

WCC – Mercury reporting to UNEP

European Hg emissions and consumption evolution in 2007

Emissions

The 2007 figures for the European chlor-alkali industry reported by Euro Chlor showed a further reduction in mercury emissions (air, liquid effluents and products) of about 19% in absolute value (from 5.7 to 4.6 tonnes mercury).

This was due to the continuing programme of conversion for shut down of the mercury technology (the installed production capacity with mercury technology went down about 12% compared to 2006), but also to the continued reduction of plant emissions, from a global figure of 1.05 to 0.97 g mercury/tonne chlorine capacity.

The emissions in products are at the level of 0.07 g Hg/t Cl₂ and quite stable at this low level but a few less performing units still require additional efforts to improve.

For the case of liquid effluents, with values at about the same level, the reduction is mainly due to the implementation of the best practices recommended by the industry in some less performing sites.

For the emissions into air, the continued improvement results from the efforts made at several sites. There are a few units investigating practical solutions to reduce their emissions.

Consumption

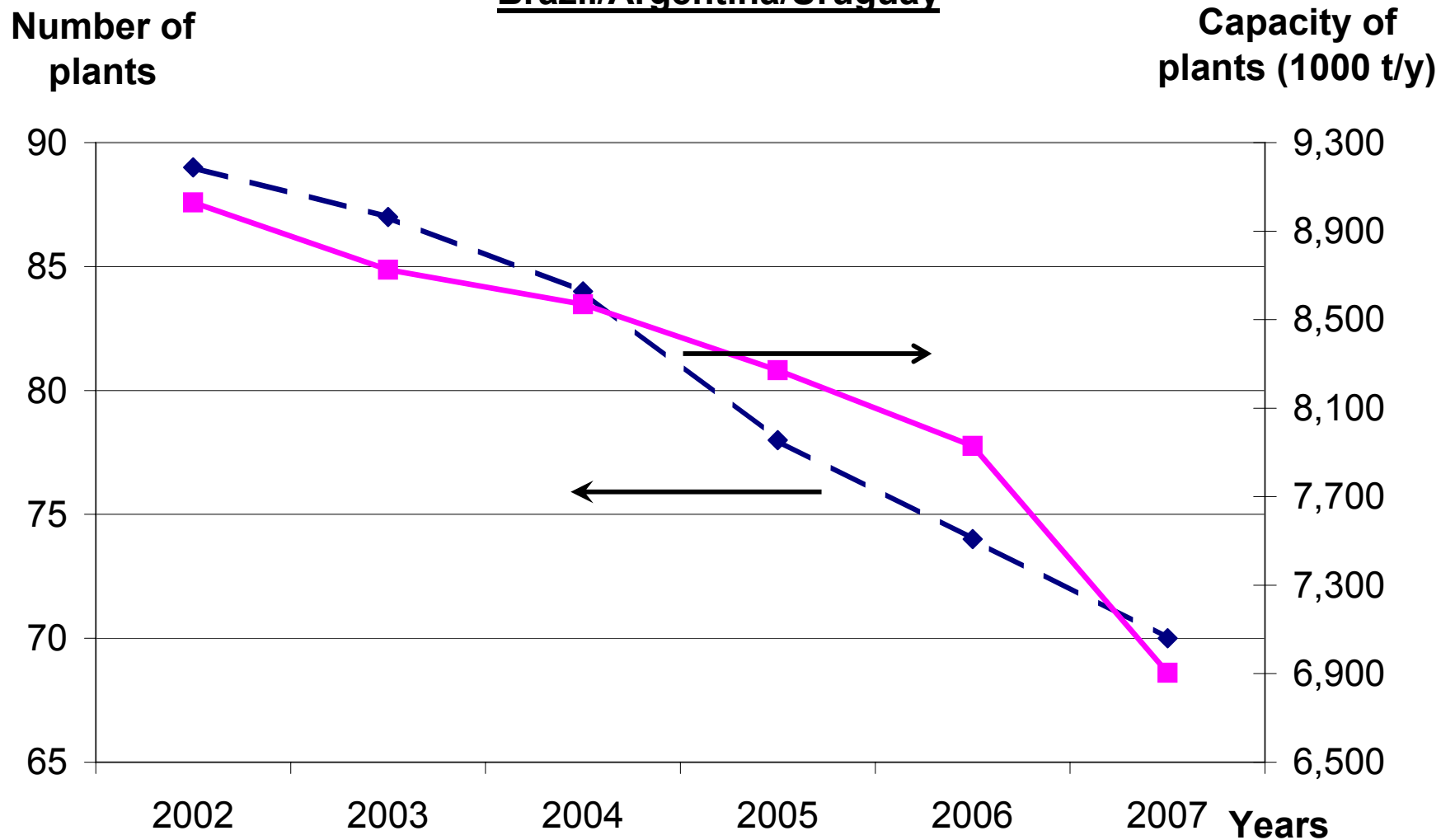
With respect to 2006, the Hg consumption in Europe increased with about 61 tonnes in 2007, even with a reduction of the number of plants (from 44 to 42).

