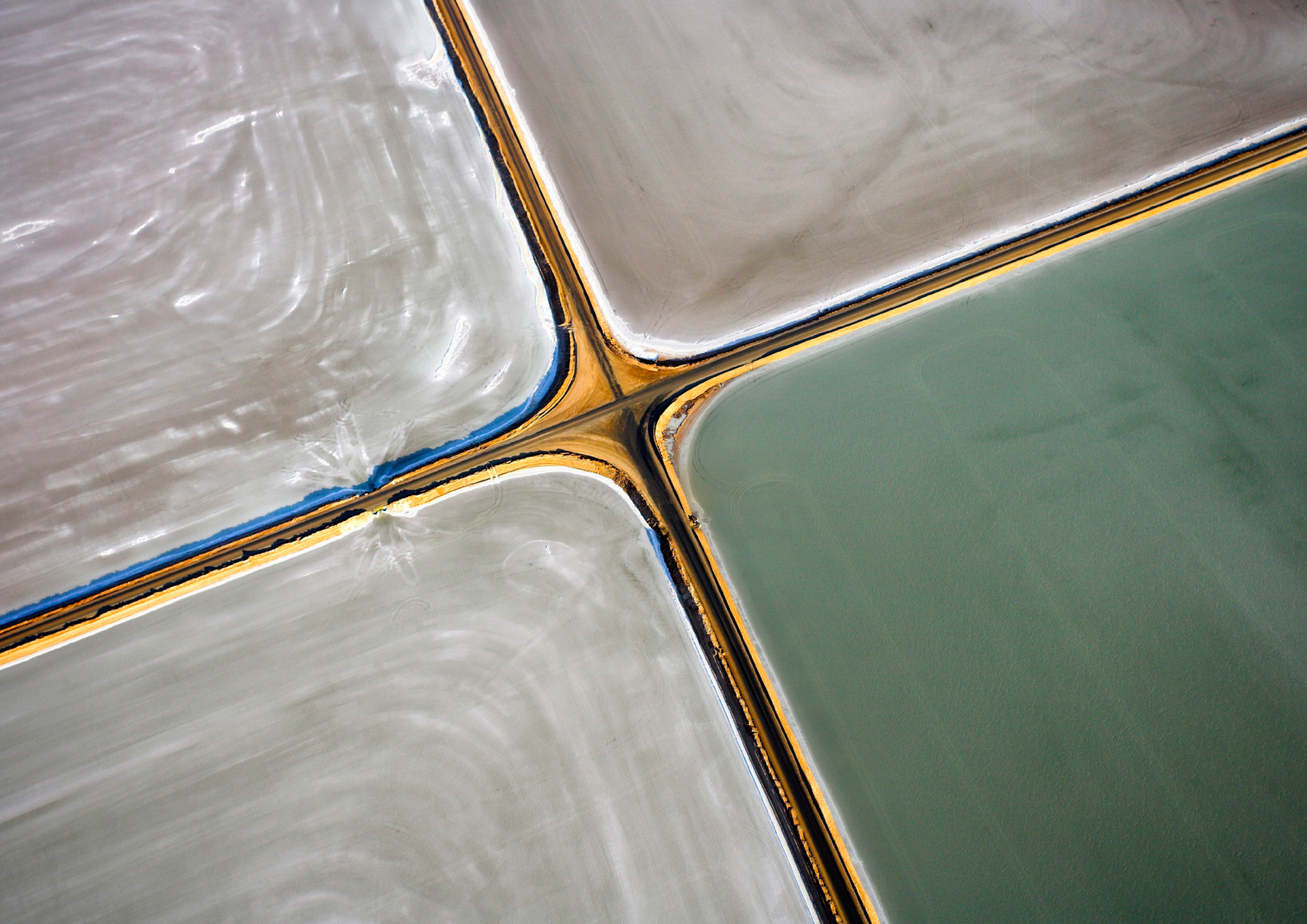




World Mineral Production

2019–2023



British
Geological
Survey

BRITISH GEOLOGICAL SURVEY

WORLD MINERAL PRODUCTION 2019–23

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Cover image: Dampier Salt in Australia, a joint venture between Rio Tinto, Marubeni Corporation, and Sojitz, is Asia's largest exporter of seaborne salt. © 2025 Rio Tinto.

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PREFACE

Welcome to the latest edition of World Mineral Production which includes global mineral production data for 2023. This is a continuation of the dataset that began in 1913.

This publication is compiled from a comprehensive database, maintained by the British Geological Survey (BGS), through which we aim to provide a reliable and continuous set of data covering most of the minerals that enter international trade. In this volume we set out the production figures by country for more than 70 mineral commodities over the five-year period from 2019 to 2023. The objective of this series remains to present the latest production information obtained from official bodies in individual countries, although other sources are also used to ensure completeness and accuracy. The cooperation afforded to the BGS by numerous organisations is gratefully acknowledged.

The year 2023 was marked by conflict and political and civil unrest in several regions of the world, for example the Middle East, Ukraine, South America and Central Africa. In these affected regions mineral output generally decreased, it also made obtaining mineral production data for these regions more challenging. Conflict and unrest led to increased uncertainty around mineral supply chains, which in turn led some blocs or countries to implement policy (e.g. the EU Critical Minerals Act) or impose trade restrictions in order to improve security of supply.

Minerals are crucial for green energy technologies and energy infrastructure and increasingly China plays a key role in their supply. China is a significant producer of refined gallium and germanium, and graphite, accounting for more than 70 per cent of global supply of these materials. In 2023 China imposed export restrictions on the trade of refined gallium and germanium, in response to export restrictions from Europe on the trade of technology used to manufacture semiconductors. China also placed export restrictions on certain graphite products, citing national security concerns in the context of increasing US controls.

During 2023 several commodities experienced a significant decrease in their production volume. For example, mercury production has decreased by 45 per cent during the past five years. The decrease in this case being driven by the Minamata Convention, a global treaty to protect human health and the environment from the adverse effects of mercury. Whilst most countries have agreed to sign the convention, countries like Tajikistan have not and have in fact increased mercury production in recent years.

Chinese tungsten production decreased by about 17 per cent in 2023 in response to stricter environmental regulations that have resulted in reduced mining activity. A move towards long-term contracts and offtake agreements has further consolidated mining operations and led to a general decrease in production. During the last five years tungsten output from China has decreased by about 18 per cent, which has contributed to the overall global decrease in output of about 15 per cent. Growing concerns about tungsten supply has led several other countries to increase investment in the tungsten sector. For example, Vietnam and Rwanda are both increasing production; however, the increased

output from these two nations is unlikely to fully make up the shortfall in Chinese supply.

Global production of lithium, nickel and cobalt continued to increase in 2023 because of their importance in the manufacture of Li-ion batteries and energy storage systems. Of these lithium saw the greatest increase in 2023, with a 30 per cent rise on the production in 2022. Between 2019 and 2023 lithium production has increased by 135 per cent, with long-term growth expected to continue. In 2023 Australia was the largest producer of spodumene, followed by Zimbabwe. Zimbabwe was also the largest producer of petalite, seeing a 250 per cent increase in production in 2023 compared to 2022.

Cobalt production increased significantly in 2023 by almost 23 per cent. The Democratic Republic of Congo is the largest producer, providing almost 69 per cent of total world production, followed by Indonesia and Russia. The global increase over the last five years of almost 70 per cent is largely due to Indonesia ramping up production, overtaking established producers in Australia and the Philippines. Production is expected to continue to rise while cobalt remains an important metal in EV batteries and battery storage systems.

Indonesia continues to maintain its position as the world's largest producer of nickel, accounting for 54 per cent of total world production, followed by the Philippines and Russia. Indonesian nickel production has increased by almost 29 per cent in 2023 compared to output in 2022. Global nickel production in the last five years has increased by 47 per cent, and in the last year alone has grown by more than 15 per cent, driven by huge growth in Indonesia. Being a key component in Li-ion batteries is leading to significant global momentum in the development of new nickel mining projects.

Graphite is another material crucial for batteries and energy storage systems. During the last five years global graphite production has increased by about 7.5 per cent. Output from Ukraine has decreased significantly from about 20,000 tonnes in 2019 to 2,000 in 2023. Output from Madagascar and Mozambique has also declined. However, output from India has risen from almost 86,000 tonnes in 2022 to almost 130,000 tonnes in 2023, which has led to the overall increase in global output.

International interest in the security of supply of minerals continues to grow. The UK Critical Minerals Intelligence Centre (CMIC) is hosted by the BGS. Notable publications during the last year include the UK 2024 Criticality Assessment and Foresight Studies. These and other reports can be downloaded from the CMIC website: <https://ukcmic.org/>.

As always, I would welcome any comments and suggestions that you have relating to this volume, which might help us to meet your ongoing needs.

Karen Hanghøj
Director

British Geological Survey
Keyworth
Nottingham

March 2025

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Coverage

World Mineral Production covers the majority of economically important mineral commodities. For each commodity constant efforts are made to ensure that as many producing countries as possible are reported. For some commodities, where statistics on production are not publicly available, estimates are made. Users of this compilation are advised that more statistical information than can be included in a publication of this nature is held in the British Geological Survey files and is available for consultation. Historical data (from 1913 for many commodities) can be obtained from the predecessors to this series entitled *World Mineral Statistics* and the *Statistical Summary of the Mineral Industry*. Copies of these publications are available in the World Archive section of the website: www.mineralsUK.com.

Arrangement of countries

Countries are ordered alphabetically in geographical groupings as follows:

- Europe
- Africa
- North and Central America, including the Caribbean
- South America
- Asia
- Australasia, including the Pacific Islands

Metals

Mine production of many metals is expressed in terms of metal content. This is clearly indicated at the head of the table, adjacent to the unit used. For aluminium, cobalt, copper, iron, lead, nickel, tin and zinc, mine production and metal production are shown in separate tables. Unless otherwise specified, metal production statistics relate to metal recovered from both domestic and imported materials, whether primary or secondary, but exclude remelted material wherever possible.

World totals

For certain minerals and metals no world total is shown due to the non-availability of certain individual country totals.

Exclusion of Warranty

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Acknowledgements

Compilation of this volume of mineral statistics has been possible only by obtaining information from a very large number of organisations throughout the world, chiefly home and overseas government departments and specialist national or international authorities concerned with particular sectors of the minerals or metals industries. To all these bodies the British Geological Survey expresses its grateful acknowledgement for the information made available, whether in published form or provided by direct correspondence. Particular acknowledgement is made to the Mines Departments and other government agencies of many countries whose regular statements, yearbooks and other reports are worthy of direct consultations by readers in search of detail.

Specialist commodity organisations which have kindly allowed information to be reproduced include the International Copper Study Group, the International Lead and Zinc Study Group and the International Nickel Study Group. In a few instances, information on specific commodities has been obtained directly from company sources. The co-operation of other members of the International Consultative Group on Non-Ferrous Metal Statistics is also gratefully acknowledged.

Appendix 2 contains a fuller list of organisations to whom acknowledgement is made.

Units

The Statistics shown in this volume are expressed in metric units. The following factors are given for converting to metric units:

long tons $\times$ 1.0161 = tonnes
short tons $\times$ 0.9072 = tonnes
pounds $\times$ 0.4536 = kilograms
troy ounces $\times$ 0.0311 = kilograms
cubic feet $\times$ 0.0283 = cubic metres
1 barrels of crude petroleum $\times$ 0.1364 = tonne of crude petroleum
1 flask mercury = 34.7 kilograms

Symbols

...	figures not available
0	quantity less than half unit shown
—	nil
*	estimated
BGS	British Geological Survey

STATISTICAL INFORMATION

Production of bauxite

tonnes (metric)

Country	2019	2020	2021	2022	2023
Bosnia & Herzegovina	1 043 343	619 748	675 269	699 926	548 160
Croatia	14 342	14 080	14 450	17 750	18 000
France (a)	120 760	123 500	142 800	117 988	* 120 000
Greece	1 492 000	1 428 000	1 227 498	1 173 000	* 1 200 000
Montenegro	774 725	897 057	542 049	442 067	526 523
Russia	6 424 000	6 420 000	6 529 000	6 630 000	7 031 000
Turkey	2 255 480	2 399 680	2 764 873	3 637 217	2 934 790
Côte d'Ivoire	—	272 295	—	—	155 000
Ghana	1 116 334	1 162 086	839 465	773 213	959 601
Guinea (b)	70 173 326	87 766 199	87 438 557	103 525 513	123 067 415
Mozambique	8 024	6 491	7 852	14 583	* 10 000
Sierra Leone	1 962 500	1 441 987	1 455 554	973 599	1 004 210
Tanzania	—	25 995	38 142	40 921	61 353
Dominican Republic	7 551	9 475	71 517	91 813	* 92 000
Jamaica	9 022 286	7 616 284	5 937 320	4 364 729	5 988 079
USA (c)(d)	154 870	16 438	—	12 581	* 13 000
Brazil	31 937 900	32 897 800	35 949 600	34 215 200	34 472 600
Colombia	18 032	9 595	49 946	48 016	2 779
Guyana	1 919 747	608 168	618 452	705 631	523 742
Venezuela	* 50 000	—	22 000	770 000	900 000
China	* 42 000 000	* 42 000 000	* 40 000 000	74 300 000	65 516 300
India	(e) 22 073 398	(e) 21 825 227	(e) 22 493 947	23 843 329	23 360 552
Indonesia	16 592 739	25 859 895	25 781 187	28 808 674	* 29 000 000
Iran (f)	1 163 159	1 115 008	884 000	955 500	598 599
Kazakhstan	4 118 400	4 057 800	4 370 100	4 177 800	4 559 900
Malaysia	900 561	549 714	47 577	129 825	576 500
Pakistan (g)	92 936	101 047	97 495	56 266	* 60 000
Saudi Arabia	5 127 000	5 227 000	5 488 000	5 930 000	* 5 900 000
Vietnam	* 3 200 000	* 3 120 000	* 3 300 000	* 3 200 000	* 3 360 000
Australia	107 422 912	103 626 811	103 266 404	100 478 354	103 741 376
Solomon Islands (h)	* 1 207 000	* 839 000	* —	* —	* —
World total	332 400 000	352 100 100	350 100 000	400 100 000	416 300 000

Note(s)

(1) This table includes production of refractory bauxite.

(2) In addition to the countries listed, some bauxite continues to be produced in Mexico but it is all used as construction aggregates and figures are not reported.

(a) For non-metallurgical uses

(b) No adjustment has been made for moisture content

(c) Data for Alabama only

(d) Years ended 30 September of that stated

(e) Years ended 31 March following that stated

(f) Years ended 20 March following that stated

(g) Years ended 30 June of that stated

(h) Conservative BGS estimate based on reported exports

Production of alumina

tonnes (Al₂O₃ content)

Country	2019	2020	2021	2022	2023
Bosnia & Herzegovina	213 518	122 241	172 974	180 278	64 465
France	* 500 000	417 000	400 000	—	—
Germany	1 025 000	1 050 000	1 065 000	920 000	452 000
Greece	672 400	672 500	697 100	689 100	712 580
Ireland, Republic of	1 860 970	1 822 368	1 878 000	1 629 000	1 380 333
Romania	460 911	426 393	498 603	108 408	—
Russia	2 755 000	2 873 000	3 054 000	3 080 000	3 022 000
Spain	1 595 000	1 553 000	1 536 000	1 343 000	716 000
Turkey	* 260 000	* 260 000	* 260 000	* 260 000	* 260 000
Ukraine	1 690 000	1 725 000	1 800 000	300 000	—
Guinea	368 000	438 700	409 870	336 100	273 000
Canada	1 522 000	1 518 000	1 471 000	1 478 000	1 501 000
Jamaica	2 172 977	1 620 943	1 158 450	634 103	1 400 828
USA	1 410 000	1 340 000	* 1 000 000	* 920 000	* 780 000
Brazil	9 170 800	10 185 000	10 992 300	10 871 500	10 443 400
China	71 474 166	73 131 946	77 480 000	81 862 000	82 441 000
India (a)	6 739 500	6 624 500	7 325 000	7 441 000	6 763 000
Indonesia	1 148 422	1 162 100	1 363 100	* 1 400 000	* 1 400 000
Iran (b)	233 267	231 612	230 682	225 942	222 138
Japan	25 000	17 700	24 200	* 15 200	* 14 500
Kazakhstan	1 406 229	* 1 382 800	1 315 066	1 338 095	1 410 000
Saudi Arabia	1 798 340	1 782 041	1 879 000	1 745 000	1 825 000
United Arab Emirates	1 100 000	1 920 000	2 300 000	2 430 000	2 480 000
Vietnam	1 382 100	1 384 706	1 456 068	1 428 503	1 491 300
Australia	20 239 198	20 837 142	20 624 088	19 576 174	18 802 465
World total	131 200 00	134 500 00	140 400 000	140 200 000	137 900 000

Note(s)

- (1) Where possible figures in this table show the alumina equivalent (Al₂O₃) of total hydrate produced, whether or not calcined.
 (2) The figures in this table represent alumina produced from bauxite. Alumina-rich materials can also be derived from salt slags formed during the production of secondary aluminium.

(a) Years ended 31 March following that stated

(b) Years ended 20 March following that stated

Production of primary aluminium

tonnes (metric)

Country	2019	2020	2021	2022	2023
Azerbaijan	32 693	31 492	24 900	33 529	28 230
Bosnia & Herzegovina	67 690	—	90 037	138 969	35 600
France	402 000	417 000	438 900	410 000	* 390 000
Germany	507 934	529 056	509 193	341 212	189 471
Greece	182 100	189 036	183 770	186 448	182 875
Iceland	689 995	728 104	729 813	756 012	768 389
Montenegro	36 522	37 208	45 214	43 196	21 778
Netherlands	81 100	70 600	46 700	* —	* —
Norway	1 312 000	1 330 000	1 419 000	1 424 600	1 321 200
Romania	280 326	271 307	293 399	191 454	196 438
Russia	3 935 000	3 936 000	3 937 000	4 014 000	4 026 000
Slovakia	174 794	151 875	163 995	71 933	56 114
Slovenia	68 255	50 185	37 867	19 211	1 487
Spain	* 220 000	* 200 000	* 190 000	—	—
Sweden	120 000	117 000	124 000	120 000	119 000
Turkey	78 100	79 900	79 200	82 000	* 82 000
United Kingdom	39 400	35 700	37 571	31 337	29 246
Cameroon	68 900	61 700	47 300	62 800	62 200
Egypt (a)	256 000	268 000	* 260 000	* 260 000	* 260 000
Ghana (b)	43 908	37 566	39 239	55 592	48 314
Mozambique (a)	569 002	569 002	562 633	576 220	541 601
South Africa	717 000	717 000	714 000	718 000	720 000
Canada	2 853 771	3 154 493	3 157 762	3 026 236	3 301 844
USA	1 126 032	1 026 617	907 846	872 300	* 735 000
Argentina	438 434	309 804	338 239	400 038	441 000
Brazil	650 200	685 100	771 700	1 629 900	1 021 700
Venezuela	* 10 000	* 10 000	38 300	8 400	* 8 000
Bahrain	1 365 005	1 548 000	1 561 222	1 600 111	1 620 665
China	35 043 604	37 080 401	38 502 600	40 214 000	41 594 000
India	(c) 3 635 089	(c) 3 619 237	(c) 4 016 621	2 322 270	3 305 910
Indonesia	233 457	220 100	243 400	223 774	214 882
Iran (d)	278 319	446 836	562 649	632 166	635 596
Kazakhstan	264 900	* 265 000	262 361	249 141	260 877
Malaysia	* 800 000	* 800 000	901 000	928 000	* 1 000 000
Oman	391 000	397 000	395 000	395 000	398 000
Qatar	653 000	655 000	662 000	638 000	677 000
Saudi Arabia	775 561	796 004	998 000	952 000	895 000
Tajikistan	100 800	84 000	61 000	62 000	66 649
United Arab Emirates	2 600 000	2 520 000	2 540 000	2 720 000	2 750 000
Australia	1 569 591	1 582 947	1 558 529	1 509 646	1 555 474
New Zealand	353 293	335 405	333 115	333 689	333 716
World total	63 000 000	65 400 000	67 800 000	68 300 000	69 900 000

Note(s)

(1) The figures in this table are for primary aluminium only. Aluminium can also be produced from secondary sources and may be recovered from salt slags.

(a) Years ended 30 June of that stated

(b) Exports

(c) Years ended 31 March following that stated

(d) Years ended 20 March following that stated

Mine production of antimony

tonnes (metal content)

Country	2019	2020	2021	2022	2023
Russia	21 671	17 532	* 9 000	* 11 000	* 30 000
Turkey	3 810	2 570	4 210	10 692	3 816
Canada	6	2	* 2	* 2	* —
Guatemala	—	—	—	12	* 25
Honduras	* 10	* 10	* 40	* 80	* 85
Mexico	290	136	413	632	700
Bolivia	2 747	2 629	3 093	3 453	3 884
China	60 229	60 995	42 622	* 39 000	* 41 000
Iran (a)	330	1 065	* 2 000	* 2 000	* 3 900
Kazakhstan	* —	* —	* 20	* 100	* 100
Kyrgyzstan	* 20	* 30	* —	* 20	* 100
Laos	70	—	242	* 250	* 500
Myanmar	* 6 900	* 3 800	* 6 400	* 3 500	* 1 100
Pakistan (b)	—	17	63	* 60	* 40
Tajikistan	29 898	30 777	28 531	30 238	20 000
Vietnam	396	312	268	252	* 394
Australia	(b) 2 170	3 903	3 380	2 292	1 860
World total	129 000	124 000	100 000	104 000	108 000

Note(s)

(1) This table includes antimony content of antimonial lead alloys.

(a) Years ended 31 March following that stated

(b) Years ended 30 June of that stated

Production of white arsenic

tonnes (metric)

Country	2019	2020	2021	2022	2023
Belgium	* 1 000	* 1 000	* 1 000	* 1 000	* 1 000
Russia	2 226	500	* 800	* 500	* 500
Morocco	5 055	7 694	6 883	5 450	* 6 000
Bolivia (a)	* 130	* 130	100	* 35	* —
Peru	24 915	19 014	21 872	25 379	31 162
China	* 24 000	* 24 000	* 24 000	* 24 000	* 24 000
Japan	* 45	* 40	* 40	* 40	* 40

Note(s)

(1) This table includes calculated trioxide equivalent of arsenic metal produced except where this would involve double counting.

