

Additional information related to mercury – CZECH REPUBLIC

(Ministry of the Environment)

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National actions taken to control mercury

There are two chlor-alkali plants in the Czech Republic which is still using technology of amalgam electrolysis. This technology supposed to be replaced by the membrane technology by the end 2013 and 2014.

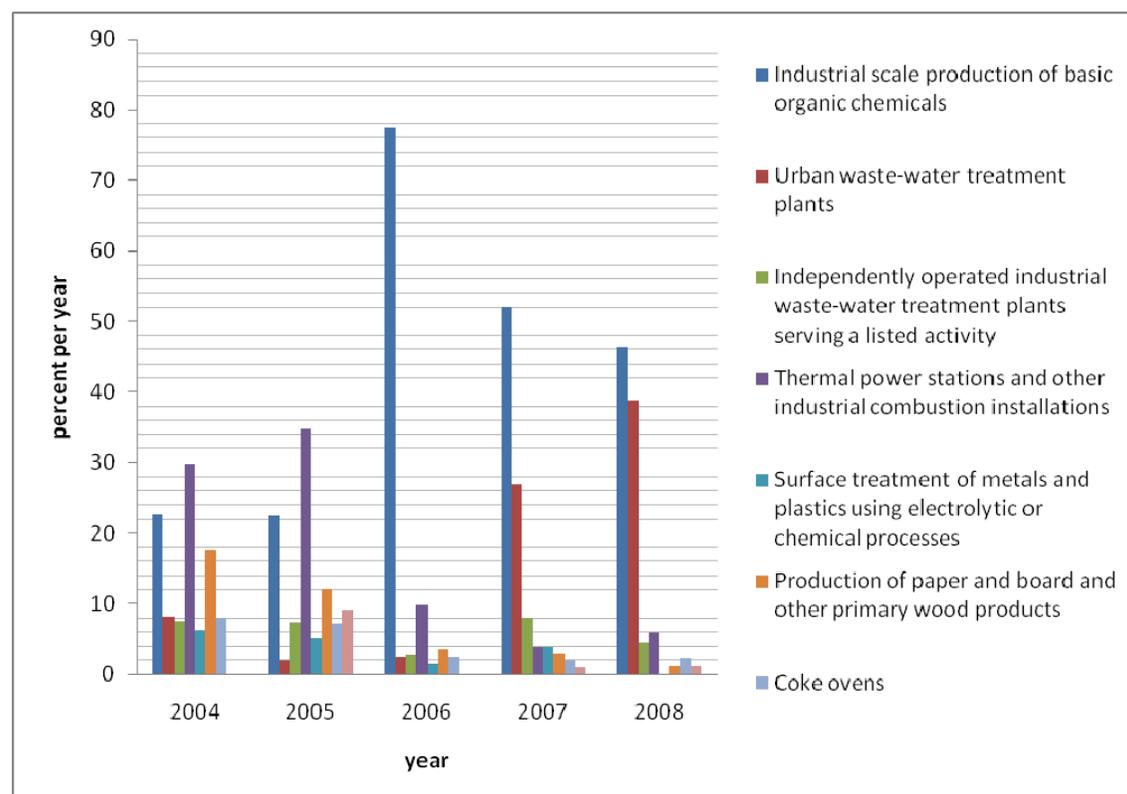
Data on mercury releases to water bodies and the health effects of such releases

Data from the European Pollutant Release and Transfer Register (E-PRTR) and previous European Pollutant Emission Register (EPER). Data are reported annually by industrial facilities.

Following table shows annual release to water during the years 2004-2008.

year	2004	2005	2006	2007	2008
Water release (kg/year)	74	87	191	144	191

Mercury comes to water mainly from industrial scale production of basic organic chemicals. During last years releases from thermal power stations significantly decreased (see chart below).



Health effects of mercury releases to water bodies

During last years several studies¹ were carried out to evaluate contamination of rivers and dams with mercury and to evaluate the health risks of eating fresh water fish from monitored places. Among those places were also localities close to factories still using technology of amalgam electrolysis (location in Obříství on Elbe river – close to Neratovice installation).

The value of total mercury and methylmercury was detected in muscles of indicator species of fish (chub, brown trout) from selected localities of free water. Mercury in fish muscles was found mainly in the form of methylmercury, where reaches 87 – 97 % of total mercury. The highest concentration values were detected in the locality of Obříství 1,6 mg/kg in 2003 and 0,86 mg/kg in 2004, $0,263 \pm 0,08$ mg/kg and MeHg $0,256 \pm 0,08$ mg/kg in 2007. This shows decreasing tendencies in concentrations of mercury. Mercury concentrations in fish from rivers that cross the borders of the Czech Republic (Elbe, Odra and Morava) are low.

The Czech Republic therefore does not contribute significantly to river pollution outside its national borders. Hazard indices of the sites monitored were well below 1, and reached 1.365 only in Obříství on Elbe for fisherman's family members (i.e. in the case of annual consumption of 10 kg fish). This indicates possible hazards involved in eating meat of fish caught in that location. Based on PTWI for methylmercury, the maximum amount of fish meat allowed for consumption per week was calculated. The site with the lowest value was Obříství on Elbe (0.44 kg).

Results of the study from The National Institute of Public Health (NIPH) shows on negligible level of mercury in drinking water thus the exposition from this source is negligible. The most common source of mercury exposure in the Czech Republic is marine fish and fishery products. Other food is not a significant source of mercury for the average consumer.

¹ K. Kružíková¹, T. Randák², R. Kenšová¹, H. Kroupová², D. Leontovyčová³, Z. Svobodová¹. Mercury and Methylmercury Concentrations in Muscle Tissue of Fish Caught in Major Rivers of the Czech Republic, Acta Vet. Brno 2008, 77: 637-643
Kružíková K., Svobodová Z., Valentová O., Randák T., Velíšek J. (2008): Mercury and methylmercury in muscle tissue of chub from the Elbe River main tributaries. Czech J. Food Sci., 26: 65–70.