Euro Chlor

The voice of the European chlorine industry. It plays a key communications and representation role on behalf of its members, listening and responding to society's concerns about the sustainability of chlorine chemistry.

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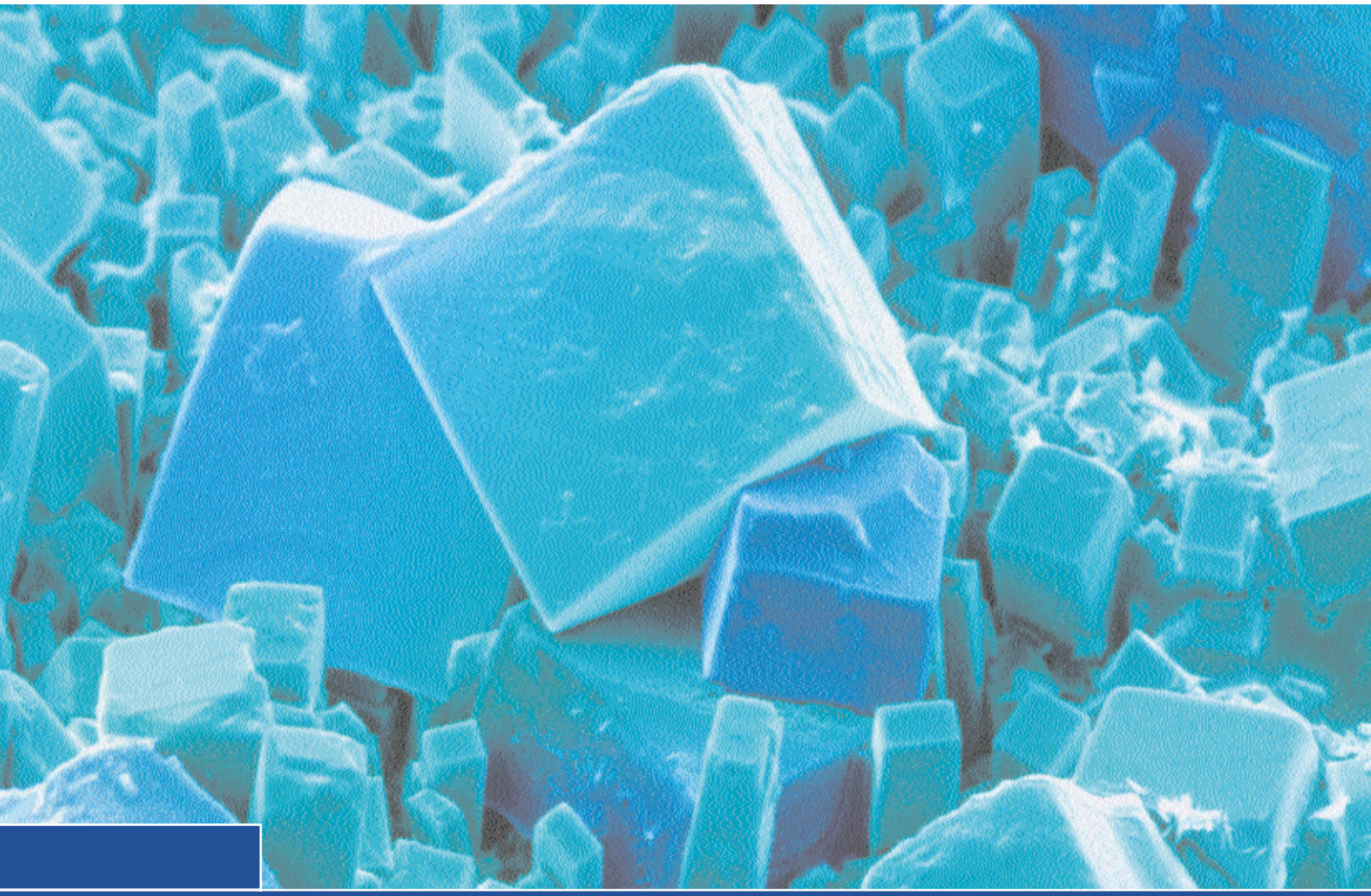


Chlorine Industry Review

2001 - 2002

Euro Chlor

representing the chlor-alkali industry

Cover: Salt crystals are among the most beautiful created by Nature. Chlorine is made by passing an electric current through a brine solution (common salt dissolved in water). Extracted from mines and oceans, salt is an almost inexhaustible natural resource.

CONTENTS

Photographs: Science Photo Library, Getty Images, PhotoDisc and Roger Job.

Sustainability

– the need to recognise realities

In my message last year, I focused on the chlor-alkali industry's commitment to sustainable development. As you can read on the following pages, this work continues with the sector making continuous progress in efforts to reduce its environmental impact.

It is worth noting, however, that sustainable development has three equally important elements – protecting the environment, promoting the well-being of society, and generating jobs and wealth. In seeking to protect the environment and the consumer, EU regulators all too often place excessive burdens on manufacturing industry that produces the goods we all take for granted and generates the wealth that underpins our standard of living.

Recent legislative moves in the European Union will make it more difficult and costly for chemical producers to maintain existing products or to bring new substances to market. If innovation is stifled, the consumer will ultimately suffer in terms of less choice and less effective or more costly products.

Of course we support appropriate measures to protect our health and the environment. What we oppose is decisions based not on science but on political expediency or pressure from special interests that are not always representative of society at large. If research can demonstrate that a given substance, used in a certain way, poses no unacceptable risk, we believe politicians have a duty to stand up for sound science and legislate accordingly.

Part of our contribution as an industry is to generate the data that will help to ensure an open and informed debate. Far from being reluctant to assess our products, we believe all of us can benefit from more and better information. We have no wish to defend the indefensible or be anything other than transparent. We simply want the facts on the table and all parties to agree that science should remain the basis of any regulatory action.

That said, we recognise that society is influenced by a complex range of factors and will often make illogical decisions based more on emotion than on science. Today, some chemical products are simply unacceptable to stakeholders and industrial practices or applications that were considered perfectly acceptable to society 20 or 30 years ago are no longer deemed to be so.

To prosper in the longer term, the chemical industry must respect society's opinions and act accordingly. Reducing energy consumption, for example, is high on the list of sustainability targets for governments, environmental NGOs and other stake-holders. For an energy-intensive sector such as ours, this is likely to require newer technologies and operational methods involving higher capital expenditure and longer payback periods. This is a challenge for chlorine producers, whose production plants typically have a useful working life of 30 to 40 years. But as a critical supplier to the broader chemical and pharmaceutical industries, the chlor-alkali sector has no alternative: the world moves on and we must move with it.