(a) Exports

Production of asbestos

tonnes (metric)

Country	2019	2020	2021	2022	2023
Russia	790 000	708 000	750 000	630 000	600 000
Brazil	12 205	77 057	172 256	182 965	189 340
China	* 140 000	* 130 000	* 160 000	196 000	* 200 000
Kazakhstan	210 700	227 400	250 100	250 200	255 300
World total	1 200 000	1 100 000	1 300 000	1 300 000	1 200 000

Note(s)

(1) In addition to the countries listed, asbestos may also be produced in Afghanistan, North Korea, Romania and Slovakia.

Production of barytes

tonnes (metric)

Country	2019	2020	2021	2022	2023
Bulgaria	* 72 000	* 41 000	* 72 000	* 75 000	* 72 000
France					
Barium minerals	* 75 000	* 75 000	* 75 000	276 769	77 454
Germany	30 474	26 656	27 921	24 128	16 434
Italy	* 3 000	* 3 000	* 3 000	* 3 000	* 3 000
Russia	163 000	287 000	* 250 000	* 250 000	* 250 000
Slovakia	5 770	—	—	—	—
Turkey	413 811	283 161	256 076	344 322	215 946
United Kingdom	* 46 000	* 46 000	* 30 000	* 30 000	* 30 000
Algeria	31 138	32 940	44 662	* 45 000	* 45 000
Egypt (a)	* 4 000	* 4 000	* 4 000	* 4 000	* 4 000
Morocco	1 119 811	501 939	840 486	925 905	* 926 000
Nigeria	370	544	460	1 170	30
Canada	* 30 000	* 20 000	* 30 000	* 40 000	* 30 000
Guatemala	* 60	—	—	—	—
Mexico	415 180	480 954	978 652	498 230	482 302
USA	(b) 414 000	125 409	257 450	361 582	* 300 000
Argentina	3 898	—	—	—	—
Bolivia	39 458	9 611	27 110	48 952	54 509
Brazil	* 100 000	* 100 000	* 100 000	* 100 000	* 100 000
Colombia	2 270	2 046	1 164	1 034	1 271
Peru	16 373	5 242	10 361	29 293	11 743
Afghanistan	* 500	* 500	* 500	* 500	* 500
China	* 2 300 000	* 1 700 000	* 2 100 000	* 1 900 000	* 1 900 000
India (c)	* 2 000 000	* 1 500 000	* 1 500 000	* 1 500 000	* 1 500 000
Iran (d)	224 412	288 341	381 400	265 062	* 270 000
Kazakhstan	530 600	445 300	* 600 000	* 650 000	* 600 000
Laos	486 009	96 278	37 403	302 709	725 207
Myanmar	13 045	2 642	2 220	33 789	* 29 300
Pakistan (a)	92 936	55 341	51 553	128 000	140 970
Thailand	33 644	22 394	4 988	6 509	30 684
Vietnam	* 31 000	* 43 000	* 43 000	* 43 000	* 43 000
Australia	1 982	—	158	2 635	3 754
World total	8 700 000	6 200 000	7 700 000	7 900 000	7 900 000

Note(s)

(1) This table may include small quantities of witherite.

(a) Years ended 30 June of that stated

(b) Sold or used by producers

(c) Years ended 31 March following that stated

(d) Years ended 20 March following that stated

Production of bentonite and fuller's earth

tonnes (metric)

Country	2019	2020	2021	2022	2023
Armenia					
Bentonite	32 424	5 956	15 979	13 198	10 481
Azerbaijan					
Bentonite	222 519	155 112	174 242	175 875	125 542
Bosnia & Herzegovina					
Bentonite	94 601	69 183	75 761	28 173	37 878
Bulgaria					
Bentonite	780 543	719 647	713 118	707 785	729 623
Cyprus					
Bentonite	83 113	92 645	81 655	86 562	102 442
Czech Republic					
Bentonite	357 000	226 000	198 000	167 000	196 000
Denmark					
Bentonite	48 197	40 054	20 281	24 128	18 962
France					
Bentonite	(a)* 36 000	(a)* 36 000	(a)* 36 000	176 628	* 176 000
Georgia					
Bentonite	13 936	12 750	16 315	22 955	48 716
Germany					
Bentonite	366 000	333 000	363 000	331 000	285 000
Greece					
Bentonite	1 300 000	1 105 000	1 415 000	1 250 000	* 1 250 000
Attapulгите	36 700	28 050	29 300	5 900	* 5 900
Hungary					
Bentonite	33 166	14 871	30 462	34 690	28 535
Italy					
Bentonite	82 720	65 989	32 252	102 264	394 391
North Macedonia					
Bentonite	682	2 196	—	—	—
Norway					
Bentonite (a)	—	* —	12 803	—	* —
Poland					
Bentonite	500	920	500	—	1 110
Romania					
Bentonite	41 964	45 495	54 648	61 165	62 026
Russia					
Bentonite	* 50 000	* 50 000	* 50 000	* 50 000	* 50 000
Slovakia					
Bentonite	251 000	275 570	272 880	302 000	275 000
Slovenia					
Bentonite	99	77	75	68	86
Spain					
Bentonite	160 477	205 773	171 572	186 363	117 550
Attapulгите	30 348	30 653	33 008	38 165	43 429
Sepiolite	595 448	531 660	574 439	580 695	645 633
Turkey					
Bentonite	1 533 547	1 658 837	2 020 356	2 018 993	2 494 366
Sepiolite	68 999	65 427	111 900	55 100	74 483
Ukraine					
Bentonite	180 000	180 000	* 180 000	* 90 000	* 90 000
Algeria					
Bentonite	36 700	34 200	31 700	* 32 000	* 32 000
Angola					
Fuller's earth	* 1 000	* 1 000	* 1 000	* 1 000	* 1 000
Egypt					
Bentonite	* 32 000	* 34 000	* 55 000	* 43 000	* 29 000
Kenya					
Bentonite	* 110	* 110	* 110	* 110	* 110
Morocco					
Bentonite	188 080	92 387	134 340	135 600	* 136 000
Fuller's earth (b)	99 790	78 302	* 84 029	* 84 000	* 84 000
Mozambique					
Bentonite	77 734	80 189	118 692	113 985	* 100 000
Senegal					
Attapulгите	197 673	186 615	170 851	150 704	186 049

Production of bentonite and fuller's earth

tonnes (metric)

Country	2019	2020	2021	2022	2023
South Africa					
Bentonite	105 084	85 558	98 606	97 019	77 869
Attapulgit	11 422	11 957	13 189	9 004	7 918
Cuba					
Bentonite	504	486	517	290	269
Guatemala					
Bentonite	850	371	7 378	19 237	* 20 000
Mexico					
Bentonite	24 321	79 219	—	—	—
USA					
Bentonite (c)	4 520 000	4 250 000	* 4 580 000	* 4 580 000	* 4 500 000
Fuller's earth (c)	1 990 000	1 980 000	2 130 000	2 160 000	* 2 200 000
Argentina					
Bentonite	113 750	46 288	* 46 000	* 46 000	* 46 000
Brazil					
Bentonite	403 763	217 055	* 220 000	* 220 000	* 220 000
Chile					
Bentonite	395	170	170	1 372	463
Colombia					
Bentonite	* 9 000	* 9 000	* 9 000	* 9 000	* 9 000
Peru					
Bentonite	46 887	25 532	56 199	22 931	24 783
Uruguay					
Bentonite (d)	6 726	16 550	19 710	21 570	15 550
China					
Bentonite	2 475 000	2 085 700	2 100 000	2 100 000	* 2 100 000
India					
Bentonite (d)	* 3 400 000	* 3 500 000	* 3 500 000	* 3 500 000	* 3 500 000
Fuller's earth (d)	* 550 000	* 730 000	* 730 000	* 730 000	* 730 000
Indonesia					
Bentonite	* 6 000	* 6 000	* 6 000	* 6 000	* 6 000
Iran					
Bentonite (e)	761 079	714 684	1 153 283	1 341 023	* 1 300 000
Iraq					
Bentonite	* 6 300	* 6 300	* 6 300	* 6 300	* 6 300
Japan					
Bentonite	* 250 000	* 250 000	* 260 000	* 260 000	* 260 000
Korea (Rep. of)					
Bentonite	43 886	5 314	34 243	341 335	8 000
Fuller's earth	185 718	71 855	52 192	28 410	3 867
Myanmar					
Bentonite (f)	540	* 500	* 500	* 500	* 500
Pakistan					
Bentonite (g)	48 332	107 742	59 744	* 35 000	* 35 000
Fuller's earth (g)	11 323	2 842	1 840	* 2 700	* 2 700
Philippines					
Bentonite	* 650	* 650	* 650	* 650	* 650
Uzbekistan					
Bentonite	32 588	48 739	59 053	51 075	65 721
Australia					
Bentonite (g)	56 215	42 713	46 658	26 000	48 000
Fuller's earth	* 8 000	* 10 000	* 12 000	* 12 000	* 12 000
New Zealand					
Bentonite	* 750	* 750	* 750	* 750	* 750
World total bentonite	18 300 000	17 000 000	18 500 000	18 800 000	19 000 000
World total fullers earth (h)	3 800 000	3 700 000	3 900 000	3 900 000	4 000 000

See notes on the following page

Production of bentonite and fuller's earth

Note(s)

- (1) Bentonites consist of montmorillonite (one of the smectite group of clay minerals) and occur in two main varieties, calcium bentonite, the most commonly occurring, and sodium bentonite, industrially the more important.
- (2) Calcium bentonite can be converted to sodium bentonite by a sodium-exchange process.
- (3) In some countries, such as the United Kingdom, calcium bentonite is known as fuller's earth, a term which is also used to refer attapulgite, a mineralogically distinct clay mineral but exhibiting similar properties.
- (4) In addition to the countries listed, Vietnam may produce bentonite and Algeria, France, Iran and Japan may produce fuller's earth.

- (a) Sales
- (b) Smectite
- (c) Sold or used by producers
- (d) Years ended 31 March following that stated
- (e) Years ended 20 March following that stated
- (f) Years ending 30 September of that stated
- (g) Years ended 30 June of that stated
- (h) Including attapulgite and sepiolite

Production of beryl

tonnes (metric)

Country	2019	2020	2021	2022	2023
Madagascar (a)	* 1	* 1	* 1	* 1	* 1
Mozambique	45	80	330	1 285	* 1 000
Namibia	...	...	15	1	* 1
Nigeria	* 100	* 200	* 200	349	978
Uganda	15	186	473	—	* —
Zambia	6	1	5	5	4
USA (b)	3 990	4 150	4 370	4 330	* 4 400
China	1 750	* 1 750	* 1 750	* 1 750	* 1 850

Note(s)

- (a) Includes ornamental and industrial products
- (b) Includes bertrandite ore, calculated as equivalent to beryl containing 11% beryllium oxide

Mine production of bismuth

tonnes (metal content)

Country	2019	2020	2021	2022	2023
Armenia	* 4	* 4	* 4	* 4	* 4
Bulgaria	* 47	* 50	* 50	* 50	* 50
Russia	* 45	* 45	* 45	* 45	* 45
Canada	6	4	—	—	—
Mexico	251	—	—	—	—
Bolivia	—	—	27	—	58
Peru (a)	73	74	248	251	304
China	* 1 804	* 1 804	* 1 804	* 1 800	* 1 800
Japan (a)	527	574	478	* 470	* 430
Kazakhstan	* 7	* 450	* 20	* 190	* 160
Vietnam	917	993	2 067	1 938	1 143
World total	3 700	4 000	4 700	4 700	4 000

Note(s)

- (1) The figures in this table are in some instances derived from reported bismuth content of refined and impure metal plus recoverable in ores and concentrates exported.
- (2) Production for some countries may include bismuth produced from imported ores but it is thought that any resulting duplication is insignificant in the countries shown.
- (3) In addition to the countries listed, the Republic of Korea may produce bismuth but data are confidential.

(a) Metal production

Production of borates

tonnes (metric)

Country	2019	2020	2021	2022	2023
Russia	* 80 000	* 80 000	* 80 000	* 80 000	* 80 000
Turkey	4 555 690	2 819 111	4 057 299	2 452 485	1 793 746
USA (a)	* 1 300 000	* 1 300 000	* 1 300 000	* 1 300 000	* 1 300 000
Argentina	181 818	134 604	* 130 000	* 130 000	* 130 000
Bolivia	* 214 500	258 143	312 906	295 515	327 253
Chile	352 255	288 103	363 032	421 935	450 239
Peru	111 108	43 645	246 362	292 986	179 938
China (b)	383 000	* 130 000	* 205 000	* 200 000	* 200 000
Iran (c)	2 519	1 300	2 000	2 735	* 2 700
Kazakhstan	* 500 000	* 500 000	* 500 000	* 500 000	* 500 000

Note(s)

- Sold or used by producers
- B₂O₃ equivalent
- Years ended 20 March following that stated

Production of bromine

kilograms

Country	2019	2020	2021	2022	2023
Russia	* —	* 500 000	* 500 000	* 500 000	* 500 000
Ukraine	* 4 500 000	* 4 500 000	* 4 500 000	* 2 000 000	* 2 000 000
USA (a)	* 225 000 000	* 225 000 000	* 225 000 000	* 225 000 000	* 225 000 000
China	69 600 000	* 70 000 000	* 70 000 000	* 73 000 000	* 76 000 000
India (b)	* 2 800 000	* 2 800 000	* 2 800 000	* 2 800 000	* 2 800 000
Israel	180 000 000	173 000 000	186 000 000	180 000 000	143 000 000
Japan	* 20 000 000	* 20 000 000	* 18 000 000	* 20 000 000	* 20 000 000
Jordan	112 700 000	112 760 000	115 160 000	* 115 000 000	* 115 000 000
Turkmenistan	* 500 000	* 500 000	* 500 000	* 500 000	* 500 000

Note(s)

(a) Elemental bromine sold as such or used in the preparation of bromine compounds by primary producers

(b) Years ended 31 March following that stated

Production of cadmium

tonnes (metric)

Country	2019	2020	2021	2022	2023
Bulgaria	315	311	343	315	306
Germany	* 450	* 450	* 400	* 400	* 400
Netherlands	* 719	* 351	* 854	* 574	* 750
Norway	* 340	* 340	* 390	* 400	* 400
Poland	199	80	—	—	—
Russia	* 1 400	* 1 300	* 1 400	* 1 500	* 1 300
Canada (a)	1 803	1 800	* 1 800	* 1 800	* 1 800
Mexico	952	978	1 051	1 174	1 053
USA (a)	131	211	241	212	* 200
Argentina	80	46	50	—	—
Brazil	* 450	* 25	* 16	* 20	* 20
Peru	772	687	279	264	331
China	* 10 300	* 10 300	10 349	* 8 700	* 9 000
Japan	2 000	1 880	1 900	* 1 900	* 1 900
Kazakhstan	* 1 400	* 1 500	* 1 500	* 1 000	* 1 000
Korea (Rep. of)	* 4 500	* 4 500	* 4 500	* 4 500	* 4 500
Korea, Dem. P.R. of	* 200	* 200	* 200	* 150	* 150
Uzbekistan	250	450	470	500	* 500
World total	26 300	25 400	25 700	23 400	23 600

Note(s)

(1) Data in this table excludes secondary metal unless otherwise stated.

(a) Including cadmium sponge and/or secondary metal

Production of chromium ores and concentrates

tonnes (metric)

Country	2019	2020	2021	2022	2023
Albania	1 288 315	626 627	650 200	932 686	909 669
Finland (a)	1 183 862	1 453 332	1 464 738	1 208 006	1 148 905
Greece	25 171	1 651	—	—	—
Russia	698 000	706 000	554 000	809 000	* 809 000
Turkey	3 369 223	2 128 669	2 779 467	2 562 533	2 581 916
Ethiopia (b)	1 149	581	1 707	637	469
Madagascar (b)	76 100	12 400	13 500	18 300	91 300
South Africa	17 664 239	13 196 880	18 435 250	19 061 754	19 683 351
Sudan	12 728	9 000	5 575	3 000	4 365
Zimbabwe	1 550 064	1 272 139	1 244 300	1 154 158	1 204 755
Brazil	511 100	583 997	627 735	565 575	522 869
Colombia	60	146	—	21	—
Afghanistan	* 4 500	* 4 500	* 4 000	* 4 000	* 4 000
China	84 400	128 000	* 130 000	* 130 000	* 140 000
India	(c) 3 929 260	(c) 2 863 869	(c) 3 785 625	3 470 110	3 243 545
Iran (d)(e)	244 656	251 292	255 412	240 780	* 240 000
Kazakhstan	7 019 000	6 327 000	6 192 000	5 716 900	6 108 000
Oman	732 600	456 800	488 900	437 600	377 000
Pakistan (f)	138 244	121 435	140 126	195 000	155 580
Philippines (d)	36 423	35 112	30 721	87 182	101 960
Papua New Guinea	115 573	114 569	119 625	* 120 000	* 150 000
World total	38 700 000	30 300 000	36 900 000	36 700 000	37 500 000

Note(s)

(a) Concentrates

(b) Exports

(c) Years ended 31 March following that stated

(d) Including foundry sand and/or lumpy ore

(e) Years ended 20 March following that stated

(f) Years ended 30 June of that stated

Production of coal

tonnes (metric)

Country	2019	2020	2021	2022	2023
Albania					
Lignite	31 000	42 000	24 482	149 312	191 406
Bosnia & Herzegovina					
Brown coal & lignite	13 376 548	13 365 730	12 802 517	13 736 665	12 791 560
Bulgaria					
Lignite	* 29 000 000	* 20 900 000	27 160 000	35 280 000	20 160 000
Brown coal	1 491 000	1 100 000	840 000	720 000	840 000
Czech Republic					
Bituminous	3 150 000	1 861 000	2 008 000	1 281 000	1 000 000
Brown coal	37 465 000	29 505 000	29 505 000	33 398 000	28 660 000
Georgia	15 900	99 300	147 878	146 300	147 900
Germany					
Brown coal	131 314 116	107 377 260	126 181 851	130 801 111	102 245 000
Greece					
Lignite	26 000 000	14 000 000	12 081 578	14 289 000	* 14 000 000
Hungary					
Bituminous	6 095	1 513	252	418	—
Lignite	6 790 000	6 069 000	4 928 000	4 877 000	4 023 000
Brown coal	50 742	51 591	58 955	51 844	52 723
Kosovo					
Lignite	8 063 051	8 537 948	8 535 435	8 344 548	7 071 048

Production of coal

tonnes (metric)

Country	2019	2020	2021	2022	2023
Montenegro					
Lignite	1 561 712	1 656 900	1 548 600	1 722 500	1 862 200
Brown coal	43 477	8 500	—	—	—
North Macedonia					
Lignite	5 066 083	4 532 745	4 758 504	5 520 778	4 091 133
Norway					
Bituminous (a)	107 900	74 503	113 292	110 445	82 902
Poland					
Coking coal	12 071 000	12 274 000	12 581 000	12 364 750	11 924 000
Lignite	52 855 000	47 300 000	54 851 000	57 679 000	42 512 000
Other bituminous coal	50 031 000	42 467 000	42 779 000	40 780 460	40 095 000
Romania					
Anthracite & Bituminous	410 765	428 368	240 128	188 901	128 871
Lignite	21 653 000	15 161 420	18 151 887	18 713 709	15 173 934
Russia	439 000 000	398 000 000	435 000 000	435 000 000	430 000 000
Serbia					
Bituminous	108 000	30 000	26 000	75 000	66 000
Lignite (b)	38 420 000	39 330 000	36 118 000	34 819 000	31 631 000
Brown coal	350 000	306 000	271 000	233 000	237 000
Slovakia					
Lignite	270 000	211 600	205 400	117 000	—
Brown coal	1 157 000	745 000	858 000	725 000	756 000
Slovenia					
Lignite	3 218 696	3 259 309	2 807 476	2 745 022	3 030 494
Turkey					
Anthracite	1 805 118	1 613 624	1 726 109	1 794 712	1 423 727
Lignite	92 993 461	84 811 522	90 780 036	102 097 457	80 478 995
Ukraine					
Bituminous (c)	25 530 400	24 168 300	23 761 900	24 100 000	23 300 000
United Kingdom					
Anthracite	510 000	345 000	266 000	157 000	179 000
Bituminous	2 082 000	1 328 000	788 000	494 000	327 000
Botswana	2 110 891	1 923 992	2 460 868	2 460 868	2 064 373
Congo, Democratic Republic					
Bituminous	* 8 000	* 8 000	* 8 000	* 8 000	* 8 000
Eswatini (Swaziland)					
Anthracite	109 926	161 768	162 681	215 581	393 328
Ethiopia					
Lignite	* 2 700	* 2 700	* 2 700	* 2 700	* 2 700
Malawi	54 728	54 876	30 251	62 166	* 65 274
Mozambique					
Bituminous	10 339 536	8 041 211	11 079 683	14 806 233	* 15 000 000
Niger	225 920	246 880	105 760	235 328	* 100 000
Nigeria					
Bituminous	2 722 620	2 351 350	2 506 050	3 043 000	1 322 050
South Africa					
Anthracite	3 077 839	4 301 386	3 071 699	3 278 780	2 501 883
Bituminous	251 332 874	243 780 359	225 572 858	226 315 429	229 183 189
Tanzania					
Bituminous	712 136	689 989	976 319	2 511 419	3 256 481
Zambia					
Bituminous	335 042	446 153	663 345	691 288	706 115
Zimbabwe					
Bituminous	2 729 922	2 750 883	3 246 000	4 185 417	4 898 735
Canada	51 801 000	40 791 647	41 809 481	46 217 458	48 067 394
Mexico					
Bituminous	* 1 000 000	* 7 000 000	* 7 000 000	* 7 000 000	* 7 000 000
USA					
Anthracite	2 368 120	2 151 782	1 915 066	2 255 261	2 646 258
Bituminous	307 431 973	215 789 949	235 778 221	245 417 059	238 998 512
Sub-bituminous	282 577 367	222 923 550	243 175 405	248 222 074	245 914 196
Lignite	48 245 042	44 773 678	42 967 898	43 114 862	37 082 083
Argentina					
Bituminous	68 830	12 875	13 113	13 110	* 13 000

Production of coal

tonnes (metric)

