Chlor-alkali industry review

2019-2020

GEARING UP TO LAUNCH OUR EUROPEAN CHLOR-ALKALI STRATEGY FOR 2050...
Note: we have revamped this year’s Industry Review to reflect our evolving priorities. This includes marking the seven key parameters reported in our Sustainability Programme since 2001 with an icon so they can be compared with previous editions. Under the EU’s new Green Deal, our commitment to sustainability remains as important as ever.

However, this year’s contribution from our members (to the 2019 Euro Chlor Sustainability Questionnaire for these seven key parameters) was lower than previous years (covering 88% of Euro Chlor member capacity from 27 companies at 47 sites as of end-July 2020). This may be due to the COVID-19 crisis. The Euro Chlor secretariat will continue its efforts to improve the participation rate and any extra data received will be updated dynamically on https://chlorineindustryreview.com.
UNDERPINNING THE GREEN DEAL...

The past year has been all about new beginnings and adapting to significant change.

We have European institutions whose priorities are shaped by citizens’ desire for a ‘greener’ Europe. From this, we have seen the EU’s ‘Green Deal’ that covers everything from energy policy, climate neutrality, circular economy, zero pollution and many other elements of relevance to our sector.

With this year’s far-reaching COVID-19 crisis, the Green Deal has now evolved into a ‘Green Recovery plan’ and this will impact the entire chemical industry in the coming years. We have pre-empted the Green Deal with our new Mid-Century Strategy for a Sustainable Chlor-Alkali Industry (MCS*), and we will further respond together with Cefic and other key players.

COVID-19 also introduced new challenges, bringing new ways of living and working as the world adapts to its impact. I am personally very proud of how our membership stepped up during the crisis, donating chlor-alkali based disinfectants, protective equipment and resources to help fight the virus. This reminded everyone just how crucial our products are for society. I am also proud of my team, who courageously continued working from home and found ways to either postpone live events, or turn them into successful virtual meetings. We have now all seen each other’s home offices, living rooms and kitchens and the moral support we gave each other has created bonds that will never be broken.

I hope you enjoy reading this report of our activities from the past year (September 2019-August 2020). To ensure that we remain a safe, competitive and green part of Europe’s future, we are all enthusiastic about our new MCS. Even in these unprecedented times, I know for sure that we are up to the challenge and have the right tools in place to tackle it.

“MARLEEN PAUWELS
Managing Director

*Read more in our sister publication on the MCS.

https://www.eurochlor.org/mcs
...WITH A NEW EUROPEAN CHLOR-ALKALI STRATEGY FOR 2050

Over the past two years as Euro Chlor Chairman, I have worked with our members to ensure that the Euro Chlor ethos of a safe, sustainable and successful industry for Europe was maintained. However, as the late Lauren Bacall once noted, ‘standing still is the fastest way of moving backwards in a rapidly changing world’. We need to keep moving forwards to ensure that our sector remains a valued part of Europe’s daily life.

As such, we are proud to present the Euro Chlor MCS, which gives us a direction that will ensure that a safe, competitive and green European chlor-alkali industry is here for the benefit of Europe in 2050. Building on the Cefic Mid-Century Vision (MCV), my speech from 2018, and the work of Roland Berger, our new strategy helps to plot a course for European chlor-alkali over the next three decades.

The MCS is made up of a new Vision, Mission and has four key priority elements: Euro Chlor as a Safety Leader, Competitive Supplier, Circularity Champion and Climate Neutral Player. Within these priorities are individual activities that will be addressed in the coming years to help us thrive. These will be expanded on via the various Euro Chlor Working Groups and Committees.

Whilst we do not imply that we have all the answers, we want to be able to play our part in a ‘greener’ future for Europe and in contributing to a better world. The work will also require the continued commitment and efforts of our members. I know we can rely on them, and on our new Chairman (Wouter Bleukx, Inovyn), to achieve this. Our future is in safe hands.

"JÜRGEN BAUNE
Chairman of the Management Committee"

Thanks to Jürgen for his efforts in initiating the Euro Chlor MCS. Marleen is right, we are in challenging times. However, I am eager to start work on a strategy that not only defines what our industry could look like in 2050, but also outlines what is needed to get there. I look forward to working with the secretariat to continuously improve Euro Chlor’s functioning and with our members to create this even safer, more competitive and greener chlor-alkali industry for Europe.

