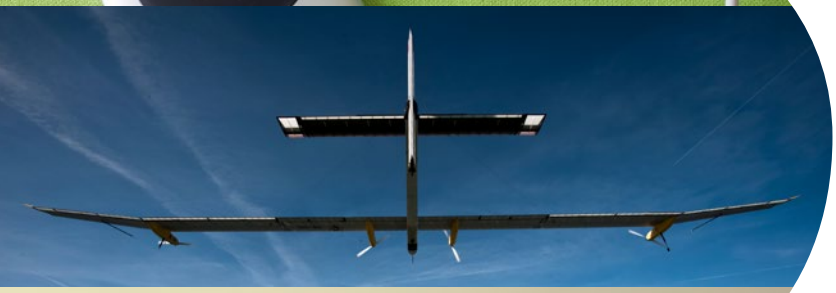


30 YEARS OF SUPPORTING A SAFE, SUSTAINABLE AND SUCCESSFUL INDUSTRY FOR EUROPE

CHLOR-ALKALI INDUSTRY REVIEW 2018-2019

eurochlor 17.

30 YEARS OF EURO CHLOR
FROM JUST SALT, WATER AND ELECTRICITY

Having just experienced eight exciting years at Euro Chlor, I tend to forget that it was originally set up as the "Bureau International du Chlore", assembling the chlorine producers of the Benelux, France, Germany, Italy and the UK. We are talking about the 1950s, just 60 years after industrial production of chlor-alkali began.

It is reassuring to note that safety has always been the key topic for our organisation, even long before we expanded into the current EU-wide 'Euro Chlor' in 1989. This was the era when environmental groups attacked our industry for producing 'the Devil's element', chlorine. I am so grateful that my predecessors were able to assist the membership in restoring the rightful positive reputation that chlorine chemistry deserves. We can now easily highlight the benefits of chlor-alkali through our 'chlorine things' and '17 Successes' programmes.

I strongly believe that the key to Euro Chlor's success has been two-fold. In the first instance, it lies in its original goal to provide balanced, science-based information, developed by active members and a skilled Secretariat. Secondly, the membership is brave enough to work pro-actively and with great ambition. For example, in 2001 Euro Chlor launched its first 10-year sustainability programme with challenging, but realistic goals and a commitment to measuring data on health, safety and environment, production levels and product applications, as well as a voluntary commitment to phase out mercury.

This was complemented by the publication of the chlor-alkali industry Ecoprofile and concrete sustainability targets in 2004 - a first for Europe's chemical industries. The second 10-year sustainability programme (2011-2020) followed smoothly thereafter. On many occasions, Euro Chlor was praised by authorities for being a transparent and trusted partner.

With all the above as my inheritance, I am honoured to take the lead of the Euro Chlor Secretariat and enthusiastically take up the challenge to keep standards high.

Following the chlor-alkali industry with a chemist's eye, I remain fascinated that all of this is possible from just salt, water and electricity!

MARLEEN PAUWELS
Executive Director

AND THE NEXT 30 YEARS?
WE LOOK FORWARD WITH OPTIMISM FOR OUR INDUSTRY

In addition to being an essential building block for numerous products that we rely on every day, chlor-alkali can play a key role in Europe's more sustainable future. For example, our chemistry can contribute to building lightweight, safe and efficient cars and renewable energy technologies. It can treat waste water for re-use in water-deprived areas, create new medicines to fight cancer and help us improve energy efficiency in our homes. These and countless other innovations are anticipated in the next three decades, with chlor-alkali contributing to many of the United Nation's global Sustainable Development Goals (SDGs).

For European chlor-alkali to provide raw materials for these solutions, we need a responsible but competitive sector. To achieve this, Euro Chlor plans to deliver its third sustainability programme in 2021 and further improve safety performance via its safety initiative.

Overview of themes to be covered by Euro Chlor strategy

We will investigate how to add value to hydrogen streams, contribute to a 'carbon-neutral' future and advocate for a level playing field for energy, as well as how we can play a bigger role in the circular economy. More than ever, we will engage in educating and communicating transparently with objective technical and scientific data and continue to highlight the benefits of our industry – building on our recent 17 Successes programme – to encourage people to work in our sector.