Country	2019	2020	2021	2022	2023
Brazil					
Bituminous & lignite	9 433 816	9 158 388	12 070 822	11 528 892	10 279 780
Chile					
Bituminous	41 385	25 778	18 541	26 962	121 570
Lignite	1 565 169	165 784	—	—	—
Colombia					
Anthracite (d)	127 090	* 120 000	109 798	* 120 000	* 120 000
Coking coal	7 135 797	7 330 000	7 873 559	* 7 500 000	* 7 500 000
Other bituminous coal	77 079 899	42 000 500	48 659 153	* 50 000 000	* 50 000 000
Peru					
Anthracite & Bituminous	181 010	131 516	144 579	192 094	231 290
Venezuela					
Bituminous	394 000	285 000	158 000	197 000	149 000
Afghanistan	2 139 200	56 620	108 200	537 127	425 000
Bangladesh (e)	805 696	811 138	753 973	* 750 000	* 820 000
Bhutan	184 785	72 838	111 545	158 603	* 159 000
China	3 846 000 000	3 902 000 000	4 126 000 000	4 559 000 000	4 710 000 000
India					
Bituminous	(f) 729 023 000	(f) 716 084 000	(f) 778 190 000	863 441 000	968 434 000
Lignite	(f) 42 185 000	(f) 36 615 000	(f) 47 490 000	47 395 000	42 257 000
Indonesia					
Anthracite & Bituminous	616 159 594	563 728 255	613 990 256	687 432 384	775 181 855
Iran (g)	1 585 531	1 669 515	1 298 163	2 273 241	1 542 015
Kazakhstan					
Bituminous	104 809 100	104 084 100	107 246 300	112 127 100	107 758 100
Lignite	5 928 900	5 422 100	4 828 700	5 664 100	4 982 500
Korea (Rep. of)					
Anthracite	1 084 000	1 019 298	897 900	820 181	* 800 000
Korea, Dem. P.R. of	20 210 000	19 000 000	15 600 000	16 300 000	* 16 000 000
Kyrgyzstan	2 606 000	2 677 700	3 062 500	3 775 400	4 084 000
Laos					
Anthracite	161 494	320 231	698 521	1 270 812	3 644 064
Lignite	15 263 562	14 366 628	13 618 072	15 358 322	15 255 113
Malaysia	3 459 122	2 978 248	3 110 605	3 405 847	4 068 049
Mongolia					
Brown coal & lignite	55 799 400	43 844 800	33 691 800	37 294 700	85 262 300
Myanmar	1 941 557	1 879 810	1 453 194	1 727 495	* 1 730 000
Nepal					
Sub-bituminous (h)	7 184	7 250	11 304	6 927	* 7 000
Pakistan (c)(e)	5 406 878	8 599 166	9 229 377	7 382 819	15 069 760
Philippines					
Bituminous	13 751 291	12 951 291	14 047 681	14 457 257	* 14 400 000
Tajikistan					
Anthracite	—	60 000	61 300	61 600	65 400
Bituminous	1 963 827	1 891 200	1 931 100	2 192 300	1 888 400
Lignite	63 963	77 939	96 300	139 700	130 400
Thailand					
Lignite	14 071 710	13 250 574	14 221 573	13 641 283	12 713 628
Uzbekistan					
Bituminous	249 100	263 700	275 100	282 300	390 900
Lignite	3 806 000	3 868 100	4 781 200	5 073 900	6 128 700
Vietnam					
Anthracite	47 157 700	44 598 400	48 315 600	49 854 700	* 47 258 700
Australia					
Bituminous (i)(j)	481 727 000	446 503 000	437 866 000	418 836 000	428 327 000
Brown coal (e)	42 256 000	40 372 000	42 263 000	39 126 000	38 596 000
New Zealand					
Bituminous	1 291 197	1 128 917	1 256 584	1 230 681	1 306 699
Sub-bituminous	1 454 956	1 392 075	1 326 292	1 130 547	1 017 952
Lignite	287 830	297 690	284 735	276 248	275 433
World total	8 132 000 000	7 730 000 000	8 172 000 000	8 815 000 000	9 096 000 000

See notes on the following page

Production of coal

Note(s)

- (1) There is no international agreement as to the separate definition of lignite and brown coal. In some cases they are distinguished. Elsewhere both may be aggregated under one or other term.
- (2) Data for coking coal is not always distinguished from other types of bituminous coal. The term "bituminous" in this table may include coking coal where the latter is not separately shown.
- (3) Where no sub-commodity is shown the figures relate to all ranks of coal.
- (a) Spitzbergen: not including production from mines controlled by Russia
- (b) Excluding production in Kosovo
- (c) Including lignite
- (d) May also include some other types of coal
- (e) Years ended 30 June of that stated
- (f) Years ended 31 March following that stated
- (g) Years ended 20 March following that stated
- (h) Years ended 15 July of that shown
- (i) Including sub-bituminous
- (j) Saleable

Mine production of cobalt

tonnes (metal content)

Country	2019	2020	2021	2022	2023
Finland	1 454	1 559	1 084	1 235	1 057
Russia	5 500	5 700	8 000	9 000	* 9 000
Turkey	115	250	320	320	350
Congo, Democratic Republic	77 964	86 591	93 144	115 371	139 838
Madagascar	2 930	833	2 111	3 428	* 3 500
Morocco (a)	2 397	2 416	1 796	1 690	1 506
South Africa (a)	1 027	960	355	250	378
Zambia	367	287	240	252	207
Zimbabwe	400	957	345	241	376
Canada	5 039	4 069	3 953	3 534	5 099
Cuba	* 5 200	* 5 500	* 4 400	* 4 200	* 3 200
USA	500	600	650	500	* 500
Brazil	30	20	* 250	* 250	* 350
China	1 742	* 1 750	* 1 750	* 1 750	1 500
Indonesia	* 350	* 1 000	* 2 100	* 9 500	21 600
Philippines	* 3 750	* 3 600	* 3 200	* 3 400	* 3 300
Vietnam	—	—	288	278	299
Australia	(b) 5 693	5 626	5 232	5 793	5 222
New Caledonia	1 703	2 197	* 1 500	* 1 750	* 2 200
Papua New Guinea	2 911	2 941	2 953	2 987	3 072
World total	119 000	127 000	133 000	165 000	202 000

Note(s)

- (1) There is frequently a considerable disparity between the cobalt content of ore raised and cobalt actually recovered.
- (2) In many countries it is not clear whether cobalt that is known to be present in the extracted ore is subsequently recovered, nor whether the reported figure is contained or recovered cobalt.
- (3) Consequently, the figures in this table may relate either to cobalt recovered or to cobalt contained in ore raised.
- (4) In addition to the countries listed, cobalt is contained within copper ores in Poland but this is not currently recovered.
- (a) Metal and/or refined
- (b) Years ended 30 June of that stated

Production of refined cobalt

tonnes (metric)

Country	2019	2020	2021	2022	2023
Belgium (a)	* 1 500	* 1 300	* 1 300	* 1 000	* 1 000
Finland	14 283	15 148	14 287	12 781	10 627
France	—	—	—	* 150	* 150
Norway	4 354	4 384	3 982	3 124	3 464
Russia	* 1 900	* 1 800	* 1 800	* 1 800	* 1 800
Madagascar	2 897	963	2 111	3 428	* 3 500
Morocco	2 397	2 416	1 796	1 690	1 506
South Africa (b)	1 027	897	531	* 200	* 200
Zambia	1 271	—	—	—	* —
Canada (c)	6 075	5 965	* 6 000	5 501	4 923
China (a)	* 86 000	* 86 000	* 113 000	* 125 000	* 140 000
Indonesia	* —	* —	* —	* —	1 533
Japan	3 680	3 467	3 852	* 3 700	* 3 900
Australia	3 700	3 300	2 800	3 000	2 100
New Caledonia (d)	1 240	681	—	—	—

Note(s)

(1) Refined cobalt can be in the form of metal, oxides, carbonates, sulphates and many other compounds. Efforts are made to avoid double-counting but it is not always possible to be certain.

(a) Some refined cobalt production in China is recorded in Belgium

(b) Includes metal and cobalt contained in sulphate

(c) Including oxides

(d) Carbonate

Mine production of copper

tonnes (metal content)

Country	2019	2020	2021	2022	2023
Albania	3 551	3 070	5 134	5 899	4 006
Armenia	97 870	90 154	85 912	66 132	62 266
Azerbaijan	2 210	2 591	2 649	2 516	2 687
Bulgaria	70 927	70 176	66 312	68 999	72 698
Cyprus	703	—	—	—	—
Finland	32 592	35 494	32 017	27 553	20 000
Georgia	9 547	8 031	8 147	6 364	4 394
North Macedonia	7 100	5 982	6 213	7 093	7 378
Poland	449 000	442 000	443 000	443 000	445 000
Portugal	41 553	32 230	38 145	32 098	40 800
Romania	9 100	8 200	9 000	9 100	9 300
Russia	812 400	924 100	938 800	917 900	* 910 000
Serbia	43 550	52 207	121 150	203 998	238 909
Slovakia	17	20	76	30	37
Spain	170 556	182 678	142 381	128 764	114 786
Sweden	99 332	100 065	88 108	88 337	73 780
Turkey	73 500	107 000	108 100	121 000	127 000
Botswana	—	—	11 742	44 269	54 808
Congo, Democratic Republic	1 461 124	1 713 000	1 924 400	2 515 800	3 148 567
Eritrea	16 008	21 725	20 224	17 098	17 595
Mauritania	29 620	28 491	18 845	13 313	13 014
Morocco	30 700	31 800	* 36 500	31 000	* 32 000
Namibia	15 743	10 853	912	2 036	* 2 000
South Africa	52 501	29 068	28 307	49 194	50 023
Tanzania	* 10 000	* 10 000	* 10 000	* 10 000	* 10 000
Zambia	787 699	837 996	803 747	763 550	698 566
Zimbabwe	8 700	7 933	8 650	10 168	12 908
Canada	557 242	584 608	550 418	519 691	499 791
Dominican Republic	6 047	2 193	4 774	5 360	9 673
Mexico	713 704	800 316	782 136	828 180	778 839
Panama	147 480	205 548	331 000	350 438	330 863
USA	1 260 000	1 200 000	1 230 000	1 230 000	* 1 100 000
Bolivia	4 478	2 822	3 310	3 608	3 881
Brazil	363 268	353 258	335 923	297 653	376 338
Chile	5 787 400	5 733 100	5 624 900	5 330 500	5 372 694
Colombia	7 641	9 356	8 195	6 800	6 000
Ecuador	6 300	49 700	89 200	121 200	* 140 000
Peru	2 437 925	2 153 952	2 329 886	2 445 271	2 755 139
China	1 683 700	1 723 100	1 818 000	1 899 200	1 815 010
India	(a) 28 000	(a) 25 810	(a) 27 163	26 005	28 044
Indonesia	400 452	511 888	758 356	952 668	922 143
Iran	312 000	315 000	340 000	344 000	326 000
Kazakhstan	562 100	551 800	511 900	594 100	576 900
Korea, Dem. P.R. of	* 2 000	* 2 000	* 2 000	* 2 000	* 2 000
Kyrgyzstan	8 600	6 500	8 100	7 500	7 200
Laos	140 935	88 163	32 385	37 162	50 120
Mongolia	441 910	446 845	464 205	416 430	488 355
Myanmar	* 219 000	* 186 000	33 900	—	—
Pakistan	13 049	13 200	18 806	16 346	17 000
Philippines	71 892	60 856	51 586	59 191	61 629
Saudi Arabia	67 300	75 400	76 350	75 439	71 810
Tajikistan	2 330	978	1 845	1 206	890
Uzbekistan	137 300	142 800	148 500	148 500	149 000
Vietnam	30 192	30 782	33 930	34 709	29 049
Australia	925 157	868 019	801 052	826 271	778 369
Papua New Guinea	99 398	86 988	66 958	75 800	87 400
World total	20 800 000	21 000 000	21 400 000	22 200 000	23 000 000

Note(s)

(a) Years ended 31 March following that stated

Smelter production of copper

tonnes (metric)

Country	2019	2020	2021	2022	2023
Austria	68 600	75 400	75 400	60 003	60 000
Bulgaria	255 200	286 000	256 600	327 700	* 276 000
Finland	* 137 000	* 166 000	* 172 000	* 154 000	* 147 000
Germany	288 600	312 600	383 800	364 000	340 100
Norway	21 962	20 535	20 125	18 475	20 086
Poland	489 242	462 868	581 409	560 724	479 694
Russia	790 500	815 200	991 000	984 500	981 900
Serbia	82 400	88 000	162 700	* 30 000	* 30 000
Spain	245 800	257 700	* 259 000	* 195 000	* 240 000
Sweden	135 900	155 000	* 155 000	* 160 000	* 160 000
Turkey	88 700	83 900	84 000	84 005	84 000
Congo, Democratic Republic	* 2 000	107 782	163 219	164 441	197 800
Namibia	45 953	46 792	42 010	37 285	35 620
South Africa	15 000	—	—	—	* —
Tanzania	* 10 000	* 10 000	* 10 000	* 10 000	* 10 000
Zambia (a)	648 100	789 600	769 100	727 200	648 900
Canada	290 000	290 000	290 000	* 260 000	* 280 000
Mexico	277 654	286 242	287 406	285 438	263 613
USA	466 000	315 000	* 360 000	380 500	378 000
Brazil	157 100	194 800	57 000	* 24 400	* 13 600
Chile	1 011 200	1 206 300	1 206 600	1 112 400	1 073 900
Peru	294 315	342 738	* 348 000	324 136	* 330 000
China	7 082 700	* 7 700 000	8 000 000	10 390 000	11 833 000
India	344 300	243 200	363 002	395 003	* 390 000
Indonesia	246 100	276 900	280 400	272 464	221 900
Iran	201 100	223 300	246 800	* 230 000	* 230 000
Japan	1 169 664	1 277 303	1 174 957	1 269 940	1 174 623
Kazakhstan	311 000	319 100	265 500	324 704	* 290 000
Korea (Rep. of)	520 000	513 900	* 510 000	* 510 000	* 510 000
Pakistan	13 049	13 200	12 388	12 225	17 000
Philippines	217 800	247 000	219 819	185 054	216 900
Uzbekistan	147 300	148 000	148 000	148 900	153 100
Vietnam	* 19 200	* 19 200	* 20 000	* 20 000	20 000
Australia	401 277	399 292	381 857	390 300	397 150
World total	16 500 000	17 700 000	18 300 000	20 400 000	21 500 000

Note(s)

(1) This table shows primary metal in the form of blister and anode produced from concentrates and may include copper produced from scrap but this is excluded when it can be separately identified.

(a) Including leach cathodes

Production of refined copper

tonnes (metric)

Country	2019	2020	2021	2022	2023
Austria	128 100	129 400	132 600	109 000	100 400
Belgium	356 600	321 400	386 400	377 500	379 100
Bulgaria	207 196	224 880	218 020	229 070	228 800
Cyprus	703	—	—	—	—
Finland	120 369	145 847	151 000	135 203	129 092
Germany	629 700	643 000	614 000	609 000	596 000
Italy	9 800	15 000	15 400	9 900	10 200
North Macedonia	719	722	700	600	600
Norway	21 962	20 535	20 125	18 475	20 086
Poland	565 588	560 364	577 575	586 006	592 359
Russia	1 028 000	1 055 000	1 022 000	985 000	992 800
Serbia	74 000	46 937	58 344	24 665	74 163
Spain	386 700	399 700	360 700	297 900	334 200
Sweden	201 345	225 987	223 038	217 800	96 300
Turkey	116 000	126 100	127 000	134 600	141 700
Ukraine	20 409	24 335	26 600	* 2 400	* 2 400
Congo, Democratic Republic	1 160 223	1 352 000	1 492 000	1 810 000	2 210 000
Egypt	* 4 000	* 4 000	* 4 000	* 4 000	* 4 000
Namibia	15 743	10 641	950	—	—
South Africa	* 15 000	* —	* —	* —	* —
Zambia	264 300	371 800	335 900	276 400	202 500
Canada	281 176	276 100	286 600	278 000	314 700
Mexico	486 903	491 926	472 767	486 076	403 300
USA	1 030 000	915 000	971 000	952 000	* 850 000
Argentina	* 14 000	* 14 000	* 14 000	* 14 000	* 14 000
Bolivia	3 100	1 800	1 700	1 400	1 600
Brazil	175 200	108 600	61 500	25 300	* 25 000
Chile	2 269 100	2 329 300	2 274 000	2 149 100	2 075 900
Peru	307 862	323 580	343 600	394 900	403 300
China	9 784 238	10 025 059	10 486 700	11 115 300	12 988 000
India	418 300	333 500	489 700	542 000	509 000
Indonesia	257 977	278 377	287 800	290 300	226 300
Iran (a)	250 130	280 275	285 011	300 011	288 632
Japan	1 495 359	1 580 086	1 516 684	1 556 452	1 494 160
Kazakhstan	472 327	477 016	401 883	451 992	417 108
Korea (Rep. of)	665 727	657 000	647 400	637 900	604 100
Laos	71 651	39 730	5 964	6 604	6 518
Mongolia	11 758	9 488	9 690	9 736	9 661
Myanmar	218 000	* 185 000	* 33 900	—	—
Philippines	296 997	242 075	214 684	258 729	266 532
Uzbekistan	147 300	148 000	148 000	148 500	* 149 000
Vietnam	* 19 200	* 19 200	* 20 000	* 20 000	* 20 000
Australia	426 739	426 997	400 250	428 728	444 582
World total	24 400 000	24 800 000	25 100 000	25 900 000	27 600 000

Note(s)

(1) Figures relate to both primary and secondary refined copper, whether electrolytic or fire refined. Metal recovered from secondary materials by remelting alone is excluded.

(2) In addition to the countries listed, Albania and Colombia produce refined copper.

(a) Years ended 20 March following that stated

Production of diamond

Carats

Country	2019	2020	2021	2022	2023
Russia	45 271 212	31 186 551	39 116 970	41 923 910	37 316 754
Angola	9 149 746	7 734 281	8 723 069	8 763 309	9 754 310
Botswana	23 687 000	16 868 000	22 696 000	24 479 000	25 095 000
Cameroon (a)	* 3 500	* 4 200	* 4 500	* 4 200	* 4 800
Central African Republic	27 549	55 926	92 772	118 044	111 918
Congo	2 963	11 157	4 125	3 534	4 074
Congo, Democratic Republic	18 892 000	16 560 000	12 179 000	11 683 000	8 306 000
Côte d'Ivoire	3 990	4 015	3 942	3 904	2 368
Gabon	—	—	501	—	—
Ghana (b)	33 789	25 292	54 174	82 252	202 757
Guinea	229 180	128 575	273 321	113 848	104 384
Lesotho	1 113 526	481 243	339 452	727 737	471 745
Liberia	55 936	54 599	63 027	55 391	56 844
Mali	—	—	—	92	182
Namibia	1 745 281	1 484 290	1 523 120	2 188 075	2 384 975
Sierra Leone	824 430	686 020	829 330	680 432	540 720
South Africa	7 177 435	8 470 840	9 723 811	9 646 300	5 891 865
Tanzania	416 750	147 191	62 545	442 016	132 636
Togo	16	—	—	—	—
Zimbabwe	2 119 189	2 670 458	4 224 300	4 844 019	4 913 593
Canada	18 573 661	14 208 812	16 865 216	16 217 233	16 160 688
Brazil	165 992	124 548	142 661	158 420	78 252
Guyana	54 993	19 240	45 106	83 614	67 444
Venezuela	—	794	* 800	* 800	* 800
China	* 51	* 21	—	—	—
India	(c) 28 816	(c) 13 917	(c) 266	419	55
Australia	12 154 544	9 980 000	—	—	—
World total	141 700 000	110 900 000	117 000 000	122 200 000	111 600 000

Note(s)

(1) This table does not show production of synthetic diamond.

(2) So far as possible the amounts shown include estimates for artisanal and/or illegal production.

(a) Including artisanal production

(b) Exports

(c) Years ended 31 March following that stated

Production of diatomite

tonnes (metric)

Country	2019	2020	2021	2022	2023
Armenia	* 20 000	* 20 000	* 20 000	* 20 000	* 20 000
Czech Republic	43 000	46 000	18 000	44 000	38 000
Denmark					
Moler (a)	108 750	115 000	120 625	143 125	101 875
France	* 90 000	* 90 000	* 90 000	* 80 000	* 80 000
Germany	53 802	51 511	57 719	49 821	43 939
Hungary	860	321	573	575	893
Poland	680	810	980	1 170	1 620
Russia	* 51 000	* 51 000	* 51 000	* 51 000	* 50 000
Spain (b)	62 741	59 250	55 982	87 095	73 997
Turkey	220 757	100 327	207 732	237 267	154 444
Algeria	2 437	3 040	3 066	* 3 000	* 3 000
Ethiopia (c)	* 5 000	* 5 000	* 5 000	* 5 000	* 5 000
Kenya	921	928	763	1 401	770
Mozambique	72 439	80 189	72 914	51 449	* 50 000
Uganda	* 100	96	433	21	* 20
Costa Rica	1 546	3 763	5 943	5 286	* 5 500
Mexico	129 274	144 105	140 928	107 060	102 906
USA (d)	768 000	822 000	998 000	827 000	849 000
Argentina	95 000	99 000	* 100 000	* 100 000	* 100 000
Brazil	17 673	35 574	10 665	35 844	16 546
Chile	21 328	21 477	27 096	24 279	17 319
Peru	91 103	85 406	94 860	104 660	98 872
China	141 000	274 000	317 000	368 000	* 370 000
Japan	* 40 000	* 40 000	* 40 000	* 40 000	* 40 000
Korea (Rep. of)	40 910	65 240	49 616	11 880	120 941
Saudi Arabia (e)	—	25	20	55	30
Australia	8	7	3	5	2
New Zealand	* 44 000	* 44 000	* 44 000	* 40 000	* 40 000
World total	2 100 000	2 300 000	2 500 000	2 400 000	2 400 000

Note(s)

(1) In addition to the countries listed, Georgia and Vietnam may produce diatomite.

