Contents

Cover: The power of lightning, electricity, is the same power used in the chlor-alkali electrolysis. It cannot be substituted and represents up to 60% of the variable cost of production. That fact makes chlor-alkali an Energy Intensive Industry.

Introduction

Industrial paradigm shift driven by climate change

2007 ended with record chlorine production and with heightened anticipation of what the Commission's climate change policies, finally due for publication in January 2008, would bring. The two points are linked. Would our industry, which consumes 36 TWh of electricity per year be given a sympathetic treatment in the ETS review or would we be left to suffer the severe cost burden of carbon after 2012 with the consequent impact on our competitiveness?

Alistair J Steel
Executive Director
31 July 2008

Our subsequent disappointment was shared by all industry. The proposals were largely indeterminate and left almost all substantial issues open for further discussion. This reflects the overall difficulty in reconciling the opposing factions in the debate. Even now, 8 months later, we are advised not to expect the clarity we seek after the Council and Parliamentary debates as this would prejudice the negotiations on Global Agreements to be finalised late 2009 in Copenhagen.

Putting this to one side there is a fundamental message here that tends to be overshadowed – that the climate change package must bring change to our industrial model. A paradigm shift in the way we approach our production must be made to happen in order for the CO_2 emission target to be met. Carbon footprints must be reduced. Energy efficiencies must be improved and act as a catalyst for innovation and technological advancement. A new industry era has begun! This is important. To ignore it opens us to criticism from our opponents (and our allies) that our pleas to safeguard our competitiveness and the prosperity it brings are based on the status quo which is fundamentally unacceptable.

I am happy to say that we are able to refute such accusations.

As an energy intensive industry we have a good story to tell. Our energy consumption has already dropped from over 3.6 MWh per tonne of chlorine in 2001 to about 3.3 MWh in 2007, and many member companies are below 3.0. Various technological improvements were promoted at our Technology Conference held earlier in the year in Lyon so we can go further.

A number of Euro Chlor members have corporate sustainability targets which include energy reduction. One member company has a target to reduce energy consumption by 25% over the 10 year period ending 2015. This is highly commendable and I would encourage all members to follow suit.

On the political front we have good arguments to present to show why we are deserving of performance based carbon allocations to prevent the effects of carbon leakage. Key of these is that chlorine derivatives like PVC and polyurethanes enable others to reduce energy consumption in the field of insulation in buildings and in light weight transportation. This means that across the value chain we are at least carbon neutral!

Our position is clear, legitimate and credible. Given a free allocation of CO_2 allowances calculated against a benchmark which accounts for achievable energy efficiencies we can compete in world markets, be profitable and contribute to energy saving technologies and above all help drive the paradigm shift.

This is our message to the legislators – go and tell them!!

Doing all we can to improve

"Progress towards our 2010 sustainability goals has diminished. There is no clear reason to explain this as those companies in the upper quartile of performers have been able to maintain their position. As an organisation we must ask ourselves if we are doing everything we can to improve. If we're not, we're waisting an opportunity to create value". Alistair J. Steel

Unified strategic approach

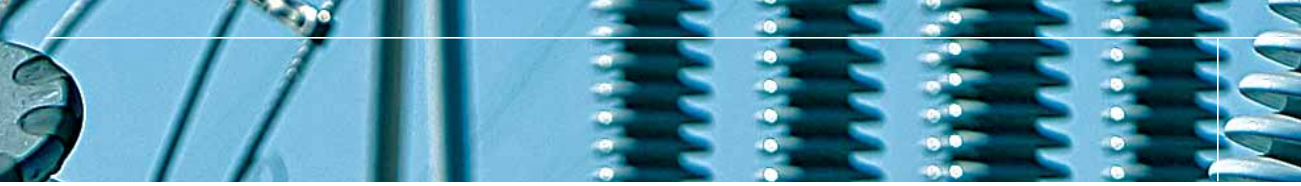
All of the Western European chlorine manufacturing members of Euro Chlor agreed in 2001 an industry-wide strategy that focused on six voluntary commitments. These were first developed to ensure a united industry approach and commitment to address key sustainability concerns:

- Include environmental, social and economic factors in all strategic business decisions;
- Optimize energy efficiency in chlorine production;
- Reduce water usage through recycling;
- Continuously reduce polluting emissions to water, air and land;
- Use more hydrogen generated by the industry as a raw material or fuel;
- Give high priority to safe transportation of chlorine.

In parallel, data was collected for 2001-02 and with this information, 14 performance indicators and improvement goals were agreed among producers and announced by Euro Chlor in January 2003. Then the following year, a 15th indicator was added that required members to gain EMAS and/or ISO 14001 Environmental Accreditation for their plants.

The original 14 indicators come under the following main areas: economic aspects of production, environmental protection, safety and social progress. Each year, producers are required to report their progress to Euro Chlor, which combines feedback to report to the association's Management Committee prior to annual publication of the industry's performance.

In this section, we report on performance indicators and progress in 2007 towards goals in 2010. Whilst the programme continues to be a powerful force for change, not all the indicators show the same degree of progress. See each individual parameter for more details.



Economic contribution

Energy use

Target: By 2010, reduce industry-wide energy consumption by 5% in terms of kWh/tonne of chlorine produced compared with the 2001 base year.

Update: Except for a slight increase in 2005, the average energy consumption shows a constant and fast decreasing trend, and reached in 2007 a value of 3,363 kWh/t of chlorine produced. The 3,450 kWh/t chlorine target was already reached last year, four years ahead of schedule.

Background: Since electricity is an indispensable raw material of the chlorine production process, the basic consumption – corresponding to the electrochemical reaction – cannot be significantly reduced. However, converting one technology into a more efficient one may save a certain amount of energy. To a lesser extent, reducing ancillary energy use does too.

The energy indicator is weight-averaged across all producers and based on steam and electricity. Energy is mainly used for electrolysis (transformers, rectifiers and cells) and also for illumination and motor power (pumps, compressors, centrifuges, etc.). Steam is used mainly for caustic soda concentration to 50% and for minor utility purposes.

Hydrogen use

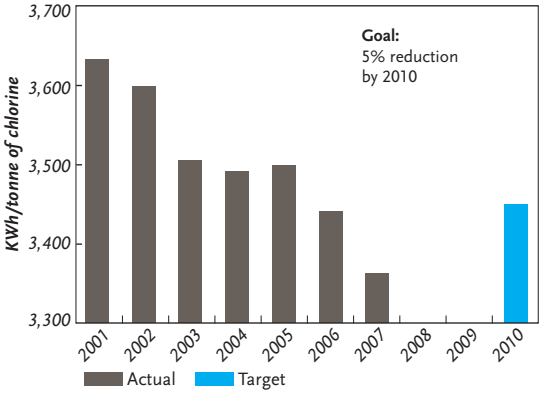
Target: Increase recycling and re-use of hydrogen gas from 80% (2001) to 95% by 2010.

Update: In 2007, the percentage of hydrogen use decreased to 86.7%, compared with 89.1% in 2006. Several companies improved their utilisation rate. Others however did not, and this has had a negative influence on the consolidated result.

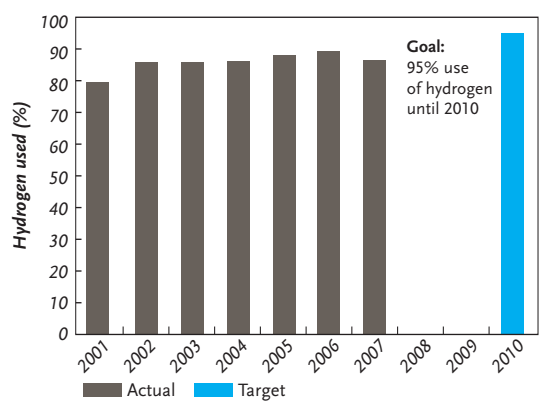
Comment: Some additional efforts are necessary in order to achieve 2010's goal.

Background: High-quality hydrogen is co-produced with chlorine and caustic soda during the electrolysis of brine. This can be used as a raw material or fuel.

Energy consumption



Hydrogen utilisation



Manufacturing technology

Target: The percentage of chlorine produced by mercury cells, diaphragm cells, membrane cells and other technologies will be communicated on a yearly basis.

