



20
YEARS

CHLORINE CHEMISTRY THE SOCIO-POLITICAL SHIFT

ABOUT TRANSPARENCY, CREDIBILITY,
HAVING A GOOD STORY AND GETTING IT ACCEPTED



EVER CHANGING TIMES FOR A DYNAMIC INDUSTRY

Mankind marks the passing of time by recalling significant historical events.

These events can be international or personal, good or

bad. Scientific discoveries, creation of works of art, natural phenomena, family success or loss – all have their place in our memories.

For our chlor-alkali industry an event of great importance occurred in 1989 with the conception of an idea to form a company based organisation called Euro Chlor. The founding fathers decided that there was a need to provide an adequate response to the rising public concern about chlorine chemistry. A new approach to answer criticism was required replacing the old dogma of *these issues are too complicated for you to understand. Trust us, we're scientists. We know what we are doing.*

This was pretty ambitious stuff at the time and, as is so often the case with good ideas, success was not guaranteed.

The secretariat from the very beginning set out to provide balanced, science based information for use in active dialogue with key influencers. (The term Critical Success Factor was not in common usage in those days but this was ours!). High levels of credibility and acceptance amongst politicians, scientists and the media had to be achieved and fast. Patience was at a premium – not only with the regulators and public but within the industry as well. Continued funding from member companies could only be sustained if measured success could be achieved.

Slowly – oh so slowly! – success came. The break-through can probably be attributed to the development and application of the new concept of science based risk assessments which enabled the implementation of risk management controls. This led to industry

taking responsibility for this process and publicly reporting data on health, safety and environment even before the obligations under Responsible Care® became common practise.

Gradually the marking of time changed from bad industrial events (Bhopal, Seveso) to good ones (NGO accreditation, recognition of voluntary agreements by The Commission). See the timeline. Reputation issues diminished and were replaced by rational questions on what our position was on chlorine related issues of public and political interest.

In more recent years the idea of sustainability has emerged and Euro Chlor was one of the first organisations to publish measurable goals and the progress towards them. The ultimate accolade has to be the conclusion by Professor Justin Greenwood of Aberdeen University in a benchmark study that Euro Chlor was possibly the most effective industry association in operation.

We can therefore indulge ourselves in a little self congratulation for our industry has achieved a tremendous milestone in industrial history.

Many people have contributed to this success over the last 20 years, most of whom are destined to be unsung heroes. For those still active in the industry we shall honour them by building on their dedication by pursuing our core message of *a flourishing chlorine industry is not only compatible with a sustainable future but essential to it.*

I hope you enjoy our 20th anniversary historical review.

Alistair J. Steel
Executive Director

EURO CHLOR LED THE WAY FOR A HEALTHY INDUSTRY FUTURE

Maybe some of our younger industry managers are not fully aware, but in the mid 1980's, our chlorine industry was under attack by a strong anti-chlorine movement led by environmental groups in Europe and the USA. Their slogans "stop chlorine" and "chlorine kills" were taken seriously by authority bodies in Europe, who initiated regulatory steps to prohibit or substitute "unnecessary organochlorines".

Symptomatic for that period and nowadays unthinkable was that European policy makers developed measures to regulate our chlorine products without consulting the industry.

The European chlorine industry took these threats – some justified but mostly not – very seriously which led to the creation of a strong Euro Chlor with a vision and with the means to become the authoritative voice of the chlorine industry in Europe.

In the early years of Euro Chlor's existence, interest from European and national policy making bodies, scientific groups, press and environmental NGO's in chlorine chemistry industry issues grew rapidly. Euro Chlor took this as a real opportunity for effective dialogue. Euro Chlor became visible and unavoidable ("incontournable").

Many of the events took place at Ministerial conferences organised in the frame of the Marine Conventions (North Sea, OSPAR and Mediterranean). Industry had to become familiar with doing advocacy in public events which were hostile towards representatives of the chlorine industry. But gradually our organisation became more and more recognised and appreciated.

This success was possible thanks to the active work of the Euro Chlor "Ambassadors" team composed of about 10 persons from companies and Euro Chlor staff. This was a very dedicated and strong team and we should be grateful for their contributions.