The higher consumption/use is explained by temporary increase of mercury containing waste at 3 locations, which is stored on site waiting to be treated for recovery and recycling of the metallic mercury.

After recovery, the consumption/use figure will come down by the same effect.

WCC - Chlor-Alkali Industry

Number of plants and capacity of mercury electrolysis units
in USA/Canada, Europe, Russia, India and
Brazil/Argentina/Uruguay



Note: For consistency reasons, data for 2002-2004 have been adjusted to take into account the addition of one plant from Uruguay and three plants from Russia

Evolution for USA/Canada + Europe + India + Brazil/Argentina (and 1 plant in Uruguay from 2005 onwards)
plus 3 Russian plants from 2005 onwards

Considering 1 Urugyan pl
3 Russian plants from :

Absolute values

Year	Hg plants	Capacity	Purchases /Sales	Consumption /Use	Emission to products	Emission to water	Emission to air	Total emissions	Solid waste
	Number	In 1000 t Cl ₂ /y	kg Hg /y	kg Hg /y	kg Hg /y	kg Hg /y	kg Hg /y	kg Hg /y	kg Hg /y
2002	85	8,584	688	249,944	*(1)	821	*(1)	23,265	*(1)
2003	83	8,281	402,444	205,274	2,402	820	15,821	19,043	129,730
2004	80	8,124	263,511	159,806	1,448	657	14,217	16,321	69,601
2005	78	8,271	227,470	176,706	1,361	774	11,662	13,797	116,257
2006	74	7,929	70,891	162,049	782	555	9698	11035	175,116
2007	70	6,904	202,279	236,476	615	455	7288	8358	198,342

Hg plants	Capacity
Number	In 1000 t Cl ₂ /y
89	9,029
87	8726
84	8569
78	8,271
74	7929
70	6904

*(1) no data reported for the Indian plants

without Russian plants data

Relative values (/t chlorine capacity)

Year	Hg plants	Capacity	Purchases /Sales	Consumption /Use	Emission to products	Emission to water	Emission to air	Total emissions	Solid waste
	Number	In 1000 t Cl ₂ /y	g Hg /t Cl ₂	g Hg /t Cl ₂	g Hg /t Cl ₂	g Hg /t Cl ₂	g Hg /t Cl ₂	g Hg /t Cl ₂	g Hg /t Cl ₂
2002	85	8,584	0.08	29.12	*(1)	0.10	*(1)	2.71	*(1)
2003	83	8,281	48.60	24.79	0.29	0.10	1.91	2.30	15.67
2004	80	8,124	32.44	19.67	0.18	0.08	1.75	2.01	8.57
2005	78	8,271	29.01	22.54	0.16	0.09	1.41	1.67	14.06
2006	74	7,929	9.42	21.53	0.10	0.07	1.22	1.39	22.09
2007	70	6,904	31.11	34.25	0.09	0.07	1.06	1.21	28.73