(a) Moler is an impure diatomite containing a large proportion of clay

(b) Including the mineral Tripoli

(c) Years ended 7 July of that stated

(d) Sold or used by producers

(e) Exports

Production of feldspar

tonnes (metric)

Country	2019	2020	2021	2022	2023
Austria	* 35 000	* 35 000	* 35 000	* 35 000	* 35 000
Czech Republic	460 000	419 000	504 000	493 000	352 000
Finland	17 997	16 137	52 706	63 034	55 211
France	* 500 000	* 450 000	* 450 000	* 450 000	* 450 000
Germany	235 289	221 527	223 007	205 330	180 994
Greenland	19 456	* 20 000	* 20 000	* 20 000	* 20 000
Italy	4 000 000	2 200 000	* 2 200 000	* 2 200 000	* 2 200 000
North Macedonia	29 519	13 115	26 625	37 482	34 591
Norway	* 88 000	69 220	60 025	* 60 000	* 60 000
Poland	593 004	427 200	534 100	540 614	500 000
Portugal (a)	179 584	204 843	156 507	217 766	* 200 000
Romania	* 22 000	* 22 000	* 22 000	* 22 000	* 22 000
Russia	* 294 000	* 594 000	* 600 000	* 300 000	* 300 000
Serbia	* 20 000	* 20 000	* 20 000	* 20 000	* 20 000
Slovakia	19 100	29 140	10 300	10 300	6 300
Spain	855 139	911 095	820 749	716 535	617 009
Sweden	* 28 000	* 20 000	* 26 000	* 20 000	* 20 000
Turkey	9 447 810	10 050 911	12 936 959	15 781 540	9 478 458
Ukraine (b)	* 60 000	* 50 000	* 60 000	* 30 000	* 30 000
Algeria	* 170 000	* 170 000	* 170 000	* 170 000	* 170 000
Egypt	* 230 000	* 200 000	* 200 000	* 200 000	* 200 000
Ethiopia (c)	* 600	* 600	* 600	* 600	* 600
Morocco	75 000	185 772	427 387	587 289	* 587 000
Nigeria	33 702	19 453	31 256	37 250	76 575
South Africa	76 255	48 427	65 726	75 382	142 820
Sudan	15 300	25 000	6 400	* 6 000	* 5 000
Uganda	—	—	95	1 388	* 1 400
Cuba	2 100	14 100	17 800	5 900	17 300
Guatemala	28 771	25 578	34 232	* 40 000	26 450
Mexico	304 084	318 120	372 102	377 649	491 193
USA	450 000	440 000	380 000	* 540 000	* 520 000
Argentina	* 56 500	32 000	* 40 000	* 40 000	* 40 000
Brazil (d)	632 349	450 573	491 042	756 364	621 075
Chile	55	329	—	—	28
Colombia	180 235	134 846	99 755	164 783	64 546
Peru	29 134	24 132	27 274	24 358	14 111
Uruguay (e)	100	208	24 120	300	800
Venezuela	* 30 000	* 30 000	* 30 000	* 30 000	* 30 000
China	2 000 000	2 500 000	2 500 000	2 500 000	* 2 500 000
India (e)	* 4 300 000	* 4 300 000	* 4 300 000	* 4 300 000	* 4 300 000
Indonesia	480 802	287 368	313 240	325 710	* 325 000
Iran (f)	2 368 957	1 910 505	2 937 012	2 613 360	* 3 000 000
Japan (g)	* 100 000	* 100 000	* 100 000	* 100 000	* 100 000
Korea (Rep. of)	396 896	415 426	987 309	530 743	990 814
Malaysia	241 189	144 487	168 570	216 394	242 757
Pakistan (h)	295 381	343 075	451 985	* 400 000	* 400 000
Philippines	* 46 600	* 46 000	* 46 000	* 46 000	* 46 000
Saudi Arabia	432 000	523 000	621 000	652 000	* 650 000
Sri Lanka	* 26 000	* 26 000	* 26 000	* 26 000	* 26 000
Thailand	1 251 143	1 105 344	1 346 997	1 953 918	1 884 301
Uzbekistan	47 784	63 596	106 145	80 928	91 510
Vietnam	* 100 000	* 100 000	* 100 000	* 100 000	* 100 000
Australia (h)	* 5 800	* 6 700	* 6 500	* 5 000	* 5 000
World total	31 300 000	29 800 000	35 200 000	38 100 000	32 300 000

See notes on the following page

Production of feldspar

Note(s)

- (a) Includes feldspathic sand
- (b) Figures do not include production from Crimea or Sevastopol
- (c) Years ended 6 July of that stated
- (d) Including nepheline syenite
- (e) Years ended 31 March following that stated
- (f) Years ended 20 March following that stated
- (g) Including weathered granite feldspar
- (h) Years ended 30 June of that stated

Production of fluorspar

tonnes (metric)

Country	2019	2020	2021	2022	2023
France	* 80 000	* 80 000	* 80 000	84 112	81 301
Germany	79 959	64 933	56 632	61 563	35 508
Russia	4 000	32 000	76 000	76 000	* 76 000
Spain	145 185	185 958	187 225	203 768	146 975
Turkey	14 400	19 896	10 348	17 252	32 407
United Kingdom	* 14 000	* 15 000	* 15 000	* 13 000	* 7 000
Egypt (a)	* 1 000	* 1 000	* 1 000	* 1 000	* 1 000
Morocco	73 240	83 833	189 012	77 035	* 77 000
South Africa	210 000	320 000	403 000	406 000	* 410 000
Mexico	1 231 465	914 597	1 007 118	990 079	988 972
Argentina	8 000	4 800	4 800	* 4 800	* 4 800
Brazil	24 399	24 730	28 158	28 969	28 365
Afghanistan	* 4 000	* 4 000	* 4 000	* 4 000	* 4 000
China	4 300 000	5 400 000	5 700 000	5 700 000	* 5 700 000
India	(b) 1 315	(b) 1 052	(b) 1 237	988	6 297
Iran (c)	49 705	116 159	* 110 000	* 110 000	* 100 000
Kazakhstan	87 800	74 500	* 67 000	* 12 100	* 12 000
Korea, Dem. P.R. of	* 7 000	* 6 000	* 7 000	* 7 000	* 7 000
Kyrgyzstan	* 4 000	* 4 000	* 4 000	* 4 000	* 4 000
Mongolia	156 100	127 300	118 300	122 900	222 400
Pakistan (a)	4 186	5 981	7 841	* 12 000	* 12 000
Thailand	17 747	9 807	9 766	59 243	187 566
Vietnam	238 003	219 920	215 027	217 975	146 043
World total	6 800 000	7 700 000	8 300 000	8 200 000	8 300 000

Note(s)

- (1) In addition, the USA produced the following amounts of fluorspar equivalent in fluorosilicic acid derived from processing phosphate rock ('000 t): 2019: 29; 2020: 22; 2021:40; 2022: 43; 2023: 43.

- (a) Years ended 30 June of that stated
- (b) Years ended 31 March following that stated
- (c) Years ended 20 March following that stated

Production of primary gallium

tonnes (metric)

Country	2019	2020	2021	2022	2023
Russia	* 13	* 13	* 13	* 14	* 15
Ukraine	* 8	* 4	* 4	* 2	* 2
China	357	336	423	600	* 600
Japan	3	3	3	* 3	* 3
Korea (Rep. of)	* 3	* 2	* 2	* 2	* 2

Note(s)

- (1) Accurate data for gallium is difficult to obtain because it is produced only as a by-product of bauxite or zinc processing using proprietary techniques. As a consequence, this table may not be complete.
- (2) Lower grade production is often subsequently refined to higher grade material which complicates the collection of data as double counting is a significant risk.
- (3) In addition to the above primary production, there is also believed to be significant production of refined gallium from scrap recycling.

Production of germanium metal

tonnes (metric)

Country	2019	2020	2021	2022	2023
Russia	* 5	* 5	* 5	* 5	* 5
USA (a)	* 5	* 5	* 6	* 7	* 6
China	86	* 95	* 155	180	* 200

Note(s)

- (1) Germanium is also believed to be recovered from imported or domestic material in Belgium, Canada, Germany, Japan and Ukraine.

(a) Including production of secondary metal

Mine production of gold

In addition to 'industrial scale' gold mines around the World total, a significant quantity of gold is mined by small scale or artisanal producers, both on a legal and illegal basis. In some countries the quantities involved with artisanal mining can be relatively large. The compilation of reliable data for the quantity produced by artisanal mining in each country is difficult, particularly where the actions are illegal. Artisanal mining can be seasonal, temporary and highly variable, on both geographical and temporal scales.

Where possible, the table attempts to include estimates for artisanal mining of gold in order that the calculated World totals are as complete as possible. However, the difficulties noted above mean that these totals cannot be completely accurate, and they are consequently rounded to a greater degree than the individual country figures may suggest is appropriate. This is an attempt to convey the level of uncertainty associated with these total figures.

For clarity, additional comments on specific countries are shown below (there may be other countries where artisanal mining also occurs; these comments are not intended to be exhaustive): -

Benin – artisanal gold mining is known to take place, but no reliable estimates are available.

Burkina Faso – official figures include 491 kg for artisanal mining in 2023; 484 kg in 2022; 270 kg in 2021; 332 kg in 2020 and 259 kg in 2019. It is believed the actual artisanal production is likely to be higher.

Cameroon – all gold mining is currently small scale or artisanal. Available estimates vary widely, from as low as 100 kg per year to something in the order of 1 500 kg per year.

Central African Republic – artisanal gold mining is known to take place. No reliable estimates are available, but it could be in the region of 50-80 kg per year. The figures shown are reported and it is assumed these are artisanal, but they may not be fully inclusive in every year.

Colombia – Artisanal and small-scale mining, both legal and illegal, is extensive within Colombia. Although the government is taking steps to improve the licencing of legal artisanal mining and to crack down on illegal activities, during the last decade it is believed that illegal mining has grown to the extent that it has become more widespread than legal mining. Some illegal mining and trade are thought to be coordinated by organised crime groups. It is possible that illegally mined material is brought into or out of the country without being recorded. It can therefore be assumed that the total mine production of gold significantly exceeds the reported figure, however it has not been possible to make a reliable estimate for this additional material.

Congo – all gold mining is believed to be small scale or artisanal and it is believed there are more than 200 locations where this occurs. A nominal estimate of 150 kg per year is shown in the table.

Costa Rica – all gold mining is currently artisanal. The figures in the table are reported by an official source.

Côte d'Ivoire – efforts are being made within Côte d'Ivoire to rationalise artisanal mining as part of the EITI process. The EITI reported figures do include an amount for reported artisanal and semi-industrial mining between 200 to 400 kg. However, reports suggest that it varies considerably from year to year and may range between 1 000 kg and 10 000 kg per year.

Democratic Republic of Congo – artisanal mining is quite extensive, the figures shown include estimates for artisanal mining ranging from 4000 to 11000 kg per year.

Equatorial Guinea – artisanal gold mining is very likely to be taking place, but no accurate information is available. A nominal estimate of 200 kg per year is included in the table but it could be more or less than this.

Ethiopia – small scale and artisanal gold mining is significant, but not all of it is illegal because some artisanal miners operate under a formal license. A proportion of the gold mined from artisanal sources is sold to the national bank but illicit sales to non-licensed buyers remains widespread. National bank purchases of gold from artisanal sources in fiscal year 2018/19 amounted to 3 179 kg. Actual artisanal production could be higher.

France (French Guiana) – the table includes an estimate of 5 000 kg to 10 000 kg per year for artisanal mining which is not included in the official reported figures.

Gabon – attempts to regulate artisanal gold mining are being undertaken with gold from artisanal miners being purchased by a government agency since 2013. The figures in the table are all artisanal.

Ghana – gold produced by artisanal mining is purchased by a state-owned marketing organisation, but official figures of the quantity vary depending on the source. They are also reported in publications produced under the Extractive Industry Transparency Initiative (EITI). In the table below the following figures are included for artisanal production: 49 839 kg in 2019; 36 556 kg in 2020; 3 048 kg in 2021; 20 393 kg in 2022 and 34 719 kg in 2023.

Guinea – the figures in the table include reported figures for artisanal mining. However, actual artisanal production may be higher than those reported because it is difficult to distinguish the material derived from artisanal mining within Guinea from that moved across the border from Mali or other countries.

Kenya – The reported figures shown include an amount of 5 000 kg for artisanal mining but in reality, it could be much higher.

Liberia – official figures are believed to include both the industrial mine and artisanal production.

Madagascar – estimates of artisanal mining are in the order of 100 kg to 3 000 kg per year, but reliable data is difficult to obtain so are not included in our figures.

Mali – the figures include an estimate for artisanal mining of 6 000 kg per year, but it is likely the real figure varies more than this from year to year.

Mozambique – artisanal mining is widespread in the country and artisanal miners account for significant percentage of Mozambique's gold. Most is not reported and therefore not included in our figures. The Government as of 2021 is trying to make a concerted effort to account for the artisanal mining.

Myanmar – the figures shown in the table are reported and are believed to include artisanal mining.

Nigeria – Official reporting of artisanal gold production by the Ministry is low (355 kilograms in 2021). However, imports of gold to other countries from Nigeria are reported to be much larger, which suggests the quantity of production may be higher and the estimates in the table reflect this. The EITI reports the plan for formalising the artisanal mining sector and for the support of 10 000 artisanal miners in five regions of the federation.

Panama – artisanal mining is known to occur, but no reliable estimates are available. A nominal estimate of 100 kg per year has been included.

Papua New Guinea – official estimates of "alluvial and small scale" mining are approximately 3 500 kg to 4 000 kg per year.

Rwanda – it is believed that the reported and estimated figures are actually gold that originated in Nigeria or other countries in the region but is not recorded in those countries.

Senegal – an estimate of between 1 000 kg and 4 000 kg has been added to each year for artisanal mining.

South Africa – illegal artisanal mining is known to occur. No information on reliable estimates.

South Sudan – artisanal mining is known to occur, but reliable estimates are difficult to obtain. It has been estimated as approximately 200 kg per year.

Tanzania – Artisanal mining is known to occur; the reported figures are believed to include artisanal mining.

Togo – the reported figures are exports of gold which is transiting through the country. It is believed the majority of this originates in Burkina Faso from artisanal mining, but it is not recorded within the production figures for that country. Consequently, it is recorded here for completeness. Some artisanal mining is also believed to occur in Togo.

Venezuela – artisanal mining is believed to be quite extensive and increasing. Estimates of quantities vary widely from less than 1 000 kg up to 9 000 kg per year. The Central Bank aims to purchase all the artisanally mined gold, however, actual output is believed to be larger than the reported figures and therefore higher estimates have been used.

Vietnam – artisanal mining is believed to be taking place at the site of a former industrial mine. No information is available to indicate likely scale.

Zimbabwe – It is believed that artisanal and small-scale mining makes up a large proportion of Zimbabwe's total production and is included in this table.

Mine production of gold

kilograms

Country	2019	2020	2021	2022	2023
Armenia	5 825	5 900	3 400	4 230	924
Azerbaijan	3 898	3 637	3 428	3 271	2 659
Bulgaria	7 172	9 278	9 642	8 495	9 209
Cyprus	33	61	—	—	—
Finland	7 927	8 668	9 082	8 390	8 804
Georgia	4 232	5 401	3 513	4 908	5 035
Germany	* 10	* 10	12	14	14
Greece	2 333	3 440	3 313	3 561	* 3 500
North Macedonia	593	448	* 500	* 600	* 600
Poland	674	878	768	769	442
Romania	* 500	* 500	* 500	* 500	* 500
Russia	305 100	308 600	313 830	302 000	* 302 000
Serbia (a)	1 452	1 550	4 796	7 290	6 944
Slovakia	346	336	392	399	500
Spain	1 913	1 602	1 400	1 359	1 354
Sweden	7 972	8 249	8 805	8 054	7 358
Turkey	38 000	42 100	39 290	31 020	36 250
United Kingdom	* 50	28	79	* 270	* 130
Algeria	70	58	71	138	* 150
Angola	23	59	32	83	* 80
Benin	* 5	* 5	* 5	* 5	* 5
Botswana	942	851	650	426	331
Burkina Faso	51 500	62 405	67 126	58 159	57 338
Burundi	1 599	863	893	440	50
Cameroon	450	350	450	* 175	* 200
Central African Republic	359	401	858	1 507	1 549
Congo	* 150	* 150	* 150	* 150	* 150
Congo, Democratic Republic	* 43 000	* 40 000	* 42 000	* 38 000	* 44 500
Côte d'Ivoire	32 478	38 523	41 857	48 317	51 314
Egypt	14 946	14 069	12 919	13 716	13 998
Equatorial Guinea	* 200	* 200	* 200	* 200	* 200
Eritrea	2 443	3 019	* 2 200	* 3 200	* 2 550
Eswatini (Swaziland)	6	1	—	0	0
Ethiopia (b)(c)	3 180	3 320	9 190	8 680	3 460
Gabon	107	371	967	700	634
Ghana	143 940	125 884	87 677	113 252	125 549
Guinea	27 552	91 802	100 958	84 713	73 992
Kenya	* 5 400	* 5 200	* 5 300	* 5 600	* 5 400
Liberia	5 068	4 396	7 860	11 718	13 638
Madagascar (c)	2 100	1 500	* 2 000	* 2 000	* 2 000
Mali	* 63 000	* 65 000	* 69 400	* 72 200	* 72 500
Mauritania	13 554	14 125	6 498	17 711	20 129
Morocco (a)	221	143	147	167	104
Mozambique	430	488	764	1 264	1 538
Namibia	7 016	6 717	7 647	7 437	9 800
Niger	5 224	2 361	4 010	2 601	2 534
Nigeria	(c)* 9 000	(c)* 5 000	(c)* 3 000	2 900	2 700
Rwanda (c)	* 11 400	11 532	6 341	9 470	13 934
Senegal (d)	16 100	14 600	18 800	16 200	13 900
Sierra Leone	75	14	117	150	156
South Africa	105 185	95 786	105 019	89 598	96 629
South Sudan	* 200	* 200	* 200	* 200	* 200
Sudan	55 400	35 700	49 700	41 800	* 45 000
Tanzania	48 408	55 508	59 638	56 943	54 760
Togo (c)	8 227	3 565	* 3 600	* 3 600	* 3 600

Mine production of gold

kilograms

Country	2019	2020	2021	2022	2023
Uganda	170	10	13	8	* 10
Zambia (e)	4 522	3 994	3 987	4 385	2 145
Zimbabwe	29 429	20 873	31 477	37 225	32 132
Canada	190 899	182 352	196 730	195 226	198 335
Costa Rica	4 500	599	647	864	900
Dominican Republic	31 801	28 154	25 437	22 282	17 646
Guatemala	100	—	100	—	—
Honduras	1 931	1 963	2 824	1 911	2 051
Mexico	133 893	142 787	133 340	147 700	131 842
Nicaragua	9 190	7 935	10 840	11 460	13 315
Panama	1 969	2 733	4 505	4 447	4 139
USA	201 000	193 000	187 000	173 000	* 170 000
Argentina	53 092	34 936	37 280	41 370	39 050
Bolivia	42 040	23 207	45 662	53 374	46 615
Brazil	70 854	82 427	80 022	61 927	54 931
Chile	38 455	33 895	34 248	30 966	35 790
Colombia	38 006	48 599	56 042	51 332	61 297
Ecuador	6 293	9 086	15 026	17 272	* 17 950
France (French Guiana)	* 10 000	* 10 000	* 10 000	* 10 000	* 10 000
Guyana	19 963	18 209	15 522	15 129	13 440
Peru	113 586	85 173	97 190	96 966	99 916
Suriname	24 516	21 959	19 439	20 373	17 588
Venezuela	* 9 100	* 30 000	* 30 000	* 30 000	* 30 000
Cambodia	...	—	1 465	3 312	3 524
China (a)	380 230	365 340	329 000	372 048	375 155
India	(f) 1 724	(f) 1 127	(f) 1 100	1 359	1 426
Indonesia	108 690	65 890	78 996	85 203	94 610
Iran (g)	8 140	6 919	6 990	7 472	* 7 500
Japan	6 312	7 590	6 225	4 886	4 139
Kazakhstan	106 559	116 964	114 843	129 794	131 204
Korea (Rep. of)	181	189	162	76	49
Korea, Dem. P.R. of	* 10 000	* 10 000	* 10 000	* 10 000	* 10 000
Kyrgyzstan	26 200	25 200	23 000	24 900	21 400
Laos	5 207	3 484	3 940	4 023	8 150
Malaysia	3 151	1 716	1 782	1 828	1 666
Mongolia	16 200	20 200	19 100	19 400	14 900
Myanmar	267	871	772	467	* 510
Philippines	20 687	21 030	25 297	29 036	31 046
Saudi Arabia	12 258	12 715	9 639	10 419	12 658
Taiwan	6	3	1	1	3
Tajikistan	8 100	8 764	9 330	* 9 300	9 220
Thailand	—	—	—	—	857
Uzbekistan	* 93 000	* 100 000	100 360	105 540	107 120
Vietnam	540	559	664	1 114	962
Australia	325 572	327 952	307 577	302 787	296 053
Fiji	1 106	1 090	1 107	584	545
New Zealand	8 217	5 860	5 815	6 674	6 844
Papua New Guinea	74 386	48 679	35 584	42 310	* 41 000
Solomon Islands	—	—	79	121	1 788
World total	3 300 000	3 200 000	3 300 000	3 300 000	3 300 000

Note(s)

(1) In several countries substantial amounts of gold produced in small and/or artisanal operations are not recorded in the official statistics.

Estimates have been added where possible but these have varying degrees of uncertainty.

(2) In addition to the countries listed, El Salvador, Haiti, Malawi, Pakistan, Paraguay and Portugal may produce gold.

(a) Metal production

(b) Years ended 7 July of that state

(c) Exports

(d) Includes an estimate for artisanal mining

(e) Contained in blister copper, refinery muds and electrolytic copper

(f) Years ended 31 March following that stated

(g) Years ended 20 March following that stated

Production of graphite

tonnes (metric)

Country	2019	2020	2021	2022	2023
Austria (a)(b)	20 000	16 500	* 17 000	* 17 000	* 17 000
Bosnia & Herzegovina	3	3	4	6	5
France	* 40 000	* 40 000	* 40 000	48 385	42 319
Germany	207	108	181	185	136
Norway	* 9 600	* 9 000	6 290	10 380	* 7 200
Russia	17 500	12 900	16 200	18 800	* 18 800
Turkey	9 990	15 205	28 336	27 715	27 974
Ukraine	20 000	16 000	10 000	1 000	* 2 000
Madagascar (c)	53 400	48 500	91 100	116 700	* 60 000
Mozambique	113 803	18 159	77 116	165 932	* 100 000
Canada	4 332	16 239	9 290	2 530	5 800
Mexico	2 342	2 033	1 509	3 420	3 124
Brazil (d)	81 770	67 020	78 555	79 371	66 346
China (e)	1 185 000	1 090 000	1 189 000	1 212 000	* 1 230 000
India	(f) 31 991	(f) 30 168	(f) 57 264	85 873	128 949
Korea, Dem. P.R. of	* 8 100	* 8 100	* 8 100	* 8 100	* 8 100
Sri Lanka	* 4 000	* 4 000	* 4 000	* 4 000	* 4 000
World total	1 600 000	1 400 000	1 600 000	1 800 000	1 700 000

Note(s)

(1) This table includes all forms of amorphous and crystalline graphite but excludes synthetic material.