In the last two decades, the chlor-alkali sector has seen several threats. In my executive role of leading the regulatory affairs of Euro Chlor now for a period of more than 20 years, my expectation has been that Europe and the rest of the world would fully recognize the benefits of chlorine chemistry to society and that chlorine industry would continue to improve its performances.

Together with our members and the Euro Chlor staff we have achieved a lot during our 20 years journey. For me it has been a real pleasure to serve Euro Chlor and I really appreciate the trust shown to me. A great thank you to all those who were involved.



Arseen Seys
Deputy Executive Director

“THE TIMES THEY ARE A-CHANGIN’” (Bob Dylan, 1963)



- ... eighties, nineties...
- ... the 21st century

CHLORINE INDUSTRY AND EURO CHLOR



1953

The Brussels based “**Bureau International Technique du Chlore**” (BITC) is founded, comprising chlorine producers of the Benelux, France, Germany, Italy and the United Kingdom. Main activities are statistics, safety, occupational health standards and environmental protection.

1965

The BITC publishes its document “**Safety measures for chlorine users**”.

1972

The BITC decides to structure its technical activities under the **General Technical Committee**.

1981

The BITC organises its **first Technical Seminar** on “Chlorine handling and safety” in Paris.

1988

Senior management of leading chlorine producing companies conclude that an **adequate response to the rising public concern** about chlorine chemistry is called for.

SOCIETY



1953

The **Nobel Prize for Chemistry** is awarded to Hermann Staudinger who had proposed that polymers consist of giant chain-like molecules, formed by short repeating molecular units. His pioneering ideas laid the foundation for the modern plastics industry.

1958

The **European Economic Community** (EEC), known as The Common Market, is founded.

1962

Rachel Carson publishes her famous book “**Silent Spring**”. Environmentalists consider it as an attack on toxic chemicals, whilst in fact Carson pleads in favour of a responsible use of pesticides like DDT. She “*contends that we have allowed these chemicals to be used with little or no advance investigation of their effect on soil, water, wildlife and man himself*”. In fact, she **asks for a scientific risk assessment of chemicals**.

1972

The “**Club of Rome**” (CoR) shocked the world with a study titled “The Limits To Growth”, suggesting that if business-as-usual continues, society will run out of non-renewable resources by 2072.

1976

A chemical reactor in **Seveso**, Italy, releases a cloud containing the highly toxic TCDD (dioxin). There were no fatalities, but this accident will lead, in 1982, to the European Seveso Directive on the major-accident hazards of certain industrial activities.

In Philadelphia, USA, over 180 people are struck by **Legionnaire's disease**. The causative bacterium, inhaled via water droplets, can best be tackled by sodium hypochlorite disinfection.

1980

The **volcano Mount St. Helens** erupts, causing the worst volcanic disaster in U.S. history. Glacial ice core records of atmospheric mercury deposition show an all time peak due to this eruption.

1984

Industrial disaster at Bhopal, India. The leakage of more than 40 tonnes of methyl isocyanate kills several thousands of people and injures tens of thousands living close to the plant.

1986

The **Responsible Care** concept is introduced in Canada. This voluntary initiative to continually improve health, safety and environmental performance will gradually be adopted by the global chemical industry.

1987

The U.N. “World Commission on Environment and Development” presents its report “**Our Common Future**”, establishing long-term strategies for achieving sustainability by 2000 and beyond that year.

The **Montreal Protocol** on Substances That Deplete the Ozone Layer is signed by 180 countries. Among the substances involved are chlorofluorocarbons (CFCs), carbon tetrachloride and 1,1,1-trichloroethane.

Senior management of leading chlorine producing companies conclude that an **adequate response to the rising public concern** about chlorine chemistry is called for.

1989

“Euro Chlor” is created at the General Assembly held in Florence, Italy. The company based organisation is based in Brussels and unites at that time 59 production plants in 14 countries.

1990

Euro Chlor organises in Brussels the second **Technical Seminar on Chlorine Safety**.

