern.

The **Nordic Swan** is the official ecolabel of the Nordic countries, established in 1989. To be certified, companies have to meet specific criteria in the appropriate one out of 63 product groups.

Cosmetic products, for example, follow strict requirements for surfactants, fragrances and colourants. Indoor paints and varnishes, on the other hand, carry restrictions on titanium dioxide, heavy metals and preservatives, and a ban on formaldehyde or nanoparticles.

TCO Certified focuses on IT products, with restrictions on halogenated flame retardants, halogens as part of the polymer and heavy metals. Its requirements on the latter are stricter than those under RoHS.

Cadmium, mercury, lead and hexavalent chromium are either forbidden or heavily restricted, as are bromine and chlorine in plastics and mercury in monitors and tablets.

During its latest criteria review in 2015, the label was updated to allow the use of only non-halogenated flame retardants on an accepted substance list benchmarked 2 or higher by the GreenScreen tool, and restrictions on phthalates.

The **Cradle to Cradle Certified** product standard is a four-stage approach that begins with the inventory of a product’s materials and a screening and full assessment of all chemicals in these. The assessment is based on 21 human and environmental health hazard endpoints and a qualitative exposure assessment. Each chemical receives a rating, which defines the certification level the product may gain. The standard also includes a banned list of chemicals.

An uncertain world

May I first of all take the chance of introducing myself as the newest member of the editorial team at Chemical Watch. I was formerly the editor of Speciality Chemicals Magazine for 14 years, so if you were a regular at Chemspec Europe and its Regulatory Services Zone or at other events in the field, you may well have met me at some point. I am now the Commissioning Editor here, mainly on this product and the Chemical Risk Manager hub.

Going forward, it will be my responsibility to source feature articles for Global Business Briefing from the industry and its suppliers and downstream users, consultancies, NGOs, lawyers and other experts. So, if you have a perspective on a major issue in the world of chemical regulation and related environmental issues you would like to offer, please get in touch. Trade secret: journalists are lazy – we love it when people save us the bother of pestering them to write for us...!

The articles in this month's Briefing together are a timely reminder of both the very long-term and the very immediate challenges the industry faces. It was as long ago as the early 1990s that the first ecolabels appeared, no doubt to considerable scepticism. Now, as Vanessa Zainzinger reports ([see pages 1-3](#)), multiple schemes are well-established and the European Commission regards them as a resounding success.



The year 1992 saw the first of the UN Conventions on chemicals and waste come into effect. Next month sees the fourth, the Minamata Convention on mercury, and it was a very long time coming ([see pages 19-21](#)), as guest columnist Dr John Roberts writes. Not all is plain sailing on such grand projects, as Ipen's Joe DiGangi shows with regards to the Stockholm Convention ([see pages 17-18](#)), but overall the potential for giant, yet flexible agreements to create a cleaner world is not in serious dispute.

And the short-term stuff? Well, that's Brexit, of course. Here, one UK firm, U-Pol, talks to the Editor, Leigh Stringer, about what the real implications for those carrying on in a jurisdiction splitting apart ([see pages 10-11](#)). While Britain thrashes about in this self-inflicted chaos, Germany is quietly getting on with the business of the future, as exemplified by the creation of the International Sustainable Chemistry Collaborative Centre in Bonn ([pages 15-16](#)), with the emphasis as much on 'international' and 'collaborative' as 'sustainable'. It's a coincidence, but one worth noting anyway.



Dr Andrew Warmington
Commissioning editor, Chemical Watch

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In the news

Top CW stories since the last *Global Business Briefing*

The European Commission and its Scientific Committee on Health, Environmental and Emerging Risks (Scheer) have launched a public consultation on a scientific opinion on the tolerable intake of aluminium, with a view to adapting the migration limits in toys. The deadline for submissions is 10 September and a final opinion is expected in the autumn. In a preliminary opinion, Scheer recommended a tolerable daily intake from all sources of 0.3mg/kg of body weight/day ([17 July](#)).

California's Department of Toxic Substances Control has designated children's sleeping items containing the flame retardants TDCPP or TCEP as its first priority product under the Safer Consumer Products programme, with effect from 1 July. Manufacturers have 60 days to register with the department and begin a statutory alternatives analysis. Polyurethane foam-padded products, such as nap mats, bassinet foam and playpens are affected, but not mattresses, mattress pads or child restraint systems ([13 July](#)).

Four NGOs are taking the European Commission to court for its refusal to withdraw permission for Canada's Dominion Colour to sell lead chromate pigments for road markings and painting machinery. They claim that the Commission granted these products authorisation under REACH in November 2016, despite clear evidence that alternatives are available. Since then, about 380 companies have notified their ongoing use of the pigments, which are classified as carcinogenic, reprotoxic and toxic to aquatic life ([13 July](#)).

The US's Personal Care Products Council has responded to the UN Environment Programme's Clean Seas campaign, describing plastic microbeads from cosmetics as a "tiny contributor" to marine pollution and arguing that efforts to reduce it should not focus on these alone. The trade body cited studies showing that most microplastic pollution comes from other sources, while also noting a Danish EPA study that found

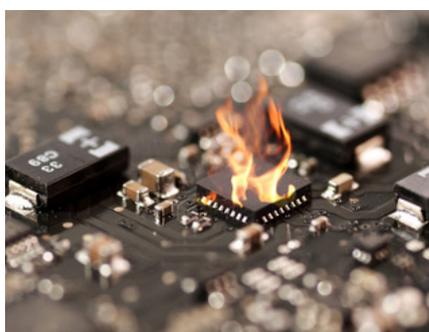
that wastewater treatment facilities remove up to 99% of all solid plastic particles, whatever their source ([11 July](#)).

The US-based NGOs Safer Chemicals, Healthy Families and Environmental Health Strategy Center are to sue seven



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companies, including Dow Agrosciences, for allegedly failing to inform the US EPA that they import more than the 25lb (11.3kg) threshold of the solvent 1-bromopropane (1-BP). 1-BP is associated with multiple health risks in workers with repeated and chronic exposure, while short-term exposure can cause adverse developmental and reproductive effects. It is one of the



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first ten products subject to risk evaluation under the new TSCA ([11 July](#)).

Echa has added perfluorohexane-1-sulphonic acid and its salts (PFHxS) to the REACH candidate list because of their persistent and very bioaccumulative properties. This brings the total number of substances on the list to 174. PFHxS is

a flame retardant in the same category as per- and polyfluoroalkyl substances (PFASs). This move is described as part of wider European efforts to target PFASs, something that the Nordic Council, an inter-governmental cooperation body in the five Nordic nations, is also currently calling for ([10 July](#)).