Inspired by the Cefic Mid-Century Vision, we will crystallise this in our own strategy to define what our industry should look like in the coming years, and the concrete steps needed to get there. This will strengthen our commitment to creating a better world.

Our industry has a promising future. I am confident that we can work together, as we have in the past, to get there, continuing to support a safe, sustainable and successful chlor-alkali industry for Europe.

JÜRGEN BAUNE
Chairman of the Management Committee

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

Read more on the following page about the **2018/2019 highlights** for Euro Chlor's key topics.

SUSTAINABILITY*

* For this review, 98.5% of Euro Chlor member's capacity is covered from 32 companies at 53 sites.

"Over the last 30 years, we have seen significant improvements in the parameters that we measure as part of our sustainability programme. By continuing to further improve these, we can ensure our license to operate for the next 30 years and beyond."

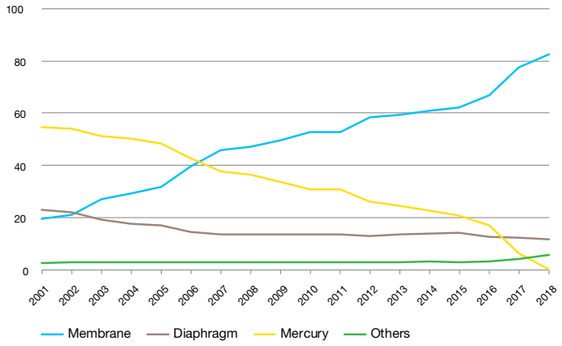
TON MANDERS
Technical & Safety Director

MANUFACTURING TECHNOLOGY

Despite mercury technology being phased-out by the end of 2017, a few installations required more time for conversion, which was accomplished during 2018.

Chlorine manufacturing process

(% of total installed capacity end of year)



The conversion of mercury to membrane (and closure of some mercury installations) is clearly visible in the graph over the last three years. The 'Other' technologies cover, for example, HCl electrolysis and oxidation, alcoholates, metal production but also production of chlorine and caustic without hydrogen production.

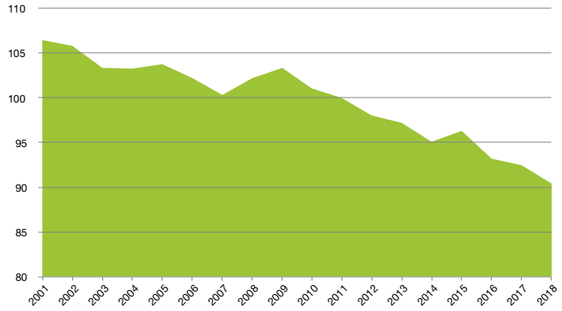
ENERGY CONSUMPTION

90.5%

Energy consumption in 2018 was at 90.5% versus the 2011 reference with a decrease of 2% compared to the 2017 level (92.5% to 90.5%).

Primary fuel energy consumption

(% with respect to 2011)



The decrease mostly results from the conversion of mercury to membrane technology, and the closure of some mercury plants. A small drop is still expected for 2019 as the final conversion to mercury becomes effective during 2018. After that, energy improvement is expected to be limited.

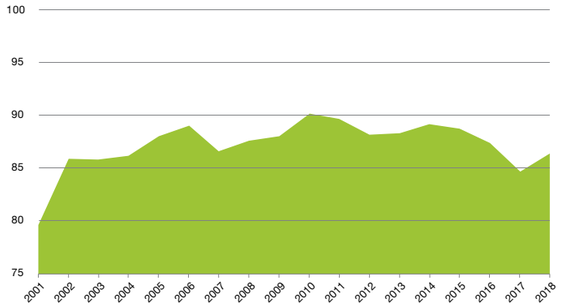
HYDROGEN USE

86.6%

The use of hydrogen has increased slightly, hopefully reversing the declining trend observed in recent years. In 2018, the utilisation rate reached 86.6%, a 1.8% increase compared to the previous year.