(a) Crude

(b) Sales

(c) Exports

(d) Including beneficiated and directly shipped material

(e) Including flake graphite

(f) Years ended 31 March following that stated

Production of gypsum

tonnes (metric)

Country	2019	2020	2021	2022	2023
Albania	106 070	111 880	116 295	78 239	95 262
Armenia	22 900	29 000	28 000	38 000	35 000
Austria (a)	900 217	900 619	900 374	876 075	702 581
Azerbaijan	14 675	297 594	416 892	369 908	599 141
Bosnia & Herzegovina (a)	130 778	140 994	297 225	135 408	104 125
Bulgaria	* 88 000	* 88 000	* 88 000	* 50 000	* 50 000
Croatia	279 719	308 214	376 510	382 840	392 397
Cyprus	623 545	646 340	661 175	688 270	690 909
Czech Republic	10 000	17 000	17 000	20 000	11 000
France (a)	1 897 609	1 869 312	3 370 757	2 393 826	2 407 988
Georgia	101 952	87 740	80 014	22 028	57 596
Germany (a)	4 850 000	5 200 000	6 260 000	5 820 000	4 730 000
Greece (a)	840 000	780 000	850 000	800 000	* 800 000
Hungary	1 185	—	1 043	1 086	1 161
Ireland, Republic of	200 000	150 000	110 000	115 000	125 000
Italy (a)	298 242	163 749	* 165 000	847 447	418 061
Latvia	428 460	483 279	516 638	* 500 000	468 302
Moldova (b)	* 300 000	* 300 000	* 300 000	* 300 000	* 300 000
North Macedonia (a)	267 181	229 322	273 497	190 902	274 403
Norway (a)(c)	102 100	93 602	92 794	86 317	* 85 000
Poland (a)	1 150 000	1 132 368	1 123 000	1 034 000	892 000
Portugal	209 076	210 231	254 913	167 673	* 150 000
Romania	878 546	925 782	952 617	897 176	841 964
Russia	4 199 000	* 4 063 000	* 4 100 000	* 4 100 000	* 4 100 000
Slovakia (a)	50 000	65 560	66 760	54 000	49 000
Spain	11 279 443	13 376 353	14 629 150	14 380 727	14 461 507
Switzerland	* 330 000	* 320 000	* 330 000	* 330 000	* 300 000
Turkey	7 489 129	9 280 864	10 620 061	10 679 212	10 336 796
Ukraine (a)	1 409 400	1 529 000	1 783 300	* 1 800 000	* 1 500 000
United Kingdom	* 1 600 000	* 1 300 000	* 1 800 000	* 2 000 000	* 2 200 000
Algeria	* 2 500 000	* 2 500 000	* 2 500 000	* 2 500 000	* 2 500 000
Angola	* 120 000	* 166 000	* 80 000	* 266 000	* 266 000
Djibouti	...	...	* 35 000	* 50 000	* 50 000
Egypt (a)(d)	* 75 000	* 92 875	94 541	* 100 000	* 100 000
Eritrea	* 26 000	* 24 000	* 26 000	* 26 000	* 26 000
Ethiopia (e)	53 897	* 56 000	* 56 000	* 56 000	* 56 000
Guinea	* 200 000	* 300 000	* 300 000	* 200 000	* 200 000
Kenya (a)	* 5 800	* 5 800	* 5 800	* 5 800	* 5 800
Libya	* 210 000	* 200 000	* 250 000	* 250 000	* 250 000
Mauritania	* 250 000	* 200 000	* 200 000	* 200 000	* 200 000
Morocco	* 600 000	* 600 000	* 600 000	* 600 000	* 600 000
Niger	6 211	9 083	27 003	* 28 000	* 3 000
Nigeria	22 300	30 706	21 345	* 30 000	45 235
South Africa	277 102	205 542	273 241	243 052	228 129
Sudan	236 000	173 000	136 000	140 000	* 140 000
Tanzania	256 529	443 926	598 053	604 408	549 836
Tunisia	1 046 885	890 000	* 910 000	* 900 000	* 900 000
Canada	2 444 963	3 049 824	3 135 484	3 284 929	3 549 648
Cuba	66 300	62 300	53 200	32 600	37 400
Dominican Republic	137 663	132 575	143 318	180 788	144 650
Guatemala	140 901	423 282	138 552	206 143	240 109
Honduras	45 000	45 000	75 000	75 000	* 75 000
Jamaica	55 391	65 847	65 553	84 000	71 000
Mexico	7 759 139	7 977 953	9 157 381	8 283 113	9 786 105
Nicaragua	39 925	64 573	19 999	39 864	53 110
USA	21 600 000	21 300 000	20 800 000	22 300 000	21 500 000
Argentina	761 023	499 092	* 500 000	* 500 000	* 500 000
Bolivia	* 1 100	* 1 100	* 1 100	* 2 900	* 1 000
Brazil	5 685 654	2 851 643	3 260 209	5 155 340	5 754 563
Chile	977 397	910 310	1 007 206	978 846	832 770
Colombia	294 137	323 157	408 681	480 748	389 107
Paraguay	* 4 500	* 4 500	* 4 500	* 4 500	* 4 500
Peru	254 382	171 093	435 009	315 292	338 598

Production of gypsum

tonnes (metric)

Country	2019	2020	2021	2022	2023
Afghanistan	* 3 000	* 3 000	* 3 000	* 3 000	* 3 000
Bhutan	490 596	331 050	403 753	400 183	* 400 000
China	12 640 000	11 839 000	12 600 000	* 12 000 000	* 12 000 000
India (f)(g)	3 006 158	* 3 000 000	* 3 000 000	* 3 000 000	* 3 000 000
Iran (h)	16 147 297	18 588 699	16 634 376	16 300 109	* 16 300 000
Iraq	* 1 000 000	* 1 000 000	* 1 000 000	* 1 000 000	* 1 000 000
Israel	72 000	—	35 740	49 062	88 124
Japan	* 4 300 000	* 4 300 000	* 4 300 000	* 4 300 000	* 4 300 000
Jordan	264 724	184 917	399 968	* 400 000	* 400 000
Kazakhstan	78 200	94 500	184 700	233 100	149 600
Laos	606 387	737 749	1 221 959	1 589 771	1 252 577
Mongolia	* 56 000	* 56 000	* 56 000	* 56 000	* 56 000
Myanmar	299 314	258 620	51 240	96 246	* 362 000
Oman	10 982 900	11 120 200	13 538 800	10 591 600	13 253 100
Pakistan (e)	2 517 825	2 149 872	4 347 215	1 276 762	1 639 730
Saudi Arabia	3 472 000	3 803 000	3 993 000	3 822 000	* 3 822 000
Sri Lanka	* 2 200	* 2 200	* 2 200	* 2 200	* 2 200
Syria	* 66 000	* 70 000	* 70 000	* 100 000	* 100 000
Tajikistan	10 031	8 183	* 8 100	* 8 100	* 8 100
Thailand	8 367 700	8 012 293	8 788 841	8 022 925	7 004 569
Thailand Anhydrite	1 419 587	1 266 826	1 614 157	1 824 637	1 731 516
Uzbekistan	279 432	288 658	303 938	1 272 562	1 505 666
Yemen, Republic of	* 11 500	* 11 000	* 10 600	* 10 000	* 6 100
Australia (d)	4 286 774	3 763 409	4 328 726	4 844 948	4 748 224
World total	156 600 000	158 800 000	172 800 000	168 500 000	169 700 000

Note(s)

(1) Some countries produce large quantities of synthetic gypsum. Where possible, this output is excluded from the table.

(2) In addition to the countries listed, Indonesia and Vietnam may also produce gypsum.

(a) Including anhydrite

(b) Excluding output from the region east of the River Nistru and the Municipality of Bender

(c) Sales

(d) Years ended 30 June of that stated

(e) Years ended 7 July of that stated.

(f) Years ended 31 March following that stated

(g) Including selenite

(h) Years ended 20 March following that stated

Production of helium

million cubic metres

Country	2019	2020	2021	2022	2023
Poland	4	4	4	4	3
Russia	5	5	4	4	6
Algeria	14	14	* 14	* 14	* 14
USA	86	82	76	78	* 78
Qatar	45	51	* 61	* 59	* 66
Australia	* 4	* 4	* 4	* 4	* 3

Refinery production of indium

tonnes (metric)

Country	2019	2020	2021	2022	2023
Belgium	* 20	* 20	* 20	* 20	* 20
France	* 40	* 38	* 38	* 20	* 20
Italy	* 5	* 5	* 5	* 5	* 5
Russia	* 7	* 7	* 7	* 7	* 7
Canada	65	61	44	* 39	* 40
Brazil	* 5	* 5	* 5	* 5	* 5
Peru	12	* 12	* 12	—	—
China	534	590	600	667	* 690
Japan	70	70	70	* 70	* 70
Korea (Rep. of)	* 100	* 100	* 100	* 100	* 100
Uzbekistan	1	1	1	1	* 1

Note(s)

(1) In addition to the countries listed, Kazakhstan is believed to produce small quantities of indium.

Production of iodine

kilograms

Country	2019	2020	2021	2022	2023
Azerbaijan	190 300	182 800	167 500	194 700	208 100
Russia	3 112	* 4 000	* 3 000	* 3 000	* 3 000
USA	* 1 600 000	* 1 700 000	* 1 900 000	* 1 400 000	* 1 600 000
Chile	20 826 000	21 941 000	19 194 000	20 616 000	22 437 000
China	* 600 000	* 600 000	* 600 000	* 600 000	* 600 000
Indonesia	33 000	37 000	36 000	29 000	* 30 000
Iran (a)	682 000	386 300	* 620 000	* 420 000	* 420 000
Japan	9 122 000	8 876 000	9 221 000	9 857 000	9 273 000
Turkmenistan	* 600 000	* 600 000	* 600 000	* 600 000	* 600 000
World total	33 700 000	34 300 000	32 300 000	33 700 000	35 200 000

Note(s)

(a) Years ended 20 March following that stated

Production of iron ore

tonnes (metric)

Country	2019	2020	2021	2022	2023
Austria (a)	3 242 102	3 043 237	3 311 102	3 236 767	3 200 661
Bosnia & Herzegovina	1 450 205	1 427 410	1 553 961	1 286 283	1 238 609
Germany (b)(c)	533 700	529 400	546 712	537 379	533 452
Norway	* 1 800 000	* 1 800 000	* 1 700 000	* 1 800 000	* 1 900 000
Russia	97 700 000	100 200 000	100 600 000	95 100 000	90 800 000
Spain	—	20 000	71 728	—	191 270
Sweden	38 913 000	39 228 000	41 313 000	36 757 000	36 130 000
Turkey	14 473 363	21 454 649	16 051 308	17 703 929	16 765 922
Ukraine	76 134 000	78 837 700	83 888 800	* 25 000 000	* 23 000 000
Algeria	759 000	753 000	742 000	* 750 000	* 750 000
Egypt (d)	107 000	4 200	12 900	* 12 000	* 12 000
Guinea	—	644 245	1 755 079	304 390	—

Production of iron ore

tonnes (metric)

Country	2019	2020	2021	2022	2023
Liberia	4 428 645	4 874 409	5 000 000	5 000 000	5 050 000
Malawi	3 000	5 018	4 980	982	* 32
Mauritania	12 196 491	12 515 312	12 618 000	12 722 000	14 006 522
Morocco	19 886	39 151	24 632	13 387	* 13 000
Namibia	12 530	40 544	75 718	—	7 944
Nigeria	160	5 636	3 078	283	8 896
Sierra Leone	728 300	—	1 584 115	4 370 072	7 207 740
South Africa (e)	72 430 288	55 635 421	73 090 918	63 711 254	63 187 576
Tunisia	186 519	172 919	266 400	* 260 000	* 260 000
Uganda	—	—	57 169	102 600	* 100 000
Canada (f)	56 488 226	60 647 580	58 267 104	65 032 476	59 421 934
Guatemala	69	62	* 60	* 60	* 60
Mexico	26 089 068	27 208 553	33 915 683	27 685 197	35 817 000
USA (f)(g)	46 900 000	38 100 000	47 500 000	37 300 000	44 700 000
Bolivia	79 023	26 576	29 322	372 305	223 358
Brazil	396 943 645	388 639 076	423 185 073	403 024 748	436 842 189
Chile	13 137 000	15 553 000	17 685 000	17 638 000	18 117 000
Colombia	667 207	787 121	750 381	497 595	652 728
Peru	9 666 412	8 893 972	12 149 274	12 936 826	12 986 023
Uruguay (h)	6 280	3 100	8 270	5 550	2 280
Venezuela	2 600 000	1 500 000	* 1 000 000	* 1 000 000	* 1 000 000
Bhutan	36 864	14 734	25 917	3 492	* 3 000
China	252 649 000	270 500 000	266 000 000	252 600 000	* 250 000 000
India	(h) 246 081 000	(h) 204 481 000	(h) 253 973 000	252 317 000	277 955 000
Indonesia	3 450 000	3 620 000	2 980 000	3 480 000	* 3 500 000
Iran (i)	91 778 118	96 806 146	75 039 588	70 974 267	79 705 135
Kazakhstan	45 221 900	62 865 000	64 089 700	53 623 800	47 582 800
Korea (Rep. of)	342 346	575 232	538 563	234 783	503 647
Korea, Dem. P.R. of	2 829 000	2 584 000	2 652 000	2 595 000	* 2 500 000
Laos	470 300	1 013 042	3 522 598	1 794 798	3 381 964
Malaysia (f)	4 160 462	5 371 411	4 874 485	4 911 625	4 817 048
Mongolia	8 572 200	9 224 400	9 171 900	7 659 900	5 334 800
Nepal (j)	183	1 705	—	—	* —
Pakistan (d)	627 464	573 691	805 696	* 790 000	* 790 000
Philippines	—	42 795	77 536	75 771	141 220
Thailand	17 660	113 239	324 914	190 000	347 288
Vietnam	6 105 700	3 560 300	3 083 900	1 843 000	* 1 461 200
Australia	917 045 579	918 063 223	922 158 512	944 966 398	952 510 097
New Zealand	* 4 000 000	* 4 000 000	* 4 000 000	* 4 000 000	* 4 000 000
World total	2 461 000 000	2 446 000 000	2 552 000 000	2 436 000 000	2 507 000 000

Note(s)

- (a) Including micaceous iron oxide
- (b) Including manganiferous iron ore
- (c) Used as aggregate in the construction industry
- (d) Years ended 30 June of that stated
- (e) Including by-product magnetite
- (f) Including by-product iron ore
- (g) Including beneficiated and direct shipping ore
- (h) Years ended 31 March following that stated
- (i) Years ended 20 March following that stated
- (j) Years ended 15 July of that shown

Production of pig iron

tonnes (metric)

Country	2019	2020	2021	2022	2023
Albania	—	—	773 668	508 485	474 444
Austria	5 750 000	5 300 000	6 100 000	5 800 000	5 500 000
Azerbaijan	702	362	1	—	—
Belgium	4 800 000	3 600 000	4 200 000	4 400 000	3 600 000
Bosnia & Herzegovina	744 778	739 058	1 066 238	756 736	569 589
Czech Republic	3 635 000	3 500 000	3 900 000	3 400 000	2 700 000
Finland	2 300 000	1 900 000	2 500 000	1 900 000	2 200 000
France	9 877 027	7 695 671	9 469 617	8 207 165	6 169 608
Germany	* 25 400 000	25 500 000	25 500 000	23 700 000	23 600 000
Hungary	1 151 000	1 000 000	600 000	500 000	200 000
Italy	4 606 000	3 405 000	3 926 000	3 500 000	3 100 000
Netherlands	5 900 000	5 400 000	5 900 000	5 500 000	4 100 000
Norway	74 200	* 70 000	* 70 000	* 70 000	* 70 000
Poland	4 241 941	3 502 468	3 594 504	3 089 147	2 791 017
Romania	2 107 300	1 800 000	2 100 000	1 500 000	600 000
Russia	59 184 000	59 703 000	61 600 000	59 300 000	* 62 400 000
Serbia	1 577 000	* 1 500 000	* 1 500 000	2 687 211	2 603 165
Slovakia	3 185 000	2 753 000	4 014 000	3 153 000	* 3 000 000
Spain	3 900 000	2 900 000	4 000 000	3 400 000	3 000 000
Sweden	3 172 000	2 854 000	3 100 000	2 900 000	3 000 000
Turkey	9 900 000	10 000 000	10 400 000	9 100 000	8 700 000
Ukraine	20 055 900	20 238 000	21 200 000	6 400 000	6 000 000
United Kingdom	5 621 700	5 235 500	5 749 600	4 779 400	4 509 500
Algeria	1 500 000	2 200 000	3 100 000	3 900 000	* 4 000 000
Egypt	4 400 000	4 800 000	5 400 000	6 000 000	7 200 000
Libya	880 470	834 550	900 000	1 100 000	1 600 000
South Africa	4 500 000	2 300 000	3 100 000	* 2 600 000	* 3 100 000
Canada	7 700 000	6 400 000	7 800 000	7 300 000	* 7 400 000
Mexico	9 819 000	7 606 000	8 496 000	8 428 000	6 900 000
Trinidad & Tobago	1 700 000	1 300 000	1 600 000	1 700 000	1 300 000
USA	22 301 000	21 700 000	18 200 000	22 200 000	22 500 000
Argentina	3 050 000	2 455 000	3 549 800	3 493 500	3 446 000
Brazil	26 280 000	24 628 000	28 530 000	26 700 000	25 710 000
Chile	595 000	663 000	695 000	581 000	608 000
Colombia	207 000	164 000	211 000	213 000	212 000
Paraguay (a)	41 000	35 000	44 000	40 000	30 000
Venezuela	393 000	285 000	290 000	277 000	300 000
Bahrain	1 450 000	1 400 000	* 1 500 000	* 1 500 000	* 1 500 000
China	809 365 000	888 976 100	868 567 800	863 827 800	871 013 000
India	111 574 000	101 400 000	116 600 000	122 200 000	135 900 000
Indonesia	3 020 000	* 3 100 000	* 3 000 000	* 3 000 000	* 3 000 000
Iran	31 000 000	33 300 000	34 300 000	36 400 000	36 900 000
Japan	74 907 006	61 600 469	70 344 478	64 146 549	63 041 584
Kazakhstan	3 208 744	3 212 375	3 623 764	2 900 000	2 865 731
Korea (Rep. of)	47 521 000	45 359 000	46 440 000	43 400 300	45 200 000
Korea, Dem. P.R. of	* 150 000	* 100 000	* 150 000	* 150 000	* 150 000
Malaysia	4 467 000	700 000	400 000	800 000	* 700 000
Oman	1 750 000	1 800 000	1 700 000	1 800 000	1 800 000
Qatar	2 423 000	752 569	770 444	1 410 254	1 700 000
Saudi Arabia	4 700 000	5 200 000	6 100 000	6 700 000	6 800 000
Taiwan	14 510 000	13 400 000	15 200 000	13 400 000	12 200 000
United Arab Emirates	3 700 000	3 000 000	3 700 000	3 400 000	3 600 000
Vietnam	9 836 000	* 10 000 000	* 10 000 000	* 10 000 000	* 10 000 000
Australia	3 664 000	3 700 000	3 800 000	3 700 000	3 500 000
New Zealand	672 000	600 000	700 000	600 000	600 000
World total	1 388 000 000	1 422 000 000	1 450 000 000	1 418 000 000	1 434 000 000

Note(s)

(1) The data in this table include sponge iron and direct reduced iron (DRI), where these have been separately identified.