California's Office of Environmental Health Hazard Assessment has added pentabromodiphenyl ether mixture [DE-71 (technical grade)] to its Proposition 65 list of carcinogens. This followed a 2016 National Toxicology Program report, which found that the mixture caused liver cancers in rats and mice and that exposure to it may have been linked to thyroid and pituitary gland and uterine tumours in rats. Production and uses of the substance were voluntarily phased out in the US in 2004 ([7 July](#)).

China's Ministry of Industry and Information Technology (MIIT) has issued a draft catalogue of 12 types of electrical and electronic products to be covered by its Administrative Measures for the Restriction of the Use of Hazardous Substances in Electrical and Electronic Products, which came into force on 1 July 2016. Products must now comply with the hazardous substance restriction limits set out in national standard GB/T 26572 2011, covering mercury, lead, cadmium, hexavalent chromium, polybrominated biphenyls and polybrominated diphenyl ethers. Consultation ends on 28 July ([6 July](#)).

On 4 July, EU member states adopted the Commission's proposal for criteria to identify endocrine disrupting chemicals by a 21 to three majority, with four abstentions. This ended a year-long deadlock over key issues of terminology in the Standing Committee on Plants, Animals, Food and Feed. The proposal still requires agreement from the the Council of Ministers and the European Parliament before it can be adopted ([4 July](#)).

Ppord derogation from registration: An aid to innovation

Notifications have fallen since 2014, but should increase with the 2018 REACH registration deadline



Dr Emma Davies
Science reporter

Some SMEs may be unaware that substances used for product and process-orientated research and development (Ppord) may be exempt from REACH registration for at least five years, according to Echa.

Ppord is defined as any scientific development related to product development or the further development of a substance, on its own, in mixtures or in articles in the course of which pilot plant or production trials are used to develop the production process and/or to test the fields of application of the substance (Article 3(22) of the REACH Regulation.

Ppord exemption applies to substances produced in quantities exceeding one tonne/year. It is not aimed at early-stage research, but at projects gearing up for industrial production, such as pilot plant studies. Indeed, chemicals used in low volumes for scientific R&D do not need to be registered under REACH.

Ppord applications mainly come from large companies, according to a 2015 report on monitoring the impacts of REACH on innovation, competitiveness and SMEs, published by the European Commission.

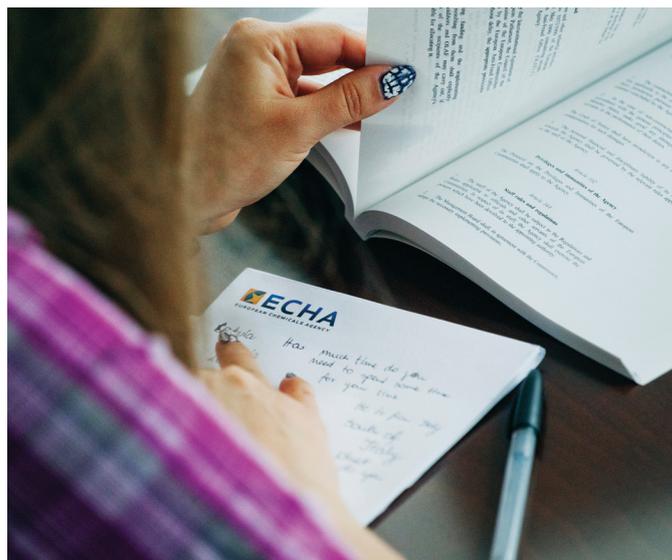
Between 2008 and 2014, over 80% of 1,468 Ppord notifications came from large companies, 14% from medium-sized organisations and just 2% from “small and micro firms”. German companies made the most Ppord applications (39%), followed by those in France (12%), the UK (9%) and Italy (8%).

Although more large companies are submitting applications, the number from medium-sized companies is fairly static, the report stated. Echa data suggests that the number of notifications has dropped since 2014. In 2016, there were 203 of them, compared with 247 in 2015 and 299 in 2014 (including updates and requests for extensions), according to the agency’s general reports.

However, many predict that these will increase in 2018, following the REACH deadline for substances manufactured or imported above one tonne/year.

Pord to Ppord

Before REACH there was Pord (process-orientated R&D), which had to be renewed every year. Managed by member states, it also applied to quantities below one tonne. Echa manages the Ppord process, consulting with member state competent authorities linked to notifications.



© European Chemicals Agency 2013

Ppord substances may be exempt from REACH registration for five years

New and old

While 75% of Ppord notifications are submitted for new substances, 25% are for existing chemicals, says Rossella Demi, scientific officer at Echa.

Companies can apply for Ppord exemptions for substances that have already been registered under REACH. This could apply, for example, when developing a new industrial process or looking to substitute one substance with another.

Extensions to the five-year exemption are rarely requested and are usually for medicinal and veterinary products, according to Ms Demi. These have to be covered by Ppord until they fall under the European Medicines Agency’s remit. “We have a lot of applications for these types of substances,” she says.

For an extension, industry needs to provide a great deal more information than contained in the original application. Companies are also recommended to apply four months before their Ppord expires so that the assessment procedure, with the consultation with competent authorities, can be completed before that date.

Ppord increase

UK-based contract research firm Envigo saw a small flurry of Ppord activity at the start of REACH, mainly to allow companies to continue R&D activities prior to initiating full registration. Some of Envigo’s early cases were extensions to Pords in place under previous legislation.

REACH registration

With many companies focused on getting existing (phase-in) substances registered, R&D activities may not have been given such high priority in recent years, suggests Lesley Creighton, regulatory services manager at Envigo.

“We may see the need for scientific R&D and Ppords in the future, once the phase-in registration period is complete and focus may return to developing new substances,” she adds.

Ms Demi also expects an increase in Ppord notifications now that pre-registration is no longer possible for existing substances exceeding one tonne/year; the [deadline](#) was at the end of May. Until then, it had been possible to develop a new process using a pre-registered substance, without this.

“There are now no other means for a company to use an existing substance in activities for innovation and development,” she says.

Spreading the word

A few years ago, Echa organised a series of Ppord workshops for industry organisations, such as Finland’s Chemical Industry Federation. Every year, the federation asks its member organisations about Ppord, only to find out that there “have been almost no experiences” so far, according to the federation’s senior adviser on product safety, Eliisa Irpola.

Ms Irpola also expects an increase in such notifications following the 2018 registration deadline. “I strongly believe and hope that R&D resources in the European chemical industry and for downstream users of chemicals will, after 2018, be available for

their original purpose and that, by enhanced innovation and research, the number of Ppord would increase,” she says.