*(1) no data reported for the Indian plants

without Russian plants data

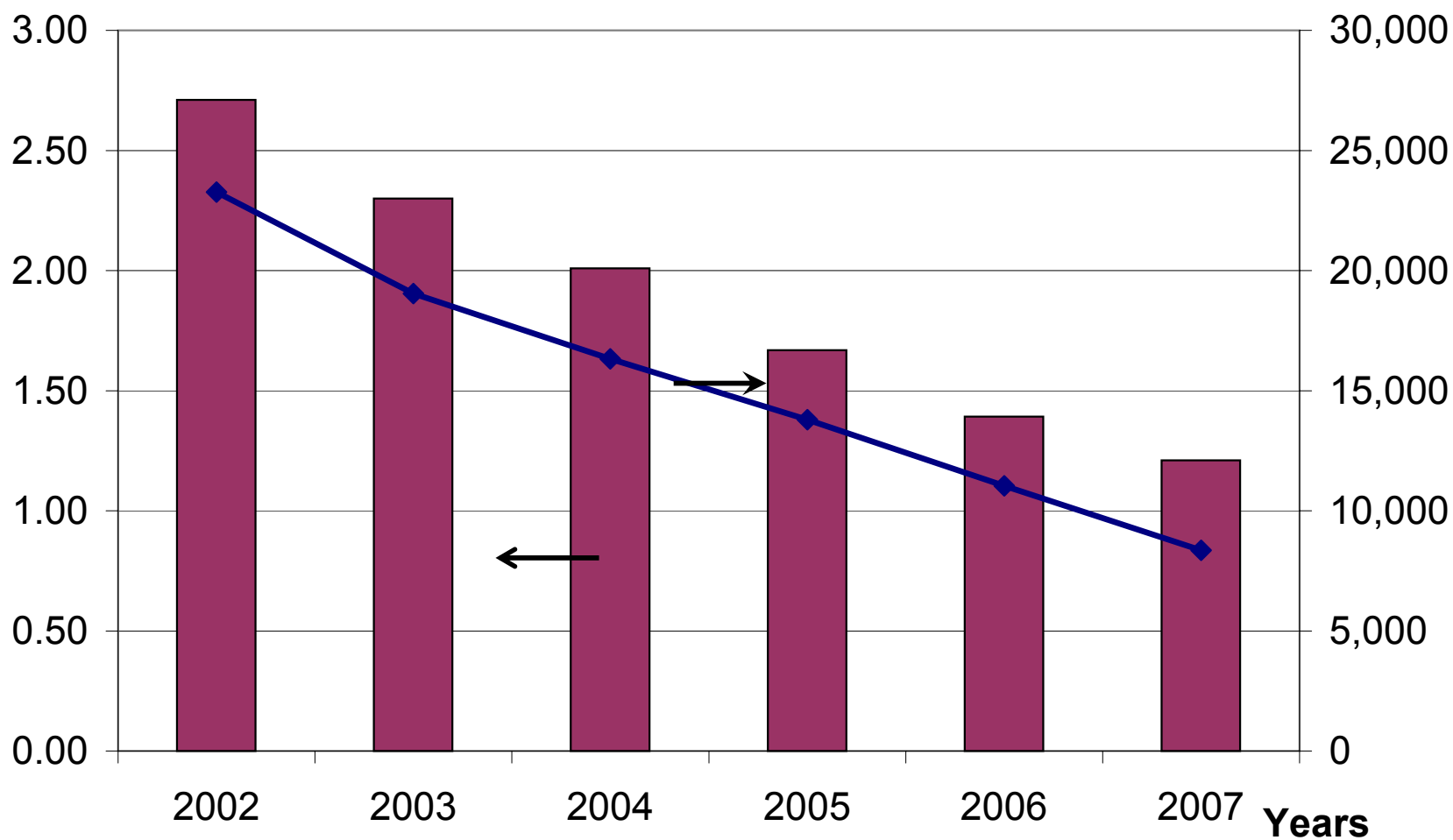
WCC - Chlor-Alkali Industry

Total mercury emissions (air + water + products)
for USA/Canada, Europe, India and Brazil/Argentina

(plus 1 Uruguayan and 3 Russian plants from 2005 onwards)

g Hg/t Cl_2
annual cap.

kg Hg/y



Explanation of the table

Number Hg plants: number of electrolysis production units in activity using the mercury technology.

