

Environmental Risk Management Department

Bratislava 15 May 2006

No.: 5908/2006

Dear Dr. Maged Younes,

On the 21 March 2006 we have received your letter on Governing Council Decision 23/9 IV on Mercury programme - report summarizing supply, trade and demand information for mercury.

Following your request please find attached the information about mercury.

Annex No. 1 - Additional information on trade and demand for Mercury – the legislation in the Slovak Republic.

Annex No. 2 - Emissions of Hg in the Slovak Republic.

Annex No. 3 - The response of the Slovak Republic to the Mercury programme.

Annex No. 4 - The concentration of Hg.

Yours sincerely

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## 1. Supply of mercury

There was no mining company involved in mercury ores mining on the territory of the Slovak Republic in 1995-2005.

The most important economical accumulations of mono-mineral Hg-ores are situated in the East-Slovakia neovolcanites (Červenica, Dubník and Merník deposits) and in the Central-Slovakia neovolcanites (Malachov deposit). They are not exploited at present. Ore grade is low and fluctuates from 0.1 to 0.3 % Hg.

Rákoš deposit, situated in the southwest of the Spišsko-Gemerské Rudohorie Mts, represents the second type of Hg-deposits in Slovakia. Average ore grade of residual reserves is about 0.13 % Hg. Exploitation was terminated in 1988. Rest of reserves were depreciated from evidence in 2003.

Mercury as an admixture in complex Fe ores on Rudňany deposit was an important by-product in processing of siderite and barite ores until 1990. Mineralization was formed by cinnabarite, Hg-tetrahedrite (schwazite) and native mercury. Average Hg content is about 0.01 – 0.03 % in siderite ore and about 0.03 – 0.04 % Hg in barite ore.

A little amount of mercury occurs in concentrate produced by processing of Fe-BaSO<sub>4</sub> ore on Rudňany – Poráč deposit.

## 2. Trade in mercury

Any **manufacturer** in the Slovak Republic notified the placing on the market of elementary mercury, whether as a primary product of the mining activity or as a by-product of metalworking.

One **importer** notified import of 165 kg of the elementary mercury in the year 1999 and 90 kg in the year 2000.

In the Slovak Republic are not registered the biocides, containing the mercury compounds as an active principle.

Annex No. 7 to Act No. 223/2001 Coll. On Wastes defines types of batteries and accumulators to which the Act on Wastes applies:

1. Batteries and accumulators put into circulation after 1 January 1999 containing more than 0.0005% of mercury by weight.
2. Batteries and accumulators put into circulation after 18 September 1992 containing
  - a) More than 25 mg of mercury per cell
  - b) More than 0.025 % of cadmium by weight
  - c) More than 0.4 % of lead by weight.
3. Alkaline mangan batteries and accumulators put into circulation after 18 September 1992 containing more than 0.025 % of mercury by weight.

Following obligations from Act on Wastes are in place for batteries and accumulators listed above:

- §41(3), effective from 1 July 2001, it shall be prohibited to place on the market batteries and accumulators containing over 0.0005 % of mercury by weight.
- §41(7), spent batteries and accumulators listed in Annex 7 may be collected, recovered and disposed of only separately from other waste types.
- §41(8), it is prohibited to mix spent batteries and accumulators with household waste.
- §41(10), the holder of spent batteries and accumulators listed in Annex 7 shall be obliged to hand them in for recovery or disposal to an authorisation holder only
- §41(11), the manufacturer and importer of batteries and accumulators listed in Annex 8 as well as the manufacturer and importer of equipment with built in batteries and accumulators shall be obliged to pay a contribution to the Recycling Fund in an amount fixed under § 56

Following general obligations for handling with hazardous waste are in place in Slovak Republic:

- §40(1), prohibition to dilute and mix individual types of hazardous wastes or hazardous wastes with non-hazardous, with the aim of decreasing the concentration of the injurants present.
- §40(4), in collection, shipment and warehousing, hazardous waste must be packed in a suitable package and duly indicated under a special regulation
- §40(6), hazardous wastes shall be disposed of preferentially to other wastes

### **3. Demand for mercury**

The legislation as whole is covered by other institutions. Health sector is involved in amalgam field within its health impacts on human health. Within our legislation is mercury as part covered by our Act No 272/1994 Coll in latest wording, specifically The Regulation of the government No 45/2002 on health protection at work with chemical factors.

The information about amalgam consumption for stomatological needs is not available. From Slovak Chamber of dentists is estimated that the consumption of amalgam is 1 kg per stomatological ambulance. As whole it presents cca 1300 kg per 2600 ambulances by year. Mercury waste in fixed form is cca 130kg and it is estimated that 13 kg of that can be lost in public sewerage.

### **4. Artisanal and small - scale gold mining (ASM)**

We have no information.

