

# Mineral Industry Surveys

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## BISMUTH IN THE THIRD QUARTER 2011

Bismuth consumption in the United States for the third quarter of 2011 was estimated to be 167 metric tons (t), about the same as that in the second quarter of 2011, and 17% lower than that in the third quarter of 2010. Bismuth imports in the first 3 quarters of 2011 were 1,340 t, a slight increase from those in the comparable period of 2010.

The New York dealer price range for bismuth, published in Platts Metals Week, started July at \$11.50 to \$11.70 per pound and increased steadily during the third quarter to finish September at \$12.75 to \$13.00 per pound.

Panasonic Corp. (Kadoma, Osaka, Japan) announced the development of innovative thermoelectric tubes especially suited for fluid heat sources such as hot water and steam. The tubes are composed of bismuth telluride and nickel, which allows for the transfer of electricity to take place with minimal loss of energy. Panasonic claimed that the technology could be used in factories as a form of renewable energy (Panasonic Corp., 2011).

### Update

On January 16, 2012, the Platts Metals Week New York dealer price for bismuth was \$9.80 to \$10.40 per pound.

Fortune Minerals Ltd. (London, Ontario, Canada) reported that its NICO gold-cobalt-bismuth-copper project in Canada's

Northwest Territories moved to the next stage of the environmental assessment process after passing conformity tests in August and meeting obligations of the information request stage in December. The Mackenzie Valley Review Board was conducting the environmental assessment. The 31-million-metric-ton (Mt) deposit was planned to be developed using open pit and underground mining, with daily ore processing estimated at 4,560 t during an 18-year mine life. Fortune planned to produce about 180 t of bulk concentrate daily for shipment to the company's proposed hydrometallurgical refinery near Saskatoon, Saskatchewan, for further processing into higher value metal products. Fortune expected to be a supplier of 99.5% bismuth cathode and 99.99% bismuth ingot as well as cobalt, copper, gold, and nickel products (Fortune Minerals Ltd., 2011).

### References Cited

- Fortune Minerals Ltd., 2011, Fortune Minerals announces NICO permitting update: London, Ontario, Canada, Fortune Minerals Ltd. press release, December 16, 2 p.
- Panasonic Corp., 2011, Panasonic develops thermoelectric tubes for compact geothermal electricity generation and waste heat recovery: Kadoma, Osaka, Japan, Panasonic Corp. press release, June 30, 1 p.

TABLE 1  
SALIENT BISMUTH STATISTICS<sup>1</sup>

(Thousand kilograms unless otherwise specified)

	2010			2011			
	Year	Third quarter	Fourth quarter	First quarter	Second quarter	Third quarter	First-third quarter
Consumption <sup>2</sup>	884	202	202	166	168	167	501
Exports <sup>3</sup>	704 <sup>4</sup>	188	167 <sup>4</sup>	304	241	274	819
Imports for consumption	1,620	413	294	467	426	446	1,340
Price per pound, dealer, average of period	\$8.76	\$8.49	\$9.45	\$11.39	\$11.39	\$12.34	\$11.71
Stocks, end of period, consumer	134	136	133	134	134	140	140

<sup>1</sup>Data are rounded to no more than three significant digits; except prices.

<sup>2</sup>Estimated, based on net imports.

<sup>3</sup>Comprises bismuth metal and the bismuth content of alloys and waste and scrap.

<sup>4</sup>Source: U.S. Census Bureau data as adjusted by U.S. Geological Survey.

TABLE 2  
ESTIMATED BISMUTH METAL CONSUMED IN THE UNITED STATES, BY USE<sup>1</sup>

(Thousand kilograms)

Use	2010			2011			
	Year	Third quarter	Fourth quarter	First quarter	Second quarter	Third quarter	First-third quarter
Chemicals <sup>2</sup>	589	132	132	W	W	W	W
Bismuth alloys	62	W	W	W	W	W	W
Metallurgical additives	231	W	W	W	W	W	W
Other	4	56	54	W	W	W	W
Total	884	202	202	166	168	167	501

W Withheld to avoid disclosing company proprietary data; included in "Total."

<sup>1</sup>Data are rounded to no more than three significant digits, may not add to totals shown.

<sup>2</sup>Includes industrial and laboratory chemicals, cosmetics, and pharmaceuticals.

<sup>3</sup>Withheld to avoid disclosing company proprietary data.

TABLE 3  
U.S. EXPORTS OF BISMUTH METAL, BY COUNTRY<sup>1</sup>

(Kilograms)

Country	2010			2011					
	Year	Third quarter	Fourth quarter	First quarter	Second quarter	July	August	September	First-third quarter
Austria	20,000	--	--	--	--	--	--	--	--
Belgium	14,800	--	--	--	--	--	--	--	--
Brazil	10,600	--	7,630	1,740	--	--	10,500	--	12,200
Canada	41,400	14,600	3,690	3,450	5,190	695	4,030	1,900	15,300
China	26,400	1,340	14,600	2,440	12,800	4,920	406	--	20,600
France	286,000 <sup>2</sup>	93,500	71,600 <sup>2</sup>	--	35,800	--	--	8,220	44,100
Germany	73,500	660	9,570	8,090	--	--	1,230	--	9,320
Hong Kong	9,260	1,010	--	--	24	1,470	--	--	1,490
Mexico	100,000	23,800	32,000	35,300	46,900	10,100	35,600	32,400	160,000
Thailand	21,700	7,110	3,630	3,960	6,560	--	--	37	10,600
Vietnam	75,100 <sup>2</sup>	34,800	18,800 <sup>2</sup>	236,000	122,000	50,300	52,500	51,600	512,000
Other	24,900 <sup>r</sup>	10,900 <sup>r</sup>	5,630 <sup>r</sup>	12,600 <sup>r</sup>	12,100	1,710	2,440	4,080	32,900
Total	704,000 <sup>2</sup>	188,000	167,000 <sup>2</sup>	304,000 <sup>r</sup>	241,000	69,300	107,000	98,100	819,000

<sup>r</sup>Revised. -- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Adjusted by U.S. Geological Survey.

Source: U.S. Census Bureau.

TABLE 4  
U.S. IMPORTS FOR CONSUMPTION OF BISMUTH METAL, BY COUNTRY<sup>1</sup>

(Kilograms)

Country	2010			2011					
	Year	Third quarter	Fourth quarter	First quarter	Second quarter	July	August	September	First-third quarter
Belgium	674,000	135,000	164,000	224,000	134,000	53,600	63,600	38,500	513,000
Canada	21,300	3,000	1,940	4,760	1,390	2,010	--	564	8,720
China	875,000	260,000	116,000	234,000	271,000	88,000	151,000	28,800	773,000
Germany	4,090	100	390	280	100	--	--	420	800
Korea, Republic of	10,000	--	10,000	--	9,990	--	9,980	5,020	25,000
United Kingdom	35,800	14,300	1,650	4,450	9,490	4,000	--	--	17,900
Other	1,880 <sup>r</sup>	873	297	--	45	45	--	50	140
Total	1,620,000	413,000	294,000	467,000	426,000	148,000	225,000	73,300	1,340,000

<sup>r</sup>Revised. -- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.