"WOUTER BLEUKX
Vice-Chairman of the Management Committee"
PROCESS INCIDENTS AND REPORTING

Safety will remain Euro Chlor’s top priority in the coming years. In 2019, the process incidents and losses amounted to 3.15 incidents per million tonnes of chlorine production (up from 2.30 in 2018). This translates to 28 process incidents in absolute numbers (reported via the Sustainability Questionnaire).

In addition to the increase in process incidents and losses, we see a decrease in incident reporting. None of these figures are alarming, due to the fact that the level of process incidents has stabilised over recent years following the improvements made during the first years of the Sustainability Programme.

Nevertheless, these latest developments do not meet our goal of continuous improvement with a zero vision. Therefore, both the Euro Chlor secretariat and membership will work hard towards a further decrease in incidents and an increase in reporting.
Safety stays at the top of our agenda as reflected in our new Mid-Century Strategy. It is our goal to become a Safety Leader in the chemical industries.

OCCUPATIONAL SAFETY

Lost Time Injuries (LTIs) for member company staff increased to 2.80 per million working hours in 2019 from 1.26 in 2018. On the other hand, the contractor LTI numbers showed an improvement by decreasing from 2.33 to 0.59 per million working hours.

To make the figures more comparable, this year we have also looked at the total number of LTIs (combined for staff and contractors), which shows an overall rise in 2019 compared to 2018. Investigations are ongoing into how to return to the positive trend we saw during previous decades and to continue improving.

To assist our members in their efforts, Euro Chlor’s Safety initiative includes the continued development of its project with the University of Delft (NL) for an interactive ‘game’ as a process safety learning tool in the chlor-alkali plant. Testing of the prototype is foreseen in the autumn of 2020.

Chlor-alkali LTI frequency rate

Number of LTI incidents per million working hours

- Companies
- Contractors
- Combined

It is notable that, since 2011, the LTI frequency rate only includes incidents directly related to chlor-alkali industry specific items.

WORKERS’ HEALTH: EMF, STRESS-BURNOUT

Euro Chlor’s Health Working Group (HWG) has delivered new training videos for its members in six languages on electromagnetic fields (EMFs). The videos will enhance the previously launched posters and training presentations.

In addition, the group is finalising training material on how to identify and protect people from stress and burnout. Whilst not unique to chlor-alkali production, this advice is designed to help protect people from this ever-increasing issue.

Increase in total number of LTIs (members of staff and contractors combined).

Slight decrease in the coverage rate of incident reports.

Increase in the number of process incidents and losses since last year.
TRANSPORTATION

On transportation, the total amount of chlorine carried via road or rail remained stable in 2019 compared to 2018. It represents around 4.3% of overall chlorine production. We are happy to mention that, as in previous years, no (chlorine) transport incidents were reported in 2019.

Euro Chlor members have expressed a need to focus more on improving the transport safety of all chlor-alkali related chemicals, not just chlorine. This has led to a safety commitment on the safe loading and unloading of chlorine, caustic soda, caustic potash, hydrochloric acid, sodium hypochlorite and sulfuric acid. This commitment contains a set of rules outlining how our members can enhance the safe loading and unloading of these chemicals at their own sites, customers and transport companies.

Chlorine transported outside industrial sites
Transported amount in 1,000 tonnes of Cl₂

SAFETY COMMUNICATION

Other Euro Chlor Safety Initiative work over the past year included the revamping of our quarterly safety newsletter and the updates of several recommendations.
Member investments continued despite turbulence and new partners joined

Several significant investments were completed by members during 2019/2020 along the entire chlor-alkali value chain. In addition, the Euro Chlor family expanded further with new partners joining. These are reported on the Euro Chlor website at https://www.eurochlor.org/news-events/member-news.

Chlorine production 2019

According to Cefic figures, 9,416 kilotonnes of chlorine were produced in 2019, which is almost equal to the 2018 production level. Meanwhile, overall production in the EU chemical sector decreased by 1.1% in 2019, which means that chlorine production performed better.

However, the capacity expansions implemented over the last year (162 kilotonnes or 1.4%) did not materialise, which led to a drop in the utilisation rate from 82.3% in 2018 to 81.0% in 2019.

Chlorine production level

In kilotonnes per year
MANUFACTURING TECHNOLOGY

Membrane is the dominant technology to produce chlor-alkali in Europe, with 83.3% of the installed capacity in Europe being based on this. Diaphragm technology, meanwhile, represents 11.6% of capacity and the remaining 5.1% covers chlorine-alcoholate production, hydrochloric acid conversion to chlorine, metal production and chlorine and caustic production without hydrogen as a by-product.