(a) Including sponge iron

Production of crude steel

tonnes (metric)

Country	2019	2020	2021	2022	2023
Austria	7 423 500	6 765 100	7 884 000	7 512 200	7 133 100
Azerbaijan	325 895	264 506	308 402	391 865	323 611
Belarus	2 717 705	2 559 577	2 473 681	2 070 000	2 300 000
Belgium	7 760 000	6 120 000	6 910 000	7 030 400	5 863 600
Bosnia & Herzegovina	800 600	740 194	774 832	653 246	620 000
Bulgaria	565 900	483 800	547 500	481 500	489 100
Croatia	69 126	45 273	185 143	169 135	212 433
Czech Republic	4 600 000	2 900 000	4 700 000	4 200 000	3 400 000
Finland	3 511 000	3 482 000	4 322 000	3 462 000	3 506 000
France	14 449 651	11 595 698	13 946 700	12 118 600	10 010 700
Germany	39 627 300	35 658 000	40 241 200	36 860 400	35 438 300
Greece	1 350 000	1 408 000	1 498 000	1 543 000	1 181 000
Hungary	1 769 000	1 513 000	1 099 800	857 200	477 300
Italy	23 190 400	20 379 100	24 412 700	21 598 100	21 054 100
Luxembourg	2 119 000	1 886 000	2 073 000	1 875 000	1 900 000
Moldova (a)	392 100	465 000	570 000	560 000	500 000
Montenegro	24 262	19 364	3 042	5 000	5 000
Netherlands	6 656 900	6 053 700	6 620 400	6 143 000	4 676 300
North Macedonia	262 144	236 520	271 811	303 409	301 768
Norway	620 800	623 800	622 500	703 900	689 900
Poland	9 123 107	7 855 900	8 552 506	7 521 057	6 522 172
Portugal	2 032 800	2 202 800	1 953 000	1 854 900	2 039 700
Romania	3 421 199	2 818 866	3 390 661	2 626 284	1 646 634
Russia	73 680 000	73 600 000	77 560 000	71 930 000	* 77 060 000
Serbia	1 929 400	1 455 700	1 667 400	1 674 100	1 454 000
Slovakia	3 930 800	3 443 500	4 862 800	3 872 200	4 376 900
Slovenia	623 200	585 200	661 900	601 256	526 100
Spain	13 587 700	10 998 400	14 204 900	11 573 100	11 435 400
Sweden	4 721 100	4 408 700	4 678 300	4 404 200	4 258 400
Switzerland	1 325 000	1 175 000	1 291 100	1 205 900	1 200 000
Turkey	33 743 100	35 810 300	40 360 000	35 133 800	33 713 700
Ukraine	20 848 200	20 616 400	21 365 600	6 263 200	6 227 700
United Kingdom	7 218 100	7 085 700	7 221 600	5 962 800	5 616 500
Algeria	2 400 000	3 000 000	3 491 300	4 300 000	4 421 000
Angola	290 000	250 000	275 000	270 000	270 000
Congo, Democratic Republic	* 30 000	* 30 000	* 30 000	* 30 000	* 30 000
Egypt	7 257 000	8 228 700	10 293 500	9 818 500	10 353 600
Ghana	* 400 000	* 400 000	* 400 000	* 400 000	* 400 000
Kenya	400 000	385 000	485 000	450 000	450 000
Libya	606 153	538 176	651 700	687 800	902 200
Mauritania	* 5 000	* 5 000	* 5 000	* 5 000	* 5 000
Morocco	800 000	1 000 000	1 050 000	1 550 000	1 397 000
Nigeria	* 650 000	* 650 000	* 650 000	* 650 000	* 650 000
South Africa	6 151 700	3 876 500	5 019 500	4 402 500	4 871 000
Tunisia	* 60 000	77 600	85 100	75 500	69 000
Uganda	* 30 000	* 30 000	* 30 000	* 30 000	* 30 000
Zimbabwe	3 583	5 196	3 921	* 4 000	* 4 500
Canada	12 897 000	11 078 000	12 976 300	12 097 600	12 111 000
Cuba	229 900	185 200	230 800	200 400	175 400
Dominican Republic	* 60 000	* 60 000	* 60 000	* 60 000	* 60 000
El Salvador	102 200	81 600	102 800	88 900	77 500
Guatemala	305 700	242 600	306 900	271 100	241 300
Mexico	18 692 000	16 802 000	18 453 600	18 386 300	16 179 700
USA	87 761 200	72 732 100	85 791 400	80 535 000	81 392 200
Argentina	4 644 500	3 651 100	4 875 300	5 094 000	4 928 000
Brazil	32 569 000	31 415 000	36 071 000	34 089 000	32 030 000
Chile	1 133 000	1 157 000	1 318 000	1 151 000	1 193 000
Colombia	1 332 800	1 148 900	1 338 000	1 320 000	1 394 000
Ecuador	606 800	482 200	611 600	536 300	474 300
Paraguay	26 300	23 300	26 500	23 600	21 200
Peru	1 230 400	730 700	1 234 100	1 765 200	1 730 500
Uruguay	62 300	49 100	62 800	54 900	48 300
Venezuela	50 800	29 200	29 400	27 100	27 400

Production of crude steel

tonnes (metric)

Country	2019	2020	2021	2022	2023
Bahrain	800 000	900 000	1 167 300	1 170 300	1 265 563
China	996 342 000	1 064 766 800	1 032 788 000	1 013 003 000	1 019 081 000
India	111 350 700	100 256 500	118 201 400	125 377 200	140 706 000
Indonesia	8 564 800	12 871 400	14 834 800	15 567 900	16 800 000
Iran (b)	20 938 860	22 630 121	21 659 618	23 168 319	21 015 535
Iraq	1 800 000	1 980 000	2 750 000	3 300 000	2 755 000
Israel	* 300 000	* 300 000	* 300 000	* 300 000	* 300 000
Japan	99 284 114	83 186 485	96 181 132	88 946 808	86 748 669
Jordan	* 350 000	* 350 000	* 350 000	* 350 000	* 300 000
Kazakhstan	4 130 601	4 009 402	4 526 071	3 370 999	3 923 304
Korea (Rep. of)	71 411 000	67 082 000	70 418 000	65 846 000	66 683 000
Korea, Dem. P.R. of	680 000	707 000	598 000	289 000	* 250 000
Kuwait	* 1 270 000	* 1 300 000	* 1 300 000	* 900 000	* 1 000 000
Malaysia	6 948 500	6 618 500	6 739 100	7 206 600	7 504 000
Mongolia	* 50 000	* 50 000	* 50 000	* 50 000	* 50 000
Myanmar	* 350 000	* 350 000	* 400 000	* 400 000	* 400 000
Oman	2 000 000	2 500 000	2 800 000	2 900 000	2 900 000
Pakistan	3 304 000	3 803 000	5 437 700	6 013 000	5 337 000
Philippines	1 915 000	892 300	1 554 800	1 600 000	1 650 000
Qatar	2 558 000	1 218 100	1 001 801	1 081 916	1 146 400
Saudi Arabia	8 191 000	7 775 000	8 735 000	9 860 200	9 940 400
Singapore	549 700	419 500	567 900	547 500	465 200
Sri Lanka	* 30 000	* 30 000	* 30 000	* 30 000	* 30 000
Syria	* 5 000	* 5 000	* 5 000	* —	* —
Taiwan	21 322 000	20 498 000	22 140 000	19 927 000	19 149 200
Thailand	4 246 000	4 467 200	5 472 900	5 316 400	4 976 300
United Arab Emirates	3 326 600	2 722 000	2 997 500	3 696 400	3 772 500
Uzbekistan	666 000	939 200	1 050 000	950 000	1 000 000
Vietnam	18 342 300	23 917 600	24 932 300	21 866 400	* 20 186 700
Australia	5 493 000	5 489 000	5 822 000	5 667 200	5 459 200
New Zealand	667 100	585 700	645 700	569 934	554 500
World total	1 872 000 000	1 876 000 000	1 949 000 000	1 871 000 000	1 877 000 000

Note(s)

(1) Unless otherwise indicated, these figures include production from scrap.

(a) Production from the region east of the River Nistru

(b) Years ended 20 March following that stated

Production of ferro-alloys

tonnes (metric)

Country	2019	2020	2021	2022	2023
Albania					
Ferro-chrome	66 402	53 543	103 700	80 194	54 563
Armenia					
Ferro-molybdenum	7 712	6 718	8 335	9 164	7 738
Austria					
Ferro-molybdenum	4 000	3 000	3 000	3 000	3 000
Ferro-nickel	2 500	2 500	2 500	2 500	2 000
Ferro-vanadium	7 000	7 000	7 000	7 000	7 000
Bosnia & Herzegovina					
Ferro-alloys	31 911	14 641	35 920	24 859	6 404
Czech Republic					
Ferro-vanadium	* 6 700	* 5 600	* 6 900	* 5 900	* 1 100
Finland					
Ferro-chrome	505 000	498 000	515 000	430 000	390 000
France					
Ferro-manganese	* 115 000	* 68 000	* 110 000	* 100 000	* 90 000
Ferro-silico-manganese	* 68 000	* 62 000	* 68 000	* 68 000	* 50 000
Ferro-silicon	* 48 000	* 41 000	* 44 000	* 44 000	* 40 000
Silicon metal	* 105 000	* 87 000	* 100 000	* 100 000	* 90 000
Georgia					
Ferro-manganese	* 4 500	* 4 500	* 4 500	* 4 500	* 4 500
Ferro-silico-manganese	291 608	217 463	356 300	364 800	274 000
Germany					
Ferro-chrome	25 515	16 409	23 252	26 624	* 20 000
Silicon metal	29 606	30 234	31 318	27 053	* 27 000
Other ferro-alloys	* 8 200	* 7 800	* 3 700	* 5 200	* 5 200
Greece					
Ferro-nickel	62 251	30 518	19 394	* —	* —
Iceland					
Ferro-silicon	120 255	128 187	123 800	121 509	112 601
Italy					
Ferro-silico-manganese	66 000	58 000	75 000	57 000	48 000
Kosovo					
Ferro-nickel	* 7 200	* 7 000	* 5 000	—	* 3 500
North Macedonia					
Ferro-nickel	15 202	17 747	17 714	8 349	3 812
Ferro-silicon	117	—	—	—	—
Norway					
Ferro-manganese	* 328 000	* 328 000	* 328 000	* 328 000	* 328 000
Ferro-silico-manganese	* 290 000	* 260 000	* 310 000	* 320 000	* 280 000
Ferro-silicon	* 200 000	* 260 000	* 250 000	* 260 000	* 240 000
Silicon metal	* 200 000	* 210 000	* 240 000	* 230 000	* 220 000
Poland					
Ferro-silicon	65 523	61 709	73 370	51 371	41 047
Other ferro-alloys	16 815	16 104	31 170	28 996	* 30 000
Russia					
Spiegeleisen	* 7 000	* 7 000	* 7 000	* 7 000	* 7 000
Ferro-chrome	384 089	343 000	289 000	307 000	* 300 000
Ferro-silico-chrome	* 4 200	* 4 200	* 4 200	* 4 200	* 4 200
Ferro-manganese	273 000	238 000	209 000	203 000	* 203 000
Ferro-silico-manganese	51 774	* 50 000	* 50 000	* 50 000	* 50 000
Ferro-molybdenum	* 4 700	* 4 700	* 4 700	* 4 700	* 4 700
Ferro-nickel	* 20 000	* 20 000	* 20 000	* 20 000	* 20 000
Ferro-silicon	846 579	880 401	880 000	* 880 000	* 880 000
Ferro-vanadium	10 894	9 084	* 9 100	* 9 100	* 9 100
Silicon metal	* 34 500	* 34 500	34 500	44 000	50 900
Other ferro-alloys	* 34 000	* 34 000	* 34 000	* 34 000	* 34 000
Slovakia					
Ferro-manganese	26 200	24 000	30 900	16 000	* 16 000
Ferro-silico-manganese	49 900	33 800	48 600	3 800	* 3 800
Ferro-silicon	29 400	29 600	34 700	15 600	* 15 600
Other ferro-alloys	2 100	1 200	1 500	1 200	* 1 200
Spain					
Ferro-manganese	55 500	28 000	48 000	22 000	* 20 000
Ferro-silico-manganese	98 400	84 000	78 000	53 000	* 53 000
Ferro-silicon	90 000	77 000	83 000	71 000	* 50 000
Silicon metal (a)	...	* 16 000	* 25 000	* 18 000	* 11 000

Production of ferro-alloys

tonnes (metric)

Country	2019	2020	2021	2022	2023
Sweden					
Ferro-chrome	120 000	87 000	114 600	114 600	* 115 000
Turkey					
Ferro-chrome	81 743	94 200	100 750	* 98 813	* 100 000
Ferro-silicon	1 938	1 706	* 2 000	* 3 500	* 2 000
Ukraine					
Ferro-manganese	172 508	117 215	100 600	35 000	* 400
Ferro-silico-manganese	858 708	* 850 000	* 850 000	* 250 000	* 150 000
Ferro-nickel	79 334	73 700	* 74 000	42 300	—
Ferro-silicon	* 97 000	* 97 000	* 97 000	* 30 000	* 1 700
Other ferro-alloys	* 100 000	* 100 000	* 100 000	* 30 000	* 15 000
Egypt					
Ferro-silicon (b)	* 60 500	* 60 000	* 60 000	* 60 000	* 60 000
Other ferro-alloys (b)	12 000	6 000	9 000	6 000	* 6 000
Gabon					
Ferro-silico-manganese	43 000	37 000	43 860	(a) 47 900	* 48 000
South Africa					
Ferro-alloys	3 781 663	2 731 138	3 480 643	3 523 632	3 214 307
Zimbabwe					
Ferro-chrome (c)(d)	348 672	197 296	322 295	370 777	363 348
Canada					
Ferro-niobium	* 10 000	* 9 000	* 11 000	* 10 000	* 10 000
Ferro-silicon	* 37 000	* 34 000	* 30 000	* 30 000	* 30 000
Ferro-vanadium	* 1 300	* 1 400	* 1 100	* 1 600	* 1 500
Silicon metal	* 34 000	* 25 000	* 30 000	* 50 000	* 40 000
Dominican Republic					
Ferro-nickel	78 662	59 211	75 887	78 887	48 226
Mexico					
Ferro-manganese	72 937	57 127	71 637	72 914	54 159
Ferro-silico-manganese	154 209	147 784	170 929	175 396	148 835
USA					
Ferro-silicon & silicon metal	418 978	277 000	265 000	347 940	* 300 000
Argentina					
Ferro-silicon	* 13 000	* 11 200	* 13 000	* 13 000	* 13 000
Brazil					
Ferro-chrome (c)	136 780	254 346	213 756	* 213 756	* 210 000
Ferro-silico-magnesium	* 20 000	* 20 000	* 20 000	* 20 000	* 20 000
Ferro-manganese	151 000	73 000	71 000	—	—
Ferro-nickel (e)	42 600	43 500	41 700	39 800	40 000
Ferro-niobium	60 000	58 300	67 000	* 67 000	* 67 000
Ferro-silicon	* 100 000	* 100 000	* 100 000	* 100 000	* 100 000
Silicon metal	214 051	203 940	198 000	206 000	* 200 000
Other ferro-alloys	* 40 000	* 40 000	* 40 000	* 40 000	* 40 000
Chile					
Ferro-molybdenum	* 14 500	* 14 500	* 14 500	* 14 500	* 14 500
Colombia					
Ferro-nickel	* 116 000	* 103 000	* 109 000	* 120 000	* 120 000
Venezuela					
Ferro-manganese	* 6 000	* 6 000	* 6 000	* 6 000	* 6 000
Ferro-silico-manganese	* 5 000	* 4 000	* 4 000	* 4 000	* 4 000
Ferro-nickel	* 1 900	* 700	* 1 200	* 2 600	* 1 600
Ferro-silicon	* 40 000	* 40 000	* 40 000	* 40 000	* 40 000
Bhutan					
Ferro-silicon	* 138 700	* 103 500	* 130 400	* 115 700	* 127 200
China					
Ferro-alloys	36 577 000	34 196 000	34 755 000	34 101 000	34 650 000
Silicon metal	2 248 900	2 100 000	2 610 000	* 2 700 000	* 3 000 000

Production of ferro-alloys

tonnes (metric)

Country	2019	2020	2021	2022	2023
India					
Ferro-aluminium	(f) 1 461	(f) 1 119	(f) 1 139	851	827
Ferro-chrome	(f) 921 000	(f) 868 000	(f) 1 113 000	1 073 000	1 317 000
Ferro-silico-magnesium	(f) 14 173	(f) 9 700	(f) 15 081	16 789	15 713
Ferro-silico-manganese	(f) 320 594	(f) 329 295	(f) 349 414	344 000	353 595
Ferro-molybdenum	(b) 527	(b) 428	(b) 436	581	737
Ferro-titanium	(b) 121	(b) 249	(b) 416	378	356
Ferro-vanadium	(b) 665	(b) 634	(b) 850	892	807
Indonesia					
Ferro-silico-manganese	* 4 000	* 4 000	* 13 000	* 8 000	* 8 000
Ferro-nickel	128 565	129 850	129 090	121 670	107 365
Iran					
Ferro-chrome (g)	* 12 000	* 10 000	* 17 000	* 15 000	* 15 000
Ferro-silicon (g)	* 70 000	* 55 000	* 55 000	* 70 000	* 85 000
Japan					
Ferro-manganese	462 740	400 331	440 173	405 899	408 582
Ferro-nickel	337 790	234 505	243 275	193 467	93 848
Other ferro-alloys	74 015	49 544	54 275	60 001	52 565
Kazakhstan					
Ferro-chrome	1 858 130	1 841 309	1 704 561	1 658 378	1 583 927
Ferro-silico-chrome	* 110 500	* 110 500	85 299	90 632	96 999
Ferro-silico-manganese	123 528	122 743	132 119	191 947	211 270
Ferro-silicon	79 930	180 645	* 148 000	* 180 000	* 183 000
Korea (Rep. of)					
Ferro-manganese	* 250 000	* 200 000	* 300 000	* 250 000	* 250 000
Ferro-silico-manganese	* 196 000	* 196 000	* 196 000	* 196 000	* 196 000
Other ferro-alloys	* 4 200	* 4 200	* 4 200	* 4 200	* 4 200
Korea, Dem. P.R. of					
Ferro-alloys	* 46 000	* 15 300	* 37 000	* 37 000	* 48 500
Myanmar					
Ferro-nickel (f)	46 000	* 50 000	52 970	36 731	* 37 000
Vietnam					
Ferro-silico-manganese	162 000	157 000	192 000	174 000	142 000
Australia (b)					
Ferro-manganese & ferro-silico-manganese	257 000	* 270 000	* 270 000	* 270 000	* 270 000
Silicon metal	* 52 000	* 45 000	* 46 000	* 49 000	* 38 000
New Caledonia					
Ferro-nickel	247 746	236 421	205 108	223 015	244 829

Note(s)

(1) In addition to the countries listed, Bahrain and Chile also produce ferro-chrome.

(2) In addition to the countries listed, Saudi Arabia also produces ferro-manganese and ferro-silico-manganese.

(a) Exports

(b) Years ended 30 June of that stated

(c) Including ferro-silico -chrome

(d) Sales

(e) Nickel content

(f) Years ended 31 March following that stated

(g) Years ended 20 March following that stated

Production of kaolin

tonnes (metric)

Country	2019	2020	2021	2022	2023
Austria	16 176	23 230	* 23 000	* 23 000	* 23 000
Belgium	* 300 000	* 300 000	* 300 000	* 300 000	* 300 000
Bosnia & Herzegovina	118 005	108 174	62 599	24 529	21 541
Bulgaria	* 322 000	* 322 000	719 213	730 125	391 900
Czech Republic (a)	629 000	626 000	645 000	558 000	439 000
France	* 220 000	231 579	289 057	310 251	268 828
Germany (b)	877 000	775 000	864 000	862 000	567 000
Hungary	—	743	1 952	1 335	270
Italy	* 130 000	* 130 000	* 130 000	* 130 000	(c) 138 935
Poland (d)	151 840	118 000	315 040	317 570	276 120
Portugal	335 354	320 655	387 223	410 584	* 400 000
Russia	1 530 000	* 1 550 000	* 1 550 000	* 1 550 000	* 1 550 000
Serbia	254 000	234 000	249 000	301 000	275 000
Slovakia	25 000	30 960	39 000	42 000	12 000
Spain (d)	267 602	274 137	303 743	277 170	407 087
Turkey	1 283 776	1 224 746	1 748 014	2 289 367	1 348 023
Ukraine	1 843 561	1 680 891	2 317 723	* 600 000	* 600 000
United Kingdom	* 715 000	* 635 000	* 735 000	* 709 000	* 514 000
Algeria	* 100 000	* 100 000	* 100 000	* 100 000	* 100 000
Burkina Faso	* 40	* 40	* —	* —	* —
Egypt	* 230 000	* 230 000	* 230 000	* 230 000	* 230 000
Ethiopia (e)	* 1 000	* 1 000	* 1 000	* 1 000	* 1 000
Kenya	* 1 600	* 1 600	* 1 600	* 1 600	* 1 600
Madagascar	* 220	* 200	* 200	* 200	* 200
Nigeria	8 649	7 033	23 530	* 23 000	29 843
South Africa	27 827	20 639	29 168	10 553	6 915
Sudan	20 600	19 700	3 700	* 3 700	* 3 000
Tanzania	15 343	98 454	100 950	46 973	75 247
Uganda	10 448	12 014	10 264	226	* 200
Cuba	2 100	2 000	1 400	500	1 500
Guatemala	* 725	402	* 500	2 734	4 371
Mexico	246 645	1 003 889	1 260 800	1 167 760	159 570
USA (c)	* 5 120 000	* 4 640 000	* 4 360 000	* 4 340 000	* 4 200 000
Argentina	11 853	20 628	* 21 000	* 21 000	* 21 000
Brazil (a)	1 471 610	2 939 591	1 153 884	1 189 531	828 394
Chile	34 801	38 789	49 533	44 232	51 300
Colombia	96 051	29 371	70 032	36 983	* 40 000
Paraguay	* 6 000	* 6 000	* 6 000	* 6 000	* 6 000
Peru	9 208	12 536	13 142	14 300	11 876
Venezuela	* 3 000	* 3 000	* 3 000	* 3 000	* 3 000
China	6 867 000	8 426 800	8 400 000	8 400 000	* 8 400 000
India (f)(g)	* 74 000	* 74 000	* 74 000	* 74 000	* 74 000
Indonesia	2 807 556	1 667 505	1 598 196	994 087	* 1 000 000
Iran (h)	1 616 216	2 049 715	1 348 232	2 600 110	* 2 600 000
Japan	* 12 000	* 12 000	* 12 000	* 12 000	* 12 000
Jordan	479 000	499 000	268 000	* 300 000	* 300 000
Korea (Rep. of)	317 626	393 236	352 003	426 960	332 179
Malaysia	417 222	336 565	228 605	236 840	290 365
Oman	34 100	58 300	35 400	—	—
Pakistan (i)	20 756	14 919	12 309	17 400	14 130
Philippines	* 10 000	* 10 000	* 10 000	* 10 000	* 10 000
Saudi Arabia	227 000	213 000	266 000	279 000	* 280 000
Sri Lanka	* 2 000	* 2 000	* 2 000	* 2 000	* 2 000
Taiwan	500	404	30	65	45
Thailand (a)	80 776	71 051	101 711	86 076	645 367
Uzbekistan (f)	526 592	495 802	565 502	959 279	981 292
Vietnam	* 100 000	* 100 000	* 100 000	* 100 000	* 100 000

Production of kaolin

tonnes (metric)

Country	2019	2020	2021	2022	2023
Australia (i)	127 602	170 130	189 104	202 928	197 794
New Zealand	50 569	* 51 000	* 51 000	* 51 000	* 51 000
World total	30 200 000	32 400 000	31 700 000	31 400 000	28 600 000

Note(s)

(1) In addition to the countries listed, Denmark is believed to produce kaolin.