Update: For the first time, the membrane capacity (45.6%) has taken the lead in production technologies with the mercury process now ranking second (37.7%). The diaphragm process accounted for 13.6% in 2007. The shift of technologies is in line with the Chlor Alkali sector's voluntary agreement to phase out all installed mercury chlor-alkali capacity by 2020.

Economic development

Target: Euro Chlor has decided to report monthly, quarterly or annually data on European production of chlorine and caustic soda. This includes utilisation rates, caustic stocks, capacity and technology by plants and applications.

Update: In 2007, Euro Chlor continued to publish on its website and distribute to the media figures for monthly chlorine production and caustic soda stocks.

The Industry Review includes every year a map of Europe showing location of all plants and a table indicating the location, ownership, technologies and capacity of each plant (see p. 22-23).

Safety & social progress

Lost-time injuries

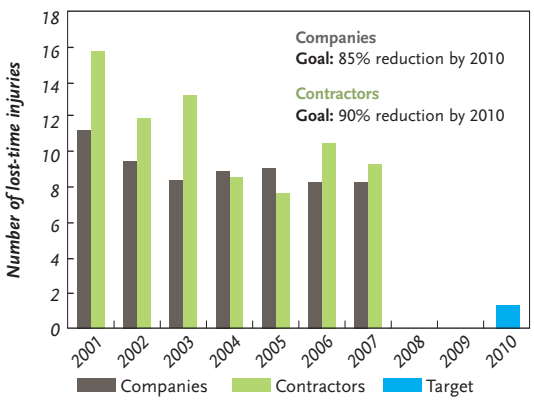
Target: To reduce lost-time injuries (LTI) to 1.3 per million working hours for all workers - both company employees and contractors working on production sites.

Update: The 2007 figures for employees remain at the same level as in 2006, with an LTI rate per million working hours of 8.33 which is still too high. For contractors, the rate decreased to an LTI rate per million working hours of 9.33 (compared with 10.50 in 2006).

Comment: Even if the long-term trend for contractors shows some slight reduction, the figures are still much too high compared with the target. For employees, the values have stayed level for 5 years and there is a marked need for additional effort by a number of companies in order to achieve significant improvement.

Background: A lost time injury (LTI) results in at least one day of absence from work. It is reported as the number of LTI per million working hours. The figures from companies reporting on a three day period of absence are converted to an equivalent of one day using a Cefic correlation.

Lost-time injuries companies and contractors indicators (number of incidents for 1 million working hours)



Process incidents and losses

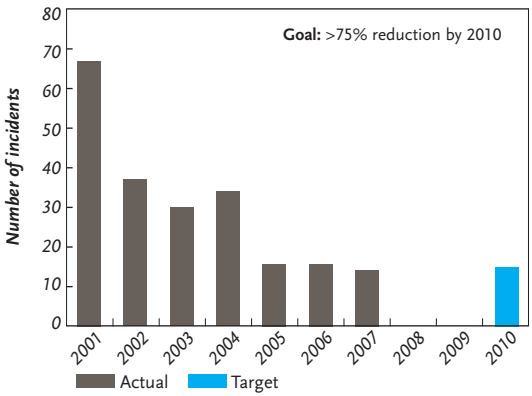
Target: A 75% reduction in the number of process incidents from 67 (2001) to 15.

Update: There were 14 incidents in 2007, slightly down on the 16 of 2005 and 2006.

Comment: The 2010 target has been achieved in 2007. Efforts will be continued to confirm and possibly further improve this performance.

Background: Incidents are classified as events involving a fire, explosion or the release of chlorine, hydrochloric acid, sulphuric acid, sodium hypochlorite (bleach) or caustic soda, which cause a fatality, serious injury or property damage exceeding € 100,000. Losses include any of the above chemical spills in air, water or land, which impact human health or the environment, property or result in evacuation.

Process incidents



Transportation

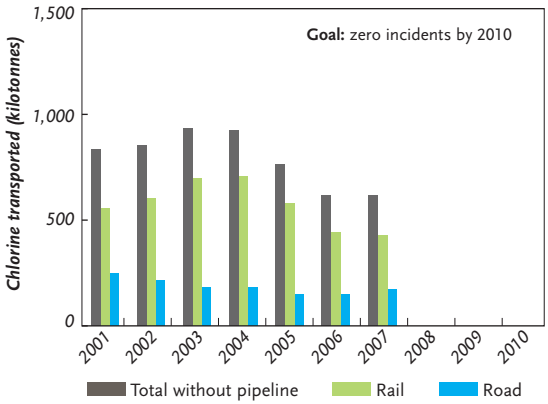
Targets: Zero "transport incidents" involving the bulk movement of chlorine by 2010. The tonnage of chlorine transported as a percentage of the total chlorine produced will be reported annually as well as the mode of transport involved.

Update: Two transportation incidents have been reported in 2007; only one occurred in 2006. The same quantity of chlorine was transported in 2007 compared to 2006.

Producers in Europe transported 618,000 tonnes of chlorine, with about 70% being shipped by rail and the remainder by road.

The transport of chlorine (excluding pipelines) represented 6% of 2007 production (as in the previous year). The average distance chlorine was transported by rail was 450 km; by road, 190 km.

Transportation of chlorine



PVC recycling industry almost doubles recycling in 2007

The European PVC industry recycled 149,000 tonnes of this chlorine-based plastic in 2007, almost twice the 2006 amount, which, at 83,000 tonnes, was already more than double the 2005 figure, according to the latest Vinyl 2010 Progress Report. Vinyl 2010 is a coalition of PVC industry groups: the European Council of Vinyl Manufacturers (ECVM), the European Plastics Converters (EuPC), the European Stabiliser Producers Association (ESPA) and the European Council for Plasticisers and Intermediates (ECPI). Vinyl 2010 says that progress towards targets set in 2000 shows that this particular approach to self-regulation is working.

Background: A "chlorine transport incident" is one which either involves death or injury, a spill/leak of more than 5 kg, substantial property damage, public disruption of more than one hour or the intervention of emergency services or media coverage.

The amount of chlorine transported in Europe by rail and road has halved during the past decade. Chlorine movement has been decoupled from production through supplier/customer relocations and more use of local pipelines. Rail transport dominates; road transport for bulk supply is used only in the United Kingdom and, to a limited extent, in France, Portugal and Spain.

Responsible Care®

Target: All chlorine-producing members of Euro Chlor to sign up to the "Responsible Care" initiatives by 2010.

Update: The number of chlor-alkali producing members of Euro Chlor has fluctuated since the programme began as a result of restructuring, company mergers or withdrawal from the association. As of 31 December 2007, 35 out of 38 full members had joined national Responsible Care initiatives.

Background: Responsible Care is the chemical industry's global voluntary initiative by which companies, through national associations, work together to continuously improve their health, safety and environmental performance and to communicate with stakeholders about their products and processes.

Responsible Care was conceived in Canada and launched in 1985 to address public concerns about chemical manufacture, distribution and use.

The number of national chemical industry associations embracing the Responsible Care ethic has grown considerably from 6 to 52 countries since 1992.

Environmental protection

COC emissions

Target: Emissions of 22 chlorinated organic compounds (COCs) to be reduced in 2010 by 75% to water and by 50% to air against the 2001 base year.

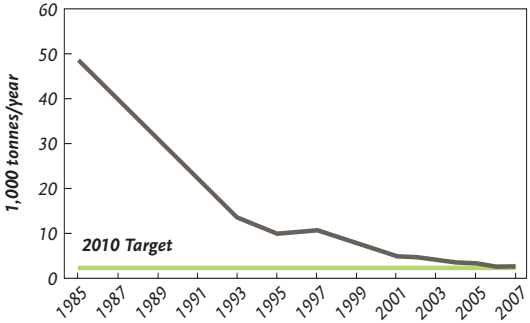
Update: At end 2007, COC emissions from manufacturing plants confirmed globally the results of 2006; for the water compartment, the value stayed at the level of 69% reduction, but for air the performance slightly decreased from 50 to 48% a year earlier.

Background: The COCs were selected from various international regulatory priority lists for emissions reductions and comprise the following substances: 1,1,1-trichloroethane; 1,1,2-trichloroethane; 1,2-dichlorobenzene; 1,2-dichloroethane; 1,4-dichlorobenzene; 2-chlorophenol; 3-chlorophenol; 4-chlorophenol; carbon tetrachloride; chlorine; chlorobenzene; chloroform; dichloromethane; dioxins & furans (as TEQ); hexachlorobenzene; hexachlorobutadiene; hexachlorocyclohexane; pentachlorophenol; tetrachloroethylene; trichlorobenzene; trichloroethylene and vinyl chloride.