1991

Euro Chlor Federation is founded. It now also includes the chlorinated solvents and chlorinated paraffins. Substantial budgets are established and the staff is extended, increasing its advocacy and science-based communication.

The **ten priority issues for Euro Chlor** are defined: safety, dioxin, organochlorines spread in nature, recycling, water disinfection, bioaccumulation and degradation, eco balances and PVC, chlorinated intermediates, energy tax and CO₂ (!), communication.

1992

The **OSPARCOM** (Oslo & Paris Commission) Ministerial Conference (Paris) decides to develop measures for the prohibition of the use of organohalogens.

The **precautionary principle** is used by environmentalists to justify their request for the complete ban of chlorine.

Euro Chlor sets up the **Marine Protection Working Group** to coordinate its advocacy work towards governments and European bodies. The debate on “the dirty dozen” **Persistent Organic Pollutants** (POPs) is started.

Subgroups handle scientific environmental issues, like COCs (Chlorinated Organic Chemicals) in the Environment, Monitoring, the Natural Chlorine Cycle and the rising endocrine disruptors issue. In April 1998, the Science Steering Committee is established.

Three world conferences on the challenges facing industry are organised, such as the **Monte Carlo World Chlorine Conference** on “Chlorine in Perspective”. The concept of the “Chlorine Tree” (chlorine and its co-product caustic soda as essential building blocks) is broadly communicated and Euro Chlor publishes its first brochure on “Chlorine in Perspective”.

1993

A Euro Chlor Technical Seminar is organised on **“Responsible Care in practice”**.

The **World Chlorine Council (WCC)** is founded: a global network representing the chlorine and chlorinated products industries and bringing together national and regional chlorine associations.

1994

Euro Chlor is finally granted NGO-status, allowing the Federation to be an acknowledged discussion partner with governments for matters concerning our industry, e.g. the OSPARCOM Conferences.

This fact constitutes a major step forward in a year where all external pressures on chlorine in the public policy, regulatory and environmental arenas continue to grow.

1995

The **key Euro Chlor commitments** are published: intensifying the dialogue with authorities to set correct priorities for joint actions;

The **Montreal Protocol on Substances That Deplete the Ozone Layer** is signed by 180 countries. Among the substances involved are chlorofluorocarbons (CFCs), carbon tetrachloride and 1,1,1-trichloroethane.

1989

The **Intergovernmental Panel on Climate Change (IPCC)** is set up by the World Meteorological Organization (WMO) and the United Nations Environment Program (UNEP) as an effort to provide with a scientific view of the world's climate change.

EIGHTIES / NINETIES

Environmental groups start campaigning against chlorine and its derivatives and, consequently, against the chlorine industry. Actions are initiated targeting pulp bleaching, effluents, incinerators, plastic waste, solvents, PVC or specific companies. The first major actions being deployed in the United States mobilise international bodies and governments to induce more controls on production, disposal or emission. Although wrapped in emotional slogans, many of the discussions are highly technical. Still, dossiers published all over the world with titles such as “Death in small doses”, “Killer chemicals: the chlorine crisis” or “Chlorine, an industry without a future” try to document chlorine as the element of the devil. Based on a limited number of chlorinated substances, leading NGO's are very effective in publicising a simplified message against an entire industry. There is very little public understanding of the applications and benefits of chlorine and its derived substances. The environmental concerns rapidly cross the Atlantic and spread world-wide. For many years, industry and other stakeholders are not heard at all in the debate. Although the chlor-alkali industry is producing useful and even vital products, chlorine and its derivatives become non grata (no longer desirable). The major underlying concept of the campaigns is the phasing out of chlorine chemistry.

1990

After the huge successes in fighting malaria thanks to the use of the insecticide DDT (dichloro-diphenyl-trichloroethane), an estimated 107 million people per year are **suffering from malaria again**, due to a large ban of the substance. In 2006, the World Health Organization gives DDT **“a clean bill of health” for malaria control**.

The **OSPAR Convention** is the current instrument guiding cooperation between 15 countries on the protection of the marine environment of the North-East Atlantic. Many of its decisions and recommendations concern the chlor-alkali industry: the phasing out of mercury-based chlorine production and limitations on the use of mercury in other applications, the reduction of chlor-alkali production emissions, the ban of short-chain chlorinated paraffins (1995), PCBs, etc.