Chlorine manufacturing process

% of installed capacity at the end of production year

EUROPEAN CHLORINE APPLICATIONS 2019

EUROPEAN CAUSTIC SODA APPLICATIONS 2019
# Chlorine Production Plants

## 1st January 2020 Capacities

**Process:**
- **D** = diaphragm
- **M** = membrane

"Others" includes HCl electrolysis, ODC, molten salt electrolysis, alcohols.

*Non Euro Chlor members are indicated in italics.*

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<td>11.6%</td>
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ENERGY AND CLIMATE CHANGE: MOST RELEVANT GREEN DEAL TOPICS FOR EURO CHLOR

The European Commission (EC)’s Green Deal launched at the end of 2019 features a far-reaching package of measures. Euro Chlor’s Regulatory Affairs Committee (RAC) has examined whether these Green Deal (now evolving into Green Recovery) measures impact our sector directly and whether we can help engage on any final decisions. RAC concluded (unsurprisingly) that energy and climate change and the zero-pollution ambition for a toxic-free environment were the most important areas.

Euro Chlor has of course been focusing on energy since our first Sustainability Programme in 2001, with energy consumption and hydrogen use being two of the key metrics tracked.

ENERGY CONSUMPTION

Energy consumption increased slightly in 2019 to 90.8% versus the 2011 reference from the 2018 level of 90.5%.

The decline seen over the last years mainly resulted from the phase-out of mercury technology. In the years to come, energy consumption levels are set to stabilise as there may be limited room to further improve the energy efficiency levels. This is especially true as improvements in modern membrane technology are fast approaching the thermodynamic limits of the process.

Primary fuel energy consumption

Percentage with respect to 2011
With new EU regulatory priorities, our sector faces challenges. We monitor these via Euro Chlor’s climate change and energy-related groups, which will help us contribute to Europe’s climate neutrality goals.

**EURO CHLOR LAUNCHES THE HYDROGEN TASK FORCE**

Hydrogen is high on the political agenda, and this has been confirmed by several recent high-level EU initiatives such as the European Clean Hydrogen Alliance and the EU Hydrogen Strategy. To be part of the hydrogen discussion, the Euro Chlor secretariat agreed to manage a new Hydrogen Task Force, open for all Cefic members, to serve as a platform for discussion and data collection.

The Task Force is supported by a wide variety of sectors, reflecting the great interest in the subject. During a well-attended kick-off meeting in June, the participants agreed on the need for a comprehensive overview of current hydrogen production and consumption, an analysis of the pros and cons of the different production routes and the potential applications of hydrogen.

**HYDROGEN USE**

Meanwhile, Euro Chlor member companies have increased their use of hydrogen from 86.6% in 2018 to 89.2% in 2019.

Considering that hydrogen is an important chemical for the climate neutral economy, the 89.2% utilisation rate of hydrogen from chlor-alkali production remains relatively low. This may change over time as demand for hydrogen increases, and more application solutions become available. Euro Chlor continues to strive towards full utilisation.

*Hydrogen used*

Percentage of production

<table>
<thead>
<tr>
<th>Year</th>
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<tr>
<td>2018</td>
<td>86.6%</td>
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<tr>
<td>2019</td>
<td>89.2%</td>
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<td>2027</td>
<td>89.2%</td>
</tr>
<tr>
<td>2028</td>
<td>89.2%</td>
</tr>
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</table>

*2.6% increase in hydrogen use versus last year.*
EURO CHLOR RESPONDS TO ETS STATE AID GUIDELINES CONSULTATION AND IED

Euro Chlor continued to help members remain competitive on energy by responding to the European Commission’s (EC) public consultation on draft Emission Trading System (ETS) State Aid Guidelines. This took place in March 2020 via our Energy Task Force and through Cefic.

The current guidelines, which aim to reduce carbon leakage risk related to indirect ETS costs and incentivise the modernisation of production processes, will expire on 31 December 2020. Their proposed revision thus far includes a considerable reduction in the number of sectors eligible for compensation. Since the chlor-alkali sector is highly electro-intensive and vulnerable to carbon leakage, we remain on the list. Nevertheless, Euro Chlor introduced some specific comments on the required level of compensation, the benchmark determination and the avoidance of market distortion within the EU.