- (a) Beneficiated
- (b) Washed and dried
- (c) Sold or used by producers
- (d) Washed
- (e) Years ended 7 July of that stated
- (f) Beneficiated; excludes directly used natural kaolin
- (g) Years ended 31 March following that stated
- (h) Years ended 20 March following that stated
- (i) Years ended 30 June of that stated

Mine production of lead

tonnes (metal content)

Country	2019	2020	2021	2022	2023
Bosnia & Herzegovina	2 421	3 360	3 679	3 900	4 075
Bulgaria	17 097	18 929	10 193	7 825	5 400
Finland	932	1 532	1 494	1 535	909
Georgia	1 124	1 183	1 253	2 192	2 301
Greece	14 827	19 656	16 758	10 100	15 200
Ireland, Republic of	16 100	14 401	13 192	14 181	7 019
Kosovo	3 990	4 737	5 241	3 358	3 633
Montenegro	3 480	1 008	2 004	1 349	3 714
North Macedonia	43 491	44 928	42 873	41 471	43 926
Poland	69 860	65 660	39 514	31 000	30 800
Portugal	27 852	28 178	30 067	23 347	22 800
Romania	200	500	700	300	700
Russia	215 900	200 700	212 300	229 300	* 220 000
Serbia	5 730	5 400	6 300	6 700	* 5 900
Slovakia	111	102	101	127	155
Spain	11 390	11 397	10 965	9 272	10 547
Sweden	68 635	65 402	65 404	70 339	65 570
Turkey	* 71 500	* 81 500	* 93 700	* 81 700	* 71 100
United Kingdom	(a)* 150	(a)* 100	(a)* 100	(a)* 100	* —
Morocco	32 736	38 162	31 318	36 022	* 35 000
Namibia	5 892	9 181	10 194	13 401	10 332
Nigeria	* 23 500	* 16 000	* 38 000	* 44 000	* 36 000
South Africa	42 936	28 048	31 224	39 974	40 271
Canada	22 824	3 800	9 339	4 436	2 000
Cuba	* 35 000	* 30 000	* 30 000	* 33 000	* 35 000
Guatemala	377	422	—	—	—
Honduras	12 308	* 12 300	* 12 000	* 12 000	* 12 000
Mexico	259 457	260 390	272 231	272 988	182 996
USA	274 000	306 000	294 000	273 000	262 000
Argentina	29 766	13 086	17 100	18 600	32 300
Bolivia	88 342	64 619	93 246	90 115	102 959
Brazil	6 000	5 352	6 307	7 407	16 100
Chile	7	1 386	382	457	325
Peru	307 021	241 548	264 427	255 333	273 305
China	1 787 400	1 970 000	1 964 400	1 945 900	1 960 000
India	(b) 202 964	(b) 217 787	(b) 212 654	213 320	222 334
Indonesia	9 500	7 100	6 700	4 800	6 400
Iran	72 500	* 70 000	* 70 000	* 80 000	* 80 000
Kazakhstan	55 700	30 200	29 900	30 100	45 200
Korea (Rep. of)	1 933	1 681	1 528	974	240
Korea, Dem. P.R. of	* 25 000	* 25 000	* 25 000	* 25 000	* 25 000
Laos	* 254	* 98	* 173	* 1 803	* 985
Mongolia	11 796	12 000	11 004	9 600	9 200
Myanmar (c)	42 832	22 710	25 355	* 25 400	* 21 000
Nepal	—	* 1 800	* 5 600	* 2 000	* 2 000
Pakistan	8 089	7 094	7 277	8 886	7 800
Tajikistan	52 715	33 282	48 058	47 510	37 809
Uzbekistan	19 100	18 400	22 000	23 000	* 23 000
Vietnam	* 10 400	* 11 700	* 13 800	* 17 500	* 15 600
Australia	500 985	494 271	485 487	437 825	472 242
World	4 500 000	4 500 000	4 600 000	4 500 000	4 500 000

Note(s)

(a) By-product of Pennine fluorspar operations and of gold mining in Northern Ireland

(b) Years ended 31 March following that stated

(c) Years ending 30 September of that stated

Production of refined lead

tonnes (metric)

Country	2019	2020	2021	2022	2023
Albania	3 000	3 000	3 000	3 000	3 000
Austria	* 27 000	* 27 000	* 27 000	* 27 000	* 27 000
Belgium	138 618	122 748	144 502	108 800	131 946
Bulgaria	71 595	72 992	71 822	69 709	44 542
Croatia	* 5 300	* 4 800	* 5 100	* 4 500	* 5 000
Czech Republic	* 43 000	* 42 000	* 42 000	* 43 000	* 42 000
Estonia	8 226	9 925	* 10 000	* 10 000	* 10 000
France	* 70 000	* 60 000	* 70 000	* 65 000	* 66 000
Germany	326 000	335 000	310 006	227 200	310 000
Greece	30 000	30 900	* 32 000	* 34 000	* 36 000
Hungary	16 000	15 000	* 17 000	* 18 000	* 17 000
Ireland, Republic of	16 300	12 000	14 000	15 000	15 000
Italy	159 100	152 700	158 300	133 400	66 000
Netherlands	36 000	34 000	* 36 000	* 36 000	* 36 000
Poland	158 600	139 800	144 000	135 300	165 100
Portugal	* 10 000	* 9 000	* 10 000	* 10 000	* 10 000
Romania	20 000	19 000	20 000	* 20 000	* 20 000
Russia	141 000	142 000	152 800	118 300	* 110 000
Serbia	* 16 000	* 14 000	* 15 000	* 16 000	* 16 000
Slovakia	9 000	8 000	9 000	* 9 000	* 9 000
Slovenia	12 000	11 000	* 12 000	* 12 000	* 12 000
Spain	192 000	174 600	* 192 000	* 192 000	* 192 000
Sweden	75 327	74 370	73 431	71 400	75 500
Turkey	* 114 000	* 110 000	* 120 000	* 90 000	109 000
Ukraine	24 704	24 968	28 000	* 15 000	* 12 000
United Kingdom	311 000	315 000	329 000	309 900	* 285 000
Algeria	9 000	8 000	* 9 000	* 9 000	* 9 000
Egypt	* 28 000	* 26 000	* 27 000	* 27 000	* 27 000
Ghana (a)	5 000	10 000	13 456	16 273	18 681
Kenya	1 000	1 000	* 1 000	* 1 000	* 1 000
Morocco	8 000	7 000	8 000	* 8 000	* 8 000
Mozambique (a)	3 943	4 200	4 594	5 263	4 585
Nigeria	* 17 000	* 14 000	* 19 000	* 36 000	* 38 000
Senegal (a)	4 121	4 223	4 868	5 924	5 717
South Africa	* 56 000	* 55 000	* 56 000	* 58 000	* 60 000
Tanzania	—	3 429	6 055	6 470	7 552
Uganda	* 800	* 800	* 800	* 800	* 800
Zambia	5 004	4 008	5 004	* 5 000	* 5 000
Canada	260 267	189 900	197 400	182 400	190 900
Costa Rica	9 000	8 000	10 000	* 9 000	* 10 000
Cuba	* 5 000	* 5 000	* 5 000	* 5 000	* 5 000
Guatemala	* 12 000	* 11 000	* 12 000	—	—
Honduras	* 5 000	* 4 000	* 6 000	* 6 000	* 6 000
Mexico	446 889	410 000	426 355	419 100	434 800
USA (b)	1 150 000	1 090 000	1 050 000	1 010 000	1 020 000
Argentina	100 000	80 000	82 000	85 000	85 000
Bolivia	* 4 200	3 200	* 4 000	* 4 000	4 200
Brazil	253 700	257 500	265 248	* 278 000	286 000
Chile	14 000	12 000	14 000	* 14 000	* 14 000
Colombia	* 44 000	* 41 000	* 41 000	* 41 000	* 41 000
Peru	15 000	10 200	* 14 000	* 15 000	* 15 000
Venezuela	8 400	7 000	6 996	* 8 000	* 8 000
China	5 221 500	6 443 071	7 365 000	7 811 000	7 564 000
India	599 000	818 100	923 200	966 010	1 038 000
Indonesia	* 54 000	* 53 000	* 54 000	* 55 000	* 58 000
Iran	* 125 000	* 120 000	* 125 000	* 125 000	* 126 000
Israel	24 090	23 946	23 896	16 852	21 745
Japan	* 237 000	* 237 600	* 247 000	* 292 900	* 277 600
Kazakhstan	127 476	123 371	111 361	108 785	101 497
Korea (Rep. of)	813 000	770 000	790 000	760 000	776 000
Korea, Dem. P.R. of	* 3 000	* 3 000	* 3 000	* 3 000	* 3 000
Lebanon	* 26 000	* 22 000	* 22 000	* 22 000	* 27 000
Malaysia	* 100 000	* 100 000	* 100 000	* 100 000	* 100 000
Myanmar	* 14 800	* 11 000	* 11 000	* 11 000	* 14 000

Production of refined lead

tonnes (metric)

Country	2019	2020	2021	2022	2023
Oman	* 15 400	* 15 400	* 15 400	* 15 400	* 15 400
Pakistan (c)	* 60 000	* 60 000	* 60 000	* 60 000	* 60 000
Philippines	* 40 000	* 40 000	* 40 000	* 40 000	* 40 000
Saudi Arabia	* 75 000	* 73 000	* 76 000	* 76 000	* 78 000
Sri Lanka (a)	4 700	5 000	5 100	3 000	4 820
Taiwan	* 70 000	* 65 000	* 70 000	* 80 000	* 80 000
Thailand	* 86 000	* 80 000	* 86 000	* 88 000	* 75 000
United Arab Emirates	25 000	24 000	25 000	25 000	30 000
Uzbekistan	* 22 000	* 19 000	* 22 000	* 22 000	* 20 000
Vietnam	* 75 000	* 65 000	* 75 000	* 75 000	* 75 000
Australia	124 388	161 897	166 892	166 478	221 958
World total	12 400 000	13 600 000	14 800 000	15 000 000	15 000 000

Note(s)

(1) Figures relate to both primary and secondary refined lead and include the lead content of antimonial lead.

- (a) Years ended 31 March following that stated
- (b) Excluding lead content of primary antimonial lead
- (c) Years ended 30 June of that stated

Production of lithium minerals

tonnes (metric)

Country	2019	2020	2021	2022	2023
Portugal					
Lepidolite	59 912	23 185	18 533	* 19 000	* 19 000
Li content	417	161	129	132	* 132
Namibia					
Lepidolite	—	—	—	325 400	* 300 000
Li content	—	—	—	951	* 877
Nigeria					
Petalite	133	* 130	133	* 130	* 130
Li content	2	* 2	* 2	* 2	* 2
Spodumene	—	—	—	3 420	15 495
Li content	—	—	—	95	431
Zimbabwe					
Lepidolite	—	...	—	—	3 446
Li content	—	—	—	—	10
Petalite	62 623	20 859	40 726	86 330	301 004
Li content	1 191	397	775	1 642	5 726
Spodumene	—	—	—	—	465 636
Li content	—	—	—	—	12 963
Canada					
Spodumene	9 000	* —	—	82 426	* 6 000
Li content	263	* —	—	2 409	179
USA (a)					
Li content	* 4 000	* 4 000	* 5 000	* 2 440	* 2 300
Argentina					
Carbonate	30 009	26 846	47 917	* 50 000	* 50 000
Li content	5 642	5 047	9 008	* 9 400	* 9 400
Chloride	4 284	7 705	6 017	* 6 200	* 6 200
Li content	698	1 256	981	* 1 011	* 1 011
Bolivia					
Carbonate	* 400	191	540	617	949
Li content	* 75	36	102	116	178
Brazil					
Spodumene	47 818	74 101	102 938	143 720	263 876
Li content	1 198	1 857	2 579	3 601	6 612
Chile					
Carbonate	100 787	114 260	150 348	201 950	220 256
Li content	18 948	21 481	28 265	37 967	41 408
Chloride	1 886	—	—	—	—
Li content	307	—	—	—	—
Hydroxide	9 934	9 030	12 129	15 763	23 071
Li content	1 639	1 490	2 001	2 601	3 807
China					
Li content	10 810	13 273	* 14 100	* 22 600	* 33 000
Australia					
Spodumene	1 588 263	1 477 240	1 966 744	2 754 727	3 295 041
Li content	44 217	41 126	54 754	76 692	91 734
World total (Li content)	89 400	90 100	117 700	161 700	209 800

Note(s)

(1) In addition to the countries listed, Russia has also produced lithium minerals in the past.

(a) Carbonate

Production of magnesite

tonnes (metric)

Country	2019	2020	2021	2022	2023
Austria	691 909	816 370	842 679	707 267	669 400
Finland	37 002	136 167	179 781	324 226	298 025
Greece	365 792	275 100	309 600	322 391	292 698
Netherlands (a)	292 000	243 000	242 000	199 000	178 000
Poland	91 490	65 250	65 820	66 380	28 630
Russia	* 2 600 000	* 2 600 000	* 2 600 000	* 2 600 000	* 2 600 000
Slovakia	615 200	516 900	576 700	512 000	392 000
Spain	634 580	626 055	703 834	676 699	660 108
Turkey	1 496 081	1 560 818	1 927 280	1 820 068	1 333 728
South Africa	* 7 000	* 6 000	* 5 000	* 4 900	* 5 000
Canada (b)	* 180 000	* 160 000	* 200 000	* 200 000	* 200 000
Guatemala	* 2 000	706	4 700	14 534	11 256
Mexico	800	—	—	—	—
Brazil (c)	2 962 000	1 993 600	* 2 000 000	* 2 000 000	* 200 000
Colombia	1 847	1 077	3 116	2 694	2 540
China	10 917 400	14 044 000	* 14 000 000	* 13 000 000	* 13 000 000
India	(d) 100 300	(d) 75 000	(d) 113 000	112 892	123 208
Iran (e)	153 525	274 369	204 331	198 392	* 190 000
Israel (f)	105 350	113 903	131 201	94 220	87 004
Korea, Dem. P.R. of	* 70 000	* 70 000	* 70 000	* 70 000	* 70 000
Pakistan (g)	42 996	16 165	15 120	5 886	* 6 000
Philippines	* 140	* 140	* 140	* 140	* 140
Saudi Arabia	* 315 000	* 244 000	* 271 000	* 289 000	* 300 000
Australia (g)	433 712	820 057	2 739 388	2 571 152	3 525 221
World total	22 100 000	24 700 000	27 200 000	25 800 000	24 200 000

Note(s)

(1) In addition to the countries listed, Bulgaria is believed to produce magnesite.

(a) Chloride produced from solution mining

(b) Officially described as magnesitic dolomite and brucite

(c) Including beneficiated and directly shipped material

(d) Years ended 31 March following that stated

(e) Years ended 20 March following that stated

(f) Magnesium chloride

(g) Years ended 30 June of that stated

Production of primary magnesium metal

tonnes (metric)

Country	2019	2020	2021	2022	2023
Russia	15 336	12 795	15 000	15 736	14 858
Turkey	* 4 500	* 4 500	* 4 500	* 4 500	* 4 500
USA	* 11 000	* 5 500	* 500	* 500	* 500
Brazil	22 000	20 000	* 20 000	* 20 000	* 20 000
China	969 000	858 000	898 000	893 600	* 830 000
Israel	21 350	18 500	18 200	21 500	22 000

Note(s)

(1) In addition, substantial quantities of magnesium compounds are produced by, used and recycled within the process of titanium sponge production. It is believed this relates to the mineral carnallite and/or secondary magnesium chloride compounds.

(2) Magnesium used within the process of titanium sponge production is not marketed as primary magnesium metal and is therefore excluded from this table. Annual quantities are likely to be approximately: China 220 000 t, Japan 57 000 t and Russia 20 000 t.

Production of manganese ore

tonnes (metric)

Country	2019	2020	2021	2022	2023
Georgia (a)	305 562	302 200	332 400	352 200	192 954
Romania	* 45 000	* 40 000	* 31 000	* 28 000	* 15 000
Russia	39 000	188 000	71 000	110 000	* 110 000
Turkey	114 037	101 766	86 654	105 416	102 051
Ukraine	1 854 240	* 1 850 000	* 1 850 000	* 900 000	* 200 000
Congo, Democratic Republic (b)	4 935	* 5 000	* 5 000	* 5 000	* 5 000
Côte d'Ivoire	1 181 803	1 325 525	961 267	929 705	850 000
Egypt (c)	36 000	15 000	25 000	16 000	* 16 000
Gabon	7 186 000	8 147 000	9 241 000	10 116 000	10 289 000
Ghana	5 383 014	2 357 515	3 336 273	3 171 722	3 001 736
Morocco	71 210	84 087	82 507	89 258	* 89 000
Namibia	32 145	37 072	* 30 832	23 269	* 24 000
Nigeria	1 100	1 500	57 392	56 014	3 600
Senegal	* 20 000	* 12 000	9 396	31 092	* 30 000
South Africa	17 008 951	16 198 506	19 156 479	18 966 594	19 076 583
Sudan	* 1 000	* —	* —	* —	* —
Zambia	48 771	46 515	132 241	158 675	171 066
Mexico	534 044	565 619	560 742	574 665	568 441
Bolivia	* 3 550	* 4 700	* 5 100	* 420	* 563
Brazil	369 737	2 469 313	1 435 561	1 344 155	1 697 881
Colombia	* 864	* 64	* 800	* 906	* 820
Peru	* 41 800	* 22 500	* 25 313	* 2 600	1 327
China	10 325 000	12 856 000	8 000 000	6 500 000	* 4 500 000
India	(d) 2 910 186	(d) 2 688 038	(d) 2 695 991	2 798 694	3 293 409
Iran (e)	130 625	289 927	189 925	215 947	* 216 000
Kazakhstan	1 142 300	813 500	1 248 700	349 000	930 700
Malaysia	1 130 749	869 864	668 558	744 576	329 135
Myanmar	* 1 075 000	* 634 000	* 515 000	* 518 000	* 585 000
Oman	50 000	14 500	15 100	15 500	15 000
Thailand	4 800	1 400	—	660	—
Vietnam	106 000	121 000	146 000	155 000	* 160 000
Australia	6 649 432	6 425 848	6 188 587	6 322 670	6 503 469
World total	57 800 000	58 500 000	57 100 000	54 600 000	53 000 000

Note(s)

(1) In addition to the countries listed, Cuba may produce manganese ore.

(a) Marketable

(b) Including beneficiated and direct shipping ore

(c) Years ended 30 June of that stated

(d) Years ended 31 March following that stated

(e) Years ended 20 March following that stated

Production of mercury

kilograms

Country	2019	2020	2021	2022	2023
Russia	* 31 000	* 50 000	* 50 000	* 33 000	* 32 000
Morocco	* 2 000	* 1 000	* 2 000	* 2 000	* 2 000
Mexico (a)	* 70 000	* 70 000	* 40 000	* 10 000	* 3 000
USA	* 40	* 40	* 40	* 40	* 40
China	2 232 000	1 993 000	1 280 000	* 1 000 000	* 1 000 000
Kyrgyzstan	* 5 000	* 7 000	* 6 000	* 5 000	* 6 000
Tajikistan	90 600	177 700	(b)* 75 000	(b)* 310 000	(b)* 290 000
World total	2 400 000	2 300 000	1 500 000	1 400 000	1 300 000

Note(s)

(1) Several countries are believed to have unrecorded production of mercury from copper electrowinning processes and by recovery from effluents.

(a) BGS estimates, based on net exports

(b) Exports

Production of mica

tonnes (metric)

Country	2019	2020	2021	2022	2023
Finland	9 440	7 247	10 138	9 465	7 108
France (a)	* 19 000	* 19 000	* 19 000	* 19 000	* 19 000
Russia	5 689	4 654	* 4 500	* 4 500	* 4 500
Spain (a)	7 769	7 126	9 220	9 342	8 100
Turkey	454	4 139	1 663	6 066	8 715
Madagascar (b)	* 33 600	* 68 300	* 57 100	* 52 600	* 62 900
Morocco	48 892	39 600	25 685	20 330	* 20 000
Nigeria	* 100	120	2 672	15	145
South Africa	9	194	630	392	425
Canada	* 21 000	13 254	* 16 000	14 115	* 14 000
Mexico	595	219	90	—	590
USA (c)(a)	40 100	34 600	* 40 600	* 42 000	* 40 000
Brazil	* 3 231	9 260	4 145	1 354	2 950
Colombia	252	322	97	139	* 140
China	98 000	80 000	* 84 000	* 80 000	* 85 000
India (d)	* 1 000	* 1 000	* 1 000	* 1 000	* 1 000
Iran (e)	1 120	2 600	* 2 600	* 2 000	* 2 000
Korea (Rep. of) (f)	23 433	20 983	10 985	4 685	19 891
Malaysia (g)	4 358	4 083	3 406	3 779	3 980
Sri Lanka	* 1 500	* 1 500	* 1 500	* 1 500	* 1 500
Taiwan	3 312	3 186	10 983	1 795	155
World total	323 000	321 000	306 000	274 000	302 000

Note(s)

(1) In addition to the countries listed, Egypt and Romania are believed to produce mica.

(a) Including mica recovered from mica schists and/or kaolin beneficiation

(b) Exports

(c) Sold or used by producers

(d) Years ended 31 March following that stated

(e) Years ended 20 March following that stated

(f) Mainly sericite

(g) Sericite

Mine production of molybdenum

tonnes (metal content)

Country	2019	2020	2021	2022	2023
Armenia	7 360	12 691	11 310	11 390	11 480
Norway	* 2	* 2	* 2	* 2	* 2
Poland	1 230	1 210	1 230	1 230	1 070
Russia	1 989	1 707	1 691	1 400	* 1 400
Canada	4 385	3 979	1 871	1 146	1 369
Mexico	21 694	20 577	19 894	19 330	28 313
USA	43 600	51 100	41 100	34 600	34 000
Brazil	* 200	* 200	* 200	* 200	* 200
Chile	53 541	59 319	49 403	45 551	44 127
Peru	30 441	32 185	34 148	31 588	33 476
China	104 435	* 107 000	* 106 000	* 106 000	* 110 000
Iran (a)	8 711	6 762	8 275	* 6 700	* 6 700
Kazakhstan	258	400	396	2 005	3 727
Kyrgyzstan	* 23	* 20	* 15	* 34	* 34
Mongolia	2 492	2 889	2 973	2 780	2 648
Uzbekistan	666	725	762	780	784
World total	281 000	301 000	279 000	265 000	279 000

Note(s)

(1) In addition to the countries listed, Australia, Georgia, India, Democratic P.R. of Korea, Romania and Tajikistan are believed to produce molybdenum.