Sustainability is best served when all parties are willing to recognise realities – scientific, social, political, economic and environmental. We call for a balanced and fair debate that takes account of all these factors and recognises that equal weight must be given to each one if the longer-term needs of society are to be met.

Dr Barrie S Gilliatt
Executive Director

Sustainable development

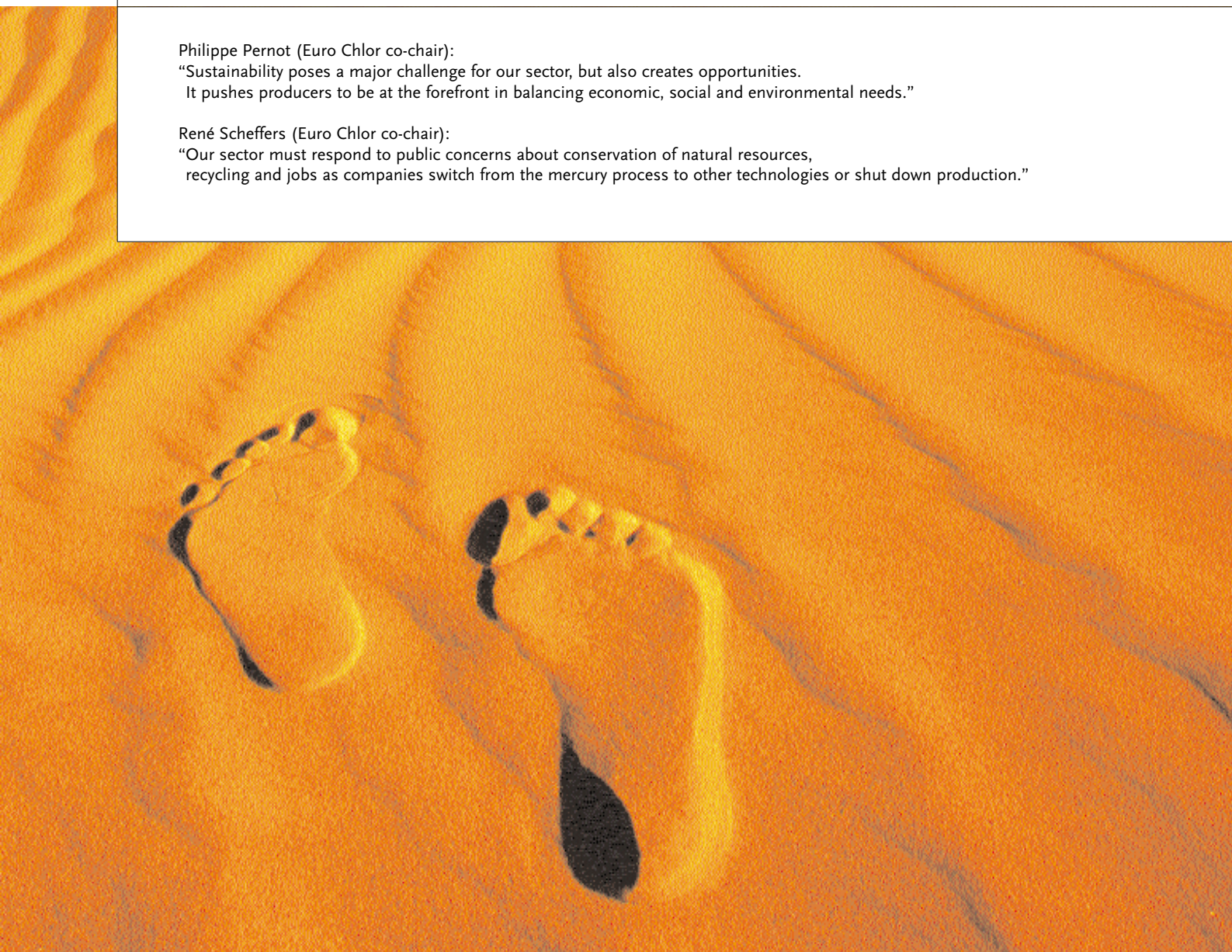

Philippe Pernot


René Scheffers

Responding to public concerns

Philippe Pernot (Euro Chlor co-chair):
"Sustainability poses a major challenge for our sector, but also creates opportunities.
It pushes producers to be at the forefront in balancing economic, social and environmental needs."

René Scheffers (Euro Chlor co-chair):
"Our sector must respond to public concerns about conservation of natural resources,
recycling and jobs as companies switch from the mercury process to other technologies or shut down production."



Determined

to demonstrate progress

In 2001 Euro Chlor produced its first-ever report on sustainable development, *The European chlor-alkali industry: on the move towards sustainable development**. The report describes the sector's contribution to the three key aspects of sustainable development – creating wealth and jobs, benefiting society and safeguarding the environment.

The report underscores the importance of chlorine and its co-product caustic soda to the economy. As well as assessing past health, safety and environmental achievements, the report looks ahead at how the sector will continue to meet the challenges of sustainable development.

In a united industry-wide approach, Euro Chlor's 41 producer member companies have adopted six qualitative measures for tracking their progress. These require them to include environmental, social and economic aspects in all strategic business decisions; to optimise energy efficiency in chlor-alkali production; to minimise the use of water through increased recycling; to keep reducing emissions to water, air and land; to optimise the use of hydrogen generated by the industry as a raw material or as fuel; and to give high priority to the safe transport of chlorine.

These unilateral voluntary commitments include better energy efficiency and reduced water use – two aspects of sustainability linked to the theme of conserving natural resources, due to be discussed at the World Summit on Sustainable Development in Johannesburg (26 Aug. - 4 Sept. 2002).

Euro Chlor is now developing a set of indicators for measuring progress. A future report will include specific goals and quantitative data so that stakeholders can assess the industry's performance against commitments. Developing such a system is a huge undertaking, involving, as it does, companies and manufacturing plants across 18 countries. However, Euro Chlor and its members are determined to demonstrate their progress with solid facts and figures.

Reduced emissions

Since 1990, the Western European chlor-alkali sector has closed or converted an average of 100,000 tonnes per year of mercury cell capacity. Simultaneously, producers have reduced emissions of mercury to the environment by 72%. Emissions to water, air and in products were down to 1.15g per tonne of chlorine capacity in 2001 and the sector is well on track to reach its 2007 commitments.