Capacity: nameplate chlorine production capacity according to authorisations (expressed in thousands metric tonnes chlorine per year).

Mercury data: the quantities of mercury are expressed in kilograms per year.

Purchases / Sales: quantity of mercury coming in or leaving (negative value) the production site (from or to other sites of the same company, other companies, traders, suppliers ...). If the mercury comes from a unit already closed, even on the same production site, it will also be considered as "Purchase". The quantity of mercury contained in solid waste sent to **external** treatment units for metal recovery will be considered here as "Sales"; if (and when) recovered metallic mercury is reintegrated back in the production site, the corresponding quantity will then be considered as "Purchases".

Consumption / Use: mercury added to the production cells and circuits (negative value if removed) to keep the amount of mercury contained in the cells and circuits at the same constant level (structurally immobilised in the process); this value correspond to the "Purchases / Sales" figure corrected to remove the effect of mercury inventory variation in the warehouse of the site, and/or any voluntary change in the installation inventory (cells ...). A comment has to be added is there is a voluntary increase or decrease of the inventory.

Emission to air: quantity of mercury emitted to the air (including process exhaust, hydrogen vented or burned, diffuse emissions from cell room ...).

Emission to water: quantity of mercury emitted with the water effluents leaving the production unit (after treatment).

Emission with products: quantity of mercury emitted with the products (mainly caustic soda/potash and hydrogen used as chemical); this does not include the hydrogen vented or burned. If mercury emission with HCl, hypochlorite ... is separately accounted, care must be taken to avoid double counting (with mercury in hydrogen, caustic ...).

Total emissions: sum of emissions to air, water and with products.

Solid waste to deposit: estimation/measure of the quantity of mercury included in the solid waste sent to final waste disposal (internal or external).

The mercury contained in the waste waiting for recovery treatment or to be sent to final disposal, and temporarily stored on the site, will still be considered as being part of the site inventory for this reporting.

Difference to balance: this calculated value (not indicated in the tables) corresponds to the difference between the consumption and the sum of the total emissions (air, water, products) and the mercury in the waste sent to final disposal; it integrate the inaccuracies of the measures and the mercury accumulated in the installation but not measured.

https://www.yunbaogao.cn/report/index/report?reportId=5_13995

预览已结束，完整报告链接和二维码如下：



WCC - Chlor-Alkali Industry Consumption and Emissions in g Hg / t chlorine annual capacity

Production year: 2007								
plants	Capacity	Purchases /Sales	Consumption /Use	Emission to products	Emission to water	Emission to air	Total emissions	Solid waste
number	In 1000 t Cl ₂ /y	g Hg / t Cl ₂ (- if sold)	g Hg / t Cl ₂	g Hg / t Cl ₂	g Hg / t Cl ₂	g Hg / t Cl ₂	g Hg / t Cl ₂	g Hg / t Cl ₂
42	4780	28.41	38.54	0.07	0.08	0.82	0.97	33.89
8	967	43.35	4.42	0.08	0.03	1.45	1.56	12.64
10	308	29.38	28.33	0.16	0.00	0.74	0.90	3.64
7	447	34.73	39.43	0.12	0.04	2.77	2.93	10.46
3	402	*(3)	53.76	0.21	0.07	1.28	1.55	45.56
70	6,904	31.11	34.25	0.09	0.07	1.06	1.21	28.73

(less data not available)
Asian plant
3 years for one plant