This year, Euro Chlor also participated in the EC’s Industrial Emissions Directive (IED) Evaluation Focus Groups to provide input to its assessment of IED 2010/75/EU.

EURO CHLOR MEMBERS AHEAD OF THE CURVE ON MERCURY CONVERSION

In our annual monitoring of environmental commitments regarding mercury, we continue to see progress when it comes to mercury conversion. Following the phase-out of mercury technology by the end of 2017, the remaining liquid mercury must be converted to mercury sulfide and stored in a salt-mine by the end of 2022. This conversion process is now well underway. In 2019, 495 tonnes of mercury were converted with approximately 731* tonnes of mercury still being present at those sites which operated chlor-alkali mercury technology.

*Mercure for alcoholate production is not included in these figures.

This past year, many members made announcements about their work on sustainability, which will contribute to the EU Green Deal ambitions.
Euro Chlor’s Product Groups add value by optimally engaging with key stakeholders on behalf of their memberships.

EUROPEAN CHLORINATED SOLVENTS ASSOCIATION (ECSA) UPDATE

Early in 2020, ECSA launched its new website at https://www.chlorinated-solvents.eu to promote the benefits of chlorinated solvents. ECSA is also increasing collaboration with international associations and shared key information with US sister organisation Halogenated Solvents Industry Alliance, Inc. (HSIA) at its June Board of Directors meeting.

ECSA is monitoring several regulatory topics, including the March 2020 European Commission’s (EC) evaluation of the Ozone Depleting Substances (ODS) Regulation. ECSA substances listed there include carbon tetrachloride (CTC) and methyl chloride (MeCl).

In early 2020, the German MAK Commission (the key institution for scientific-based occupational exposure limits (OELs) applied at national level) requested and obtained access to a study conducted with MeCl prepared by industry. Their experts concluded that there is no reason to classify MeCl for skin absorption, sensitisation, carcinogenicity or mutagenicity. The proposal can be commented on until the end of 2020.

Another evolving topic that ECSA is closely monitoring is the German UBA (Federal Environment Agency) initiative to implement PMT (persistent, mobile, toxic substances) under REACH and as a criterion for other regulations. This could affect perchloroethylene and trigger significant restrictions.

BUILDING UNDERSTANDING WITH CHLOROALKANES PRODUCT GROUP (CAPG)

The REACH Substance Evaluation has concluded for MCCP. CAPG is providing support to the MCCP REACH consortium to connect them with authorities and ensure that they are well-briefed on the most up-to-date science.

CAPG also provided input as part of the public consultation on the Restriction of Hazardous Substances in Electronics and Electronic Equipment (RoHS) Directive. As part of this, CAPG is working with Intertek to prepare a life-cycle assessment and worker exposure study that will provide authorities with useful information.

A range of activities were undertaken by the Potassium and Sodium Chlorate Product Groups (SCPC) to benefit their respective memberships in 2019/2020. Euro Chlor also played a key role in forming the new Chloroformates Sector Group (SG) and continued to collaborate with its sister Halogens Industry SCs EFCTC (European FluoroCarbons Technical Committee) and Eurofluor (CTEF, Comité Technique Européen du Fluor).
SEAMLESSLY COLLABORATING IN AND OUTSIDE EURO CHLOR

Like many of our members, due to the COVID-19 crisis, the Euro Chlor secretariat has been working from home since mid-March, which had little impact on everyone’s productivity and efficiency. The secretariat has been flexible and resourceful in adapting our plans for the year.

This included the postponement of the 11th Euro Chlor International Chlorine Technology Conference and Exhibition in Warsaw, Poland by one year (4-6 May 2021). This in turn meant that the launch of our Mid-Century Strategy (MCS) was postponed to the Euro Chlor Annual General Meeting (AGM) on 10-11 September 2020. This AGM then had to evolve from a physical event in Munich, Germany to a virtual meeting.

Fortunately, we were able to count on significant guidance from our Working Groups and Committees, especially the Management Committee, General Technical Committee, Regulatory Affairs Committee and Communications Committee during this process.

We also kept developing our connections with our downstream stakeholders, most notably VinylPlus® and the European Council of Vinyl Manufacturers (ECVM) and the European Diisocyanate & Polyol Producers Association (ISOPA).