Hydrogen used

(% of production)



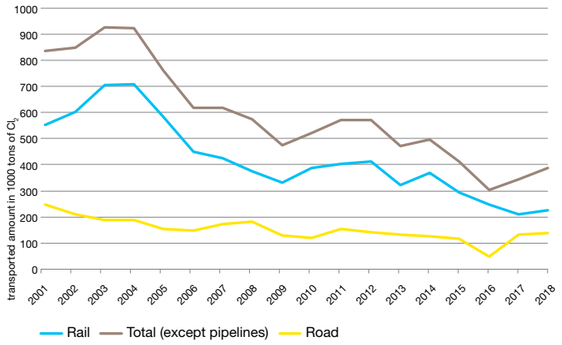
Although hydrogen is an important chemical for the low carbon economy, the utilisation rate from chlor-alkali production is relatively low. The main reason for this is that some sites may lack an economically viable 'user' nearby (or at least one who can utilise 100% of the produced hydrogen). This may change over time as demand for hydrogen increases, and more solutions (e.g. blending into the gas grid) become available.

TRANSPORTATION

The amount of chlorine transported from production sites increased slightly compared to 2017. This may be explained by the complete closure of some mercury production locations.

Chlorine transported outside industrial sites

(Thousands of tonnes)



SAFETY

"Over the past 30 years, our ongoing safety initiative has gone from strength to strength and is now using modern techniques and training tools to ensure that everyone returns home healthy every day."

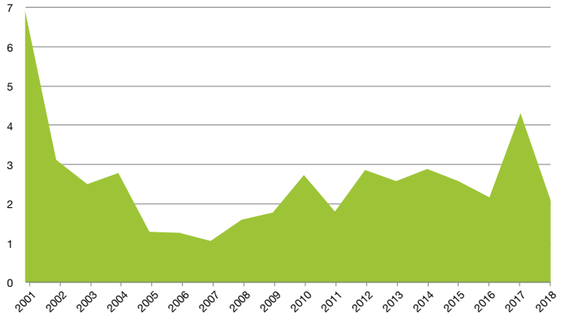
TON MANDERS
Technical & Safety Director

PROCESS INCIDENTS

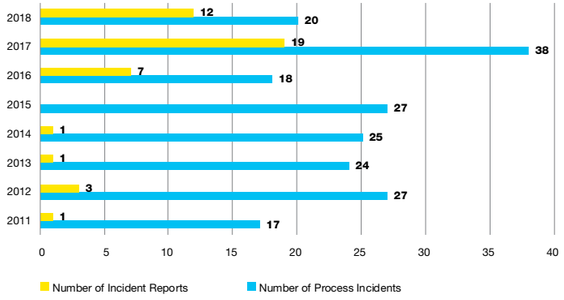
Process incidents and losses decreased in 2018 towards the 2016 level. In 2018, this was 2.30 incidents per million tonne of chlorine produced.

Process incidents and losses

(Number per million tonne chlorine produced)



Incident reporting



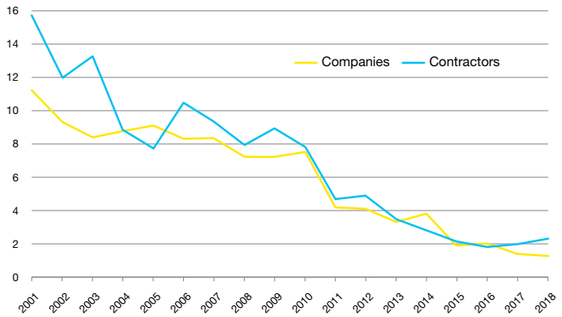
Whilst the Euro Chlor technical Working Groups continue to investigate the 2017 'incident spike', they welcome the 2018 decrease and the increasing reporting efforts of our membership. Now that Euro Chlor receives information on some 70% of the incidents, the relevant Working Groups can have even more detailed discussions, compiling lessons learnt, updating and even developing new guidelines.

OCCUPATIONAL SAFETY

In 2018, Lost Time Injuries (LTIs) for member company personnel improved compared to 2017, from 1.39 to 1.26 per million working hours.

Chlor-alkali LTI frequency rate

(Number of LTI incidents per million working hours)



It is notable that, since 2011, this LTI rate per million working hours only includes incidents directly related to chlor-alkali industry specific items.

Whilst the frequency rate for member company personnel continues to move in the right direction, member companies still struggle to achieve a similar performance improvement for contractors. Indeed, the LTI figure for contractor staff worsened (from 1.99 to 2.33). With a sustained 'aiming for zero' mentality for ALL employees (own and contractors), Euro Chlor members continue their efforts in training and supporting contractors to further increase awareness and to improve on working safely.

