

# Sulphur

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**T**his review on sulphur has been abbreviated to include mainly statistical tables.

Preliminary figures for 1997 show Canadian sulphur production is similar to the previous year's level. Total sulphur production is estimated at 9.4 Mt. Of this amount, elemental sulphur accounted for 8.4 Mt. Nearly all of this came from the production of natural gas, with the remainder derived from the refining of high-sulphur crude oil and heavy oil. An additional 1 Mt of sulphur, in the form of sulphuric acid and liquefied sulphur dioxide, was recovered from the smelting of metallic sulphides and the roasting of zinc-sulphide concentrates. Most sulphur production occurs in Alberta, followed by British Columbia and Saskatchewan. Other provinces produce small amounts of sulphur.

Canadian sulphur exports in 1997 were, as in the past, significant. Table 1 shows exports of elemental sulphur at an estimated 6.2 Mt, which is marginally

higher than the previous year. Industry figures vary somewhat, indicating exports, other than to the United States, of 5.6 Mt in 1997. This was 8% above the previous year's level. Canadian sulphur was sold to more than 25 countries, with notable increases reported in exports to Morocco, Brazil, Tunisia, Israel and India.

In addition, Canada exported 1.6 Mt of sulphuric acid, nearly all to the United States, as well as a small amount of sulphur dioxide, all of which went to the United States. Canadian sulphur imports continued to be minimal.

Most elemental sulphur is consumed in the form of sulphuric acid, for which the single largest use is in the manufacture of phosphate-based fertilizers. An estimated 2.5 Mt of sulphuric acid were consumed in Canada in 1996, the latest year for which statistics are available. About half of the acid consumption was for agricultural chemicals and fertilizers. The next largest use was for the pulp and paper industry.

*Notes: (1) For definitions of mineral production, shipments and trade, please refer to Chapter 65. (2) Information in this review was current as of March 31, 1998.*

## TARIFFS

Item No.	Description	Canada			United States
		MFN	GPT	USA	Canada
2503.00	Sulphur of all kinds, other than sublimed sulphur, precipitated sulphur and colloidal sulphur				
2503.00.00.10	Crude or unrefined sulphur	Free	Free	Free	Free
2503.00.00.90	Other	Free	Free	Free	Free
2802.00.00	Sulphur, sublimed or precipitated; colloidal sulphur	Free	Free	Free	Free
2807.00.00	Sulphuric acid; oleum	Free	Free	Free	Free
2811.23.00	Sulphur dioxide	Free	Free	Free	Free

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

TABLE 1. CANADA, SULPHUR SHIPMENTS AND TRADE, 1996 AND 1997

Item No.	1996		1997P		
	(tonnes)	(\$000)	(tonnes)	(\$000)	
<b>SHIPMENTS<sup>1</sup></b>					
	Sulphur in smelter gases <sup>2</sup>	1 033 348	75 614 <sup>r</sup>	1 045 287	76 097
	Elemental sulphur <sup>3</sup>	7 433 112 <sup>r</sup>	76 326 <sup>r</sup>	7 657 772	82 727
	Total sulphur content	8 466 460 <sup>r</sup>	151 940 <sup>r</sup>	8 703 059	158 824
<b>PRODUCTION</b>					
	Sulphur in smelter gases <sup>2</sup>	1 043 847 <sup>r</sup>	..	1 032 519	..
	Elemental sulphur <sup>3</sup>	8 445 949 <sup>r</sup>	..	8 413 936	..
	Total sulphur content <sup>2</sup>	9 489 796 <sup>r</sup>	..	9 446 455	..
<b>IMPORTS</b>					
2503.00.00.10 <sup>a</sup>	Sulphur, crude or unrefined				
	United States	262	29	15 791	2 305
	Total	262	29	15 791	2 305
2503.00.00.90 <sup>b</sup>	Sulphur, n.e.s.				
	United States	21 681 <sup>r</sup>	3 489 <sup>r</sup>	28 711	4 345
	France	2 398	367	1 983	339
	Canada	-	-	11	3
	Spain	7	1	7	1
	United Kingdom	-	-	8	...
	Brazil	-	-	3	...
	Qatar	-	-	2	...
	Japan	-	-	2	...
	Australia	-	-	1	...
	Total	24 086 <sup>r</sup>	3 857 <sup>r</sup>	30 728	4 688
2802.00	Sulphur sublimed or precipitated; colloidal sulphur				
	United States	748	306	303	149
	France	282	212	149	91
	Japan	4	3	21	12
	Spain	-	-	7	5
	Germany	3	2	3	2
	Netherlands	2	2	1	1
	Total	1 039	525	484	260
2807.00	Sulphuric acid; oleum				
	United States	75 738	6 833	94 805	7 438
	India	193	25	338	44
	Canada	-	-	87	4
	Switzerland	-	-	10	1
	Germany	28	4	3	...
	Taiwan	7	1	2	...
	Portugal	-	-	2	...
	United Kingdom	32	4	-	-
	Japan	18	2	...	...
	Total	76 016	6 869	95 247	7 487
2811.23	Sulphur dioxide				
	United States	1 636	422	3 271	601
	Canada	-	-	42	9
	United Kingdom	-	-	3	1
	Total	1 636	422	3 316	611
<b>EXPORTS</b>					
2503.00.00.10 <sup>a</sup>	Sulphur, crude or unrefined				
	Morocco	854 706	72 564	1 199 234	91 429
	Brazil	836 438	55 955	942 775	64 708
	United States	934 179 <sup>r</sup>	47 465 <sup>r</sup>	943 824	33 756
	South Africa	504 626	31 366	585 520	29 902
	Tunisia	273 787	20 530	459 209	25 829
	Mexico	471 452	26 649	481 226	22 597
	Cuba	98 394	7 471	130 445	15 601