“Looking to the future, Echa’s big aim is to fulfil the main aims of REACH: safe use of chemicals and innovation,” says Ms Demi.

“Ppord is one of the tools available to enhance innovation. We want this tool to be used by industry to its full potential and contributing to the full implementation of REACH.”

Ppord notifications

The Ppord application process mirrors that for REACH. Registrations are submitted using REACH-IT, but fewer fields need filling out. In a notification, companies must include:

- » information on substance identity;
- » classification;
- » information relating the list of entities cooperating on the Ppord programme; and
- » the quantity of the substance expected to be manufactured or imported during the five-year exemption.

Substances need to be used in “reasonably controlled conditions”. A substance used in a Ppord activity must be for research and not reach the general public. Echa can also impose conditions on the exemption. Only the Ppord use of a substance is exempted from REACH. For any other purpose, registration is needed. The substance can only be handled by the staff of named clients included in the notification. Information is kept confidential and is not published anywhere.

Enforcement Summit Europe 2017

13-14 November 2017 | Brussels, Belgium

Gain expert insights on European and global regulatory enforcement challenges, at the fifth annual Enforcement Summit Europe:

- **Day one** of the Summit will examine REACH and CLP enforcement, welcoming representatives from ECHA and the European Commission.
- **Day two** will conclude the discussions on REACH and CLP with some informative case studies from Only Representatives and others.



Post-2020 global supply chains

Are companies adapting to the changing business environment?



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Leigh Stringer
Global business editor, Chemical Watch

What will a post-2020 global chemicals supply chain look like? This was one of the hot topics discussed at this year's Helsinki Chemicals Forum. The discussion addressed the questions: what will be the drivers for market supply and demand; and, will chemical product safety emerge a winner or loser?

To set the scene, panellists addressed the political, economic and social uncertainty that has become the norm over the last decade, with some saying it has created an era of 'business as usual'. Change has often been viewed as 'too risky' in this age of doubt. And the recent shift from globalism to nationalism in some regions – the most obvious examples being Brexit and the US voting for Donald Trump – has created a difficult environment in which to do business globally.

Overall, the global chemical market has not suffered. Its market value has continued to rise over the last decade, and, according to Cefic, global chemical sales are likely to almost double by 2030. Despite this, energy demands, resource scarcity and the growing importance of chemical safety all mean that companies further down the supply chain are having to adapt and modernise their processes if they are to keep ahead of these challenges and maintain their market share.

There is, however, cause for optimism, according to some on the panel. Both Rafael Cayuela, chief economist at Dow Chemical, and Mihai Scumpieru, a manager at Mitsubishi Electric Europe, said that many of the environmental and social challenges we face today could be solved through the further development of technological advances like Big Data and artificial intelligence (AI).

"Chemicals are moving into the nanoscale, which means we need a much deeper analysis of these substances. This will require the help of advanced technology, such as AI," said Mr Scumpieru, who is also vice chair of the Japan Business Council in Europe.

Obtaining information

However, AI and Big Data are yet to become a common feature in everyday life and business and so cannot yet be relied upon. Until then, familiar challenges remain in need of solutions.

Another panellist, Anouschka Jansen, senior manager at the Foreign Trade Association, said that information exchange on chemicals is one of the main challenges for supply chains today and will probably be so in the future as well. Because of their complexity, said Ms Jansen, information on chemicals is hard to locate.

Where chemicals are manufactured isn't necessarily where they are bought or used. So it's easy to see why information on chemicals gets lost

Anouschka Jansen, Foreign Trade Association

"Chemicals enter the supply chain at different stages, for different purposes. Chemical manufacturers provide the substances but where they are manufactured isn't necessarily where they are bought or used. So it's easy to see why information on chemicals gets lost," she said.

This information, Ms Jansen continued, is critical for downstream users who have to provide the data to their customers, such as

brands and retailers, who in turn have to report and comply with legislation, such as REACH. To help close the information gap, Mr Scumpieru said, there is potential for stronger synergies between chemicals producers and downstream users.

“Downstream users could work more closely with chemicals producers to develop the most suitable chemicals for the right application, instead of receiving signals about suitable chemicals through many levels of the supply chain and realising, by the time the product has been scoped, that your technology has advanced and you no longer need the chemical.”

Global alignment

Mr Scumpieru also advocated regulatory harmonisation and international cooperation. “This is essential for businesses to operate in this climate of uncertainty, certainly where supply chains are so complex. We believe in setting common standards and ensuring the reliability of chemicals,” he said.

Ms Jansen also highlighted the additional complexity of complying with multiple legislative frameworks. “Those manufacturing products, who are often in Asian, African or Latin American countries, have to deal with local legislation.

“This is often in conflict with the different requirements they get from their customers, which are often based on REACH, or those that go beyond legislation, like Greenpeace’s Detox campaign.”

Businesses need more global alignment, she added. “Global frameworks and alignment can help companies to get the

information in a way where they know they are going to be able to meet the requirements of legislators and clients.”

New business strategies

While these issues are at the forefront of most businesses’ minds, what is really needed, said Joe DiGangi, senior scientist and technical adviser for the NGO, the International POPs Elimination Network (Ipen), is “nothing less than a complete transformation of the industry itself”.

A risk assessment system built on the assumption that chemicals must be safe enough is not good enough

Joe DiGangi, Ipen

“A risk assessment system that is built on the assumption that chemicals must be safe enough is not good enough. The public will demand safer chemicals, chemicals without harm, and the industries closest to consumers will find it easiest to change,” he argued.

Mr DiGangi also highlighted the “huge” societal costs associated with hazardous chemicals and referenced a statement from the UN’s Global Chemicals Outlook, published in 2012. “The industry does not pay the true cost of its products and all economists would describe this as a market failure,” he reflected.

Chemical Watch’s report on the HCF debates will be available at the end of July.

AsiaHub Summit 2017

CW+ AsiaHub

18 - 19 September, Brussels, Belgium

The AsiaHub Summit 2017 is a brand new two-day event from AsiaHub, offering up-to-the minute information on chemicals regulation throughout Asia. The Summit’s expert panel of senior government and industry representatives will share their inside knowledge of the developments in chemicals regulation in China, South Korea, Taiwan, Japan, Thailand, Malaysia, Indonesia, Singapore and Vietnam.



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Leigh Stringer
Global business editor, Chemical Watch

U-Pol is a supplier of products for the collision and damage market - and it is important to note that the company is an exporter. Indeed, exports are approximately 80% of its sales, with major markets in the US, Canada, France, Australia, Russia and China, while upwards of 90% of the company's suppliers are in Europe, including the UK. "We also have geographic strengths in Africa and the Middle East too," says Dr Simon Aldersley, technical director.