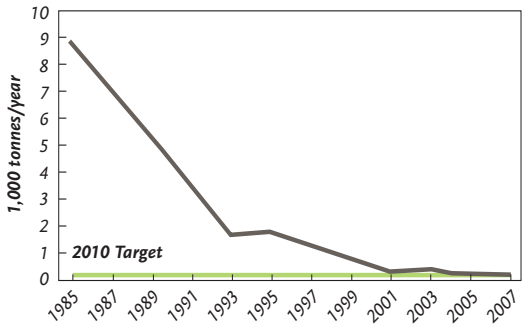
In 2005, pentachlorobenzene was added to the list of the substances to be monitored, in line with the requirements of the EU Water Framework Directive.

To provide a longer-term perspective of the sector's commitment to reducing emissions, the data shown spans the period 1985-2007.

Plant emissions to air



Plant emissions to water



Mercury emissions

Target: Although all other programme deadlines are for 2010, the industry decided to maintain an earlier 1998 commitment to achieve an emission target of 1 g Hg/t chlorine capacity on a national basis by end 2007, with no plant being above 1.5 g Hg/t chlorine capacity.

The industry elected to keep the earlier date, since from October 2007 all EU chlor-alkali plants whether membrane, mercury or diaphragms require an operating permit under the Integrated Pollution Prevention and Control (IPPC) Directive.

A global concern

Addressing sustainability issues is not only important for Euro Chlor, but also to other national or regional chlor-alkali business organisations around the world.

In 2007, the World Chlorine Council published "Sustainability Commitments and Actions". It describes how the global chlor-alkali industry contributes to sustainable development, both by providing essential products and by continuously working to improve its social, economic and environmental performance. It also addresses key future challenges.

WCC's long-term vision is that the continued global production and use of chlorine chemistry is sustainable and that there is public recognition of the industry's benefits and contributions. Overall WCC is focused on engaging producers worldwide to achieve its 2007-2010 goals which focus on:

- improving the performance and sustainability of the chlor-alkali industry
- promoting responsible stewardship practices
- addressing safety, health, environmental and public policy issues, and
- effectively communicating the benefits of chlorine chemistry to society.

WCC represents producers accounting for about 90% of worldwide chlor-alkali production. It links 23 chlorine and chlorinated products industry associations in Europe, Asia, North and South America. "Sustainability Commitments and Actions" can be downloaded from **www.worldchlorine.org**.

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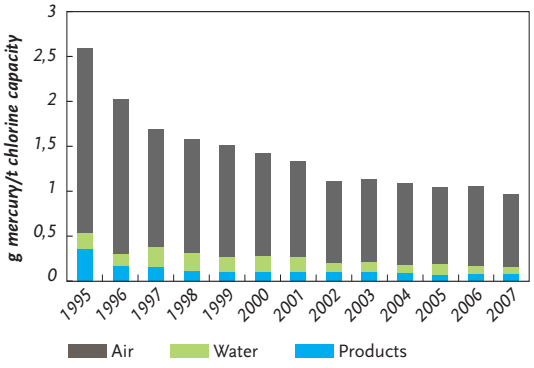
Update: Overall European emissions in 2007 amounted to 0.97 g Hg/tonne chlorine capacity compared with 1.055 g Hg/t in 2006. The average mercury emissions for Western European countries decreased also to 0.95 g/t capacity.

Comment: Even with small oscillations, the overall level of emissions continues its decreasing trend, mainly due to the improvements of the worse plants, as more production units are stabilised at their best realistic performances.

European mercury emissions



Product knowledge

Target: There is no specific goal for 2010. This is because the industry agreed to provide full eco-toxicological and environmental data on 29 chlorinated substances under the International Council of Chemical Associations (ICCA)/OECD initiative on High Production Volume (HPV) chemicals.

Update: The remaining four HPV chemicals on the list are either handled under the REACH programme (so to be registered before December 1st, 2010) or no longer commercially available and supported.

Environmental accreditation

Target: All full members to gain EMAS and/or ISO 14001 Environmental Accreditation for their plants by 2010.

Update: During 2007, one production site gained ISO 14001 accreditation and another without ISO 14001 was closed down. One company did not renew its EMAS accreditation. In total, 54 sites have an ISO 14001 Environmental Accreditation, of which 11 are also EMAS accredited.

Background: EMAS (The Eco-Management and Audit Scheme) is the EU voluntary instrument which acknowledges organisations that improve their environmental performance on a continuous basis. EMAS registered organisations are legally compliant, run an environmental management system and report on their environmental performance through publication of an independently verified environmental statement.

ISO 14001 is an international quality assurance standard to evaluate an organisation's environmental management systems and encourage continuous improvement. It helps organisations minimise negative environmental impacts (to air, water or land) and comply with applicable laws/regulations and other environmentally-oriented requirements. It is often the case that ISO 14001 is used as a part of the EMAS registration process.

Chlorine and caustic soda – key chemical building blocks

Adhesives	Carpets	Dyestuffs	Hairdryers	Plastics
Advanced composites	CDs and DVDs	Electronics	Herbicides	Refrigerants
Air bags	Ceramics	Explosives	Inks	Roller blades
Antibiotics	Computers	Fertilisers	Insulation	Roofing
Antifreeze	Cosmetics	Fibre-glass	Intravenous drips	Safety belts
Bleach	Credit cards	Flame-proofing	Lighting	Vitamins
Blood bags	Detergents	Footballs	Lubricants	Window frames ...
Brake fluids	Disinfectants	Fungicides	Paints	... and much more.
Bullet-resistant glass	Drilling fluids	Gaskets	Paper	
Bumpers	Drinking water	Golf bags	Perfumes	
Car seats	Dry cleaning	Greenhouses	Pharmaceuticals	

Chlorinated solvents: Risk management

With the implementation of the REACH chemicals legislation, the European Chlorinated Solvent Association (ECSA) has updated risk management strategies for producers to ensure long-term sustainable use and optimal end-of-life management for chlorinated solvents.
ECSA members have approved a programme that sets out short and long-term sustainability objectives and which defines key performance indicators:

1. Sustainability actions
Objective: By 2009, ECSA commits itself to analysing and prioritising emissions arising from chlorinated solvent applications and to defining sustainability improvement actions.

Comment: To drive long-term industry and product sustainability, industry needs to identify challenges for each application where emissions can occur; demonstrate continuous improvement and resolve energy and raw material issues.

Update: An exhaustive list of applications has been created with an evaluation of the type and volume of emissions.

2. Stakeholder engagement
Objective: By end 2009, ECSA commits to developing active dialogue with priority stakeholders and to addressing subsequent concerns.

Comment: Open dialogue and listening to societal concerns will be a key factor if the sector is to obtain operational feedback and recognition for the initiative.

Update: A Stakeholder & End-User Perceptions Survey was carried out by a consultant in May and is currently under analysis by ECSA Management.

3. Value chain engagement
Objective: By end 2008, ECSA members will develop education programmes in partnership with trade associations representing end-users and recyclers.

Comment: The buy-in and active involvement of distributors and representative organisations of downstream users will be essential to the success of the programme. There are more than 100 distributors and many thousands of end-users of the three main chlorinated solvents – trichloroethylene, methylene chloride and perchloroethylene.

Update: Lists of contacts from 'downstream organisations' have been created and dialogue has been opened with several of them.

Legislative developments

Balanced and workable legislation

The most important and critical role of Euro Chlor is to provide advocacy leadership on efforts to positively influence proposed regulations in the areas of energy, environment, health and competitiveness. We need to work together with the EU and international authorities on a common objective to achieve efficient, balanced and workable legislation. Industry should also constantly strive to minimise potential threats to the industry's competitiveness in global markets e.g. shortcomings in the EU's energy policy.

Energy costs critical

The chlor-alkali sector is a very energy intensive industry. Electricity costs account for approx. 50% of production costs. Chlorine and caustic soda are essential products for the entire chemical industry. Roughly 50% of total turnover of the chemical industry depends on chlorine and caustic soda.