WORKERS' HEALTH

Euro Chlor's Health Working Group has delivered several new guidance documents:

- Brief summaries of existing health documents for workers and site managers;
- An informative training presentation on electromagnetic fields, to be made available in local languages.

In addition, the group is compiling:

- A short briefing for emergency departments on how to optimally treat patients that are accidentally exposed to chlorine;
- A training presentation on the causes and protection against stress and burnout.

For more information:
https://chlorineindustryreview.com/safety

REGULATORY

"Since the formation of Euro Chlor, we have contributed valuable content to many of the regulations related to our sector. This will not change as we focus even more on the key European regulatory topic of energy."

KRISTOF MAY
Regulatory Affairs Manager

European Chlorinated Solvents Association (ECSA)'s regulatory challenges

According to the German UBA (Federal Environment Agency) criteria, perchloroethylene is considered to be persistent, mobile and toxic. This may have consequences in relation to REACH and the Stockholm Convention on Persistent Organic Pollutants. ECSA is reaching out to other stakeholders and closely following the scientific and regulatory discussions.

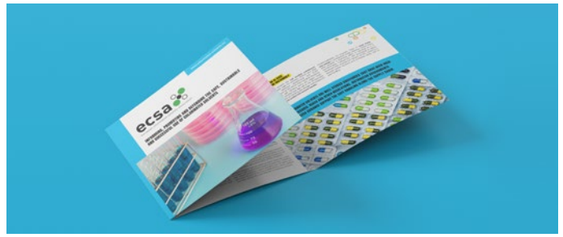
The German UBA also held a workshop concerning the revision of the German Federal Emission Protection Ordinance. The latter describes detailed technical installations, monitoring and permit requirements of halogenated solvents in dry-cleaning, metal cleaning and extraction installations, implementing the Industrial Emissions Directive (IED). ECSA advocates against listing new solvents or removing current ones.
Some chlorinated solvents (methylene chloride and chloroform) are also claimed to have a negative impact on ozone layer recovery. ECSA has provided extensive data and scientific arguments proving that current produced volumes of chlorinated solvents are no harm to the ozone layer and do not need to be regulated under ozone depleting substances regimes.

Chloro Alkanes Product Groups (CAPG) highlights

The CAPG has been involved in two major international conferences over the past 12 months:

- In New Delhi, speakers from the CAPG and MCCP REACH consortia presented the results of the Community rolling action plan (CoRAP) test programme and urged the international audience towards greater inter-continental collaboration to promote the benefits of chloro alkanes.
- During a technical event at the VU Amsterdam, academics, regulators and European officials discussed the potential and limitations of methods and technologies to detect chloro alkanes.

Finally, the CAPG is following up the Restriction of Hazardous Substances in Electronics and Electronic Equipment Directive. MCCP is included as part of an exercise to 'test' an adapted methodology. In close collaboration with Cefic, members are ensuring that any nomination is scientifically and legally correct.



ECSA produces new flyer

ECSA has released a new informative flyer that describes the benefits of chlorinated solvents. The ECSA website (http://www.chlorinated-solvents.eu) is also in the process of being modernised.

As part of this, their Product & Application Toolbox is being updated according to the revised REACH dossiers and regulations, giving users simple guidance on safe and sustainable use.

Energy: input on two consultation rounds to EU Emission Trading Scheme (ETS)

The Energy Task Force work focused on the EU Emission Trading Scheme (ETS), more specifically on the associated State Aid Guidelines for indirect costs compensation.

The EU ETS rules result in higher electricity costs for some electro-intensive undertakings. To compensate these higher costs, industry can count on the European State Aid guidelines. With the ETS Directive just being revised for its phase 4 (2021-2030), the 2012 State Aid Guidelines are now also in the process of being updated.

The EC Directorate-General for Competition (DG COMP) already organised two consultation rounds for this. In both rounds (public and sector-targeted), Euro Chlor and Cefic demonstrated the importance and value of this compensation for our sector given the strong indirect effects of the ETS system on the chlor-alkali industry. In close collaboration, Euro Chlor and Cefic will make sure all DG COMP's questions are answered.

In addition to our own Energy Task Force, the Euro Chlor Regulatory Department actively works together with Cefic to have our sector heard in the larger European energy debate.

