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. Canadian consumption of mercury has steadily declined in recent years. In 1998, just over 2 t of mercury was consumed for applications in the electrical apparatus sector. Consumption for applications such as gold recovery, industrial chemicals, and paints and pigments has been phased out. Canada exported 8.0 t of mercury in 1998 valued at $14 000, compared to 4.3 t in 1997 worth $7000. Imports totalled 11.4 t valued at $109 000 in 1998 compared to 7.1 t worth $66 000 in 1997.

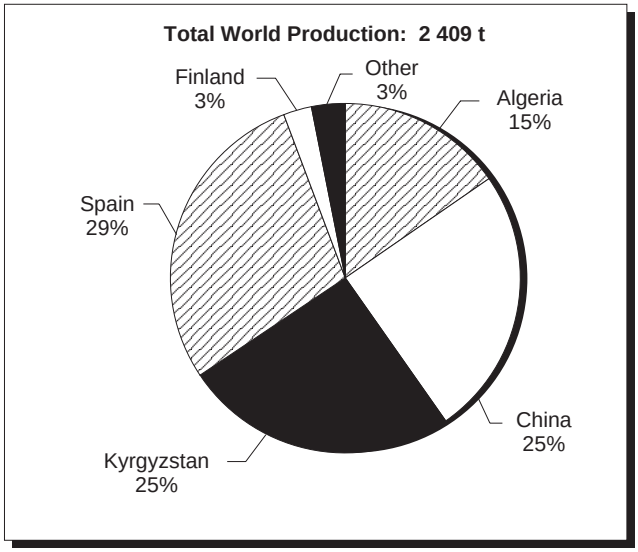
WORLD DEVELOPMENTS

World production of mercury has been declining steadily over the past few years. Total world production was 2409 t in 1997, compared with 2713 t in 1996. Spain was the world's largest producer followed by Kyrgyzstan, China and Algeria. Together these four countries accounted for just over 94% of the world's total production of mercury in 1997. Mined mercury accounts for about 60% of world consumption with the remainder supplied from recycled sources.

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 1998 pending the completion of an analysis of the potential environmental impact of the sales.

Elsewhere in the world, mines in Slovenia, Turkey and the Ukraine remained closed. By-product production from mining continues in Finland, Mexico and Chile. The decommissioning of mercury chlor-alkali plants in Europe and elsewhere remains a significant source of secondary mercury. Plant closures in Finland, Norway, the United Kingdom and South Africa have contributed some 360 t since 1997. Further plant closures and conversions are planned. There are some 100 mercury cell chlor-alkali plants still in operation worldwide.

Figure 1
World Production of Mercury, 1997



Source: International Consultative Group on Nonferrous Metals Statistics.

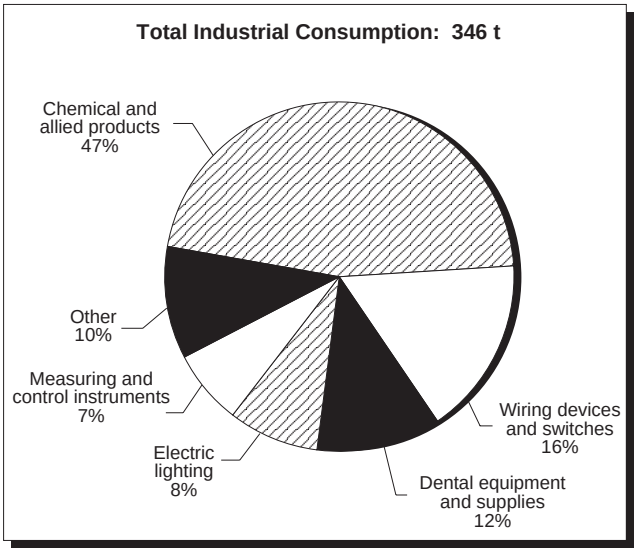
CONSUMPTION AND USES

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 to be the single largest use for

mercury, but it 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, 1997



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.

PRICES 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 1998 at US$180-$195/flask, but declined steadily throughout the year to end in the $165-$185/flask range, for a year-end average of about $180/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 $US135-$145/flask range at year-end. North American prices are expected to remain in the $160-$180/flask range in 1999. 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 January 29, 1999.

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	Free	Free	Free	Free

Sources: Customs Tariff, effective January 1999, Revenue Canada; Harmonized Tariff Schedule of the United States, 1999.

TABLE 1. CANADA, MERCURY TRADE, 1996-98, AND CONSUMPTION, 1995-97

Item No.		1996		1997		1998p	
		(kilograms)	($000)	(kilograms)	($000)	(kilograms)	($000)
EXPORTS							
2805.40	Mercury						
	United States	137 065	1 090	4 264	7	8 037	14
	Total	137 065	1 090	4 264	7	8 037	14
IMPORTS							
2617.90.00.90	Mercury ores and concentrates	–	–	–	–	–	–
	Total	–	–	–	–	–	–
2805.40	Mercury						
	United States	5 291	48	6 855	63	10 494	101
	Germany	24	. . .	218	3	280	2
	Other countries	114	1	51		609	6
	Total	5 429	49	7 124	66	11 383	109
2825.90.10.20	Mercury oxides						
	United States	138r	3	393	8	344	6
	Germany	118	2	35	1	119	2
	Other countries	–	–	17	. . .	3	. . .
	Total	256r	5	445	9	466	8

	1995	1996	1997p
		(kilograms)	
CONSUMPTION[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	2 985	6 327	x

Sources: Natural Resources Canada; Statistics Canada.
– Nil; . . . Amount too small to be expressed; p Preliminary; r Revised; 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 AND 1998

	New York	
	1997	1998
	(US$/flask)	
January	233.98	187.00
February	232.76	187.00
March	210.00	187.00
April	228.64	187.00
May	220.00	187.00
June	199.05	181.55
July	200.00	175.00
August	198.10	175.00
September	190.83	175.00
October	198.83	175.00
November	191.47	175.00
December	187.00	175.00
Yearly average	207.56	180.55

Source: *American Metal Market.*

TABLE 3. WORLD PRODUCTION OF MERCURY, 1994-97

Country	1994	1995	1996	1997p
		(tonnes)		
Algeria	414.0	292.0	368.0	370.0
Chile	70.1	9.0	5.0	5.0
Chinae	467.0	779.0	510.0	600.0
Finland	90.0	90.0	88.0	63.0
Kyrgyzstane	379.0	380.0	584.0	611.0
Mexico	12.0	15.0	15.0	15.0
Spain	393.0	1 497.0	1 053.0	690.0
Tajikistane	55.0	50.0	45.0	40.0
Ukrainee	50.0	40.0	30.0	–
United States	15.0	15.0	15.0	15.0
Total world	1 945.1	3 167.0	2 713.0	2 409.0

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