### **Additional information on trade and demand for Mercury - the legislation in the Slovak republic**

Based on the authority of the Slovak Environmental Agency, we provide the following information on Mercury focused on the legislation rules of using and placing of mercury on the market in Slovak Republic.

- **Use and place of Mercury on the market**

The use and place on the market of mercury is restricted or banned according the Directive 76/769/EEC implemented to the national law by the Act No. **63/2001** Coll. on chemicals substances and preparations and the executive Order of the Ministry of Economy No. 67/2002 Coll. on the list of the specific chemicals and specific chemical preparations.

The Mercury and its compounds are listed in “*The List of active substances included in the preparations*” for which the import to the Slovak Republic is banned according the Order of the Ministry of the Agriculture of SR No. **33/1999** Coll. on plant protection preparations.

- **Production and disposal with the waste containing Mercury**

Mercury containing batteries and accumulators over than 0, 0005 %weight and the mercury containing vehicles materials and components are banned to place on the market in the Slovak Republic according the Act No. **223/2001** Coll. on waste. The Act appoints the obligation of the holders of equipments for disposal of wastes to stabilize mercury containing wastes (code of the waste: 050701, 060404 and 200121) below before its storage.

The producer and importer of the Mercury containing batteries and accumulators and/or the equipments with the installed batteries and accumulators are obligated to label of articles and register the volume of production concern to:

- Batteries and accumulators placed on the market after January 1, 1999 with content of the Mercury over 0, 0005 % weight;
- Batteries and accumulators placed on the market after September 18, 1992 with content of the Mercury over 25 mg per one component;
- Alkaline manganese batteries and accumulators placed on the market after September 18, 1992 with content of the Mercury over 0,025 % weight.

Further the mercury containing wastes is banned to dilute and mix with the aim to achieve 3000 mg/kg of dry matter.

- **IPPC**

In accordance with the Act No. 245/2003 Coll. on IPPC the holders of equipment are obligated report the emission data in to National Integrated Information System. The first reporting date has been stated to February 15, 2005.

- **Public Awareness**

According the Act No. 205/2004 Coll. on collecting and spreading of the information implemented the Directive of EPaR No. 2003/4/ES on participation of public on awareness of information on

the environment; the holders of equipments for disposal of wastes are obligated to report the threshold value based on the compartment of the environment to the PRTR following way:

The threshold value for release to air – over than 10 kg/yr

The threshold value for release to water – over than 1 kg/yr

The threshold value for release to soil – over than 1 kg/yr

The threshold value for transmission of Mercury and its compounds - over than 5 kg/y

The first reporting date has been stated in 2006.

**Emissions of Hg in (t) in SR**

<b>Sektor</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	
Public power	0.067711227	0.074074808	0.079573733	0.064376935	0.082992662	0.
District heating plants	0.038876826	0.033317224	0.022846106	0.018421308	0.011017364	0.
	<b>0.106588053</b>	<b>0.107392033</b>	<b>0.102419839</b>	<b>0.082798244</b>	<b>0.094010026</b>	<b>0.</b>
Iron production	0.28638	0.275802	0.251808	0.264192	0.237016	
Ore agglomeration	2.086936	2.159296	2.173249008	2.174144	2.430732176	2.
	<b>2.373316</b>	<b>2.435098</b>	<b>2.425057008</b>	<b>2.438336</b>	<b>2.667748176</b>	<b>2.</b>
Copper production	0.0007356	0.112725408	0.00106236	0.3490374	0.280226019	0.
Aluminium oxide production	0.06300585	0.019000393	0.013823884	0.016561585	0.0085964	0.
Magnesite production	3.66174E-04	4.27315E-04	3.22850E-04	2.93062E-04	3.04731E-04	2.
	<b>0.064107624</b>	<b>0.132153116</b>	<b>0.015209094</b>	<b>0.365892047</b>	<b>0.28912715</b>	<b>0.</b>
Glas production	0.0115332	0.012215	0.0122036	0.01230435	0.0135252	
Cement production	0.219734843	0.149629419	0.097268672	0.105431252	0.120592395	0.
Combustion in boilers, gas. turbines and stat. engines	0.225704281	0.244209687	0.216250523	0.207903659	0.174338641	0.
	<b>0.456972325</b>	<b>0.406054106</b>	<b>0.325722795</b>	<b>0.325639261</b>	<b>0.308456237</b>	<b>0.</b>
Commercial and institutional plants	0.046520119	0.046520119	0.026758783	0.026758783	0.026758783	0.
Residential plants	0.04564344	0.041303045	0.036156853	0.028421874	0.030615186	0.
Agriculture						
Inorganic chemical industry	0.03	0.04	0.042795	0.03	0.031	
Steel production	0.011922	0.011874	0.010374	0.010452	0.010504626	0.
Alloys (Cu-Zn) production						
Incineration of municipal waste	0.257353488	0.257353488	0.146072736	0.193467546	0.247818924	0.
Incineration of industrial waste	0.47087454	0.47087454	0.22239621	0.20119413	0.36577143	0.
Incineration of hospital waste			0.04208739	0.02590449	0.01907298	0.
Cremation	0.00319	0.00326	0.00319	0.00348	0.003524	
	<b>0.731418028</b>	<b>0.731488028</b>	<b>0.413746336</b>	<b>0.424046166</b>	<b>0.636187334</b>	<b>0.</b>
<b>Total:</b>	<b>3.86648759</b>	<b>3.951882447</b>	<b>3.398239709</b>	<b>3.732344376</b>	<b>4.094407518</b>	<b>3.</b>