And of course, we continued our work with the World Chlorine Council (WCC), the global chlorine and chlorinated products industries network (https://worldchlorine.org/). Euro Chlor is managing the WCC secretariat for two years until the end of 2020. Over the past year, Euro Chlor has organised two key meetings – the 2019 Annual Meeting in Tokyo in October and a virtual spring meeting at the end of March 2020. Each meeting covers reports from the Global Advocacy & Science Team, Global Safety Team and Global Communications Team with the Euro Chlor staff in the lead.

As part of its commitments here, Euro Chlor updated the WCC Sustainability Report, basing it on the United Nations’ Sustainable Development Goals (SDGs) and showing how worldwide chlor-alkali chemistry can support them.

I am proud of Euro Chlor’s proactivity, transparency and collaborative spirit. Even under difficult circumstances, we continue expanding our outreach to members, sister organisations and key stakeholders.

“COLLABORATION AND OUTREACH

MARLEEN PAUWELS
Managing Director
As part of our Mid-Century Strategy, we will focus on communicating how chlor-alkali can help Europe achieve its green ambitions, whilst showing how attractive our industry is to potential new colleagues.

EURO CHLOR PREPARES LAUNCH OF NEW MID-CENTURY STRATEGY (MCS)

For the launch of our MCS, Euro Chlor produced a communications plan and many materials (brochure, presentations, Q&A documents and video).

A new webpage has also been released at https://www.eurochlor.org/mcs to serve as an information hub and update channel. Additional information will be posted on Euro Chlor social media channels and can be followed using #eurochlorMCS. MCS updates will also appear annually in upcoming Industry Reviews to chart progress.

EURO CHLOR WEBSITE UPDATES

The Euro Chlor website at https://www.eurochlor.org has been updated over the past year with news and a new section on the UN’s SDGs at https://www.eurochlor.org/topics/sustainability/un-sdgs/ and new chlorine, caustic soda and caustic potash application ‘trees’ on our home page.

COVID-19 COMMUNICATIONS

With Euro Chlor input, Cefic has launched an interactive map and a COVID-19 helpdesk on https://www.cefic.org for the chemical industry to showcase member initiatives and give key support to members, respectively.

We have also posted many of our own members’ announcements on https://www.eurochlor.org about their contributions to fighting COVID-19.

Read more details at:
https://chlorineindustryreview.com/communications

Follow us on social media @eurochlor

We actively update our social media and encourage people to follow us on Twitter, Facebook and LinkedIn.
Altair Chimica SpA
http://www.altairchimica.com

Anwil SA (ORLEN Group)
http://www.anwil.pl

Arkema France
https://www.arkema.com/en

BASF SE
http://www.BASF.com

Biomca Quimica SL
http://www.biomcaquimica.com

Bondalti Chemicals SA
http://www.bondalti.com

Borregaard AS
http://www.borregaard.com

BorsodChem Zrt.
http://www.borsodchem-group.com

Brenntag UK Ltd
http://www.brenntag.co.uk

CABB AG
http://www.cabb-chemicals.com

CABB GmbH
http://www.cabb-chemicals.com

Covestro AG
http://www.covestro.com

Donau Chemie AG
http://www.donau-chemie.com

Dow Deutschland Anlagengesellschaft mbH
http://www.dow.de

Electroquímica de Hernani
http://www.ehersa.com/es

Electroquímica Onubense, S.L.
http://www.electroquimicaonubense.es

Ercros SA
http://www.ercros.es

Evonik Operations GmbH
http://www.evonik.com

Fater S.p.A.
http://www.fater.it

Industrial Chemicals Limited (ICL)
http://www.icgl.co.uk

Ing. Luigi Conti Vecchi S.p.A.
https://www.eniday.com/it/human_it/valorizzazione-saline-conti-vecchi