TABLE 1 (cont'd)

Item No.	1996		1997 <sup>p</sup>		
	(tonnes)	(\$000)	(tonnes)	(\$000)	
<b>EXPORTS (cont'd)</b>					
	Israel	85 165	4 846	301 281	12 908
	New Zealand	162 846	11 884	180 401	8 681
	People's Republic of China	690 512	45 416	174 958	8 281
	India	39 065	4 203	157 853	7 609
	Philippines	150 003	10 456	133 563	7 517
	Indonesia	247 357	19 684	79 238	5 529
	Argentina	56 616	4 097	89 338	5 098
	Australia	99 520	4 690	107 512	4 440
	Chile	106 570	8 977	35 970	2 984
	Thailand	38 032	3 109	33 583	2 354
	Korea, Republic of	80 217	5 996	38 523	2 050
	Italy	—	—	20 788	1 611
	Vietnam	41 458	1 951	21 000	1 093
	Nigeria	—	—	9 847	504
	Malaysia	—	—	9 343	405
	Martinique	—	—	4 911	388
	Uganda	—	—	6 500	343
	Uruguay	14 115	1 139	4 950	227
	Senegal	63 397	6 436	—	—
	Egypt	33 000	990	—	—
	Taiwan	9 351	918	—	—
	Guatemala	4 096	123	—	—
	Saint Pierre and Miquelon	20	2	—	—
	<b>Total</b>	<b>5 894 922<sup>r</sup></b>	<b>396 917<sup>r</sup></b>	<b>6 151 792</b>	<b>355 844</b>
2503.00.00.90 <sup>b</sup>	Sulphur, n.e.s.				
	United States	127 706 <sup>r</sup>	7 288 <sup>r</sup>	76 669	4 993
	Mexico	—	—	1 162	145
	New Zealand	3 659	256	—	—
	<b>Total</b>	<b>131 365<sup>r</sup></b>	<b>7 544<sup>r</sup></b>	<b>77 831</b>	<b>5 138</b>
2802.00	Sulphur, sublimed or precipitated; colloidal sulphur				
	United States	7	7	1 423	213
	France	—	—	28	106
	<b>Total</b>	<b>7</b>	<b>7</b>	<b>1 451</b>	<b>319</b>
2807.00	Sulphuric acid; oleum				
	United States	1 596 316 <sup>r</sup>	71 447 <sup>r</sup>	1 588 405	71 276
	Georgia	—	—	14 005	164
	Pakistan	—	—	12	51
	Nicaragua	21	17	39	32
	Saint Lucia	3 <sup>r</sup>	9 <sup>r</sup>	4	12
	Cuba	—	—	3	11
	Sierra Leone	3	4	—	—
	Libyan Arab Jamahiriya	. . .	1	—	—
	<b>Total</b>	<b>1 596 343<sup>r</sup></b>	<b>71 478<sup>r</sup></b>	<b>1 602 468</b>	<b>71 546</b>
2811.23	Sulphur dioxide				
	United States	72 417 <sup>r</sup>	18 210 <sup>r</sup>	77 445	19 936
	<b>Total</b>	<b>72 417<sup>r</sup></b>	<b>18 210<sup>r</sup></b>	<b>77 445</b>	<b>19 936</b>

Sources: Natural Resources Canada; Statistics Canada.