The international consultancy bureau Prochemics conducted a study for Euro Chlor on "The Impact of Electricity Price on the Competitiveness of the European Chlor-Alkali Industry". It concluded that electricity prices in Europe are higher than those of our main competitors: Russia, China and the Middle East. The reasons are the additional cost of climate change measures in the European Union (which do not apply in other important industrial areas) and the malfunctioning of the liberalised electricity market in Europe. The near-doubling of electricity prices in Europe as a result of climate change measures envisioned by the EU – from 45€/MWh to about 70 €/MWh – will impact the profitability of the industry, affect its ability to compete in the open markets and its ability to conduct the necessary investments to survive in the long term.

The chlor-alkali industry is not a direct emitter of CO_2. However, we will be indirectly affected by planned EU climate measures via the pass-through cost of CO_2 in the price of electricity used in the electrolysis process.

The chlor-alkali industry clearly is an "energy intensive industry" (EII). Similar industrial sectors where there are direct CO_2 emissions in the process benefit from free CO_2-emission allowances in the proposed European Emission Trading Scheme (ETS). Euro Chlor, together with Cefic, established a dossier, which was submitted to the European Commission, documenting why the chlor-alkali industry should be recognized as an "exposed" sector. It demonstrates that the prices of main derivatives (such as PVC and caustic soda) are subject to global pricing mechanisms and therefore additional costs for carbon in chlorine production cannot be passed through to the chlor-alkali industry.

This extra cost will threaten the sector's competitive global markets position and cause a loss of market share, lead to delocalisation of new investments and thus expose the sector to "carbon leakage".

Euro Chlor has subsequently developed two amendments to the Directive: firstly, the chlor-alkali industry should be included in the scope of the Directive; secondly, it should be allocated free emission allowances to compensate for the cost of carbon integrated in electricity prices. The allocation of these allowances should be based on rigorous energy performance related benchmarks – in other words: "no free ride". Euro Chlor is currently working with other industries within Cefic to define a methodology for this benchmarking. This is expected by the end of 2008.

As an alternative to free allocation of allowances the federation is however open to recycling auction revenues by national authorities for electricity-intensive installations (not Euro Chlor's preferred solution).

It is of crucial importance that the chlor-alkali industry is recognised in the future Directive and that the appropriate mitigating measures are taken in order to ensure the chlor-alkali industry has a future in Europe and carbon leakage is avoided. Many derivatives of the chlor-alkali industry (PVC, polyurethanes) are used to save energy in sectors such as transport, building insulation etc.

Water policy

The Directive on Environmental Quality Standards (EQS) and Pollution Control sets limits for concentrations of substances in surface water for 33 priority substances (PS), of which some are identified as priority hazardous substances (PHS).

Since the Commission draft EQS Directive was published in July 2006, the European Parliament and the Council have been conducting reviews of the proposal. Euro Chlor has been monitoring this and advocating positions on mercury and the 11 chlorinated chemicals. The Parliament proposed a large number of amendments to the regulation, in particular in order to add more chemicals to the priority list and to upgrade some substances to PHS. The chemical industry however objected as the Parliament did not follow the identification and classification procedure foreseen in the Water Framework Directive of 2000. Among the substances classified as PHS were carbon tetrachloride, perchloroethylene (PER) and trichloroethylene (TRI). Euro Chlor objected to this classification as they did not meet the established PHS classification criteria. Advocacy has however paid off: although the legislation is still in progress, the EP has withdrawn its proposal to reclassify our three solvents.

The Directive on EQS was voted in the EP on June 18th, 2008. Basically, all the elements of the initial Euro Chlor positions have been retained in the Directive. The EQS for all substances relevant to Euro Chlor remain unchanged. Furthermore, the concept that Member States may establish "mixing zones" around emission points to water makes the legislation more workable. Finally, there is also an improved approach of the "emission cessation" concept.

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Legislative developments

Mercury export ban and storage

On May 21st, the European Parliament adopted the Regulation banning exports of mercury and mercury compounds from the EU with effect from March 2011. Euro Chlor welcomes the final outcome of the Regulation. When the export ban of mercury enters into force on March 15th, 2011, excess mercury no longer used by the chlor-alkali plants will have to be stored. The Regulation now makes it possible to permanently store liquid mercury in underground salt mines or hard rock formation with same level of safety. This is considered to be the safest solution and it is also in line with Euro Chlor's voluntary agreement on the safe storage of excess mercury. The mercury will be stored in hermetically sealed steel containers and as there is no humidity in the storage place there is no risk of corrosion.

By January 1st, 2010 the Commission will propose storage acceptance criteria for metallic mercury. Euro Chlor has informed the Commission about its willingness to provide its expertise in support of this process.
Euro Chlor's commitment to reporting data to the Commission and Member States' competent authorities on e.g. best estimates of the amount of mercury still in use and the amount of mercury waste sent to storage facilities has been included in the Regulation.

Euro Chlor continues in implementing a voluntary agreement on phasing out mercury cell technology. During 2007-08, three mercury-based chlor-alkali plants were replaced with non-mercury technology. European producers however still have slightly less than 9,000 tonnes of liquid metallic mercury used by 39 electrolysis plants in 14 countries. These units account today for less than 38% of European chlorine capacity.

IPPC Directive

From October 2007, all EU industrial facilities require an operating permit under the Integrated Pollution Prevention and Control (IPPC) Directive. This obviously applies to chlor-alkali plants whether mercury, membrane or diaphragm. Member States have the competences to grant the permit conditions. The European Commission (DG Env.) is currently investigating the implementation of the IPPC Directive by the Member States. We have been informed that this survey has been also organised for chlor-alkali plants using mercury technology.

Through its members, Euro Chlor will co-operate with the competent authorities in the concerned Member States to provide relevant information and justification on plant permit conditions.

Expected in 2009 is a review by the Commission, Member States and stakeholders of the BREF (BAT Reference document, Best Available Technology) for chlor-alkali production. Euro Chlor will actively contribute to this review.

The Solvents Emissions Directive affecting several applications of chlorinated solvents will be merged into the recast of the IPPC.

Solvents restriction

A loophole in the Solvent Emissions Directive that excluded metal-cleaning end users of less than a tonne per year of trichloroethylene from compliance has been closed. ECSA (European Chlorinated Solvent Association) made a presentation on progress at an EU Risk Reduction Strategy Meeting and was commended for its efforts by several Member States. After 2010, trichloroethylene will only be supplied for metal-cleaning if users have totally-enclosed equipment.

In February 2008, the Commission made a very restrictive and unacceptable proposal to restrict use of methylene chloride (dichloromethane) in paint strippers solely for industrial applications. It is currently under discussion at the Parliament and the Council. ECSA continues to oppose it vehemently.

POPs

Euro Chlor and the World Chlorine Council (WCC) have been involved in the process of evaluating substances as new POPs (Persistent Organic Pollutants) under the global UNEP Stockholm Convention and the regional UN Economic Commission for Europe (UNECE). Through the technical bodies of both conventions, WCC provided product information on nominated chlorinated substances, notably pentachlorobenzene (PeCB) and hexachlorobutadiene.

Evaluation by UNECE of seven new substances – including hexachlorobutadiene, pentachlorobenzene and short-chain chlorinated paraffins (SCCPs) – is more advanced. There are three management options for SCCPs: total ban, total ban with an exception of application in conveyor belts for mines and in dam sealants (as proposed in a precautionary manner by Parcom Decision 95/1), or limited ban for metalworking fluids and leather fat liquors (as the Directive resulting from the EU Risk Assessment).

When discussing management options under UNECE, industry succeeded in obtaining more realistic and balanced proposals, more consistent with the BAT/BEP Guidelines (Best Available Technique/Best Environmental Practices) that were agreed on a global scale under the Stockholm Convention. The proposals are still expected to be reinforced and end up in final recommendations for decision making by the EB (Executive Body) in December 2008. Euro Chlor, in close co-operation with WCC, will follow this matter very closely.

In 2007, the POPs Review Committee (POPRC) took into consideration a number of candidate chemicals under the Stockholm Convention (UNEP). The World Chlorine Council finally succeeded in having risk information included in the PeCB risk profile report. One remaining key point for industry is the failure to address 'the likelihood of significant adverse effects' criterion. The voice of experts from developing countries will carry potentially greater force than had been experienced at earlier stages in the review process – this will be taken into account in WCC's advocacy actions. Additionally, POPRC will appoint in their October meeting new representatives, which offers an opportunity to communicate our position at an early stage to the new members. The Conference of the Parties will make a final decision by June 2009.