INOVYN ChlorVinyls Limited
http://www.inovyn.com

Kapachim SA
http://www.kapachim.com

Kemira Oyj
http://www.kemira.com

KEM ONE
http://www.kemone.com

Micro Bio (Irl.) Ltd.
http://www.microbio.ie

MSSA SAS
http://www.metauxspeciaux.fr

Nouryon
http://www.nouryon.com

PCC Rokita SA
https://www.pcc.rokita.pl

Produits Chimiques de Loos (Tessenderlo Group)
http://www.tessenderlo.com

Química del Cinca SLU
http://www.qcinca.es

SC Chimcomplex SA Borzesti
http://www.chimcomplex.ro

Società Chimica Bussi S.p.A.
http://www.chimicabussi.it

Spolek pro chemickou a hutni výrobu, a.s. (Spolchemie)
http://www.spolchemie.cz

Vencorex
http://www.vencorex.com

VESTOLIT GmbH (Orbia)
http://www.vestolit.de

Vinnolit GmbH
http://www.vinnolit.com

Vynova Group
Adama Makhtshim Ltd
http://www.adama.com

AGC Chemicals Europe Ltd.
http://www.agcce.com

Ak-Kim Kimya
http://www.akkim.com/t/en

Alchemist International Ltd
n/a

AMEC FOSTER WHEELER ITALIANA SRL
https://www.amecfw.com

ANE (Asociación Nacional de Electroquímica)
http://www.cloro.info

Angelini A.C.R.A.F. S.p.A.
http://www.angelini.it

Applitek NV/SA
http://www.applitek.com

AQUAGROUP AG
http://www.aquagroup.com

Arch Chemicals S.A.S.
http://www.lonza.com

Armstrong Chemtec Group
https://www.armstrong-chemtec.com

Asahi Kasei Europe GmbH
https://www.asahi-kasei.co.jp/asahi/en

Atana Limited
http://www.atan.co.uk

Axiall, LLC
http://www.axiall.com

Banner Chemicals Limited
http://www.bannerchemicals.com

BARCHEMICALS SRL
http://www.barchemicals.it

BATREC INDUSTRIE AG
http://www.batrec.ch/en

BELL-O-SEAL VALVES P. LIMITED
http://bellowsel.com

Blackhall Engineering Limited
http://www.shawvalves.co.uk

Bluestar (Beijing) Chemical Machinery Co., Ltd.
http://www.chemchina.com.cn

BOCHEMIE a.s.
https://www.bochemie.cz/en

BWT AG
http://www.bwt-group.com

Caffaro Brescia S.r.l.
http://www.caffarobrescia.com

CARBUROS METALICOS SA
http://www.carburos.com

CBee Europe Ltd
https://www.clorox.com

Chemieanlagenbau Chemnitz GmbH
http://www.cac-chem.de

Chemoform AG
http://www.chemoform.com

Chloran Chemical Production Co. (CCPC)

CIA - Chemicals Industries Association Ltd
http://www.cia.org.uk

Coogee Chlor Alkali Pty Ltd
http://www.coogee.com.au

De Nora Deutschland GmbH
http://www.denora.com

Descote
http://www.descote.com

DSD Chemtech Projects & Services GmbH
http://www.dsd-chemtech.com

DUPONT ASTURIAS, S.L.
http://www.dupont.com

Econ Industries Services GmbH
http://www.econindustries.com

ERAMET SANDOUVILLE SAS
http://www.eramet.fr

Essenscia ASBL
https://www.essenscia.be

Eu Salt aisbl (European Salt Producers’ Association)
https://eusalt.com

Eynard Robin
http://www.groupe.eynard robin.com

Fariman Petrochemical Industries
https://farimanpetrochemical.en.ec21.com

FEDERCHIMICA - Federazione Nazionale dell’ Industria Chimica
http://www.federchimica.it