The company imports solvents, acetone, xylene and minerals, such as talc, and mixtures like resins. It was originally set up in London by German immigrants in 1948 and was the first player in the UK market to supply pre-mixed polyester, styrene car body repair putties. Today, it offers products to the entire collision and damage repair market, such as fillers, aerosols, primers and coatings.

Inevitable burdens

There is no doubt that Brexit will affect U-Pol. The question is how much. While the most immediate impact has been movement in the currency, says Dr Aldersley, other factors are taking shape. "A large amount of our purchases are euro-denominated, so our purchasing power has diminished significantly," he says.

As an exporter worldwide, U-Pol is an unusual UK company because it is dealing with multiple regulatory regimes. "We have large amounts of sales inside and outside the EU. Obviously, harmonisation of regulations makes it easier to do business across borders so the more regulatory regimes you have to deal with the higher the regulatory burden."

"No matter what people say, Brexit cannot decrease the regulatory burden for an exporter. At best it's neutral because we still have to comply with EU regulations for exporting to the EU but, whatever the UK does - anything other than staying in the framework of REACH, for example - means it's a regulatory increase," Dr Aldersley adds.

Even if it was a 'light-touch' regulatory move, which basically means there will be lower costs for companies that only deal within the UK, U-Pol will still have to comply with REACH every time it sells into the EU. "So unless an exporter stops selling into the EU, anything the UK does is incremental. Despite it being light-touch, it's still on top of REACH, not instead of it."

If the UK goes for this approach, any exporter will be at a competitive disadvantage, according to Dr Aldersley. "This is because we'll be carrying the cost of complying with REACH, so we can continue to export - and we will look like a high-cost supplier, which means that any British company that tries to export will be at a disadvantage in their home market."

In addition, says Dr Aldersley, there are concerns around the adoption of tariff and non-tariff barriers, which "no company wants to see in its important export markets". Another major worry is the importing of feedstocks, especially those that are only imported into the UK in small volumes.

All this is in the context of the UK taking on independent chemicals legislation. "If the UK sets up a burden for companies to import - even if they say it's light-touch or different from what companies have to do for REACH and they're only importing into the UK small volumes - I don't think they'll bother."

"Companies are going to still register big commodity chemicals, such as acetone, to sell in the UK but small specialist chemicals

where a single company is the only UK customer ... they just won't do it."

Brexit benefits?

It would be good, in Dr Aldersley's view, to arrive at a point soon where Brexit discussions are on the associated opportunities, rather than debating the issues and challenges. Understanding what approach the UK will take with regard to chemicals will also prove useful, including the setting up of a chemicals agency, if and when there is a proposal for one.

"There will have to be some form of an agency but who will staff it, what's their remit and are they going to sit under the Department for Environment, Food & Rural Affairs? And are they going to be looking to set up independent regulation themselves and, if so, how is that going to encourage export rather than just deregulating our own market?"

"The main message to the government is that business wants certainty - we're 19 months away from leaving the EU. When will we get the details?"

Hard or soft

Dr Aldersley says that he is interested in what tariff and non-tariff barriers the company will have to cope with to do business and how the government is going to support it in grasping the opportunities that come with Brexit.

"Are the opportunities things like tariff-free access to the Indian or Chinese markets? If so, we might target those markets. Another

example is if we knew we could import US TSCA-registered chemicals, that are not REACH-registered, we might be more competitive in the US than we are today. There will be benefits of Brexit but they're difficult to plan for when we don't know what they're going to be," he says

And this, he adds, is the main issue - how do you plan for the unknown?

"How much resource and time do you put into planning for the different scenarios? For example, will we need an EU legal entity? We don't have one; we employ our EU workers through our UK legal entity. Do we take the time and expenditure of setting up an EU legal entity? Do we do this now? We don't yet know if we need one. Or, if there are going to be customs burdens - and delays at the border - following Brexit, we'll need a warehouse in France, because we offer a 48-hour service to our customers there from our warehouse in the UK."

U-Pol is voicing these concerns to the UK government, largely through its industry trade association the British Coatings Federation, which is actively putting forward the interests of our industry, Dr Aldersley says. The company is also involved in the outreach programme that the government has started in order to hear first-hand explanations of the opportunities and benefits posed by Brexit.

Regulatory certainty is critical to the long-term success of a company, but Brexit has brought about quite the opposite. Until details are released, it is likely to be a bumpy road for businesses.

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| Job title | Location | Summary | Organisation |
|-------------------------------------------------------------------------------|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
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Science drives sustainability

The annual GG3 event focused on practical issues facing green chemistry



Amy Perlmutter

Project lead - mainstreaming, GC3

People working in sustainable chemistry need to advocate the value of science as they identify effective solutions, according to experts meeting at the recent Green Chemistry and Commerce Council's (GC3) [Annual Innovators Roundtable event](#). This was held at the headquarters of Steelcase, in Grand Rapids, Michigan, on 23-25 April, with 175 people present.

GC3 is an international collaborative network, engaging the value chain to accelerate adoption and innovation of green chemistry solutions. The roundtable is its most important education, networking and strategic planning event of the year.

Speaking at the meeting, Senator Chris Coons (Dem-Delaware), noted that it is important for people working in the field to understand the language that matters to the audience they are speaking to. In light of the current political landscape and attacks on science in the US, he said, they need to talk about jobs and innovation.

Senator Coons is a trained chemist and a leading advocate for sustainable chemistry in Congress, having jointly introduced the Sustainable Chemistry Research and Development Act in 2015. He also believes it is important to provide certainty and predictability around chemicals regulation.

The meeting discussed the opportunities for green chemistry, if it is framed and communicated in the right way, to be aligned with the government's priorities of infrastructure and defence. As well as discussing how the current US political landscape impacts green chemistry, it focused on:

- » product design for the circular economy - sustainable design is seen as an enormous opportunity;

- » what is being learned from chemical ingredient transparency initiatives;
- » lessons from the corporate world (also known as 'C-Suite') about green chemistry innovation;
- » the role of formulators in the supply chain, especially if their activities are difficult to map;
- » challenges and opportunities to using sustainable feedstocks at scale; and
- » innovative partnerships.

It is clear that green chemistry faces many challenges as it attempts to become mainstream throughout the value chain. These include:

- » the length of time it takes to bring new chemicals to market and the higher cost of bio-based products;
- » the difficulty of educating the value chain on the business opportunities within green chemistry;
- » the current US administration's support of fossil fuel investments which, if successful, could retard bio-based green chemistry development and adoption; and
- » the difficulty of scaling alternative feedstocks because of insufficient demand in the supply chain.