Euro Chlor was disappointed that the Oslo & Paris Marine Commissions (OSPAR) decided last year to maintain a 1990 PARCOM recommendation that mercury cells should be phased out in the North Sea area by 2010. Despite this, the federation decided to maintain its commitment to a package of six voluntary measures designed to meet the objectives of the original recommendation whilst taking into account economic and social considerations.

Via Euro Chlor, member companies rather than national authorities continued to provide OSPAR with plant-by-plant data on annual mercury losses.

In a new initiative, from 2003 national governments will be required to report to OSPAR every four years on local compliance and implementation of the PARCOM recommendation. All chlor-alkali plants – whatever the process technology used – will have to operate with a permit based on Best Available Techniques (BAT) within the next five years (October 2007). Whilst ultimately all mercury and asbestos diaphragm cells will be converted to membrane or non-asbestos diaphragm technology, local authorities setting operating permit conditions are empowered [under the Integrated Pollution Prevention & Control (IPPC) Directive] to allow such plants to continue beyond 2007 in certain specific circumstances.

The permitting authority may take into account economic and site-specific aspects and consider the extent to which measures listed in the Best Available Techniques reference (BREF) document for chlor-alkali production have been applied to protect the environment up until the time that conversion to alternative technologies takes place.

Gradual conversion of the 47 mercury cell plants currently operated in 11 Western European countries will free up an estimated 10,500 tonnes of 99.99% pure mercury. Member companies are already returning surplus mercury to Minas de Almaden (Spain) as it becomes available under an agreement (notified to DG Competition) signed with this leading European mercury producer.

The agreement is designed to ensure that the mercury is re-used and displaces tonne-for-tonne mining and smelting of virgin mercury by Minas de Almaden. The industry instigated the agreement because it believes that this is the best environmental option – provided the returned mercury is used for legitimate applications elsewhere in the world. By the end of 2002, it is estimated that more than 1,300 tonnes of mercury will have been shipped back to the company by chlor-alkali producers from closed or converted plants.

At the European Council's request, the Commission is investigating the legal and environmental implications concerning the future of this mercury. A report is expected before year end 2002.

* Available in English at www.eurochlor.org or by emailing eurochlor@cefic.org. Also available, summaries in French, Dutch, German and Spanish.

Product Stewardship

Sound legislative framework essential

A clear and workable legislative framework is essential if the chlor-alkali sector is to be simultaneously successful as a key raw material and intermediate supplier to the European chemical industry and competitive on global markets. Likewise, our sector and indeed the whole chemical industry, believes that achieving such a framework at the national, European and international levels will be a determining factor in restoring public confidence in chemicals.

REACH is central to Chemicals Policy Review

A central feature of the EU Chemicals Policy Review is the REACH (Registration, Evaluation and Authorisation of Chemicals) approach which proposes a mechanism for authorising and controlling the use of chemicals that give rise to particular concern.

Whilst supporting the overall aims of the review, Euro Chlor believes that the new process should not incorporate unnecessary general principles. For example, substitution of hazardous chemicals by less hazardous alternatives should not be viewed as a goal, but as one tool – among others – for helping to reduce risk.

One specific aspect of concern to Euro Chlor is the proposal that REACH should apply to all substances, even intermediates. The federation believes that chemicals which are not accessible to consumers, but only used in well-controlled processes to produce other chemicals, should be excluded.

For substances of very high concern, the authorities will have to authorise their use for a specific purpose and Euro Chlor believes that such authorisation should be restricted to POPs characterised in the Stockholm Convention and to substances that are carcinogenic, mutagenic and reprotoxic. In the coming months, it will become clearer whether or not REACH will include persistent, bioaccumulative and toxic (PBT) and very persistent, very bioaccumulative (VPVB) chemicals and the criteria still to be developed for their identification.

Whilst prime responsibility for following the Chemicals Policy rests with Cefic, Euro Chlor is providing expert input by, for example, chairing two of the working groups that are dealing with Risk Assessment and definitions of PBTs.

Water Framework Directive

Thanks to its voluntary marine risk assessment programme started seven years ago, Euro Chlor has been able to make a positive contribution to the development by the European Commission of regulations under the Water Framework Directive.

A federation representative sits on the Commission's Expert Advisory Forum working on two sets of measures – Environmental Quality Standards (EQS) and Emission Limit Values (ELV). These will be used to regulate each of the listed substances. EQS values will be based on each chemical's PNEC (predicted no effect concentration) level while ELV measurements will be determined by Best Available Techniques (BAT).

Most of the work so far has focused on establishing EQS values. Euro Chlor already has much of the relevant data – notably the PNEC values for many of the substances – and is making this available. A key industry goal is to ensure that the proposed values are scientifically sound.

Biocidal Products Directive

The EU Biocidal Products Directive regulates the use of products such as disinfectants and preservatives intended to destroy or control viruses or other harmful organisms. It introduces an authorisation process for marketing biocides in 23 application categories ranging from treating swimming pools to preserving wood.

Producers that wanted to keep their products on the market, whether as formulations or as active substances, were required to complete a two-step process. First, they had to submit a notification dossier on the active substances by 28 March 2002 (all products not notified by the deadline will be banned from 2005). Secondly, producers must supply by 2010 a full dossier on the product with efficacy data and a full risk assessment for each application notified.

Euro Chlor is co-ordinating this activity for its members and in 2001 it set up a centralised process to enable member companies to share registration costs. Prior to the March 2002 deadline, the federation and 33 of its members jointly submitted notification dossiers for chlorine, sodium hypochlorite and calcium hypochlorite.

There are concerns that the cost of registration – estimated at Euro 100,000-250,000 for each full dossier submitted to the Commission – will mean the loss of products from the market and stifling of innovation. Although Euro Chlor members are able to share the costs among themselves, the burden will be serious for smaller producers or formulators and small tonnage applications.

For example, caustic soda is a low-cost and effective biocide and was widely used during the UK foot and mouth epidemic. However, because biocidal applications represent less than 0.1% of total caustic soda sales, Euro Chlor and its members concluded that the relatively small and fragmented market size did not justify incurring the expense of registration. Unless a third party has elected to register caustic soda as a biocide, it will no longer be possible for it to be marketed for this particular application. The result will be the loss of an effective product and less choice for users of biocides.

HPV Initiative

Launched by the International Council of Chemical Associations (ICCA), the voluntary High Production Volume (HPV) chemicals initiative will provide harmonised, internationally agreed data on the properties of about 1,000 common chemicals by the end of 2004. The work is being carried out in collaboration with the OECD under its Existing Chemicals Programme. The aim is to report the properties of each chemical in line with OECD guidelines and to offer an initial assessment of its hazard.