Mercury phase out: deadline passed but Euro Chlor remains vigilant

Despite the phase-out of the mercury technology by the end of 2017, mercury is still in the picture. This is because a lot of liquid mercury still needs to be removed from both the cells and no longer used equipment.

According to EU legislation, liquid mercury must be converted into mercury sulphide by the end of 2022, before being safely stored in salt-mines. At the end of 2018, Euro Chlor members reported 2,947 tonnes of liquid mercury on site, with 1,146 tonnes being converted in 2018. Based on these results, the total conversion of available liquid mercury could be finalised before the end of 2022.

Biocides news

At the start of 2019, disinfectant products related to chlorine, sodium hypochlorite and calcium hypochlorite were registered under the EU Biocidal Product Regulation.

To better serve Euro Chlor members, further registration activities have meanwhile been passed to an external provider (SCC GmbH). As such, Euro Chlor will enhance our advocacy efforts for these biocides by setting up a dedicated task force to support the safe, but essential, use of these important chlor-alkali products.

For more information:
https://chlorineindustryreview.com/regulatory

COMMUNICATIONS

17 SUCCESSES CAMPAIGN NOW COMPLETE!

Take a look at http://17successes.com to see all 17 of the '17 Successes' which have now been published! Taking '17' as our inspiration (from chlorine's position on the chemical Periodic Table of elements), this programme presents real Europeans, whose success at work is partially thanks to chlor-alkali chemistry. Rollups and postcards are available for download from each individual success on the website. To mark the completion of the programme, an innovative compilation video and infographic is also available there for onward dissemination.

NEW EURO CHLOR WEBSITE ONLINE

This year we unveiled our new website at https://www.eurochlor.org. The new online portal has been designed to promote the benefits of chlor-alkali and its products and the many jobs which rely on them. It also spreads information on best practices in safety, health and environmental protection.

FOLLOW US ON SOCIAL MEDIA

We actively update our social media and encourage people to follow us on Twitter, Facebook and LinkedIn.

@eurochlor @eurochlor @eurochlor

OUR NEW YOUTUBE VIDEOS

- Jürgen Baune, Euro Chlor Chairman, details his opinion on where our industry is headed in the coming years and how one possible co-product, hydrogen, may play a role in a sustainable future for our industry.
- A new 'chlorine things' video shows the role of chlor-alkali chemistry in keeping people safe in our communities. It covers the role of advanced polymers in protecting policemen and firefighters, fire-retardants and advanced materials that keep children and adults safe on their bikes.
- New videos are planned with our little chlorine character so watch this space!

For more information:
https://chlorineindustryreview.com/communications

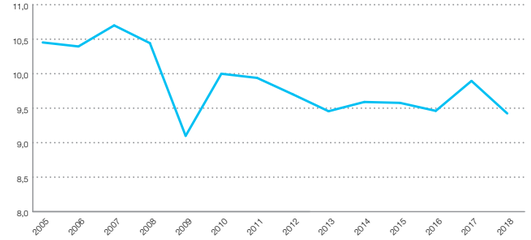
MANUFACTURING & APPLICATIONS

CHLORINE PRODUCTION 2018

2018 chlorine production was reported at 9,424 kilotonnes, 4.8% below the 2017 level, the lowest production level since 2009. This can be partly explained by the loss of installed capacity due to the mercury phase-out. The utilisation rate was 82.3% compared to 81.4% in 2017.

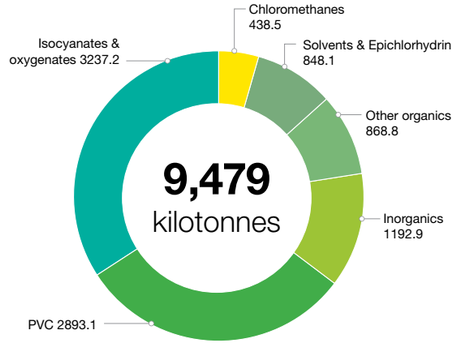
Production in the EU chemicals sector declined by 0.9% in 2018 (compared to 2017) according to Cefic figures. This means that chlorine production performed worse than the average production of the chemical industry in 2018.