A number of GC3 collaborative programmes, which aim to drive green chemistry innovation, were also highlighted at the meeting. These included:

- » the [Safer Preservatives Challenge](#);
- » the [Retail Leadership Council](#); and
- » the [Green and Bio-based Startup Network](#).

Key take-home messages

To continue to build a green chemistry community, the meeting agreed, requires visibility, support and recognition of efforts being made.

To be successful, corporate leaders should build understanding throughout their companies about green chemistry, as well as provide training and continuous support to employees.

The meeting heard how transparency will help drive customer confidence in companies and provide an impetus for green chemistry innovation. For example, full-cost accounting would help make the business case for such solutions. Generally, it appears that much more green chemistry goes on within companies than the public is aware of.

More collaborative business models for R&D would allow more stakeholders to be part of the process of developing products and this would reduce risk and create business opportunities, the meeting heard. A number of models for value-chain collaboration that can be used to solve green chemistry problems were discussed.

Another point was made about terminology. Rather than talking about a product as being safer, companies should be talking about continuous improvement, that the new product is the next step in the evolution.

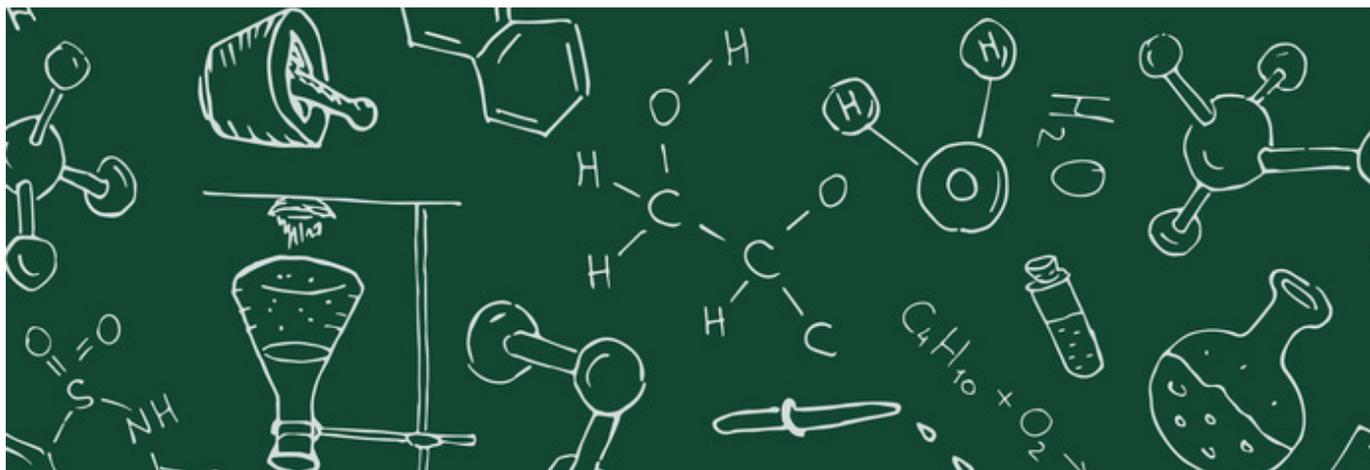
One message was clear from the roundtable: while there are still challenges to overcome, there are many green chemistry successes to point to and the field will continue to grow. No matter what the political priorities, green chemistry makes good business sense and can provide a competitive edge.

In the coming year, the GC3 intends to expand its 'Green and Bio-based Startup Network and other collaborative innovation models. Highlighting the role of the chemical industry in green chemistry innovation, the 2018 event will be held at Eastman Chemical's facility at Kingsport, Tennessee, on 8-10 May. This will be the first time a chemical manufacturer has hosted a GC3 roundtable.

The views expressed in contributed articles are those of the expert authors and are not necessarily shared by Chemical Watch.

Germany launches ISC3

A global hub for sustainable chemistry



Dr Ralph Heinrich Ahrens
Reporter

The German Federal Ministry for the Environment has said that it hopes that the new International Sustainable Chemistry Collaborative Centre (ISC3) in Bonn will encourage communication between countries and regions, as well as the uptake of sustainable chemistries worldwide. The centre was formally launched in May as part of the Second Green and Sustainable Chemistry Conference in Berlin.

ISC3 is supported by GIZ, the German Corporation for International Cooperation. It has received €1.7m in funding from the German federal government for this year, a sum which will increase to €2.4m in 2018. By the end of the year, it should have 20 employees.

A scientific centre, the ISC3 Research Hub, will be developed at Leuphana University in Lüneburg. In addition, a centre for innovation, the ISC3 Innovation Hub, will be created at the headquarters of Dechema, the Society for Chemical Engineering and Biotechnology, in Frankfurt.

ISC3 aims to help emerging and developing countries to implement international chemical regulations as well as to support them in the safe handling of chemicals and disposal of waste containing hazardous substances.

Without such transformation in these countries, according to Barbara Hendricks, federal minister for the environment and a speaker at the conference, achieving the 2030 goals of the UN's Agenda for Sustainable Development will not be possible. "It is in all of our interests to establish capacities for the safe handling of

chemicals in such places and to ensure that growth, consumption and production in all countries are as sustainable as possible," she said.

The centre has been launched at precisely the right time, according to Kurt Bock, chairman of the executive board of directors at BASF and president of the German chemical industry association, VCI. With the mandate for the UN's Saicm ending in 2020, the ISC3 could become an important component of a framework beyond 2020 and could help to achieve the UN's 17 Sustainable Development Goals by 2030.

There is an urgent demand for action. "At the same time, chemistry is a saint and a sinner," said Borhane Mahjoub, an assistant professor in environmental chemistry at the University of Sousse in Tunisia, another speaker at the conference. "A saint because of the money it brings to the country and the people. A sinner because it is a tremendous polluter."

In Tunisia, chemical companies are responsible for 52% of air pollution and 70% of water pollution. The challenges could grow, as Dr Mahjoub and others noted, because production and consumption of chemicals are increasing worldwide, mainly in developing and emerging countries.

What is sustainable chemistry?

A concise definition of sustainable chemistry, however, is still missing. ISC3 is going to develop such a definition, according to Friedrich Barth, its managing director. At the launch, Ms Hendricks highlighted three aspects of sustainable chemistry:

- » it involves precaution and ensures as little damage as possible to people and ecosystems;
- » it uses resources as efficiently as possible, having in mind the circular economy and with it the complete lifecycle of chemical production, use and disposal; and
- » it promotes economic and societal development.

This definition has been welcomed by the German chemical industry. “We need a concept that gives equal consideration to the ecological, economic and social dimensions of sustainability,” said Mr Bock.