When the programme was launched, the World Chlorine Council agreed to co-ordinate the process for about 150 chlorinated chemicals on the ICCA list. To share the workload, these were assigned between Europe, the US and

Japan. In each region, WCC member federations have been seeking producers to form consortia to work on individual chemicals.

Around the world, 96 consortia have been formed for chlorinated substances with Euro Chlor providing support in Europe to 41 consortia, including those for chlorine, caustic soda and 1,2-dichloroethane. Of the chemicals still not placed, many – due to market reasons – no longer meet the criteria for HPV.

By mid 2002, assessments for 28 chlorinated chemicals had been completed and submitted to the OECD. Other chemicals are at various stages in the process. With its partners in the WCC, Euro Chlor remains on track to support ICCA in meeting its 2004 deadline.

Given the programme's aim of restoring confidence in chemicals and enhancing the reputation of the industry, the chemical industry seeks to make the process as transparent as possible. Whenever practicable, Euro Chlor aims to publish consortia findings related to chlorinated chemicals at the earliest opportunity – even before the official posting of reports on the OECD website.

Existing Substances Regulation

Euro Chlor continues its assessment of the chlorinated chemicals identified as priorities under the Existing Substances Regulation, which will eventually be superseded by the emerging EU Chemicals Policy (see page 7). It is currently dealing with sodium hypochlorite (included on the second priority list) along with chlorine on the third list and caustic soda on the fourth.

In the case of sodium hypochlorite, Euro Chlor has agreed the initial risk assessment document with the 'rapporteur' or Member State assigned to the chemical. Italy, the rapporteur in this case, has subsequently circulated the document to other countries and received comments. While the conclusion so far is that sodium hypochlorite presents little risk, the debate continues on how the by-products from use should be handled under the Regulation.

Italy is also the rapporteur for chlorine. To accelerate the process, Euro Chlor has agreed with Italy that the priority will be to produce a 'SIAR' document – the initial assessment report that forms a key stage of the voluntary HPV initiative (see page 7) – that will be submitted to the OECD. This will provide the basis for a subsequent – and more detailed – EU risk assessment. The SIAR has been prepared and will be circulated to the OECD before the end of 2002.

The same approach has been taken with caustic soda. Here the rapporteur is Portugal and the process has once again begun with a SIAR produced by Euro Chlor. This has already been submitted and was discussed by the OECD in February 2002. Given the conclusion that caustic soda is a low-priority chemical, Euro Chlor is now talking with Portugal and the EU Commission about whether it warrants the full EU risk assessment or whether an abbreviated process would suffice.

PVC Voluntary Commitment

First signed in March 2000, the Voluntary Commitment of the PVC industry builds on the world chemical industry's *Responsible Care* programme and sets out a ten-year plan for reducing the environmental impact of its products and manufacturing processes. Covering the whole PVC lifecycle, the programme's commitments include the better use of resources during PVC manufacture and the responsible management of PVC products at the end of their useful life.

In 2001 the programme adopted the new identity, *Vinyl 2010: meeting the challenge of sustainable development.* An updated version signed in October 2001 incorporates further commitments and recycling targets, developed in response to suggestions from stakeholders.

The industry's second progress report (April 2002) shows encouraging progress. Representatives of the European Commission and Parliament, trade unions, NGOs and consumer organisations have been invited to take part in an independent monitoring committee. The European Council of Vinyl Manufacturers (ECVM) now waits to learn whether its voluntary programme will be accepted by the EU as a viable alternative to legislation.

Eco-labelling

Launched in 1993, the EU eco-label scheme runs in parallel with similar national schemes to encourage manufacturers to offer products that are less damaging to the environment and to provide information that helps consumers to make an informed choice.

So far, except for manufacturers of paints and varnishes, producers have shown little enthusiasm for eco-labelling their products – mainly because the market benefits do not appear to justify the cost. In the last year, therefore, the Commission has been seeking to persuade retailers to put pressure on manufacturers to adopt the system.

One of Euro Chlor's concerns is that eco-labelling, in focusing on a product's environmental qualities, ignores considerations such as efficacy and safety or, by excluding a chemical for a specific concern, inadvertently creates other worse problems. Euro Chlor argues that consumers should be aware of the disadvantages, as well as the benefits, of eco-labelled products.

The federation also believes that the eco-labelling system discriminates against chlorinated chemicals by automatically placing them on a blacklist. It maintains that these should be treated in the same way as any other chemical with suitability based on a risk assessment of each application. This argument has won certain concessions during the year.

In a further positive move, the Commission decided in 2001 that eco-labelling will not apply to disinfectants on the basis that these will now be controlled by the Biocidal Products Directive. This means that when chlorine is used for biocidal purposes, and clearly labelled as such, it will not be unfavourably compared to eco-labelled alternatives.

Chlorinated solvents

All three main chlorinated solvents (trichloroethylene, perchlorethylene and methylene chloride) continued to experience regulatory pressures in 2001 with the European Chlorinated Solvent Association (ECSA), which is part of Euro Chlor, maintaining its efforts to ensure that regulatory changes are scientifically based.

Following reclassification under the Solvents Emissions (VOC) Directive from a Category 3 to a Category 2 carcinogen, suppliers of the metal-cleaning solvent trichloroethylene will have to apply a new hazard-warning label to their products from mid-2002.

Users must also substitute with an alternative product unless quality or cost implications are unacceptable. ECSA believes the reclassification is scientifically unsound and is conducting an additional epidemiological study that could lead to a request for a reappraisal.

Perchloroethylene also faces a regulatory threat. After seeking expert advice, the EU Committee on Classification and Labelling has been unable to agree on what should be the appropriate toxicity classification and awaits the outcome of a referral to the Commission (DG Environment) for a decision. Again, ECSA believes there is no scientific basis for a stricter classification on this solvent, which is used by more than 80% of European dry-cleaners.

Paint stripping is probably the best known consumer use of methylene chloride, but in 2001 DG Enterprise responded to pressure from the Danish Paintmakers Association by proposing a ban on this application. After representations from industry, the proposal was amended to allow continued use by professionals and consumers provided formulations were changed to reduce the product's evaporation rate.