Response of the Slovak republic to the Mercury programme.

The emissions of mercury (Hg) as well as the others heavy metals are inventoried on national level in accordance with requirements of international methodology Joint EMEP/CORINAIR Atmospheric Emission Inventory Guidebook“. Activity data are represented by the amount of produced or exported and imported products, respectively the amounts of burned fuels in individual stationary combustion equipments. Emission factors for the emission estimation have been taken over from literature, smaller amount comes from the measurements on sources in SR. Emissions are estimated according emission factors and are evaluated by separates sectors. The emissions show a decreasing trend after 1990, which is influenced by ceasing of several obsolete ineffective metallurgy plants (mainly the mercury production), reconstruction of electrostatic precipitators and other dust control equipments, elimination of leaded petrol since 1996.

In Institute are not available information about production of mercury containing batteries and other products, also we don't have information about mining.

In the Slovak Republic is only one factory were mercury is used as a catalyst for production of vinyl chloride monomers. An emission of the mercury into surface water from this factory in year 2004 was 481 kg/year Hg and in year 2005 it was 484 kg/year.

In permits for this factory are given limits for relevant pollutants in wastewater discharged into surface water. Limit of average concentration of Hg until the end of year 2005 was  $0.15 \text{ mg.l}^{-1}$  ( $0.922 \text{ t/year}$ ), to the end of year 2006 the average concentration of mercury must decreased to  $0.08 \text{ mg.l}^{-1}$  ( $0.492 \text{ t/year}$ ).

The Slovak hydrometeorological institute performs the long term monitoring of mercury concentration in surface water. The results show reduction of mercury concentration during last decade (1994-2004). The most polluted rivers in the Slovak Republic belong to III. quality class (less than  $0.5 \text{ }\mu\text{g.l}^{-1}$ ) according national classification.

		Water - concentration of Hg [ $\mu\text{g}\cdot\text{l}^{-1}$ ]			Sediment - concentration of Hg [ $\text{mg}\cdot\text{kg}^{-1}$ ]	
		2002	2003	2004	2002	2003
Dunaj - Bratislava	Annual average	0.18	0.1 M	0.1 M	0.061	0.068
	Minimum-Maximum	0.1-1.1	-	-	0.02-0.099	0.034-0.088
	Number of measurements	12	12	12	25	3
Morava - Devínska Nová Ves	Annual average	0.116	0.116	0.183	-	-
	Minimum-Maximum	0.1-0.2	0.1-0.2	0.1-0.2	-	-
	Number of measurements	6	6	6	-	-
Váh - Komárno	Annual average	0.1 M	0.1025	0.1 M	0.17	0.11
	Minimum-Maximum	-	0.1-0.13	-	0.008-0.24	0.143-0.067
	Number of measurements	12	12	12	12	3
Nitra - Komoča	Annual average	0.1 M	0.117	0.244	-	-
	Minimum-Maximum	-	0.1-0.2	0.07-0.6	-	-
	Number of measurements	6	6	12	-	-
Hron - Kamenica	Annual average	0.1M	0.1 M	0.1 M	0.14	0.164
	Minimum-Maximum	-	-	-	0.013-0.24	0.099-0.229
	Number of measurements	4	4	4	12	2
Ipeľ - Salka	Annual average	0.1 M	0.1 M	0.1 M	0.026	0.05
	Minimum-Maximum	-	-	-	0.011-0.077	0.0076-0.0126
	Number of measurements	4	5	4	12	3
Laborec - Krásny Brod	Annual average	-	0.1 M	-	-	-
	Minimum-Maximum	-	-	-	-	-
	Number of measurements	-	5	-	-	-
Bodrog - Streda nad Bodrogom	Annual average	0.57	0.094	2.09	-	-
	Minimum-Maximum	0.05-0.09	0.05-0.15	0.66-6	-	-
	Number of measurements	6	10	9	-	-
Hornád - Ždaňa	Annual average	0.1 M	0.17	1.89	-	-
	Minimum-Maximum	-	0.1-0.5	1.32-2.79	-	-
	Number of measurements	6	6	6	-	-

M – Limit of determination