However, he also called for more openness towards innovation and said that the precautionary principle, invoked by Ms Hendricks, should be complemented by one for innovation. “Under this innovation principle, with the development of new laws and regulations it should be assessed whether [this definition] would adversely affect our country’s innovation capability,” Mr Bock said.

NGOs, such as Health Care Without Harm (HCWH), have welcomed the centre, while also calling for a clear definition of sustainable chemistry. Without one, many kinds of current chemistries could be labelled as sustainable, watering down the term to render it nearly useless and leaving opportunities for greenwash. For HCWH, it should be a matter of priority to further reduce and eliminate hazardous chemicals from production and use, as well as to finance this for legacy toxic chemicals.

Sustainable chemistry is a worldwide concept, noted Kwabena Frimpong-Boateng, the Ghanaian minister of the environment, science, technology and innovation. It “should inform the developing world on how to capitalise on our growing populations and our abundant natural resources as incentives to determine the pace of development,” he said in Berlin.

Mr Frimpong-Boateng linked this kind of chemistry to biodiversity conventions and stressed the need for coherent biodiversity policies also aimed at promoting sustainable production and consumption.

“This is an important task, due to the increasing necessity for natural resources to substitute platform chemicals of fossil origin,” he said.

An advisory council has developed a vision for the ISC3. A priority should be to collect from around the world and then promote ideas for developing sustainable chemistries. In particular, it believes ISC3 should be actively partnering with developing countries, for example by identifying their needs and aspirations and exchanging expertise or strengthening the capacity for sustainable chemistry.

Mr Barth presented the new interactive network ISCnet, which will help in sharing knowledge and experience. ISCnet should function as an umbrella for existing networks and offer discussion of a wide range of topics at an international level. Success stories will be disseminated through a newsletter.

The council recommends seeking cooperation and partnerships with all interested stakeholders. Mr Barth has directed his attention to start-ups and an annual meeting is planned. He has also considered a sustainable chemistry award for such businesses. These small companies often need finances to be able to build a pilot plant or prototype, so he plans to talk with international investors, such as the EU and the Global Environmental Facility.

Another priority should be to enable and guide the development of indicators for sustainable chemistry. In this way, key elements from the SDGs should be integrated into the concept and their relationship to other goals, such as resource efficiency or circular economy, should be shown. “We will think and act independently of governments and companies,” Mr Barth added.

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Exemptions and the Stockholm Convention

The harm is in the details



Dr Joseph DiGangi
Senior science and technical advisor, Ipen

One of the Stockholm Convention's most important features is that it is a living treaty. That means it can ban chemicals currently in use, not just redundant ones. The chemical industry has expressed concern about the listing of its persistent organic pollutant (POP) products, but energy would be better spent withdrawing chemicals with the characteristics proactively, before they are proposed for global prohibition.

Governments have agreed to list all the chemicals recommended by the POPs Review Committee (POPRC) because the evaluation process is comprehensive and meets convention obligations under Article 8. The main problem with the decision-making process at Conferences of the Parties (COPs) is not that chemicals in use are listed but that the POPRC's work and its recommendations limiting the scope of exemptions are often ignored. The recent COP8 meeting is a good example.

SCCPs

Short-chain chlorinated paraffins (SCCPs) form a class of industrial chemicals primarily used in metalworking but also as flame retardants and softeners in plastics, including children's products. SCCPs adversely affect the kidney, liver and thyroid, disrupt endocrine function and are anticipated to be human carcinogens. The POPRC recommended listing them in the treaty without exemptions, due to the availability of feasible alternatives.

In contrast, governments at COP8 proposed a wide-ranging series of exemptions that effectively cover all known uses of SCCPs. The treaty listing does represent an important five-year



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Metalworking is a major application for SCCPs

global phase-out of a very harmful chemical, but there was a clear disconnect between POPRC evidence that vegetable oil is a key substitute for the substances in

The automotive industry clearly stated that an exemption for new cars was not needed and, in the view of Ipen, no convincing evidence justified that for spare parts

metalworking and granting an exemption for this use, along with many others.

DecaBDE is a more serious example of a listing process getting sidetracked by unjustified exemptions. For example, an exemption was granted for the use of

decaBDE in polyurethane foam for building insulation, but the POPRC had no evidence that the substance is used for this purpose.

Industry exemptions

Even more significant were the exemptions for the automotive and aviation industries. The POPRC proposed an exemption confined to automotive legacy spare parts but COP8 vastly expanded it to cover many uses in new vehicles. The treaty's conventional phase-out period of five years ballooned out to 2036.

The automotive industry clearly stated that an exemption for new cars was not needed and, in the view of the International POPs Elimination Network (Ipen), no convincing evidence justified that for spare parts, since retro-fitting could be used. However, delegates marched ahead to grant extensive exemptions that will result in the continued production and use of decaBDE,

NGO platform

a substance that strongly resembles polychlorinated biphenyls.

The aviation industry's decaBDE exemption illustrates what happens when companies that have already phased out POPs ignore the Stockholm Convention. In the evaluation process, Boeing clearly stated that an exemption was not needed since the company would be able to substitute all parts containing the substance by the time the listing entered into force.

DecaBDE exemption

At COP8, governments agreed on an exemption for decaBDE use in aircraft – effectively for Boeing's competitors. Boeing could have been rewarded for its proactive efforts to eliminate decaBDE by advocating a global ban on its use in aviation.

This would have given the company an edge while its competitors worked on a substitution process that Boeing had already completed. However, no high-level Boeing executives participated in the meeting. The exemption locks in the use of decaBDE until the end of aircraft service life, which is likely to continue until 2100.

As the exemptions kept piling up at COP8, governments recognised the need for a more disciplined approach. The meeting agreed that governments which request an exemption for decaBDE or SCCPs should justify their need for it by December 2019. This includes providing information on production and use, possible control measures, the availability and implementation of alternatives, monitoring and control capacity, and any national or regional control actions that have been taken.

Furthermore, COP8 invited all parties to report on how they have substituted decaBDE and SCCPs. This is all a little after the fact, but at least introduces some rationality into the process and opens the door to sharing countries' experiences with alternatives.

Not all proposed exemptions were granted at COP8. Fortunately, two countries withdrew a proposal to permit the recycling of materials containing decaBDE. Recycling plastic products containing POPs also contaminates new products.

In a recent study, Ipen tested Rubik's Cube-like toys made of recycled plastic from 26 countries and found that 90% of the samples contained octaBDE and decaBDE. Other recent studies have found flame retardants from electronic waste recycled into plastic food contact materials on the EU market, such as thermos cups, kitchen utensils and an egg cutter.

