Mercury

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CANADIAN DEVELOPMENTS

Since the closure of Cominco Ltd.'s Pinchi Lake mine in 1975, Canada no longer produces mercury metal. Mercury has been primarily an imported commodity in Canada. In 1996, Canada consumed a total of 6.3 t of metallic mercury, primarily for applications in electrical apparatus, industrial and control instruments, and for the electrolytic preparation of chlorine at the one remaining chlor-alkali plant for use in the pulp and paper industry. Consumption for applications such as gold recovery, industrial chemicals, and paints and pigments has been phased out. Canada exported 4.3 t of mercury in 1997 valued at $7000, compared to 137.1 t in 1996 worth $1.1 million. Imports totalled 7.1 t valued at $66 000 in 1997 compared to 5.4 t worth $49 000 in 1996.

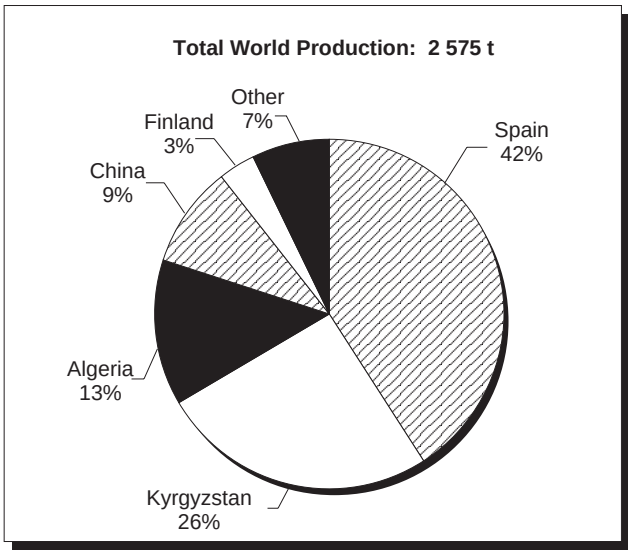
WORLD DEVELOPMENTS

World production of mercury has been declining steadily over the past few years. Total world production was 2575 t in 1996, compared to 3276 t in 1995. Spain is the world's largest producer followed by Kyrgyzstan, China and Algeria. Together these four countries accounted for close to 90% of the world's total production of mercury in 1996.

In the United States, about 15 t of mercury are recovered as a by-product of gold mining in Nevada, California and Utah. Secondary production greatly outweighs production from primary sources. According to the U.S. Geological Survey, the United States produced some 400 t of secondary mercury in 1997. Sales of mercury by the Defense Logistics Agency (DLA) from the National Defense Stockpile remained suspended in 1997 pending the completion of an analysis of the potential environmental impact of the sales.

Environment ministers from Canada, Mexico and the United States approved a Mercury Action Plan that was developed under the Sound Management of Chemicals initiative established by the North American Commission for Environmental Cooperation (CEC). The Action Plan, developed by the three countries in consultation with industry and other interested parties, outlines a framework for the development of initiatives to reduce the exposure of North American ecosystems and humans to mercury through the prevention and reduction of anthropogenic releases of mercury to the North American environment.

Figure 1
World Production of Mercury, 1996



Source: International Consultative Group on Nonferrous Metal Statistics.

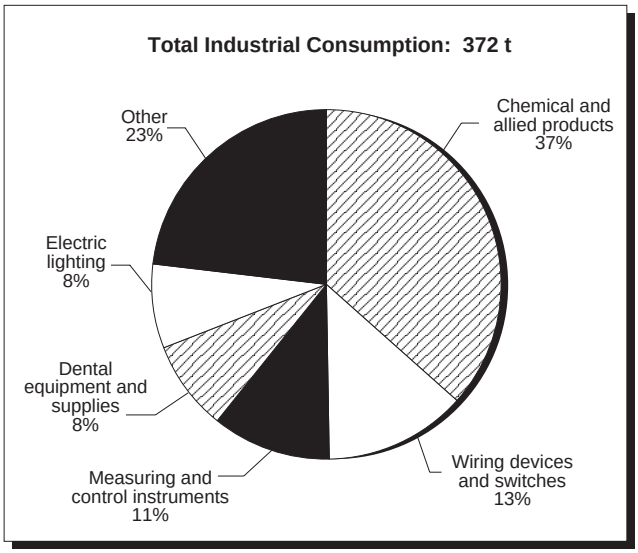
CONSUMPTION AND USES

Until the 1960s, mercury was used primarily as a flowing mercury cathode for the electrolysis of an aqueous sodium chloride solution to yield chlorine and caustic soda. Process losses to the environment became a concern and many chlor-alkali plants were either closed or converted to diaphragm cell or ion exchange technologies. Worldwide demand for this

application continues, but is declining as older facilities are being closed and replaced with mercury-free technology.

Batteries are another major market for mercury that is experiencing a decline as manufacturers switch to alternative metals. The third major use for mercury is in electrical applications. Uses range from metallic mercury switches in thermostats to mercury-vapour discharge lamps. Other uses include for mildew-proofing paint additives, and use in dental amalgams, temperature- and pressure-measuring devices, detonators, pigments, and pharmaceuticals. Increased concerns related to the risks of exposure to human health and the environment have led to increased restrictions on the uses of mercury; however, its unique properties will likely guarantee its use in some key sectors for the foreseeable future.

