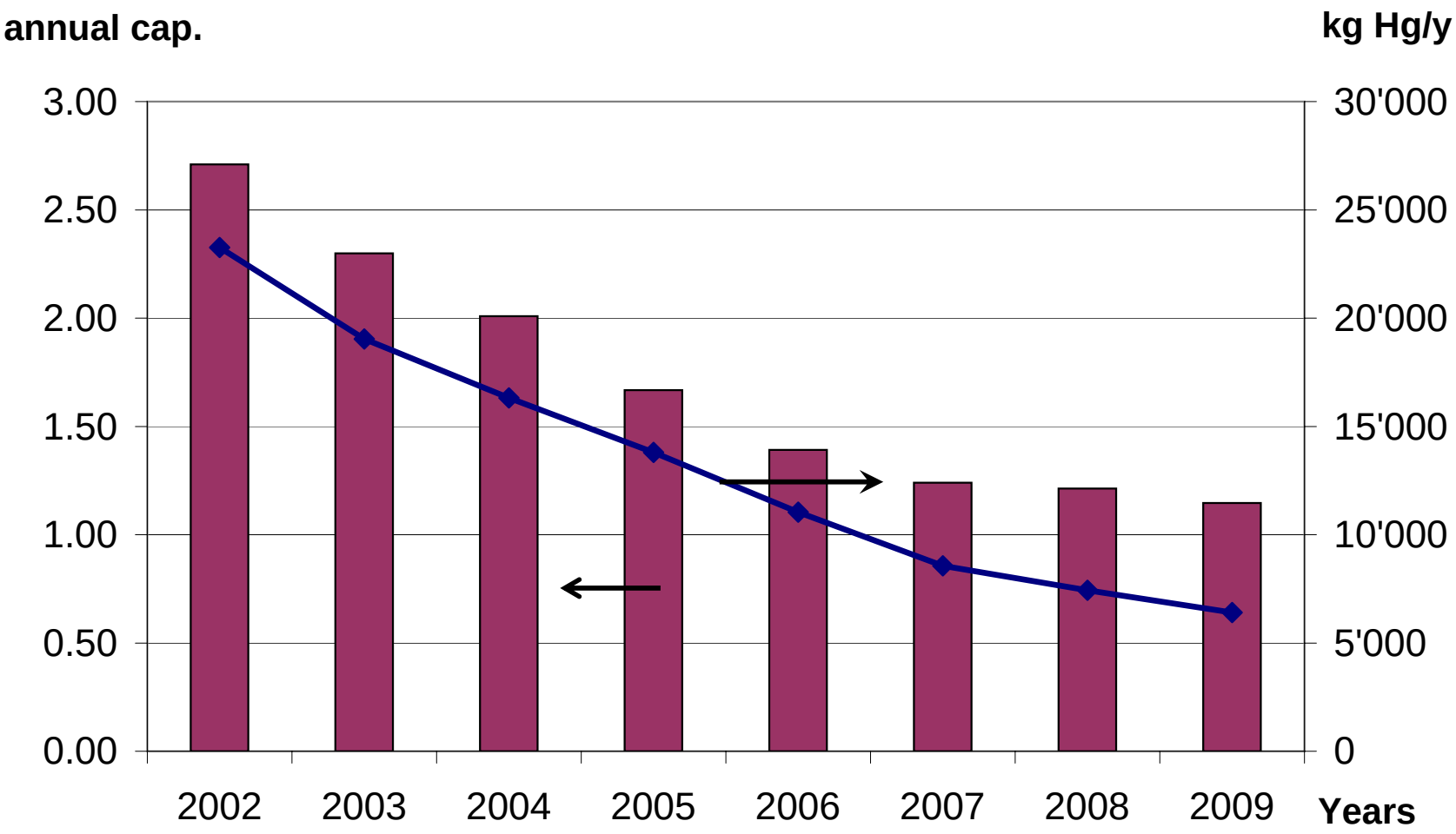
WCC - Chlor-Alkali Industry

Total mercury emissions (air + water + products) for USA/Canada, Europe, India and Brazil/Argentina (plus 1 Uruguayan and 3 Russian plants from 2005 onwards)



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.

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

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 Cl2/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	241'224	626	455	7482	8563	197'980
2008	60	6'129	89'408	196'797	413	366	6658	7'438	185'625
2009	58	5'603	-181'103	203'095	376	830	5'195	6'401	69'954

**** (1) no data reported for the Indian plants***

without all Russian plants data

Considering 1 Urugyian plant and 3 Russian plants from 2002

Hg plants	Capacity
Number	In 1000 t Cl2/y
89	9'029
87	8'726
84	8'569
78	8'271
74	7'929
70	6'904
60	6'129
58	5'586

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 Cl2/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	34.94	0.09	0.07	1.08	1.24	28.68
2008	60	6'129	15.61	32.11	0.07	0.06	1.09	1.21	30.29
2009	58	5'586	-34.94	36.36	0.07	0.15	0.93	1.15	12.52

**** (1) no data reported for the Indian plants***

without all Russian plants data

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consumption and emissions in kg/year (absolute data)

Production year: 2009								
ants	Capacity	Purchases /Sales	Consumption /Use	Emission with products	Emission to water	Emission to air	Total emissions	Solid waste
ber	In 1000 t Cl_2/y	kg Hg /y (- if sold)	kg Hg /y	kg Hg /y	kg Hg /y	kg Hg /y	kg Hg /y	kg Hg /y
37	4'224	-128'587	161'708	246	793	2'903	3'942	43'293
4	437	10'372	-1'204	8.2	12	469	490	3'355
7	188	4'950	4'600	25	0	151	176	442
7	335	-99'417	12'951	35	11	1'352	1'398	4'206
3	402	31'579	25'040	62	14	320	396	18'658
58	**5'586**	**-181'103**	**203'095**	**376**	**830.3**	**5'195**	**6'401**	**69'954**

emissions to air and water during dismantling also taken into account