FIKE Europe bvba
http://www.fike.com

Garlock Sealing Technologies
https://www.garlock.com

Gazechim
http://www.gazechim.com
CHLOR-ALKALI INDUSTRY REVIEW 2019-2020

PARTNERS

CHC Gerling, Holz & Co Handels GmbH
http://www.ghc.com

Haixing Eno Chemical Co., Ltd.
http://www.enochem.com.cn

HELM AG
http://www.helmag.com

Hunt & Mitton Valve Company
http://www.huntandmitton.net

Huntsman Belgium BVBA
http://www.huntsman.com

IKEM - Innovation and Chemical Industries in Sweden
http://www.ikem.se

INQUIRE S.A.
https://www.fluidra.com

IXOM (formerly Orica Chemicals)
http://www.ixom.com

Jiangsu Ancan Technology Co., Ltd.
http://www.ancan-cn.com

Jordan Bromine Company
http://www.jordanbromine.com

K+S Entsorgung GmbH
http://www.ks-entsorgung.com

Kronos Worldwide Inc
http://www.kronosworldwide.com

KUROTEC-KTS KUNSTSTOFFTECHNIK STADE GMBH
http://www.kurotec-kts.de

Leuna Tenside GmbH
http://www.leuna-tenside.de

LOMBARDA H Srl
http://www.lombardah.com

Lonna AG
http://www.lonza.com

Lubrizol Deutschland GmbH
http://www.lubrizol.com

Mersen Pgy SAS
https://www.mersen.com/markets/corrosive-chemicals/chlor-alkali

META Régénération
https://meta-regeneration.fr

Nankai Chemical Industry Co., Ltd.
http://www.nankai-chem.co.jp

NEELTRAN, INC.
http://www.neeltran.com

Nippon Soda
http://www.nippon-soda.co.jp

Nirou Chlor co.
http://www.nirouchlorcom

Nuberg Engineering Limited
http://www.nubergepc.com

Olin (Blue Cube Operations, LLC)
http://www.olin.com

Permascand AB
http://www.permascand.com

Pfeiffer Chemie-Armaturenbau GmbH
http://www.pfeiffer-armaturen.com

Phoenix Armaturen-Werke Bregel GmbH
https://www.cw-valvegroup.com

Powell Fabrication & Manufacturing LLC.
http://www.powellfab.com

PRINCE RUBBER & PLASTICS CO., INC.
http://www.princerp.com

Recherche 2000 Inc.
http://www.r2000.com

Richter-Chemie-Technik GmbH
http://www.richter-ct.com

SALCO PRODUCTS INC.
https://www.salco-products.com

SALINEN AUSTRIA AG
https://www.salinen.com/en

Sasol Chemicals a division of Sasol South Africa (Pty) Ltd
http://www.sasol.com

SAVINO BARBERA SRL
http://www.savinobarbera.com

SCHP - Association of Chemical Industry of the Czech Republic
http://www.schp.cz

Society of Chemical Industries
http://www.scindustries.com
Senior Aerospace Ermeto
http://www.senior-aerospace-ermeto.com

SEQENS Acid & Derivatives
https://www.seqens.com/en

SGL Carbon Gmbh
http://www.sgprocessstechnology.com

SIEM Supranite
http://www.siem.fr

Sinopec Jianghan Salt & Chemical Complex
http://www.sinpecgroup.com/group/en

Sojitz Europe plc
http://www.sojitz.com

Spolana s.r.o
http://www.spolana.cz

Steuler-KCH Gmbh
http://www.steuler-kch.de

Syngenta Crop Protection Monthev SA
https://www.syngenta.com

TechnipFMC France
http://www.technipfmc.com

Teijin Aramid BV
http://www.teijinaramid.com

ThyssenKrupp Uhde Chlorine Engineers Gmbh
http://www.thyssenkrupp-uhde-chlorine-engineers.com

Tosoh Corporation
http://www.tosoh.com

Tronox Pigments (Holland) B.V.
http://www.tronox.com

UNILEVER-KNORR S.A.
http://www.unilever.com

VAN DEN HEUVEL WATERVECHNOLOGIE BV
http://www.vdhwater.com

VCI - Verband der Chemischen Industrie e. V.
http://www.vci.de

VELTEK ASSOCIATES INC.
http://www.sterile.com

VNCI - Vereniging van de Nederlandse Chemische Industrie
https://www.vnci.nl

Xomox International Gmbh & Co. OHG - Crane ChemPharma & Energy
http://www.cranecpe.com

Read more details at:
https://www.eurochlor.org/about-us/members
https://www.eurochlor.org/about-us/partners
Euro Chlor supports a safe, competitive and green chlor-alkali industry for Europe.

Chlor-alkali is an essential building block for the manufacture of numerous products that we rely on every day. Across Europe, millions of jobs are dependent on the availability of competitively priced chlor-alkali supplies.

Chlor-alkali chemistry is also vital for the development of the innovative materials we will need in the future.

Euro Chlor’s 38 producing members operate 60 manufacturing locations in 19 European countries, representing 97% of all European production capacity.

Euro Chlor represents the interests of chlor-alkali producers in Europe; encourages best practices in safety, health and environmental protection and promotes the economic and social benefits of chlor-alkali and the many industries that rely on them.

Based in Brussels, Belgium, Euro Chlor is a sector group of Cefic (European Chemical Industry Council).

Euro Chlor is a member of the World Chlorine Council, a global network of regional organisations that represents producers accounting for more than 85% of worldwide chlor-alkali production capacity.

The full version of this report is available from:
https://chlorineindustryreview.com