Methylene chloride is the most widely used of all three chlorinated solvents with diverse applications across a range of industries from pharmaceutical to plastics. It has never been identified as a priority substance under the Existing Substances Regulation, but has been under regulatory pressure since 1995 when Sweden and Austria acceded to the EU and unsuccessfully demanded that community legislation on this solvent should be harmonised with their own more restrictive legislation.

Electromagnetic fields

The process of electrolysis in the manufacture of chlorine generates an electromagnetic field (EMF). Until now, the maximum level of EMF to which workers could be exposed has been regulated nationally. But that may change. Following the debate on EMFs generated by mobile telephones, there could soon be moves at EU level to introduce harmonised – and stricter – regulations.

In advance of any such moves, Euro Chlor has carried out an update of all current national regulations and compared them with recent proposals from the International Commission on Non-Ionising Radiation Protection (ICNIRP) – these being the likely basis of any EU legislation. A subsequent Euro Chlor publication (*Electromagnetic Fields in Chlorine Electrolysis: Effects on Health and Recommended Limits*) helps chlorine producers to understand the issue better and to assess their own EMF levels in relation to ICNIRP standards.

It remains the case that, in more than 100 years, no links have ever been observed between EMFs in chlorine manufacture and adverse effects on human health. Nevertheless, Euro Chlor continues to monitor developments and has set up an ad hoc working group to help evaluate various operational and scientific aspects to ensure the industry is prepared for any legislative changes.

Chlorinated paraffins

Short chain chlorinated paraffins (SCCPs) have been the subject of dispute since 1995 when PARCOM decided for environmental reasons to ban them from 2000 for most applications. Following a risk assessment in 1999, the EU proposed a ban on two applications (metal and leather working), which account for 98% of emissions to water. The European Parliament has constantly pressed for wider controls, but these were resisted by the Council, Commission and industry because they did not respect the EU risk assessment process. The ban takes effect in 2003, but voluntary restrictions by producers has already led to an 80% reduction in use between 1994 and 2001.

World Chlorine Council

Euro Chlor plays an active role in the World Chlorine Council's work on sustainability, including the promotion of best practice. Representatives of Euro Chlor regularly take part in sustainability seminars, sharing best practice in areas such as safety, the environment, production, product stewardship and transport.

In April 2001 Euro Chlor speakers participated in a WCC stewardship seminar held in India in collaboration with the Indian Chemical Manufacturers Association (ICMA). The event attracted about 150 representatives from chlor-alkali producers, government ministries, NGOs and the media. It was also an opportunity for WCC delegates to meet government officials to discuss issues such as the conversion of mercury cells, the UNEP Global Mercury Assessment, the implementation of the POPs Convention and water disinfection.

At a similar WCC event in Brazil (February 2002), Euro Chlor Environment and Regulatory Affairs Director Dr. Arseen Seys, gave presentations on the impact of POPs legislation and developments in the European chlor-alkali sector.

Together with other chlorine and PVC organisations and in close cooperation with the ICCA, Euro Chlor will be represented at the World Summit on Sustainable Development in Johannesburg (26 August – 4 September 2002). A WCC stand will also communicate the important role of chlorine chemistry in providing sanitation, safe drinking water and PVC piping systems. It will support the UN's decision to make secure water supplies a priority at the Summit which, with 65,000 delegates, should provide a valuable opportunity to show the industry meeting essential needs in a sustainable way.

Global mercury assessment

On a global scale, Euro Chlor is participating via the World Chlorine Council in the global mercury assessment of the United Nations Environmental Programme. This is examining world-wide sources and emissions of mercury along with reduction options. The results are expected to be presented to the UNEP Governing Council in 2003.

International conference

Euro Chlor delegates were among the speakers at the Sixth International Conference on Mercury as a Global Pollutant. Held in Minamata, Japan (October 2001), the conference attracted regulators, academics and representatives of industry.

For Euro Chlor, the event was an opportunity to strengthen international contacts and present the sector's achievements in terms of reducing emissions, handling waste, controlling workers' exposure, applying best available techniques to the various production methods and continuing to assess the risk of mercury as a local contaminant and a global pollutant.

Communications



Promoting awareness and understanding

Euro Chlor continues its efforts to make information on the sector and on chlorine issues more accessible to interested parties, both inside and outside the industry. One of its key roles is listening and responding to society's concerns about the sustainability of chlorine chemistry. It also seeks to ensure that the industry receives a fair hearing in any regulatory debate.

The Internet

– key information resource

The Internet has emerged over the past few years as an essential global public information resource and communications tool. As the information highway penetrates our homes, offices, factories and government bodies, each and every segment of society is faced with opportunities and challenges.

Six years ago, Euro Chlor decided to invest in a basic website to provide Europe-wide access to information on industry developments and issues. Launched in spring of 1998, *Chlorine Online* (www.eurochlor.org) has grown from fewer than 300 visits each month to a monthly average of 10,000 in 2001. In the last quarter, the site notched up a record of 44,700 visits.

A new website promotion flyer, *Your window on the world of chlorine*, was widely distributed.

During 2001, *Chlorine Online* also generated almost 450 enquiries about chlorine and caustic soda – mostly from the EU, but also from 56 other countries.

Under the auspices of the World Chlorine Council, Euro Chlor has also participated since 1996 in a private chlor-alkali industry extranet that today globally links 11 chlorine and PVC organisations and 1,700 industry executives. During 2001, Euro Chlor continued its drive to use new technology to improve membership communications and the work of its many committees by achieving a threefold expansion of connections to individuals from its member companies. This online service contains an extensive library of scientific research, policy documents and news. It is a valuable resource for gathering and sharing information to strengthen the sector's advocacy, communications, health, safety and environmental standards around the world.

Euro Chlor has also been instrumental in setting up an online global chemical data exchange to help companies carrying out hazard assessments under the industry's HPV programme. So far, the system is being used by federation groups developing data on chlorine, caustic soda and hydrogen peroxide.

National activities

While Euro Chlor operates primarily at the European and international levels, it encourages national associations to forge links with their own stakeholders to promote the benefits of chlorine in their own marketplace and to support initiatives taken by Euro Chlor.

In **Belgium** BelgoChlor updated and promoted its website (www.belgochlor.be) and distributed the third edition of the White Book on Chlorine (*Witboek van Chloor – Livre Blanc du Chlore*). This latest version includes revised information on pool disinfection, the recycling of PVC, sustainable development and the Precautionary Principle. BelgoChlor promoted awareness of the benefits of chlorine by displaying documentation at educational congresses and by mailing a brochure on pool disinfectants to distributors and pool operators.