Chlorine production level 2018
(in kilotonnes/year)

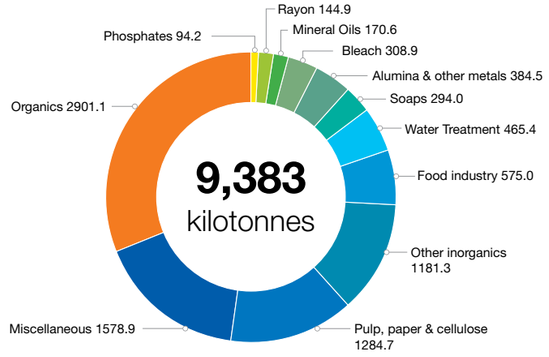


CHLORINE AND CAUSTIC SODA APPLICATIONS 2018

European chlorine applications 2018
(in kilotonnes)



European caustic soda applications 2018
(in kilotonnes)



CHLORINE PRODUCTION PLANTS

January 2018 Capacities

Process

Hg = mercury

M = membrane

D = diaphragm

"Others" include HCl electrolysis, ODC, molten salt electrolysis, alcoholates

Non Euro Chlor members are indicated in italic

* Total combined production capacity of the Tessenderlo site permit = 400 kt Cl_2/yr

	Country	Company	Site	**Total** (000 tonnes chlorine)	Hg	D	M	Others
01	Austria	Donau Chemie	Brückl	75			75	
Austria Total				75	0	0	75	0
03	Belgium	INOVYN	Lillo	500			500	
04	Belgium	INOVYN	Jemeppe	174			174	
05	Belgium	Vynova	Tessenderlo *	400			425	
Belgium Total				1074	0	0	1099	0
07	Czech Republic	Spolchemie	Usti	82			82	
Czech Republic Total				82	0	0	82	0
09	Finland	Kemira	Joutseno	75			75	
Finland Total				75	0	0	75	0

	Country	Company	Site	**Total** (000 tonnes chlorine)	Hg	D	M	Others
10	France	Vynova	Thann	42			42	
11	France	VENCOREX	Pont de Claix	114			114	
12	France	Kem One	Fos	333		178	155	
13	France	Arkema	Jarrie	72			72	
14	France	Kem One	Lavera	341			341	
15	France	Arkema	St Auban	20			20	
16	France	MSSA	Pomblière	42				42
18	France	INOVYN	Tavaux	370			370	
19	France	PC Loos	Loos	35			35	
France Total				1370	0	178	1150	42
20	Germany	BASF	Ludwigshafen	485				
21	Germany	Covestro	Dormagen	480			400	80
22	Germany	Covestro	Leverkusen	390			390	
23	Germany	Covestro	Uerdingen	260			234	26
24	Germany	Covestro	Brunsbuttel	210				210
25	Germany	Dow	Schkopau	261			261	
26	Germany	Vinnolit	Knapsack	250			250	
27	Germany	CABB GmbH	Gersthofen	52			52	
28	Germany	Dow	Stade	1615		1007	608	
29	Germany	Neolyse Ibbenbüren GmbH	Ibbenbüren	70			70	
30	Germany	Nouryon	Bitterfeld	99			99	
31	Germany	Evonik Industries	Lülsdorf	77				77
33	Germany	Nouryon	Frankfurt	250			250	
34	Germany	INOVYN	Rheinberg	220		110	110	
35	Germany	VESTOLIT	Marl	260			260	
36	Germany	Vinnolit	Gendorf	180			180	
37	*Germany*	*Wacker Chemie*	*Burghausen*	*55*			*55*	
96	*Germany*	*LEUNA*	*Leuna*	*15*			*15*	
Germany Total				5229	0	1117	3235	393
94	Greece	Kapachim	Inofita Viotias	10			10	
Greece Total				10	0	0	10	0
39	Hungary	Borsodchem	Kazincbarcika	480			384	96
Hungary Total				480	0	0	384	96
40	Ireland	MicroBio	Fermoy	11			11	
Ireland Total				11	0	0	11	0