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Building credibility through transparency

The Chlor-Alkali sector has always based its reputation management on its policy of providing systematically timely and reliable information. Euro Chlor endeavours to continue its policy of open and transparent communication with stakeholders at European and international level to contribute to balanced and workable legislation.

Listen, look and respond

The European chlor-alkali sector's approach is coupled with a willingness to listen, and when necessary, take voluntary measures to address concerns. It is inevitable that chlorine will be associated with emerging and future issues, precisely because it is such a major building block of the broader chemical industry. Accordingly, the provision of sound scientific information continues to be an essential element of Euro Chlor work.

Euro Chlor continues to expand its library of Science Dossiers, elaborated by reputable university departments and scientists. These Dossiers aim to provide the scientific community with reliable information on a broad range of chlorine related issues. The scope is wide: from dioxins in the environment to biodegradability of chlorinated compounds. The Swedish Environmental Institute IVL is now preparing the next issue, on *The origin and fate of mercury species in the environment.* Recent Science Dossiers have been published on CD-ROM and can be consulted on the Euro Chlor website. The series of Focus on Chlorine Science (FOCS) leaflets will be expanded by a publication on Chlorine and Asthma, summarising the conclusions of the scientific Workshop, which Euro Chlor and the American Chemical Council organised in 2007. The FOCS series aims to clarify and consolidate scientific research in chlorine chemistry, facilitating the knowledge gathering of scientists, regulators and key decision makers.

Scientists' & public interest

In May 2008, Warsaw hosted 1600 scientists from government, academia and industry at the Annual Congress organised by the European branch of the Society of Environmental Toxicology & Chemistry (SETAC), of which Euro Chlor is a sustaining member. Euro Chlor had a booth and attracted much attention with the distribution of chlorine scientific material.

The Euro Chlor Annual Science Newsletter, published in February 2008, summarises all the scientific communications and publications we have produced over the past year. It is distributed to a very large audience, including regulators.

Effective advocacy with sound scientific insight

Euro Chlor continues to use its scientific expertise to advocate sound, science-based regulatory decision-making. Key science-related activities in 2007-2008 have been built on the major dossiers of recent years, including the launch of the REACH pre-consortia, improving risk assessment methodology for POPs, compiling EU registration dossiers for chlorine-based biocides, investigating possible links between chlorinated swimming pools and childhood asthma and updating recommendations on minimising workplace exposure to mercury.

REACH launched

Within the general framework of the REACH legislation on the environmental safety and health effects of 30,000 chemicals, Euro Chlor has been working with its member companies on the preparation of the preregistration phase, which begun June 1st, 2008. For most of the concerned chemicals, preliminary agreements have been signed which express the intention to form Consortia. This work is followed up by the preparation of the registration of 17 business-critical chlorine related chemicals, which should be accomplished before December 2010. Discussions have mainly been driven by the need for the harmonisation and simplification of the registration process. Information from previous risk assessments (at EU and OECD levels) and biocides registration dossiers will be used. This material has to be updated and streamlined according to the REACH format.

Furthermore, Euro Chlor focused on a number of procedures to be fine-tuned and to be discussed together with all the members of the Consortia. Full agreements will then formalise the Consortia's activities. Finally, all non-members that have contacted Euro Chlor to join the REACH work will be admitted to the Consortia.

Minimising costs

Varying from one Consortium to another, the re-use of data previously compiled on a number of chemicals will drastically reduce the overall cost of the registration. However, additional costs are generated by the administration and the management performed by the Lead companies, who agreed to manage the REACH dossiers. Costs will be equally shared. Should additional testing be required, the cost will be equally shared but will take into account the tonnage bands requirements.

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Biocides

In parallel, Euro Chlor and member company scientists invested significant time and effort in meeting the deadline of July 2007 for the registration of chlorine, sodium hypochlorite and calcium hypochlorite under the Biocidal Products Directive.

Additional dossiers for some specific uses of the three chemicals are to be submitted before October 2008.

As far as risk assessments are concerned, the final conclusion on chlorine includes no need for further testing and no need for further risk reduction measures other than already applied. The Scientific Committee on Health and Environmental Risks (SCHER) agreed with the risk assessment report on chlorine, which concluded that all uses are safe. For the sodium hypochlorite environmental assessment, the Committee believes that the risk assessment conclusion should be better supported, at least in some specific use scenarios. This relates to the potential impact of halo acetic acids formed as by-products in certain applications.

Euro Chlor believes that SCHER's conclusion is based on a misunderstanding of the RAR (Risk Assessment Report) results, and has explained this in writing to the SCHER and the Italian rapporteur. It is the opinion of SCHER that all other conclusions can be endorsed. For caustic soda, SCHER supported the outcome of the targeted risk assessment and identified a limited need for risk reduction, which is expected to be of minor impact to industry.

Chlorine and asthma

In recent years, some studies reported a possible link between chlorinated indoor pools and childhood asthma. In 2007, The World Chlorine Council (WCC) and Euro Chlor subsequently organised a comprehensive scientific workshop bringing together a large number of experts on the matter. Good networking among scientists in different related fields (pool managers, specialists in the analysis of water and air in swimming pools, epidemiologists, asthma specialists and regulatory people) facilitated a consensus view on the actual knowledge status and the needs for further research. Full results will be published in Environmental Health Perspectives. According to experts, the current evidence of an association between childhood swimming and new onset asthma is suggestive but not conclusive.

Important gaps in exposure assessment and the characterisation of asthma need to be filled before establishing a clear association. This is why WCC and its member federations including Euro Chlor set up a fund of approximately € 100,000 to conduct extensive research on this issue, notably on improving analytical methodologies for swimming pools and additional epidemiological investigations. The principle is that WCC joins and reinforces existing research in order to obtain more comprehensive and coherent results. In addition to this, procedures to optimise pool operations should be followed and improved.

Exposure to mercury and electromagnetic fields

The Occupational Health Group consists of company medical doctors giving advice on the handling of mercury, chlorine and its derivatives in production plants. Euro Chlor is still reviewing several "Best Practices" documents which need to be updated. One of these upgrades is the "Code of Best Practice for Mercury", which focuses on hygiene and programmes for good monitoring.

Euro Chlor is also involved in establishing a Code of Practice for occupational electromagnetic fields (EMF)

in line with the EU Occupational Electromagnetic Fields Directive (2004). This document will propose possible design solutions for reducing the EMF strength in new cell rooms, but also some practical help for existing cell rooms. In parallel to this initiative, Euro Chlor is also collaborating with EU institutions on the guidelines for the application of the Directive.

We expect to have two Best Practice documents finalised in 2008.

Despite the application of Directive 2004/40/EC on the protection of workers against electromagnetic fields being postponed until 2012, Euro Chlor continues to work with CENELEC (the European Committee for Electrotechnical Standardization) on the required electrolysis specific measurement standard.

PBT/POP substances

Euro Chlor commissioned a study from the Institute of Environmental Studies of the Free University of Amsterdam, which was accepted for publication in April 2008 in IEAM (Integrated Environmental Assessment and Management), a peer-reviewed journal. The paper reviews and illustrates risk assessment methodologies for PBT/POPs. Key message: although risks of PBT/POPs may be higher and more uncertainty is associated with their assessment, they can be risk assessed on a scientific basis. A popular version of the paper will be prepared in Euro Chlor's Focus on Chlorine Science series.

Euro Chlor, supported by WCC funding, was also active initiating and organising a SETAC workshop on 'Science-based guidance for the evaluation and identification of PBTs and POPs' in January 2008 in Pensacola, Florida. Over 50 experts from academia, industry and government developed a consensus view on guidance on how to evaluate PBT/POP substances in an efficient, scientifically credible and transparent way. Guidance was developed to assess whether substances fulfil PB&T and/or POP criteria and whether POPs are likely to cause significant adverse effects to human health or wildlife through long-range environmental transport. The full reports will be written as chapters of a special issue of the IEAM Journal and submission is anticipated for end of summer 2008. An executive summary is expected to be ready mid-year. It will be published as a booklet and on the SETAC website.