In **France** the Syndicat des Halogènes et Dérivés (SHD) maintained its collaboration with seven French consumers' organisations with whom, this year, it is jointly conducting a public opinion poll on chlorine and sustainable development. In 2001 – 2002 the SHD, in collaboration with associations of companies constructing swimming pools, produced advisory information for a safe use of chlorinated products.

In **Italy** Federchimica launched a three-year communication plan. This included updating the Italian website, *cloro amico mio* or chlorine, my friend (www.cloro.org) as well as more traditional communications tools, for example, an information kit on chlorine and its uses aimed at schools and opinion leaders. The kit has been advertised in school magazines and at exhibitions with more than 500 requests for copies received from teachers. Other features of Federchimica's communication plan include a competition for schools (Federchimica Award), an advertorial and a mailing campaign aimed at educationalists.

In **Spain** the national industry association, Asociación Nacional de Electroquímica (ANE), launched a new Spanish/English site (www.cloro.info) which is hosted on Euro Chlor's website, *Chlorine Online*. ANE provides regular information to key external audiences through its Infochlor newsletter. It also produces posters and leaflets on swimming pool safety and hygiene and sponsors the Spanish national swimming team at the European and national Special Olympics. ANE also translated and distributed several Euro Chlor publications in 2001 and developed closer links with the South American industry federations, Abiclor and Clorosur.

Science

Euro Chlor aims to be recognised as a reliable source of scientific information. To achieve this goal, the federation commissions and supports relevant research and develops a range of public information materials. Since the beginning of 2001, three science information sheets and two dossiers have been published. The former are short, easily digestible explanations designed for non-specialist readers, while the latter are longer, more detailed and designed for more knowledgeable readers.

Information sheets, available on paper or electronically via *Chlorine Online* (www.eurochlor.org), deal with children and exposure to highly chlorinated chemicals, water chlorination and dioxins. More are planned on subjects such as mercury and persistent organic pollutants.

The first two peer-reviewed science dossiers cover trichloroacetic acid and chloroform, which are likewise available online from Euro Chlor's website or on request from the federation.

Publications

Another first in 2001 was a publication entitled *Western European chlor-alkali industry plant and production data, 1970-2000.* Packed with facts and figures, it charts the progress of the sector over the last 30 years. Some sections, notably charts and graphs on production, capacity, utilisation and applications, have been transferred to the 'Chlorine Industry' section on the Euro Chlor website from where they can be downloaded.

Safe drinking water is emerging as a critical public health issue for lesser developed countries and Euro Chlor published a new brochure entitled *Protecting public health – the facts about water disinfection.*

As well as publishing a European sustainability report (see page 5), Euro Chlor collaborated with the global chlor-alkali industry to produce a worldwide report on the same theme. Entitled *The World Chlorine Council and Sustainable Development*, the brochure was produced as an information resource for the 2002 World Summit on Sustainable Development in Johannesburg.

The pocket-sized *Key Facts about Chlorine*, describing industrial, environmental, health and safety benefits, was updated and translated into four languages.

Euro Chlor's technical library contains some 150 advisory documents to help members run their chlorine production and distribution operations effectively, safely and with due care for the environment. In the past, these were available only as printed publications. Now, Euro Chlor is making them available online to members in downloadable pdf format while non-members can purchase them via the federation's website. By July 2002, more than 100 documents had been electronically converted and posted on a password-protected section of the website. Authorised users can search for documents under 12 themes or more than 200 keywords.

In parallel, Euro Chlor has accelerated the process of improving its technical literature. During 2001, 13 publications were updated and a further 20 will be revised in 2002 as the federation implements a rolling five-year updating programme.

Manufacturing

Better than most world regions

Chlor-alkali production in Western Europe during 2001 showed a small decline compared to the previous year. As in virtually all chemical industry sectors, the production of chlorine and its co-product, caustic soda, was affected by the events of 2001 and production volumes tracked the slow-down in economic activity. However, while production in most world regions fell by about 15%, the European market saw a fall of only 4.5% compared to the previous year, which itself reached a 12-year high.

Production

slightly lower

West European chlorine production in 2001 totalled 9.26 million tonnes compared with 9.70 million tonnes the previous year. Capacity utilisation averaged 85.6% in 2001, compared with 89.6% for 2000. European production of caustic soda totalled 9.62 million tonnes, compared with 10.10 million tonnes in 2000.

There were no major shifts between the various categories of chlorine use. PVC plastics (construction, pipes, flooring, medical supplies and clothing) remained the most important application, consuming 34% of production. Isocyanates and oxygenates (upholstery, insulation, footwear, crop protection chemicals and automotive parts) consumed 23 % of production while inorganics (disinfectants, water treatment, paint pigments and silicon chips) were the third most important application (17%).

Producers continued the long-term, multi-billion euro programme of converting mercury and asbestos diaphragm cells to the membrane process (see also page 5). The share of membrane cell capacity accounted at year end for 22% of production – the same percentage as diaphragms. At 54%, the mercury process continued to represent the bulk of the capacity. Improved recycling coupled with continued regulatory pressures on trichloroethylene, perchloroethylene and methylene chloride, caused the overall Western European market for these chlorinated solvents to further shrink in 2001 for the sixth successive year. Merchant sales of virgin solvents were down 6.0% to 274,000 tonnes (2000: 291,000 tonnes). For individual solvents, TRI sales declined most – 8,000 tonnes (11%) to 66,000 tonnes; PER sales decreased 5,000 tonnes (7%) to 65,000 tonnes and methylene chloride sales decreased the least – 4,000 tonnes (3%) to 143,000 tonnes.

Transport

Almost 90% of chlorine production in Western Europe is produced and processed on the same site with 10% shipped to customers – 8% in bulk tanks (more than 5% by rail, nearly 3% by road) and 2% in drums and cylinders (mainly by road).