— Nil; . . Not available; . . . Amount too small to be expressed; n.e.s. Not elsewhere specified; <sup>p</sup> Preliminary; <sup>r</sup> Revised.<sup>a</sup> Data for previous years were included under code 2503.10. <sup>b</sup> Data for previous years were included under code 2503.90.<sup>1</sup> Data compiled regardless of origin (i.e., domestic and foreign source materials). <sup>2</sup> Sulphur in liquefied SO<sub>2</sub> and H<sub>2</sub>SO<sub>4</sub> recovered from the smelting of metallic sulphides and from the roasting of zinc-sulphide concentrates. <sup>3</sup> Producers' shipments of elemental sulphur produced from natural gas; also included are small quantities of sulphur produced in the refining of domestic crude oil and synthetic crude oil.

Note: Numbers may not add to totals due to rounding.

**TABLE 2. CANADA, SULPHUR SHIPMENTS AND TRADE, 1983-97**

	Shipments <sup>1</sup>			Imports <sup>2</sup>	Exports <sup>2</sup>
	In Smelter Gases	Elemental Sulphur	Total	Elemental Sulphur	Elemental Sulphur
	(tonnes)				
1983	678 286	6 631 123	7 309 409	2 365	5 670 275
1984	844 276	8 352 978	9 197 254	3 019	7 326 847
1985	822 359	8 102 163	8 924 522	3 167	7 848 380
1986	758 141	6 953 298	7 711 439	10 763	6 257 054
1987	783 115	7 322 791	8 105 906	24 711	6 571 800
1988	867 800	8 106 641	8 974 441	21 825	7 384 160
1989	831 503	6 868 930	7 700 433	18 311	5 514 059
1990	879 149	6 873 495	7 752 644	13 203	6 057 523
1991	883 565	6 937 884	7 821 449	9 026	5 845 372
1992	914 978	6 393 932	7 308 910	8 645	5 653 506
1993	856 236	5 220 304	6 076 540	7 532	4 193 877
1994	1 025 561	5 791 482	6 817 043	1 979	4 983 257
1995	1 074 206	7 089 297	8 163 503	25 593	6 077 414
1996	1 033 348	7 433 112	8 466 460	24 345	6 026 287
1997 <sup>p</sup>	1 045 287	7 657 772	8 703 059	46 519	6 229 623

Sources: Natural Resources Canada; Statistics Canada.

<sup>p</sup> Preliminary.<sup>1</sup> Shipment data compiled regardless of origin (i.e., domestic and foreign source materials). <sup>2</sup> Includes only elemental sulphur in a crude or refined form.**TABLE 3. CANADA, SULPHURIC ACID, REPORTED CONSUMPTION BY END USE, 1994-96**

	1994 <sup>a</sup>	1995 <sup>a</sup>	1996 <sup>p,a</sup>
	(tonnes)		
Agricultural chemicals and fertilizers	1 164 032	1 285 834	1 227 577
Pulp and paper	449 580	476 152	470 325
Industrial inorganic chemicals	360 059	369 770	388 850
Nonferrous smelting and refining	110 530	116 421	122 631
Uranium mines	114 283	118 785	108 294
Crude and refined petroleum products	60 478	64 631	58 865
Other mines, metal and nonmetal	40 399	34 149	39 478
Soap and cleaning compounds	x	x	x
Metal rolling and extruding	6 580	8 026	x
Food, brewery and distillery	x	x	x
Electrical products	x	x	x
Leather and textile	x	x	x
Plastics and synthetic resins	x	x	x
Other end uses	90 010	68 517	39 242
Total <sup>1</sup>	2 416 600	2 560 406	2 487 556

Source: Reports from producing companies, compiled by Natural Resources Canada, 1997.

<sup>p</sup> Preliminary; <sup>x</sup> Confidential.<sup>a</sup> Confidential numbers are included in the totals.<sup>1</sup> Reported consumption does not include imported acid.