1992

During the **United Nations Conference on Environment and Development (UNCED)** in Rio de Janeiro the UN seeks to help Governments rethink economic development and halt the destruction of irreplaceable natural resources, translated into the “Rio Declaration”.

The **Maastricht Treaty** officialises the new European Union.

1994

Workers of the chlorine industry found the Belgian-Dutch association **Chlorophiles**, to respond to the campaigns of green groups against chlorine. They march in the Brussels streets protesting the accusations made against chlor-alkali industry.

1995

developing risk assessments for products and plant effluents; managing chlorine responsibility within “the industrial fence” and at the customer level and generating additional know-how for sound science-based decision-making.

At the first Euro Chlor **policy conference “Environment and the chlorine industry”** in Brussels, high level representatives of industry and policy makers discuss the major issues and commitments concerning the chlor-alkali industry.

The OSPARCOM Conference decides on the **phase-out of short-chain chlorinated paraffins in most applications**. The Barcelona Convention – including all countries bordering the Mediterranean – decides on the gradual **elimination of organohalogenes**.

At the **4th North Sea Ministerial Conference** in Denmark, major progress is achieved by Euro Chlor in balancing the proposals advanced by green NGOs.

Euro Chlor embarks on a programme of **risk assessments of 22 organochlorine compounds in a marine environment**, in response to the Marine Conventions.

1996

A **Task Force on Mercury** is founded at Euro Chlor Management level.

Adoption of the **Integrated Pollution Prevention and Control Directive (IPPC)** which states that Best Available Technique (BAT) reference documents (“BREFs”) should be written as guidance to define best techniques to manufacture specific chemicals, in this case the chlor-alkali production.

1998

Euro Chlor launches its **new website**, Chlorine Online (<http://www.eurochlor.org>).

1999

Euro Chlor presents its **voluntary commitment to close or convert mercury cell based chlor-alkali technology** by the end of 2020.

A European Directive imposes a total **ban on the use of asbestos fibres**, with the exception of chrysotile asbestos used in chlor-alkali plants until the end of their service life.

2000

The **BREF for the chlor-alkali industry** is officially approved by the European Commission. It notably stipulates best practices to operate mercury and asbestos diaphragm cells.

The **European Water Framework Directive** is adopted and later Euro Chlor succeeds in obtaining balanced control limits for a first list of 33 priority substances which include several chlorinated substances and mercury.

Key Science Information Sheets (KSIS) are published by Euro Chlor to help improve understanding of scientific issues by non-scientists. A series of **FOCS publications** (Focus on Chlorine Science) and **Science Dossiers** facilitate the knowledge gathering of scientists, regulators and key decision makers.

2001

At the Technical Seminar in Barcelona, **“A sustainable future for chlorine”** is debated. The chlor-alkali industry agrees on six voluntary commitments to address key sustainability concerns.

The Spanish Minas de Almadén and Euro Chlor conclude a voluntary agreement on the safe disposal from decommissioned mercury cells up to 2011.

2002

Many scientists and journalists have serious **doubts about the campaigning and advertising credibility** of certain environmental NGO's. Critical articles, written by scientists and science journalists show headlines such as “Why be so careless with the facts?” (in the discussion on substances alleged to disrupt male reproduction – *Independent on Sunday*), “Don't believe the hype” (Industry response on the same subject - *European Chemical News*), “Why the Greens get it wrong” (on the increasing green radicalism, often contradicted by history - *Sunday Telegraph*) and “Chlorine: asking the right questions” (on the need to base policy making about chemicals on risk analysis and risk assessment - *Chemical Week*).

1996

The **first DVD discs and players** are presented in Japan. CDs and DVDs are produced from the plastic polycarbonate, which is based on chlorine chemistry.

1997

The **Kyoto Protocol** is a legally binding agreement under which industrialised countries will reduce their collective emissions of greenhouse gases by 5,2% compared to the year 1990 and even by 9% for the European Union.