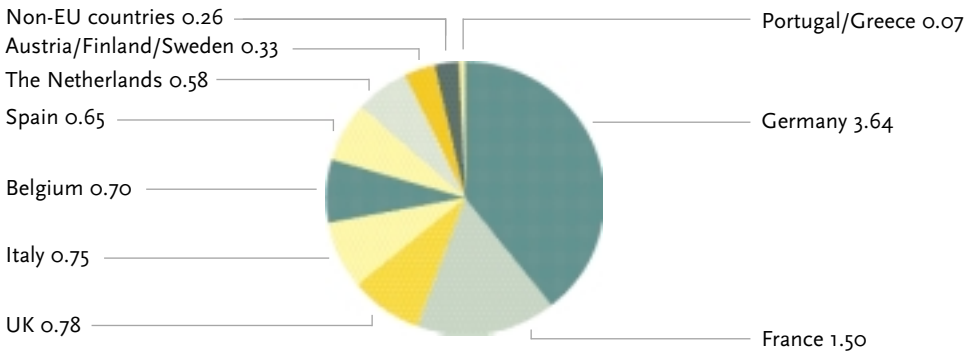
Euro Chlor and its members have always given the highest priority to ensuring stringent safety standards are set for all modes of transport: over the last 50 years there have been no fatalities due to bulk chlorine shipments. Unfortunately, during 2001, two bulk chlorine transport incidents were reported in Europe – one occurred during unloading operations and the other during transport. There were four injuries.

Experience sharing is an important aspect of minimising transport incidents and Euro Chlor is taking the lead in maintaining a global Incident Sharing & Tracking Report system under the auspices of the World Chlorine Council. The new system will assist chlor-alkali producers around the world to share information and experience, thus continuously improving their safety performance – a key element of the broader chemical industry's voluntary *Responsible Care* programme.

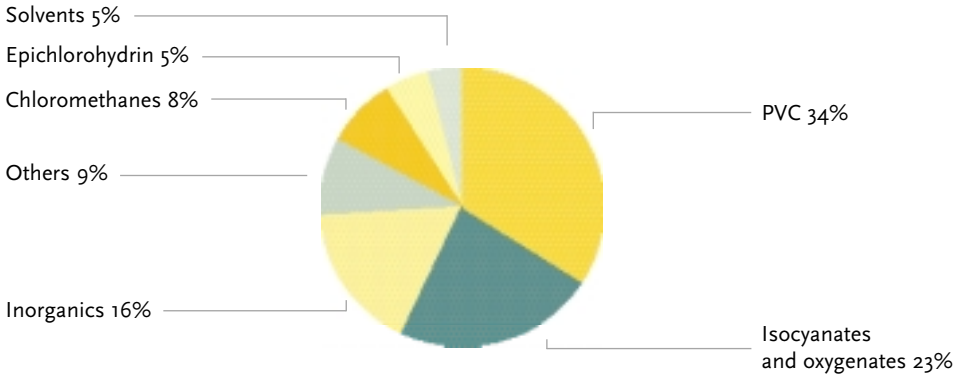
West European production and applications

Chlorine production in 2001

Total production: 9.26 million tonnes

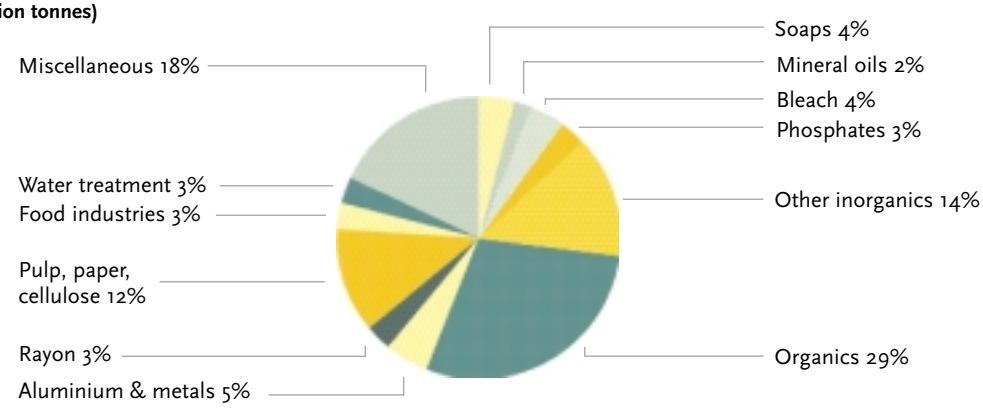


Chlorine applications in 2001



Caustic soda applications in 2001

(9.62 million tonnes)



Providing safe water and sanitation in Guatemala

According to the World Health Organisation and UNICEF, 2.2 million people in developing countries, most of them children, die every year from diseases associated with poor sanitation, inadequate hygiene and a lack of safe drinking water. Along with others in the industry, Euro Chlor supports the Water Relief Network (WRN) through the World Chlorine Council.

In collaboration with the Red Cross, WRN helps to build sustainable water infrastructure in under-served communities, as well as providing chlorinated water treatment chemicals, PVC pipe and other essential supplies to victims of natural and man-made disasters.

During 2001, for example, WRN relief projects included supporting flood relief efforts in Malawi and helping survivors of India's worst earthquake in more than a century, which killed 20,000 in Gujarat. WRN supplied water disinfection chemicals and PVC plastic sheeting to construct temporary shelter for 120,000 people.

Donations from Euro Chlor and the European Council of Vinyl Manufacturers are being used in 2002 to help provide safe drinking water and basic sanitation for 500 people in 81 families in two Guatemalan villages in Latin America.

Strong interest in chlorination

Along with the European Council of Vinyl Manufacturers (EVCM) and the US Chlorine Chemistry Council (CCC), Euro Chlor manned an exhibition stand on water disinfection and PVC piping at the International Freshwater Conference in Bonn in December 2001. The conference saw heavy demand for information on drinking water chlorination – particularly a World Health Organisation (WHO) brochure in 20 languages underwritten by Euro Chlor.

Euro Chlor Federation

Essential representation role

Euro Chlor is the European federation representing the producers of chlorine and its primary derivatives. Based in Brussels, Euro Chlor plays a key communications and representation role on behalf of its members, listening and responding to society's concerns about the sustainability of chlorine chemistry.

The federation is working to:

- Promote the best safety, health and environmental practices in the manufacture, handling and use of chlor-alkali products in order to assist its members in achieving continuous improvements (*Responsible Care*);
- Maintain open and timely dialogue with regulators, politicians, scientists, the media and other interested stakeholders in the debate on chlorine;
- Ensure our industry contributes actively to any public, regulatory or scientific debate and provides balanced and objective science-based information to help answer questions about chlorine and its derivatives;
- Improve awareness and understanding of the contribution that chlorine chemistry has made to the thousands of products which have improved our health, nutrition, standard of living and quality of life.

Euro Chlor represents 41 European chlor-alkali producers employing more than 40,000 people at 82 plants in 18 countries. In addition to 34 producers in Western Europe, Euro Chlor has seven manufacturing members in four Eastern European countries. It has 32 associate members and 31 technical correspondents. Full members are producers of chlorine in Austria, Belgium, the Czech Republic, Finland, France, Germany, Greece, Hungary, Italy, Norway, Poland, Portugal, the Slovak Republic, Spain, Sweden, Switzerland, The Netherlands and the United Kingdom.