Chlorinated drinking water

Chlorine in drinking water regularly arouses controversy when it comes to safety due to the chlorinated by-products generated in the chlorination process. A new debate is usually triggered upon the publication of the results of new studies. Two possible health effects come into the picture: cancer and the effects on reproduction. The possible correlation between these effects and the presence of chlorine and its by-products is not conclusive and thus subject to further research. In the meantime, many organisations point to the multiple benefits of chlorination (The World Health Organisation for example). As it is very effective against most pathogens and an easy-to-apply technique which has a low exploitation cost, it still constitutes major progress in terms of public health. Additionally, in disaster areas where the necessity of finding non-contaminated drinking water is a life or death issue, chlorination is of crucial importance. For more information on chlorination, please consult WCC's brochure on water chlorination at **www.worldchlorine.org/publications/**

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Chlorine production reaches new high

In 2007, European chlorine production reached a record high for the fourth successive year with 10.7 million tonnes. Demand for chlorine's essential co-product, caustic soda, remained robust. The situation was less favourable for chlorinated solvents where market demand was down again after one year of stabilisation in 2006.

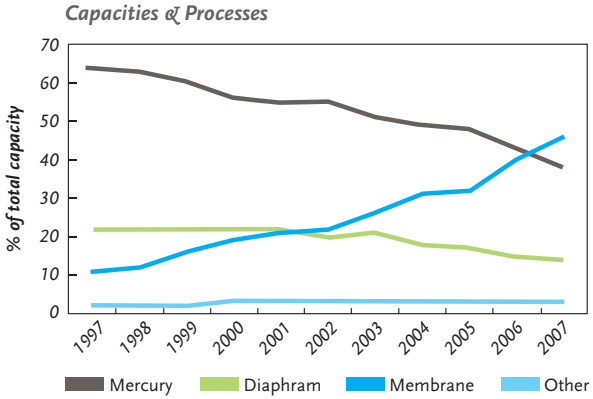
European chlorine production climbed to a new high in 2007 with a total of 10.7 million tonnes. This represents a 2.9% increase on the 10.4 million tonnes produced in 2006. Capacity utilisation rates in 2007 averaged 84.5% compared with 82.8% in 2006.

Germany remained Europe's largest chlorine producer in 2007, accounting for 43.5% of European production, followed by Belgium/The Netherlands with 14.4%. France dropped to fourth position with 11.4%, surrendering their third position to the UK/Austria/Switzerland/Finland/Sweden/Norway with 12.3%. These top four regions accounted together for more than 80% of total 2007 European chlorine production.

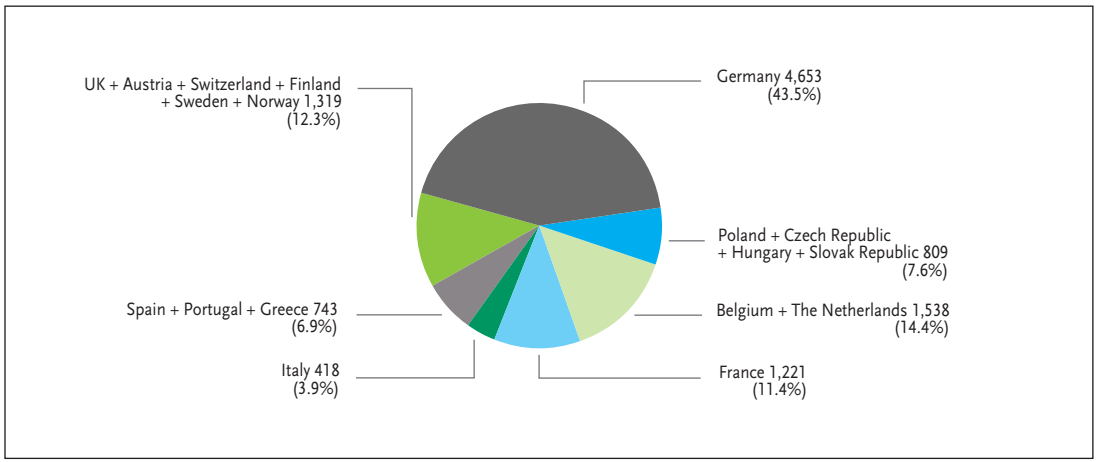
Demand for caustic soda continued strong for the third consecutive year, resulting in overall average monthly stock levels below the 300,000 tonnes mark.

The chlor-alkali sector's strong performance further confirms that chlorine and its co-product caustic soda are key chemical building blocks for a wide range of products and processes.

On the manufacturing front, the chlor-alkali industry continued to shift away from the mercury cell technology accounting for about 38% of total chlorine production, which represents a 6.1% change on 2006. The more energy-efficient membrane technology accounted for just above 45% of 2007 European chlorine capacity.



European chlorine production in 2007 (kilotonnes)



Chlorine and caustic soda are produced by electrolysis using three main technologies – mercury, membrane and diaphragm. The mercury process has been used for more than a century. Ten years ago, it accounted for more than 60% of European capacity. By the end of 2010, mercury cells are expected to represent less than 35% of the installed capacity.

This gradual shift away from mercury cells stems from a voluntary commitment made by European industry to close or convert such plants to non-mercury technology by 2020 (except for production of a few speciality chemicals).

The long time-frame is essential to allow chlor-alkali producers to absorb the estimated a € 3,000 million investment required to effect the phase-out without damaging the industry's competitive position on global markets.

7th International Technology Conference – April 2008

The conference set a new attendance record, attracting more than 320 delegates. It included 22 technical and 19 technology presentations and the participation of 35 chlorine-related equipment and service suppliers. The scope of the technology and services suppliers' section was expanded to cover more "industry-specific" needs.

The Euro Chlor sessions updated participants on the association's activities in addition to traditional areas of interest such as chlorine production safety, transportation and use, health and safety at work and the general public and environment.

Several presentations focused on energy-related issues, due to their potential major impact on the sector's future. Euro Chlor calls for recognition of the chlor-alkali sector as an Energy Intensive Industry (EII) – as an indirect emitter and for the provision of free sectoral, benchmarked CO_2 allowances to preserve competitiveness and prevent carbon leakage.

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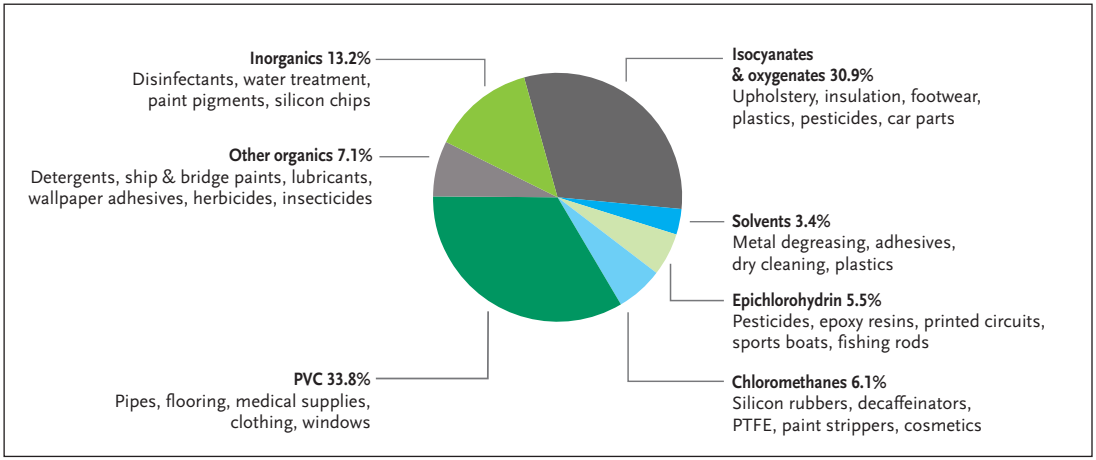
European chlorine applications in 2007 (10.71million tonnes)



In 2007 and at the beginning of 2008, three mercury plants were decommissioned in several countries. In Italy, Solvay converted a mercury plant (125,000 tonnes/year) in Rosignano to membrane technology and Altair did likewise in Volterra. In Germany, Vestolit also converted a mercury plant (176,000 tonnes/year) in Marl to membrane technology.