1998

The global chemical industry, through the International Council of Chemical Associations (ICCA), launches a **global Initiative on High Production Volume (HPV) chemicals** in order to provide harmonised data sets on the intrinsic hazards of and initial hazard assessments for about 1,000 HPV substances.

1999

The **“dioxin crisis” in Belgium** breaks out. The issue is about contamination of the food chain through PCB waste oil mixed in animal food.

Euro Chlor publishes a “questions and answers” document on dioxins, which will be translated in several languages.

Chlorine dioxide is used for neutralising the high levels of toxic hydrogen sulphide found in the abandoned oil rig **“Brent Spar”** during its decommissioning.

2002

The **Euro (€)** is launched as the new single currency for 12 Member

2002

An ad hoc Task Force starts assessing the sustainability of the chlor-alkali industry and its products. The programme is called **"On the move towards sustainable development"**.

2003

At the "Lightening chlorine's footprint... Steps to sustainability" policy conference in Brussels European chlorine producers **unveil the industry's first-ever, measurable sustainability indicators**.

2004

Euro Chlor sets the **sustainability targets** for 2010 as part of the voluntary industry-wide initiative.

The European authorities publish a Directive on the workers' protection against the **health effects of electromagnetic fields** (present in cell rooms).

2005

Euro Chlor came out in a survey of a number of European organisations as the most effective industry association in Brussels.

2006

Euro Chlor starts preparing the registration under the **REACH** legislation of 17 chlorine related chemicals.

2007

Euro Chlor starts working on the **review of the existing ETS Directive** (Emission Trading Scheme), which is of utmost importance for the future of the chlor-alkali sector. Euro Chlor succeeds in getting recognition for electricity intensive industries and providing for financial measures to compensate indirect CO₂ costs through electricity prices.

2008

The EU adopts legislation providing for **safe underground storage** of mercury from the chlor-alkali sector.

The European Commission officially recognises the Euro Chlor voluntary agreement to ensure the **safe disposal of mercury**. European Commissioner Stavros Dimas congratulates Euro Chlor *"for this proactive initiative"*.

2009

The European Commission starts the **review of the Best Available Techniques Reference Document (BREF)** for the production of chlorine and alkalis.

2002

The **Euro (€)** is launched as the new single currency for 12 Member States of the European Union.

The Johannesburg World Summit on Sustainability draws up the **United Nations Sustainability Programme**, a concrete step forward ten years after the Rio Declaration of 1992.

2003

Concorde makes its last commercial flight, bringing the era of commercial supersonic travel to an end. Supersonic airplanes are an issue in the **ozone depletion** debate, because of their nitric oxide emissions.

2004

A **tsunami disaster** strikes South East Asia. Nearly 300.000 people are killed in one of the most devastating natural disasters the world has ever experienced. European chlorine producers offer water disinfection chemicals to support international relief efforts and Euro Chlor contributes to fund-raising.

2006

Dr Patrick Moore, an original founder of Greenpeace, believes that the demand by environmentalists in the early 1990s for a **global ban on chlorine was one of the most harmful stands ever taken**.

2007

According to a WHO-UNICEF report, about 42% of the world's population, or 2.6 billion people, has no proper means of sanitation and 1.1 billion do not have **access to safe drinking water**.

2008

Celebration of **100 years of chlorination of drinking water** in the U.S. The widespread use of drinking water disinfection and filtration is recognized as one of the most important public health achievements in modern history.

2009

The International Council of Chemical Associations (ICCA) announces the findings of a **carbon life cycle analysis of the chemical industry**. For every tonne of greenhouse gases emitted directly and indirectly by the chemical industry in its production processes, it enables more than two tons of emission savings via the products and technologies provided to other industries and consumers: building and insulation materials, agrochemicals, lighting, plastic packaging, marine antifouling coatings, synthetic textiles, automotive plastics, low-temperature detergents, engine efficiency and plastics used in piping. Many of these products depend on chlorine as a building block.

In December, the **Global United Nations Conference on Climate Change** (Copenhagen) is aiming to reach an agreement on greenhouse gas emission reductions in industrialised countries and emerging countries such as China and India and on the financial assistance for developing countries.

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