An integral part of Euro Chlor is the European Chlorinated Solvent Association (ECSA), which represents the interests of chlorinated solvent producers.

The management committee of Euro Chlor provides overall direction and strategic guidance to the Secretariat, whose nine managers and four support staff work closely with specialised committees and working groups to implement agreed action programmes.

There are 39 committees and working groups providing specialist advice and assistance in such areas as advocacy, scientific research, safe production, transport and the use and disposal of chlor-alkali derivatives.

Management committee

Co-Chairs:	
Pernot, Ph	Atofina
Scheffers, H C J	Akzo Nobel
Bergmann, U	BASF
Ohm, C	Bayer
Guinet, J-F	ChlorAlp
Schollemann, F	Dow Deutschland
Paini, G	EniChem
Smith, S	Finnish Chemicals
Tane, C	Ineos Chlor
Heber, J	Norsk Hydro
Zak, J	Rokita
Gielen, F	Solvay
Aparicio Díez, M	Solvay Química
Dubinski, M	Tessenderlo Chemie
Berwe, H	Vinnolit

Secretariat

Barrie Gilliatt
Executive Director
Management

Peter Whippy
Manager
Communications

Arseen Seys
Director
Regulatory

André Orban,
Derivatives Manager
Products

Véronique Garny
Director
Science

Dolf van Wijk
Manager
Science

Guy Mesrobian
Manager
Technical & Safety

Griet Provoost
Co-ordinator
Communications

Caroline Andersson
Co-ordinator
Regulatory

Francoise Minne
Senior Assistant
Management

Raf Bruyndonckx
Manager
Science

Viviane Norré
Assistant
Science

Carole Vanderlinden
Assistant
Technical & Safety

Committees & working groups

Euro Chlor has a number of permanent committees and working groups.
On an as-needed basis, ad hoc groups are formed to advise and assist the Secretariat on specific issues.
These are the principal standing committees and current working groups:

Management
Management Committee
- Mercury ad hoc Task Force
- Sustainability ad hoc Task Force

Statistics Committee

Advocacy & communications
Communications Committee
Regulatory Affairs Committee
- EU Advisory Group
- National Chlorine Associations WG

Technical & safety
General Technical Committee (GTC)
- Electromagnetic Fields WG
- Environmental Protection WG
- Equipment WG
- GEST (Safety) WG
- Health WG
- Instruments WG
- Transport WG
- Water Treatment WG

Science
Steering Committee
- Biocides Strategy Group
- Monitoring & Environmental
- Chemistry WG
- Toxicology WG
- Risk Assessment WGs
  - Caustic Soda
  - Chlorine
  - Marine
  - Mercury
  - Sodium Hypochlorite

European Chlorinated Solvent Association
Management Committee
- Communication & Outreach WG
- General Technical WG
- Occupational & Environmental Health WG
- Product WG
- Chlorinated Solvents Risk Assessment WG
- Chloroform RA WG

Product groups
Chlorinated Paraffins Sector Group
Potassium WG

Wind turbines used to generate electricity are an environmentally-friendly alternative to fossil fuel. Chlorine-based PVC plastics and epoxy resins are used in their construction, particularly the giant rotor blades where low weight, high stiffness and fatigue life are important.

Membership

Full members

Akzo Nobel
Albemarle
Albion Chemicals
Anwil
Aragonesas Industrias y Energia
Atofina
Ausimont
BASF
Bayer
Borregaard Industries
BorsodChem
Caffaro
ChlorAlp
Degussa
Dow Europe
ECI Elektro-Chemie Ibbenbüren
Electroquímica de Hernani
Electroquímica del Noroeste
EniChem
Ercros
Finnish Chemicals
Hellenic Petroleum
Ineos Chlor
LII Europe
Métaux Spéciaux
Norsk Hydro
Novácke Chemické Závody
Produits Chimiques d'Harbonnières
Química del Cinca
Rhodia Eco Services
Rokita
SF-Chem
Solvay
Solvin
Spolana
Spolchemie
Tessenderlo Chemie
Uniteca
Vestolit
Vinnolit
Zachem

Associate members

- Arch Chemicals
- Asociación Nacional de Electroquímica (ANE)
- Association of Chemical Industry of the Czech Republic (SCHP)
- Aziende Chimiche Riunite Angelini Francesco
- Chemical Industries Association (CIA)
- Cotelle (Colgate-Palmolive)
- De Nora Impianti
- Du Pont de Nemours
- Electrochemical Industries
- Eltech Systems Corporations
- Exxon Chemical Europe
- Fédération des Industries Chimiques de Belgique (Fedichem)
- Federazione Nazionale dell'Industria Chimica (Federchimica Assobase)
- Leuna Tenside
- Lonza
- Nankai Chemical Industry Co.
- National Petrochemical Company of Iran
- NCP
- Nichimen Europe
- Nippon Soda
- Pentachlorophenol Task Force
- Polish Chamber of the Chemical Industry
- Procter & Gamble Eurocor
- Schweizerische Gesellschaft für Chemische Industrie (SGCI/SSIC)
- Sterling Pulp Chemicals (SASK)
- Sveriges Kemiska Industrikontor (Kemikontoret)
- Syndicat des Halogènes et Dérivés/Chimie Minérale
- Teijin Twaron
- Tosoh Corporation
- Unilever Hellas
- Verband der Chemischen Industrie (VCI)
- Vereniging van de Nederlandse Chemische Industrie (VNCI)

Technical correspondents

3V Sigma
Arabian Chlorine Co
Asahi Glass Europe
Avecia
Beltech
Buckbee-Mears Europe
Carburos Metálicos
Chemtec
Claushuis Metaalmaatschappij
Crane Resistoflex
Descote
Electroquímica de Sagua
Garlock Sealing Technologies
Kerr-McGee Pigments
Kronos Europe
KSB-AMRI
Nufarm Coogee
Occidental Chemical Europe
Phönix Armaturen-Werke Bregel
Polifin
Pottasche Stassfurt
Preussag Anlagenbau
Quicksilver Recovery Services
Reliance Industries
Samson
Schumacher Umwelt und Trenntechnik
Senior Flexonics Ermeto
Severn Trent Water
Shaw, Son & Greenhalgh
Technip LCI
W.L. Gore & Associates.