The treaty expressly prohibits POP recycling and the POPRC warned against the practice, noting continuing human and

Later, there is the difficult task of complying with the treaty's waste provisions, since many countries cannot identify which products (such as cars, planes, plastics, etc) contain POPs. Even if they could identify them, many do not have the capacity to destroy them as the law requires. Since they travel long distances, inadequate waste management of POPs in these developing and transition countries eventually makes its way elsewhere, completing the circle of poison.

The private sector has key roles to play in implementing the Stockholm Convention. The chemical industry should play a proactive role by not producing chemicals with POP characteristics in the first place. Secondly, companies should assess their product line and remove such products. These obligations for governments are spelled out in Article 3 but they are really industry responsibilities.

As noted above, companies that have proactively substituted candidate POPs with safer alternatives should inform delegates of their actions. Then they can hear substitution success stories and not just the complaining from POP manufacturers or users that never should have produced or used these substances in the first place.

Financial penalty

Once a substance is listed, the companies concerned should internalise costs by paying for global monitoring and clean-up. This is an unexplored but needed action under the convention, especially since there is a large gap between the financial needs of implementation and the funding available. If companies can pollute the entire world with their POP products without suffering any financial penalty, they will continue to make, use and sell them.

At COPs, deciding on exemptions is often an abstract exercise in multilateral negotiation. However, exemptions represent a tangible potential for harm in the real world – and that is what needs to be prioritised before decisions are taken to grant them.

The views expressed in contributed articles are those of the expert authors and are not necessarily shared by Chemical Watch.



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Boeing has been effectively penalised for substituting decaBDE before it had to do so

environmental exposure and the loss of the credibility of recycling. The current toxic recycling exemption for commercial pentaBDE and octaBDE allows this bad practice to continue until 2030, but it should be brought to an end early at COP9, before more children's products become contaminated with substances that are globally prohibited.

Developing countries

The big losers in careless decision making on exemptions are developing and transition countries. Exemptions bring POPs across borders legally in a rising tide of products, causing ongoing exposure.

Mercury rising

The Minamata Convention comes into force next month



Dr John Roberts
Former head of the chemicals team, Defra

On 16 August, the [Minamata Convention](#) will enter into force. This is the first new multilateral environmental agreement for over a decade and will probably be the last for a while, so it is a significant event. In September, 1,000 delegates and around 50 ministers will assemble in Geneva for the first meeting of the Conference of the Parties, to celebrate the new Convention and to lay the groundwork for its success.

Why has this treaty been agreed, and why is it significant? The aim of the Convention is, to quote its first article, “to protect the human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds”.

Mercury, once known as quicksilver, is a fascinating element. It has been found in Egyptian tombs, was formerly thought to bring health and was used in cosmetics in the ancient world. In the modern world, it has been used in measuring devices, as a catalyst in industrial processes, in dentistry and in products including light bulbs, batteries and computer screens.

One of only two elements that are liquid at room temperature, mercury has an interesting chemistry. It occurs in elemental form, as compounds – particularly the oxide and sulphides – and also in organic forms, particularly as methyl or ethyl mercury. Organisms in marine sediments can switch mercury between inorganic and organic forms.

Mercury is toxic. The symptoms of acute mercury poisoning are well known. The term ‘mad as a hatter’ derives from the form of dementia caused by exposure in hat making. The effects of exposure to low levels are more subtle, but mercury is toxic at low doses. Because methyl mercury can



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Contaminated fish were the first symptom of mercury issues in Minamata Bay

pass through the placenta and the blood-brain barrier, it can cause neurological and developmental damage, particularly to fetuses and infants.

In the 20th century, many people were born with severe congenital neurological and physical symptoms similar to cerebral palsy in Minamata, Japan. Unfortunately, it took several years to identify that the cause was mercury discharges from the

Mercury has no known useful biological function and there is no level of exposure which can be regarded as harmless

Chisso chemical works, contaminating fish in Minamata Bay. Many of those affected have died, but the harrowing testimony from survivors made a lasting impression on negotiators of the new treaty. There was a ceremony in Minamata on 1 July to celebrate the new Convention.

Mercury has no known useful biological function and there is no level of exposure which can be regarded as harmless. Population-wide studies have found that exposure lowers average IQ scores. Quite apart from the ethical issue, the economic damage is significant and makes the case for action on that basis alone.

Mercury is also bioaccumulative. This is particularly significant in oceans, where methyl mercury biomagnifies and accumulates in the top predators. Indigenous people in the Arctic, for example, for whom marine resources are an important source of food, are particularly at risk. The US Food and Drug Administration has advised pregnant women and nursing mothers not to eat swordfish or shark, while the UK Food Standards Agency recommends limits on eating tuna.

Many countries have introduced national or regional controls on mercury – for example, phasing out batteries with high levels, banning mercury fever thermometers and barometers, phasing out the mercury cell chlor-alkali process

Guest column: Dr John Roberts

and requiring measures to abate emissions from power stations.

National or even regional controls alone are not enough, however. Mercury can be carried on the wind or by long-range transport, so it can contaminate the oceans and lakes far from the point of origin. And products containing mercury are traded across the world.

In early 2000, a number of countries called for global action. In 2003, the Governing Council (GC) of the United Nations Environment Programme (Unep) discussed an assessment of the sources and health impacts of mercury and agreed that there was sufficient evidence of global adverse effects to warrant international action. This led to the Unep Mercury Programme, which has done much valuable work to raise awareness, develop technical solutions and to promote action.

However, there was strong disagreement about the way forward. Some countries, notably Switzerland, Norway and the EU, argued strongly for a global legal instrument as the best way of making progress. Others, not least the US, China and India, argued for 'voluntary' approaches, which can be implemented in less time and be more flexible.

This debate ran through the GC in 2005 and 2007. Launching the process to negotiate a new treaty effectively requires unanimity. The debate was lengthy but polarised and it was hard to see a way forward.

The 2007 GC did, however, agree to a working group to review and assess the merits of enhanced voluntary measures or an international legal instrument to make progress in addressing mercury pollution. The working group met twice, each time for five days and with over 100 countries present, as well as environmental NGOs and industry groups. The group clarified the issues – but the basic divisions between countries remained.

The group reported to the 2009 meeting of the GC. By then, there had been a significant change after Barack Obama succeeded George W Bush as US president. The State Department worked amazingly fast to amend the country's position in time for the GC in May. The announcement at the start of the debate

that the US now supported a legal instrument transformed the atmosphere.

There was still a lot of discussion needed before the GC could agree to launch the negotiation of a new convention. Countries are rightly concerned about the implication of adopting legal obligations and standards.