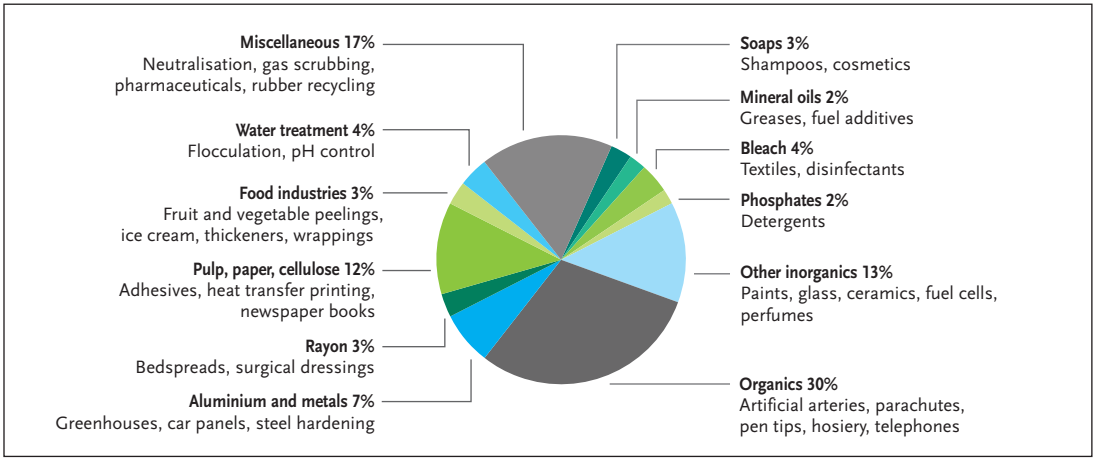
During the past six years more than 2,000 tonnes of liquid mercury from decommissioned plants have been recovered and reused, and less than 9,000 tonnes remain in 39 mercury-based plants in 14 countries.

Solvents market down again

The decline of **trichloroethylene (TRI)** sales continued after the more stringent carcinogenicity classification for trichloroethylene introduced in 2002. The ECSA Member companies and the Romanian producer Chimcomplex Borzeşti have indeed agreed, in a spirit of Responsible Care, to ensure safe use in metal degreasing by stopping supplies of TRI to companies that are not equipped with closed systems after 2010. The absolute sales of TRI can no longer be reported according to Cefic statistics rules as there are only two producers left in Western Europe: Dow Europe and INEOS Chlor Vinyls.

European sales of **perchloroethylene (PER)** by ECSA member companies dropped last year to 52,000 tonnes (2006: 55,000 tonnes), despite Romania and Bulgaria having been added to the list of countries reported. PER remains the solvent of choice for dry-cleaning and continues to increase its market share as a substitute for TRI in metal degreasing.

European caustic soda applications 2007 (10.01 million tonnes)



Dichloromethane (DCM) sales decreased slightly in 2007 to 130,000 tonnes compared with 134,000 tonnes in 2006. It is still the most widely-used of the chlorinated solvents, (especially in the pharmaceutical industry), but the delocalisation of some pharmaceutical plants to Asia has impacted sales.

Mercury in the environment

Mercury is emitted by both anthropogenic and natural sources. Through Ice Core Analysis in the previous 270 year long ice core-history we can attribute 52% of mercury emissions to anthropogenic inputs. Mercury is a global air pollutant; it follows wind currents around the world. The explosion of the Indonesian volcano Krakatau in 1883 and the massive eruption of Mount St.-Helens volcano (Washington State, U.S.A.) in 1980 were responsible for significant mercury emission peaks in the glacial ice-core records.

Combustion - main source of anthropogenic mercury

Around 67% of global mercury emissions of human origin can be attributed to coal-fired power stations and the incineration of waste materials. Emissions occurring in the production of steel, cement, non ferrous metals and pig iron account for 13 per cent of this figure. Added to this is an additional 10 per cent from the production of gold. Cremation is a not insignificant source of mercury emission, owing to the volatilisation of amalgam dental fillings. Today mercury based chlor-alkali electrolysis accounts for less than one percent of the total global emissions of mercury from all natural and man-made sources.

(Source: Schuster, Krabbenhoft)

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Chlorine production plants January 2008

Country	*	Company	Site	Process	Capacity (000 tonnes)
Austria	1	Donau Chemie	Brückl	M	65
Belgium	3	SolVin	Antwerp	Hg, M	474
	4	SolVin	Jemeppe	M	176
	5	Tessenderlo Chemie	Tessenderlo	Hg, M	400
Bulgaria	*90*	*Polimeri*	Devnya	D	124
Czech Rep.	6	Spolana	Neratovice	Hg	135
	7	Spolchemie	Usti	Hg	61
Finland	8	AkzoNobel	Oulu	Hg	43
	9	Finnish Chemicals	Joutseno	M	75
France	10	PPC	Thann	Hg	72
	11	Rhodia	Pont de Claix	D	155
	12	Arkema	Fos	D, M	270
	13	Arkema	Jarrie	Hg	170
	14	Arkema	Lavera	Hg, D	341
	16	MSSA	Pomblières	Na	42
	17	Prod. Chim. d'Harbonnières	Harbonnières	Hg	23
	18	Solvay	Tavaux	Hg, M	375
	19	Tessenderlo Chemie	Loos	Hg	18
Germany	20	BASF	Ludwigshafen	Hg, M	385
	21	Bayer	Dormagen	M, HCl	480
	22	Bayer	Leverkusen	M, HCl	360
	23	Bayer	Uerdingen	Hg, M	240
	24	Bayer	Brunsbüttel	HCl	210
	25	Dow	Schkopau	M	250
	26	Vinnolit	Knapsack	Hg, M	310
	27	CABB	Gersthofen	M	40
	28	Dow	Stade	D, M	1,585
	29	AkzoNobel	Ibbenbüren	Hg	125
	30	AkzoNobel	Bitterfeld	M	83
	31	Evonik Degussa	Lülsdorf	Hg	136
	32	INEOS ChlorVinyls	Wilhelmshaven	Hg	149
	33	LII Europe	Frankfurt	Hg	167
	34	Solvay	Rheinberg	D, M	200
	35	Vestolit	Marl	M	260
	36	Vinnolit	Gendorf	Hg	82
	37	*Wacker Chemie*	Burghausen	M	50
Greece	38	Hellenic Petroleum	Thessaloniki	Hg	40
Hungary	39	BorsodChem	Kazincbarcika	Hg, M	301
Ireland	*40*	*MicroBio*	Fermoy	M	9
Italy	41	Altair Chimica	Volterra	Hg	27
	42	Solvay	Bussi	Hg	87
Italy	43	Caffaro	Torviscosa	Hg	68
	44	Syndial	Assemini/Cagliari	M	153
	45	Syndial	Porto Marghera	Hg	200
	48	*Eredi Zarelli*	Picinisco	Hg	6
	49	Solvay	Rosignano	M	150
	50	Tessenderlo Chemie	Pieve Vergonte	Hg	42
Netherlands	51	AkzoNobel	Botlek	M	633
	52	AkzoNobel	Delfzijl	M	108
	54	*SABIC GE Plastics*	Bergen op Zoom	M	89
Norway	55	Borregaard	Sarpsborg	M	45
	56	Elkem	Bremanger	M	10
	57	INEOS ChlorVinyls	Rafnes	M	260
Poland	58	PCC Rokita	Brzeg Dolny	Hg	125
	59	ZACHEM	Bydgoszcz	D	60
	60	Anwil	Wloclawek	M	214
	87	*Tarnow*	Tarnow	Hg	43
Portugal	61	Solvay	Povoa	M	29
	62	CUF Químicos Industriais	Estarreja	M	68
Romania	91	Oltchim	Ramnicu Valcea	Hg, M	260
	92	*ChimComplex*	Borzesti	M	110
Slovak Rep.	63	Novácke chemické závody	Novaky	Hg	76
Slovenia	*88*	*TKI Hrastnik*	Hrastnik	M	15
Spain	64	Ercros	Huelva	Hg	101
	65	Ercros	Sabinanigo	Hg	25
	66	Ercros	Vilaseca	Hg, M	190
	67	Electroquímica de Hernani	Hernani	M	15
	68	ELNOSA	Lourizan	Hg	34
	69	Ercros	Flix	Hg	150
	70	Química del Cinca	Monzon	Hg	31
	71	SolVin	Martorell	Hg	218
	72	Solvay	Torrelavega	Hg	63
Sweden	74	AkzoNobel	Skoghall	M	95
	75	INEOS ChlorVinyls	Stenungsund	Hg	120
Switzerland	77	SF-Chem	Pratteln	Hg	27
	89	Borregaard	Atisholtz	M	10
UK	82	INEOS ChlorVinyls	Runcorn	Hg, M	767
	85	Albion	Thetford	M	7
TOTAL					13,209
			Non members		446
			Members		12,766

* Number on map

Process: Hg: Mercury M: Membrane Na: Sodium D: Diaphragm HCl: Electolysis of HCl to Cl_2

Company names in italics are not Euro Chlor members.