	Country	Company	Site	Total (000 tonnes chlorine)	Hg	D	M	Others
41	Italy	Altair Chimica	Volterra	60			60	
42	Italy	Società Chimica Bussi S.p.A.	Bussi	18			18	
44	Italy	Ing. Luigi Conti Vecchi	Assemini	25			25	
49	Italy	INOVYN	Rosignano	150			150	
99	*Italy*	*Halo Industry Spa*	*Torviscosa*	*24*			*24*	
93	Italy	Fater	Campochiaro	20			20	
Italy Total				297	0	0	297	0
51	The Netherlands	Nouryon	Botlek	637			637	
52	The Netherlands	Nouryon	Delfzijl	121			121	
54	*The Netherlands*	*Sabic*	*Bergen op Zoom*	*89*			*89*	
The Netherlands Total				847	0	0	847	0
55	Norway	Borregaard	Sarpsborg	41			41	
56	*Norway*	*Elkem*	*Bremanger*	*11*			*11*	
57	Norway	INOVYN	Rafnes	280			280	
Norway Total				332	0	0	332	0
58	Poland	PCC Rokita	Brzeg Dolny	210			210	
60	Poland	Anwil	Wloclawek	195			195	
Poland Total				405	0	0	405	0
62	Portugal	Bondalti	Estarreja	142			94	48
Portugal Total				142	0	0	94	48
91	*Romania*	*Oltchim*	*Rimnicu Valcea*	*105*			*105*	
92	Romania	Chimcomplex	Borzesti	102			102	
Romania Total				207	0	0	207	0
63	*Slovak Republic*	*Fortischem*	*Novaky*	*76*			*76*	
Slovak Republic Total				76	0	0	76	0
88	*Slovenia*	*TKI Hrastnik*	*Hrastnik*	*16*			*16*	
Slovenia Total				16	0	0	16	0
64	Spain	Electroquimica Onubense	Huelva/Palos	44			44	
65	Spain	Ercros	Sabinanigo	45			45	
66	Spain	Ercros	Vilaseca	149			149	
67	Spain	Electroquimica de Hernani	Hernani	30			30	
	Spain	Biomca Química	Santa Cruz de Tenerife	3			3	
70	Spain	Quimica del Cinca	Monzon	45			45	
Spain Total				316	0	0	316	0
75	Sweden	INOVYN	Stenungsund	123			123	
Sweden Total				123	0	0	123	0
77	Switzerland	CABB AG	Pratteln	47			47	
Switzerland Total				47	0	0	47	0
98	UK	Runcorn MCP	Runcorn	430			430	
85	UK	Brenntag	Thetford	7			7	
97	UK	Industrial Chemicals Ltd	West Thurrock	44			44	
UK Total				481	0	0	481	0
Grand Total				11693	0	1295	9360	579
Per process					0.0%	11.5%	83.3%	5.2%

MEMBERS

Altair Chimica SpA
http://www.altairchimica.com/

Anwil SA
http://www.anwil.pl

Arkema S.A.
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 Deutschland AG
http://www.covestro.com

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

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

Electroquimica de Hernani
http://www.ehersa.com

Electroquímica del Noroeste, S.A.U. (ELNOSA)
http://www.elnosa.es

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

Ercros SA
http://www.ercros.es

Evonik Performance Materials GmbH
http://www.evonik.com

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

Industrial Chemicals Limited
http://www.icgl.co.uk

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

Inovyn
http://www.inovyn.com

Kapachim SA
http://www.kapachim.com

Kemira AB
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 vyrobu, a.s.
http://www.spolchemie.cz

Vencorex Chemicals
http://www.vencorex.com

VESTOLIT GmbH
http://www.vestolit.de

Vinnolit GmbH & Co. KG
http://www.vinnolit.com

VYNOVA Group
https://www.vynova-group.com/

PARTNERS

Adama Makhtshim Ltd
http://www.adama.com
AGC Chemicals Europe Ltd.
http://www.agcce.com
Alchemist International Ltd
http://www.alchemist.company.weiku.com
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
http://www.rmarmstrong.com
Asahi Kasei Europe GmbH
https://www.asahi-kasei.co.jp/asahi/en/
Atana Limited
http://www.atana.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/
BC Switzerland GmbH
https://www.olin.com
BELL-O-SEAL VALVES P. LIMITED
http://bellowseal.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)
http://www.ccpc.ir/en/home
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.eynardrobin.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
http://www.garlock.eu.com
Gazechim
http://www.gazechim.com
GHC 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
INQUIDE 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.kronostio2.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
Lonza AG
http://www.lonza.com
Lubrizol Deutschland GmbH
http://www.lubrizol.com
MAVESZ - Magyar Vegyipari Szovetseg
https://mavesz.hu/en/
Mersen Pgy SAS
https://www.mersen.com/markets/corrosive-chemicals/chlor-alkali
Nankai Chemical Industry Co., Ltd.
http://www.nankai-chem.co.jp
Nantong Xingqiu Graphite Equiment Co., Ltd
http://en.ntxingqiu.com/
NEELTRAN, INC.
http://www.neeltran.com
Nippon Soda
http://www.nippon-soda.co.jp
Nirou Chlor co.
http://www.nirouchlor.com
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
http://www.phoenix-armaturen.de
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.salcoproducts.com/
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
Scienceindustries
http://www.scienceindustries.ch