Figure 2
U.S. Industrial Consumption of Mercury Metal, 1996



Source: U.S. Geological Survey.

Mercury is a naturally occurring element that is unique amongst the metals in that it is liquid at ambient temperature. At room temperature, mercury is a silvery white colour. It is solid white below its melting point of -38.9˚C, and is a colourless gas above its boiling point of 356.9˚C. Mercury exists in nature in some 25 different minerals but is most commonly recovered from the red sulphide mineral known as cinnabar (HgS).

Other common mercury ores include corderoite and livingstonite. Native mercury metal exists in nature but is rare. Mercury deposits are generally formed at relatively low temperatures in the world's major orogenic belts.

PRICE AND OUTLOOK

The commercial unit for handling mercury is the "flask," which weighs 34.47 kg (76 lb). Prices for mercury peaked in 1988 at US$335.52/flask and have since declined. Mercury prices reached their lowest level in September 1991 at US$85/flask. North American mercury prices started 1997 strong at US$213/flask, but declined steadily throughout the year to end at about $180/flask, for a year-end average of $186.04/flask (for lots sold containing 50 flasks or more). In Europe, prices continued to reflect the oversupplied market from Eastern European sources, trading in the $US140-$150/flask range at year-end. North American prices are expected to remain in the $180-$200/flask range in 1998. In the longer term, prices are expected to remain relatively stable as demand in mercury's remaining markets stabilizes.

Note: Information in this review was current as of March 23, 1998.

TARIFFS

Item No.	Description	Canada			United States
		MFN	GPT	USA	Canada
2617.90.00.90	Mercury ores and concentrates	Free	Free	Free	Free
2805.40	Mercury	Free	Free	Free	Free
2825.90.10.20	Mercury oxides	4%	Free	Free	Free

Sources: Customs Tariff, effective January 1998, Revenue Canada; Harmonized Tariff Schedule of the United States, 1998.

TABLE 1. CANADA, MERCURY TRADE, 1995-97, AND CONSUMPTION, 1994-96

Item No.		1995		1996		1997p	
		kilograms	($000)	(kilograms)	($000)	(kilograms)	($000)
EXPORTS							
2805.40	Mercury						
	United States	107 394	349	137 065	1 090	4 264	7
	Total	107 394	349	137 065	1 090	4 264	7
IMPORTS							
2617.90.00.90	Mercury ores and concentrates	–	–	–	–	–	–
	Total	–	–	–	–	–	–
2805.40	Mercury						
	United States	6 130	49	5 291	48	6 847	63
	Germany	38	. . .	24	. . .	218	3
	Other countries	11	. . .	114	1	51	. . .
	Total	6 179	49	5 429	49	7 116	66
2825.90.10.20	Mercury oxides						
	United States	49	1	136	3	389	8
	Germany	192	4	118	2	35	1
	Other countries	–	–	–	–	17	. . .
	Total	241	5	254	5	441	9

	1994	1995	1996p
		(kilograms)	
C0NSUMPTION[1] (metal)			
Electrical apparatus, industrial and control instruments	x	x	x
Electrolytic preparation of chlorine and caustic soda and other uses	x	x	x
Total	6 376	2 985	6 327

Sources: Natural Resources Canada; Statistics Canada.
– Nil; . . . Amount too small to be expressed; p Preliminary; x Confidential.
1 Available data as reported by consumers.
Note: Numbers may not add to totals due to rounding.

TABLE 2. AVERAGE MERCURY PRICES, 1997

	U.S. Domestic
	(US$/flask)
January	213.75
February	187.50
March	210.00
April	181.25
May	180.00
June	180.00
July	185.00
August	185.00
September	170.00
October	180.00
November	180.00
December	180.00
Yearly average	186.04

Source: *Metals Week*.

TABLE 3. WORLD PRODUCTION OF MERCURY, 1993-96

Country	1993	1994	1995	1996p
		(tonnes)		
Algeria	459.1	414.0	292.0	347.1
Chile	127.0	70.1	9.0	5.0
China, People's Republic of e	520.0	467.0	779.0	242.0
Finland	101.0	90.0	90.0	88.0
Kyrgyzstan e	350.0	379.0	380.0	660.0
Mexico	12.0	12.0	15.0	15.0
Russia e	60.0	50.0	50.0	50.0
Slovak Republic p	50.0	50.0	50.0	20.0
Slovenia	–	6.0	5.0	5.0
Spain	64.0	393.0	1 501.0	1 053.0
Tajikistan e	80.0	55.0	50.0	45.0
Ukraine e	80.0	50.0	40.0	30.0
United States	29.0	15.0	15.0	15.0
Total world	1 932.1	2 051.1	3 276.0	2 575.1

Sources: Natural Resources Canada; International Consultative Group on Nonferrous Metal Statistics.
– Nil; e Estimated; p Preliminary.