Euro Chlor

Regulatory and HSE focal point

Euro Chlor represents the interests of 97% of chlor-alkali producers in the EU-27 and the EFTA regions with the EU institutions and international authorities. It also provides a focal point for members to share best practices on health, safety and environment (HSE) matters as well as co-ordinate scientific and communications activities to improve understanding of chlorine chemistry.

In Europe, 39 producer members of Euro Chlor directly employ about 39,000 people at 69 manufacturing locations in 20 countries. However, almost 2,000,000 jobs are directly or indirectly related to chlorine and its co-product caustic soda when downstream activities are taken into consideration.

Apart from producers, Euro Chlor also has 44 Associate Members and 45 Technical Correspondents. These include national chlorine associations and working groups, suppliers of equipment, materials and services as well as downstream users and producers outside Europe.

From offices in Brussels, Euro Chlor also provides the Secretariat for the World Chlorine Council, a global network of national or regional organisations in more than 27 countries. WCC represents producers accounting for more than 90% of worldwide chlor-alkali production.

Euro Chlor was founded more than 50 years ago as a production-oriented technical organisation but was restructured in 1989 in order to provide the sector with strengthened scientific, advocacy and communications capabilities. Since then, a strong focus has been placed on sound science coupled with continual health, safety and environmental improvements complemented by open and transparent communications with key stakeholders.

Management Committee (18 June 2008)

Chairman, Winhold, M	Vinnolit
Co-chairman, Fuhrmann, W	AkzoNobel Base Chemicals
Amling, A	Bayer MaterialScience
Berges, J	EVONIK Industries
Coenen, F	Tessenderlo Chemie
Constant, F	Solvay
García Brú, F	Ercros
Garrigue, F	Rhodia Services
Lamm, R	Dow
Märkl, R	BASF
Pelzer, A	PCC Rokita
Procházka, M	Spolchemie
Russo, G	Syndial
Tane, C	INEOS ChlorVinyls
Träger, M	VESTOLIT
Tual, D	Arkema

Secretariat staff

Steel, Alistair	Executive Director
Minne, Françoise	Senior Assistant
Garny, Véronique	Science Director
van Wijk, Dolf	Science Manager
Marquardt, Wolfgang	Science Manager
Bertato, Valentina	Science Manager
Harcz, Péter	Science Manager
Norré, Viviane	Assistant
Seys, Arseen	Deputy Executive Director; Environment & Regulatory Affairs Director
Andersson, Caroline	Regulatory Affairs Counsellor
Coppens, Isabelle	Assistant
Orban, André	ECSA & Chlorinated Paraffins Manager
Whippy, Peter	Communications Manager
Clotman, Dirk	Communications Manager
Debelle, Jean-Pol	Technical & Safety Director
Peeters, Chantal	Assistant

Organisation

The 16 Secretariat staff employed at offices in Brussels represent nine nationalities (Belgian, English, Dutch, French, German, Hungarian, Italian and Swedish) and between them speak 10 languages.

Guidance and overall strategic direction is provided by the Management Committee and 28 committees and working groups provide specialist knowledge and support.

Chlorine Online

During 2007, Euro Chlor received almost 260 chlorine information requests from 50 countries through the federation's Internet website, Chlorine Online. The Top 6 "visiting" countries were (per information request), Germany (48), UK (29), USA (21), and Belgium, France and The Netherlands with 13 each. China, joining the top ranking for the first time in 2006, virtually disappeared down to... one single information request.

The requests primarily concern health, safety and the environmental aspects of chlorine production and use.

Committees and working groups

Management

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

Advocacy & communications

- Regulatory Affairs Committee
- EU Advisory Group
- National Chlorine Associations WG
- Chlorine Communicators' Network

Product groups

- Chlorinated Paraffins Sector Group
- Potassium Group

European Chlorinated Solvent Association

- Management Committee
- Communication & Outreach WG
- General Technical WG
- Occupational & Environmental Health WG
- Product WG

Science

- Steering Committee
- Environmental WG
- Toxicology WG
- Risk Assessment ad hoc WGs
- Biocides Strategy Group
- Biocides Registration Groups
- REACH Project Team

Technical & safety

- General Technical Committee (GTC)
- Environmental Protection WG
- GEST (Safety) WG
- Equipment WG
- Transport WG
- Health WG
- Electromagnetic Fields WG
- Analytical WG

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Euro Chlor

Full members

AkzoNobel Base Chemicals
Altair Chimica
Anwil
Arkema
BASF
Bayer MaterialScience
Borregaard Industries
BorsodChem
CABB
Caffaro
CUF-Químicos Industriais
Donau Chemie
Dow Deutschland
Electroquímica de Hernani
Electroquímica del Noroeste
Ercros
Evonik Industries
Finnish Chemicals
Hellenic Petroleum
INEOS ChlorVinyls
LII Europe
MSSA
Novácke Chemické Závody
OLTCHIM
PCC Rokita
PPC
Produits Chimiques d'Harbonnières
Química del Cinca
Rhodia Services
SF-Chem
Solvay
SolVin
SPOLANA
Spolchemie
Syndial
Tessenderlo Chemie
VESTOLIT
Vinnolit
ZACHEM

Associate members

Al Kout Industrial Projects
Albion Chemical Distribution
Asociación Nacional de Electroquímica (ANE)
Angelini A.C.R.A.F.
Arch Chemicals
Asahi Kasei Chemicals Corporation
Bochemie
Chemieanlagenbau Chemnitz
Chemoform
Chlorine Engineers Corporation
Chemicals Industries Association (CIA)
Colgate-Palmolive Europe
De Nora Tecnologie Elettrochimiche
essenscia
ExxonMobil Petroleum and Chemical
Federchimica Assobase
GHC Gerling, Holz & Co. Handels
K + S
Leuna Tenside
LOMBARDA H
Lonza
Hungarian Chemical Industry Association (MAVESZ)
Nankai Chemical Industry
National Petrochemical Company of Iran
NCP Chlorchem (PTY)
Nippon Soda
NOVACID
Polish Chamber of the Chemical Industry (PIPC)
The Swedish Plastics and Chemicals Federation (Plast- & Kemiföretagen)
PPG Industries
Procter & Gamble Eurocor
Association of Chemical Industry of the Czech Republic (SCHP)
SGCI Chemie Pharma Schweiz
Shikoku Chemicals
Sojitz Europe
Syndicat des Halogènes & Dérivés (SHD)
Syngenta
Teijin Aramid
Tosoh Corporation
Uhde
ELAIS - Unilever Hellas
Verband der Chemischen Industrie (VCI)
Vereniging van de Nederlandse Chemische Industrie (VNCI)
Waterchem

Technical correspondents

AFC Energy
AGC Chemicals Europe
Aker Kvaerner Chemetics
Alcan PMGE Pechiney Nederland
Applitek
Asahi Organic Chemicals Industry
CAN-TECH
Carburos Metalicos
Chemtec
Conve & AVS
Coogee Chlor Alkali Pty
Crane Resistoflex
Cristal Arabia
Descote
Electroquímica de Sagua
Eramet
Eynard Robin
Garlock
GEA Messo
Georg Fischer RLS
H2Scan Corporation
Health and Safety Executive
ISGEC
Koruma Klor Alkali
Kronos Europe
Lubrizol Advanced Materials Europe
NedStack Fuel Cell Technology
Occidental Chemical Belgium
OPW Fluid Transfer Group Europe
Phoenix Armaturen-Werke Bregel
R2
Reliance Industries
RIVM (National Institute for Public Health and the Environment)
Sasol Polymers
Senior Flexonics Ermeto
Severn Trent Water
SIEM - Supranite
Simon Carves
Taylorshaw Valves
Technip France
Tronox Pigments (Holland)
Trust Chemical Industries
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Euro Chlor provides a focal point for the chlor-alkali industry's drive to achieve a sustainable future through economically and environmentally sound manufacture and use of its products. Based in Brussels, at the heart of the European Union, the federation works with national, European and international authorities to ensure that legislation affecting the industry is workable, efficient and effective.

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