PARTNERS

Senior Aerospace Ermeto
http://www.senior-aerospace-ermeto.com
SEQENS Acid & Derivatives
https://www.seqens.com/en/
SGL Carbon Gmbh
http://www.sglprocesstechnology.com
SIEM Supranite
http://www.siem.fr
Sinopec Jianghan Salt & Chemical Complex
http://www.sinopecgroup.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 Monthey 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 WATERTECHNOLOGIE BV
http://www.vdhwater.com
VCI - Verband der Chemischen Industrie e. V.
http://www.vci.de
VELTEK ASSOCIATES INC.
http://www.sterile.com
Vinyl Vegyipari KFT
http://www.vinyl.hu
VNCI - Vereniging van de Nederlandse Chemische Industrie
https://www.vnci.nl/
W.L. Gore & Associates GmbH
http://www.gore.com
Xomox International GmbH & Co. OHG - Crane ChemPharma & Energy
http://www.cranecpe.com

OUR DOWNSTREAM STAKEHOLDERS

Euro Chlor is strengthening links with other key industry associations, including the European Council of Vinyl Manufacturers (ECVM) and the European Diisocyanite & Polyol Producers Association (ISOPA).

See more information about VinylPlus®, the voluntary commitment to sustainable development of the European PVC industry which features ECVM as a key partner at https://chlorineindustryreviewcom.webhosting.be/about-us/.

ABOUT US | THE SECRETARIAT

CHANGES AT THE SECRETARIAT

This past year the Euro Chlor Secretariat has undergone many changes – a new Executive Director and three new colleagues, the move to a brand new Cefic office on the 10th floor of rue Belliard 40 in the heart of the EU district, new Management Committee members, updated membership categories and new IT systems and tools.

Marleen Pauwels, previously Science & Regulatory Affairs Director, succeeded Dolf van Wijk as Executive Director at the beginning of 2019 when he retired. Marleen joined Euro Chlor as Science Manager in 2011 and had been Science & Regulatory Affairs Director since September 2016.

Early in 2019, Angelica Candido joined Euro Chlor as Sector Group Manager for the European Chlorinated Solvents Association (ECSA) Sector Group, Kristof May as Regulatory Affairs Manager and Assumpta Tabaro as Management Assistant.

MARLEEN PAUWELS
Executive Director

ANGELICA CANDIDO
ECSA Manager

KRISTOF MAY
Regulatory Affairs Manager

ASSUMPTA TABARO
Management Assistant

Euro Chlor assumes Secretariat of World Chlorine Council

Euro Chlor has taken over the Secretariat of the World Chlorine Council (WCC) as of 1 January 2019 and will lead the operations of this global network representing the chlorine and chlorinated products industries for the coming two years.

WORLD chlorine council®

For more information:
https://chlorineindustryreview.com/about-us

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

https://linkedin.com/company/eurochlor

https://twitter.com/eurochlor

https://facebook.com/eurochlor

Euro Chlor supports a safe, sustainable and successful 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 39 producing members operate 58 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), which represents chemical companies across Europe, directly providing 1.2 million jobs and accounting for 14.7% of world chemical production.

Euro Chlor is a member of the World Chlorine Council, a global network of regional organisations that represents producers accounting for more than 80% of worldwide chlor-alkali production capacity.

it's a chlorine thing.

Euro Chlor
eurochlor@cefic.be
https://www.eurochlor.org
http://www.chlorinethings.eu

A sector group of Cefic
European Chemical Industry Council - Cefic aisbl
EU Transparency Register n° 64879142323-90

The photos on the cover page highlight key products and innovations from the past 30 years that have relied on chlor-alkali chemistry.