For example, those which rely on coal for power generation, a significant source of mercury emissions, were concerned about



Mercury is one of only two elements that are liquid at room temperature

whether a treaty would constrain their development. Some, particularly developing countries, were concerned about the potential cost of complying with new obligations and the need for financial and technical support.

Some countries had argued that a broad, flexible instrument should be prepared, capable of being expanded to cover other elements or substances later if the need for global action was recognised. This was a step too far for many and the convention was to focus only on mercury.

After lengthy and intense negotiation, the 2009 GC was able to agree a mandate setting out the terms for negotiating a new convention. All sides had shown flexibility and there were compromises in order to get

an agreement. A timetable was established for a formal process to develop it.

The negotiating committee met five times between 2010 and 2013, for a week each time. The debates focused on: the level of ambition; exactly which processes and products should be covered; the extent of the control measures the Convention would require; the degree to which countries should have flexibility and discretion to reflect their own circumstances; and the extent of the obligations, the mechanisms for providing money and technical support to help developing countries and many other issues.

Different nations naturally came to the negotiation with different perspectives. For example, developed countries with strict controls on emissions from coal-fired power stations saw global controls on air emissions as the priority, to avoid mercury pollution from long-range transport. Developing countries with coal as their main power source and facing challenges in meeting their energy needs were naturally concerned to understand the implications of any new requirements.

Other developing countries, particularly in Africa, mainly face challenges dealing with imported goods containing mercury, particularly in managing contaminated waste streams and where open burning of waste is common because the infrastructure for environmentally sound management is lacking. For some Latin American countries, the impact on their mining industries was an important issue and releases to land and water were a more significant threat than emissions to air.

In other words, while there was a high level of ambition and a desire to see a convention which would make a real difference, all parties were concerned that it should work for their own situation.

Some countries sought a sufficiently clear and strong convention that they could be confident that if they implemented control measures others would also take action, but one which was also flexible enough to reflect national circumstances. They did not want to be put under an obligation to adopt solutions which might not be technically feasible or affordable, without at least strong assurances that financial and technical support would be available to help.

The draft Convention was adopted at a diplomatic conference in Japan in November 2013, and has been signed by 128 countries, indicating that they intend to become parties. So far, 68 countries have completed their ratification procedures and will be parties when the Convention enters into force on 16 August. There is some way to go – 186 of the 193 sovereign states in the UN are parties to the Basel Convention – but it is a good start.

The [Convention](#) covers the whole lifecycle of mercury. It deals with sources of supply, trade, use in industrial processes and in products, safe disposal of surplus mercury and managing wastes contaminated with it. It deals both with ‘intentional uses’ and with emissions that can arise because mercury is present in trace quantities in coal, in raw materials used in cement production and in metal ores, for example.

The Convention aims to restrict supply by phasing out primary mining, by requiring that surplus mercury from chlor-alkali plants is retired rather than diverted into other uses and by imposing restrictions on mercury exports. It phases out or limits use in a range of products, including batteries, switches, fluorescent lamps, cosmetics, pesticides and measuring devices. It requires parties to take measures to phase down the use of dental amalgam.

The Convention also requires mercury to be phased out as a catalyst in acetaldehyde production by 2018 and in chlor-alkali processes by 2025, and to reduce its use in vinyl chloride monomer production.

In addition, it addresses artisanal and small-scale gold mining (ASGM) by requiring mercury use to be reduced and eliminated where feasible. ASGM is a significant source of mercury emissions and miners working in this sector risk very high exposure, but regulating it is not easy: ASGM is often informal and unregulated, and many miners may have few other opportunities open to them.

In some circumstances banning the use of mercury in ASGM may work, but in others a better approach can be to introduce improved environmental practices, for example ensuring that mercury is captured and reused, which can greatly reduce exposure. Parties are required to prepare a national action plan but have considerable discretion to tailor it to their circumstances.

The Convention requires Best Available Techniques (BAT) and Best Environmental Practices (BEP) to be used to control emissions to air from a list of major industrial processes and releases to land and water. There will be guidance on BAT and BEP, but, again, parties will have discretion to decide on what these mean in practice, given technical and economic circumstances.

In addition, mercury must be stored, while waste mercury and wastes contaminated with it must be managed in environmentally sound ways, taking account of the Basel Convention where that applies. Parties are urged to develop strategies to deal with contaminated sites.

Minamata encourages parties to identify and protect populations whose health may be at risk and to promote healthcare and exchange information about the safety of mercury and its compounds

The Convention also encourages parties to identify and protect populations whose health may be at risk and to promote healthcare, exchange information about the safety of mercury and its compounds and about alternatives to their use, and encourage public awareness and education.

Finally, it sets up mechanisms to provide financial support to developing countries, to build their capacity and to help them comply with the requirements of the Convention. (The Global Environment Fund set a spending target of \$141m for projects to support it during the 2014-2018 programme.) It also encourages capacity building, technical assistance and technology transfer.

Although the Convention is a ‘binding legal instrument’ in international law, in practice it is a mixture of hard and soft obligations. On some issues, the language is direct and unavoidable: for example, “each party shall not allow primary mining that was not being conducted within its territory at the date of entry into force”, or “each party shall not allow the use of

mercury ... in the manufacturing processes listed ...” (subject to a transitional period of up to ten years if a party registers an exemption).

In other areas, there is more discretion. For example, the definition recognises that what is BAT in any particular case must take into account economic and technical considerations for a given party or a given plant.

For releases to land and water from industrial process, the Convention does not specify the industrial processes that parties need to control – the range of potential situations is too variable to do that – but it does require them to identify significant sources of releases and act on them.

In some of the areas where it is most difficult to set out a global solution in advance, the Convention gives even more discretion. For example, it does not set dates or targets or specify technical solutions for dealing with ASGM: parties can work out what works best in their circumstances.

The Minamata Convention joins the current three conventions dealing with chemicals and waste – the Basel, Rotterdam and Stockholm Conventions, which entered into force in 1992, 2004 and 2004 respectively. Is it the last convention we shall see for some time, or will there be more dealing with other substances?

The debate on the future of Saicm after 2020, when the current mandate expires, will have to think about what we need. Is the multi-sector, multi-stakeholder approach of Saicm based on voluntary action and partnership the best way forward, or is there still a need for new legal frameworks to deal with some problems that can only be tackled by global action?

For now, the focus will be on celebrating the progress which has been made to get to this point, and planning how to make it effective as the work of implementation begins. As a representative of the Inuit people said at one point during the negotiation, people are being harmed by mercury emissions over which they have no control, and it is not fair. Let’s hope the Minamata Convention will make it fairer.

The views expressed in contributed articles are those of the expert authors and are not necessarily shared by Chemical Watch.