(a) Years ended 20 March following that stated

Production of nepheline syenite

tonnes (metric)

Country	2019	2020	2021	2022	2023
Norway	* 300 000	* 255 000	* 320 000	* 270 000	* 160 000
Russia					
Nepheline syenite	4 244 000	4 599 000	4 390 000	4 363 000	4 519 000
Nepheline concentrates	1 188 000	1 159 000	1 125 200	1 175 800	* 1 100 000
Turkey	—	—	—	36 100	65 500
Canada	519 989	657 774	689 600	771 082	771 082

Mine production of nickel

tonnes (metal content)

Country	2019	2020	2021	2022	2023
Albania	2 830	3 764	4 178	1 574	600
Finland (a)	38 530	41 429	42 163	44 921	41 941
Greece	13 700	7 100	4 700	1 700	—
Kosovo	3 314	3 958	4 735	387	14
Norway	200	300	200	300	300
Poland	720	710	740	830	750
Russia	286 330	285 210	251 040	267 980	256 320
Turkey	4 742	20 201	11 647	14 535	18 388
Côte d'Ivoire	9 100	18 600	24 400	25 600	26 300
Madagascar	33 736	9 908	29 285	35 737	* 38 900
Morocco	131	100	100	200	* —
South Africa	43 443	34 908	31 846	29 033	29 750
Zambia	2 500	3 226	3 834	4 059	7 980
Zimbabwe	16 279	16 480	13 949	13 753	16 309
Canada	176 021	168 214	159 145	122 115	158 668
Cuba	45 500	46 300	43 400	42 800	* 37 900
Dominican Republic	28 450	22 005	27 848	29 223	17 223
Guatemala	36 300	50 300	61 600	48 200	20 300
USA	14 297	16 718	18 353	17 500	* 17 000
Brazil	55 761	68 097	75 988	64 084	72 398
Colombia	45 000	40 500	43 800	46 400	42 400
China	104 674	104 674	103 900	109 400	112 600
Indonesia	853 000	767 000	1 069 000	1 579 000	* 2 030 000
Myanmar (b)	18 986	26 721	18 540	12 856	* 8 000
Philippines	323 325	328 372	386 359	* 360 000	* 387 000
Australia	158 751	169 344	150 876	155 007	149 090
New Caledonia	208 185	199 475	186 284	199 951	231 217
Papua New Guinea	33 091	33 659	31 594	34 302	33 604
Solomon Islands	—	—	—	—	1 050
World total	2 557 000	2 487 000	2 800 000	3 261 000	3 756 000

Note(s)

(a) In addition some nickel is produced as a by-product of a talc operation. The amount is negligible

(b) Years ending 30 September of that stated

Smelter/refinery production of nickel

tonnes (metric)

Country	2019	2020	2021	2022	2023
Austria	* 700	* 700	* 700	* 700	* 800
Cyprus					
Sulfate	—	—	227	953	638
Finland (a)	90 151	90 837	68 006	91 466	90 852
France	6 900	6 700	8 900	6 842	7 125
Greece	11 974	6 012	4 080	1 444	—
Kosovo	* 6 500	* 6 900	* 5 900	—	* 500
North Macedonia	15 300	17 700	17 700	8 350	3 800
Norway	92 132	91 120	91 246	81 898	95 013
Russia	166 300	172 400	145 800	163 900	156 000
Ukraine	14 200	14 719	16 200	* 7 400	—
United Kingdom	34 976	35 177	30 654	33 384	35 851
Madagascar	33 736	9 908	29 285	35 737	36 000
Morocco					
Sulfate	—	—	100	* 100	* —
South Africa	39 100	29 100	40 000	* 40 000	* 39 600
Canada	124 736	124 043	119 000	143 266	* 130 000
Cuba	12 900	14 800	13 800	13 700	13 700
Dominican Republic	27 532	20 724	28 078	29 188	17 844
Guatemala	20 323	22 894	19 900	* 18 000	—
Brazil	54 300	59 600	60 800	63 400	57 000
Colombia	40 571	36 094	38 300	41 816	38 708
China	806 000	* 745 000	669 000	* 850 000	* 970 000
India	* 50	—	—	681	2 000
Indonesia (a)	409 000	632 000	876 000	* 1 165 000	1 410 000
Japan	182 652	170 014	180 721	117 800	111 800
Korea (Rep. of)	41 067	45 600	44 000	* 43 500	46 500
Myanmar (b)	* 16 000	22 200	18 000	10 000	* 8 000
Australia	106 470	115 800	98 970	96 500	92 300
New Caledonia	87 921	72 455	56 603	66 220	71 912
World total	2 441 000	2 562 000	2 682 000	3 131 000	3 436 000

Note(s)

(1) Data relates to refined nickel plus the nickel content of ferro-nickel, nickel oxide, nickel salts, nickel matte and nickel pig iron. It does not include nickel content of nickel hydroxide cake.

(2) In addition to the countries listed, the USA produces some nickel as a refinery by-product.

(a) This figure may include nickel content of matte and/or nickel content of nickel pig iron

(b) Years ending 31 March following that stated

Production of perlite

tonnes (metric)

Country	2019	2020	2021	2022	2023
Armenia	80 676	173 504	26 205	28 900	* 29 000
Bulgaria	* 5 000	* 5 000	* 5 000	* 5 000	* 5 000
Georgia	28 421	31 736	31 383	51 829	64 050
Greece	719 000	718 000	975 000	850 000	* 850 000
Hungary	76 723	42 112	83 628	85 505	77 596
Italy	* 60 000	* 60 000	* 60 000	* 60 000	* 60 000
Russia	* 45 000	* 45 000	* 45 000	* 45 000	* 45 000
Slovakia	32 000	37 310	35 320	38 000	39 000
Turkey	1 174 486	1 146 341	1 428 695	1 319 432	1 174 125
Ukraine	* 17 000	* 17 000	* 17 000	* 8 000	* 8 000
South Africa	* 1 000	* 1 000	* 1 000	* 1 000	* 1 000
Mexico	24 497	—	28 800	—	—
USA	397 000	501 000	491 000	442 000	410 000
Argentina	* 19 000	13 176	18 016	32 450	* 32 000
Chile	4 700	—	—	—	1 997
China	1 472 100	1 422 200	* 1 500 000	* 1 500 000	* 1 500 000
Iran (a)	31 230	52 750	77 024	6 709	7 000
Philippines	6 608	* —	4 631	24 878	18 384
Thailand	15 000	3 500	3 500	2 500	2 500
Australia (b)	1 264	2 185	3 821	3 000	3 000

Note(s)

(1) In addition to the countries listed, Algeria, Canada, Djibouti, Iceland, Morocco and Mozambique are believed to produce perlite.

(a) Years ended 20 March following that stated

(b) Years ended 30 June of that stated

Production of crude petroleum

tonnes (metric)

Country	2019	2020	2021	2022	2023
Albania	1 005 088	757 393	712 532	657 402	572 628
Austria (a)(b)	626 877	594 789	559 947	521 211	468 583
Azerbaijan (b)	37 501 200	34 531 900	34 580 300	32 646 400	30 147 400
Belarus	1 690 000	1 710 000	1 737 000	1 590 000	1 494 000
Bulgaria	* 21 930	21 000	20 300	19 700	* 21 000
Croatia	657 553	585 567	559 204	542 644	517 076
Czech Republic	81 000	91 000	83 000	75 000	67 000
Denmark	4 979 725	3 522 230	3 247 085	3 183 250	2 901 645
Estonia (c)	1 671 050	1 160 186	622 572	637 606	1 544 772
France	5 269 899	5 634 302	5 376 432	5 276 869	5 326 650
Georgia	35 070	31 293	35 477	36 600	38 900
Germany	1 923 232	1 895 942	1 805 932	1 699 014	1 635 331
Greece	365 000	261 000	271 000	271 000	* 271 000
Hungary	1 158 129	848 800	891 413	903 501	932 615
Italy	4 270 000	5 380 000	4 830 000	4 450 000	4 230 000
Lithuania	39 572	31 631	28 916	27 040	24 775
Netherlands	747 000	737 000	749 000	* 391 000	* 320 000
Norway	85 386 000	98 686 000	99 625 000	93 467 000	90 808 000
Poland	972 564	937 462	888 082	854 050	793 880
Romania	3 439 564	3 334 019	3 195 648	3 019 473	2 882 158
Russia	561 000 000	512 000 000	523 000 000	535 000 000	541 700 000
Serbia	854 000	831 000	811 000	801 000	810 000
Slovakia	4 000	3 000	5 000	3 000	1 000
Slovenia	267	247	142	—	—
Spain	39 861	26 819	5 785	910	606
Turkey	2 984 800	3 202 924	3 441 659	3 583 040	4 094 898
Ukraine	2 453 600	2 429 700	2 432 200	2 200 000	* 2 000 000
United Kingdom	52 489 000	48 985 000	40 864 000	37 752 000	33 446 000
Algeria	64 300 000	57 500 000	58 200 000	62 100 000	60 400 000
Angola	69 100 000	64 200 000	56 600 000	57 800 000	55 800 000
Cameroon	3 545 900	3 622 200	2 631 600	3 403 200	3 257 100
Chad	6 700 000	6 600 000	6 100 000	6 500 000	7 000 000
Congo	16 340 000	14 050 000	13 178 000	13 032 000	13 200 000
Congo, Democratic Republic	1 120 345	1 199 249	1 177 446	1 027 490	1 157 230
Côte d'Ivoire	2 024 410	1 893 641	1 708 962	1 573 733	1 530 194
Egypt	31 800 000	31 100 000	29 600 000	29 900 000	29 800 000
Equatorial Guinea	7 400 000	7 400 000	6 100 000	5 600 000	4 000 000
Gabon	10 901 000	10 766 000	9 085 000	10 400 000	11 200 000
Ghana	9 806 395	9 186 933	7 556 677	7 104 527	6 622 791
Libya	58 000 000	19 700 000	60 400 000	53 600 000	59 700 000
Morocco	4 335	4 098	3 246	3 394	* 2 000
Niger	547 646	472 967	398 288	398 300	298 700
Nigeria	100 900 000	91 400 000	80 700 000	69 300 000	73 900 000
Senegal	28 600	3 300	* 3 000	* 3 000	* 3 000
South Sudan	8 400 000	8 100 000	7 500 000	6 900 000	7 300 000
Sudan	3 600 000	3 100 000	3 200 000	3 100 000	2 800 000
Tunisia	1 686 000	1 557 600	* 1 930 000	1 664 700	1 561 800
Barbados	28 733	23 736	20 899	19 254	* 20 000
Canada	232 900 000	222 600 000	234 500 000	273 900 000	277 900 000
Cuba	2 371 500	2 320 200	2 433 300	2 374 000	* 2 200 000
Guatemala	486 250	395 591	319 291	313 237	252 694
Mexico	99 212 000	98 850 000	99 521 955	100 504 249	105 467 422
Trinidad & Tobago	3 032 272	2 909 695	3 083 745	3 010 889	2 768 209
USA	783 892 303	749 014 892	755 104 756	807 163 174	874 105 820
Argentina	26 060 312	25 603 785	26 521 000	30 079 000	32 812 000
Bolivia	1 646 000	1 494 000	1 451 000	1 293 000	1 091 000
Brazil	149 550 768	157 682 321	154 975 843	161 042 769	180 097 838
Chile	159 977	101 658	108 933	127 282	120 625
Colombia	46 700 000	41 300 000	38 800 000	39 700 000	40 900 000
Ecuador	28 500 000	25 800 000	25 300 000	25 800 000	25 500 000
Peru	6 898 900	6 159 700	5 889 000	5 775 500	5 672 209
Suriname	971 528	967 898	959 832	990 482	1 011 453
Venezuela	53 400 000	34 600 000	34 500 000	37 500 000	43 700 000

Production of crude petroleum

tonnes (metric)

Country	2019	2020	2021	2022	2023
Afghanistan	* 900	* 900	* 900	* 900	* 900
Bahrain (b)	3 178 000	3 210 000	2 993 000	2 884 000	* 2 900 000
Bangladesh	591 800	* 600 000	—	—	—
Brunei	5 442 245	5 435 513	5 254 692	4 500 000	4 500 000
China (a)	191 014 100	194 768 600	198 881 100	204 722 400	208 915 000
East Timor (b)	* 819 000	826 007	828 750	544 198	* 540 000
India	(d) 32 169 000	(d) 30 491 000	(d) 29 691 000	29 392 000	29 114 000
Indonesia	37 264 000	35 513 000	32 927 021	30 620 822	30 286 164
Iran	161 700 000	147 700 000	172 200 000	180 200 000	214 300 000
Iraq	234 200 000	202 000 000	200 800 000	221 300 000	213 000 000
Israel	85 563	132 820	167 786	134 250	467 852
Japan	477 000	468 000	447 000	384 000	360 000
Jordan	200	1 300	14 700	12 900	6 000
Kazakhstan	90 555 400	85 656 100	85 879 400	84 236 900	89 976 700
Kuwait (e)	143 400 000	131 200 000	130 000 000	145 900 000	139 800 000
Kyrgyzstan	233 100	239 200	275 700	295 100	303 200
Malaysia	29 138 900	26 559 400	24 123 200	23 979 800	24 075 400
Mongolia	946 818	564 773	641 967	352 875	672 476
Myanmar	791 000	580 000	312 000	296 000	* 299 000
Oman	48 346 316	47 340 450	48 361 255	52 992 224	52 220 396
Pakistan (f)	4 359 424	3 831 787	3 760 982	2 960 027	3 459 131
Philippines	656 462	572 350	489 873	448 097	330 216
Qatar	72 300 000	72 200 000	70 800 000	72 700 000	74 100 000
Saudi Arabia (e)	556 600 000	519 600 000	515 000 000	574 200 000	531 700 000
Syria	1 500 000	2 000 000	2 000 000	2 000 000	1 800 000
Taiwan	3 860	2 169	2 462	1 868	1 628
Tajikistan	23 293	24 466	24 600	24 900	18 000
Thailand	16 900 000	15 100 000	13 900 000	11 500 000	11 200 000
Turkmenistan	12 200 000	10 400 000	9 800 000	9 600 000	9 200 000
United Arab Emirates	179 900 000	165 900 000	163 400 000	181 100 000	176 100 000
Uzbekistan	2 800 000	2 000 000	2 100 000	2 100 000	2 000 000
Vietnam (f)	13 090 000	11 470 000	10 970 000	10 840 000	* 10 412 300
Yemen, Republic of	4 100 000	3 800 000	3 500 000	3 100 000	1 900 000
Australia	20 931 300	20 442 600	19 430 000	18 047 000	16 065 300
New Zealand (b)	1 128 870	964 420	840 780	736 140	811 520
Papua New Guinea	367 500	* 390 000	* 370 000	* 340 000	* 320 000
World total	4 471 000 000	4 172 000 000	4 210 000 000	4 425 000 000	4 511 000 000

Note(s)

(1) The figures shown in this table include natural gas liquids.

(a) Including oil from shale and coal

(b) Including natural gas liquids

(c) From oil shale

(d) Years ended 31 March following that stated

(e) Including shares of production from the Neutral Zone

(f) Years ended 30 June of that stated

Production of natural gas

million cubic metres

Country	2019	2020	2021	2022	2023
Albania	80	57	57	51	49
Austria	891	743	654	607	545
Azerbaijan	24 514	26 487	32 578	34 956	36 416
Belarus	218	219	229	* 200	* 200
Bulgaria	29	55	31	17	9
Croatia	1 070	888	782	745	691
Czech Republic	146	138	153	165	119
Denmark	2 980	1 351	1 283	1 275	1 296
France	17	—	—	—	—
Georgia	10	9	16	15	16
Germany	6 699	5 692	5 731	5 281	4 620
Greece	11	6	5	5	—
Hungary	1 852	1 888	1 663	1 688	1 753
Ireland, Republic of	2 385	2 023	1 551	1 436	1 131
Italy	4 980	4 420	3 500	3 900	3 800
Netherlands	31 540	22 833	20 524	17 040	11 208
Norway	115 130	112 300	115 230	123 870	106 173
Poland	5 374	5 302	4 871	4 759	4 601
Romania	10 448	9 357	9 381	9 500	9 648
Russia	739 000	694 000	767 700	679 600	638 000
Serbia	477	448	401	373	353
Slovakia	75	65	66	54	50
Slovenia	7	5	5	4	5
Spain	131	47	38	33	26
Turkey	483	458	415	408	852
Ukraine	20 520	20 171	19 759	17 500	17 700
United Kingdom	39 386	39 433	32 570	37 737	34 043
Algeria	87 000	81 400	101 100	97 600	101 500
Angola	6 740	7 503	5 860	5 519	* 5 300
Cameroon	2 006	2 130	1 578	2 195	2 278
Congo	1 025	1 332	913	730	294
Côte d'Ivoire	2 280	2 339	2 495	2 673	2 474
Egypt	64 900	58 500	67 800	64 500	57 100
Equatorial Guinea (a)	5 883	5 255	6 147	7 070	* 7 000
Gabon (a)	453	510	453	453	453
Ghana	4 802	6 738	7 255	5 165	5 225
Libya	16 000	12 700	15 300	14 600	16 300
Morocco	105	105	119	82	57
Mozambique	4 549	4 857	4 712	4 906	* 4 900
Nigeria	49 300	49 400	52 400	47 100	43 700
Senegal	16	14	6	4	4
South Africa	668	563	44	5	5
Tanzania	1 444	1 245	1 477	1 894	2 111
Tunisia	1 795	1 864	2 212	2 029	1 843
Barbados	14	11	11	9	* 9
Canada	161 367	158 325	164 272	184 800	190 300
Cuba	951	895	864	844	955
Mexico	51 000	50 000	49 000	49 000	51 000
Trinidad & Tobago	37 084	31 462	26 656	27 782	26 738
USA (a)	959 910	957 420	977 760	1 029 400	1 072 330
Argentina	46 305	41 560	44 129	47 159	46 853
Bolivia	16 893	16 254	16 969	15 401	13 390
Brazil	27 358	25 403	25 382	24 098	24 502
Chile	1 339	1 316	1 275	1 355	1 380
Colombia	12 600	12 500	12 600	12 400	12 100
Ecuador	340	283	312	510	* 400
Peru	13 418	11 993	11 368	13 697	14 627
Venezuela	25 600	21 600	28 100	29 100	29 700
Afghanistan	129	80	132	153	195
Bahrain	24 887	25 114	26 088	25 675	26 643
Bangladesh (b)	27 196	24 998	25 172	23 903	22 646
Brunei	12 140	11 795	10 765	10 600	10 000
China	176 174	192 495	207 584	220 110	230 000

Production of natural gas

million cubic metres

Country	2019	2020	2021	2022	2023
East Timor	7 152	6 770	6 449	2 911	* 2 900
India	(c) 30 260	(c) 28 670	(c) 34 024	33 363	35 070
Indonesia	67 184	59 206	58 651	57 374	68 528
Iran	228 300	235 800	242 800	247 700	251 700
Iraq	11 000	7 000	9 100	9 300	9 900
Israel	10 500	15 000	19 000	22 000	24 715
Japan	2 524	2 295	2 304	2 148	2 019
Jordan	102	151	185	153	174
Kazakhstan	56 681	55 379	54 179	53 645	59 458
Kuwait (d)	13 300	12 200	12 100	13 200	13 500
Kyrgyzstan	24	22	22	30	28
Malaysia	68 660	63 330	67 482	71 811	72 100
Myanmar	19 270	18 260	17 670	17 135	* 14 700
Oman	36 484	35 146	35 469	39 502	40 751
Pakistan (b)	40 684	37 283	36 223	28 190	33 683
Philippines	4 410	4 000	3 430	3 178	2 285
Qatar	177 200	174 900	177 000	178 500	181 000
Saudi Arabia (d)	111 200	113 100	114 500	116 700	114 100
Syria	3 300	2 900	3 100	2 900	3 000
Taiwan	167	105	110	96	91
Tajikistan	1	1	1	1	0
Thailand	37 446	33 715	33 115	27 369	25 700
Turkmenistan	63 200	66 000	79 300	78 300	76 300
United Arab Emirates	53 700	53 700	53 100	54 200	55 600
Uzbekistan	57 500	47 100	50 900	48 900	44 200
Vietnam	10 200	9 160	7 460	8 080	* 7 468
Yemen, Republic of	100	100	100	100	* —
Australia	154 485	154 107	156 463	163 112	174 606
New Zealand	4 608	4 508	3 945	3 694	3 771
Papua New Guinea	11 204	* 11 000	11 400	10 840	* 10 400
World total	4 133 000	4 019 000	4 207 000	4 208 000	4 225 000

Note(s)

(1) So far as possible the figures in this table exclude flared or reinjected gas.

(a) Dry gas

(b) Years ended 30 June of that stated

(c) Years ended 31 March following that stated

(d) Including one-half of the output of the Neutral Zone

Production of phosphate rock

tonnes (metric)

Country	2019	2020	2021	2022	2023
Finland	994 572	995 066	990 261	923 245	906 068
Russia	13 800 000	13 800 000	14 100 000	14 400 000	* 14 400 000
Turkey	315 215	872 894	957 045	963 323	1 271 355
Algeria	1 338 400	1 205 500	1 811 800	* 1 800 000	* 1 800 000
Burkina Faso	1 800	2 803	2 444	463	—
Egypt (a)	3 378 000	3 052 000	3 098 000	* 3 000 000	* 4 000 000
Malawi	1 753	—	—	—	—
Mali	110 000	57 600	65 000	100 000	100 000
Morocco	35 300 000	40 700 000	38 122 000	30 456 000	28 675 000
Senegal					
Phosphate rock	2 295 975	2 445 076	2 402 469	2 605 960	2 848 813
Aluminium phosphate	(b) 643 900	(b) 1 427 500	* —	* —	* —
South Africa	1 825 719	581 392	2 132 135	1 985 458	1 719 718
Tanzania	—	28 376	24 493	26 597	31 745
Togo	703 773	1 321 345	1 456 368	1 541 772	1 517 478
Tunisia	4 108 800	3 194 100	3 726 400	3 563 000	3 093 100
Zimbabwe	14 649	9 192	15 850	20 022	5 594
Cuba	—	1 600	1 400	1 100	—
Mexico	565 600	577 152	456 335	402 503	438 679
USA	23 300 000	23 500 000	21 600 000	* 19 800 000	* 19 600 000
Brazil (c)	3 029 180	5 150 451	5 029 390	5 307 266	* 4 200 000
Chile					
Phosphate rock	—	—	—	—	7 415
Guano	3 405	2 091	2 229	3 346	2 365
Colombia	81 903	56 846	51 353	41 467	—
Peru	11 091 502	8 594 180	10 776 136	10 954 831	11 920 187
Venezuela	* 70 000	* 70 000	* 70 000	* 70 000	* 70 000
China	93 324 000	90 000 000	104 107 000	104 745 000	105 309 000
Christmas Island (a)(d)(e)	486 000	387 000	525 000	523 000	558 000
India	(f) 1 400 186	(f) 1 455 627	(f) 1 395 079	1 778 138	1 647 024
Iran (g)	119 227	96 160	83 900	95 430	* 90 000
Iraq	* 300 000	* 300 000	—	* —	* —
Israel	2 649 800	2 505 200	1 957 200	1 795 072	2 308 101
Jordan	9 223 346	8 937 752	10 015 243	11 257 794	11 453 898
Kazakhstan	1 274 000	1 495 100	1 398 100	1 403 400	1 675 800
Laos					
Guano	635	230	—	—	...
Pakistan (a)	96 208	87 724	120 216	* 187 000	* 190 000
Philippines					
Phosphate rock	* 1 500	* 1 500	...	...	...
Guano	* 1 500	* 1 500	* 1 500	* 1 500	* 1 500
Saudi Arabia	5 716 000	8 000 000	8 400 000	* 8 700 000	* 9 900 000
Sri Lanka	47 438	52 103	68 217	35 309	46 664
Syria	* 350 000	* 420 000	* 1 100 000	* 800 000	* 800 000
Uzbekistan	588 600	646 000	681 000	767 600	533 800
Vietnam	4 489 600	2 022 160	2 713 200	2 513 800	* 2 983 400
Australia (a)	720 615	936 043	* 900 741	1 570 539	2 263 421
Nauru (d)	81 500	119 498	274 423	260 276	* 260 000
World total	224 000 000	225 000 000	241 000 000	234 000 000	237 000 000

Note(s)

(1) In addition to the countries listed, Indonesia and Nigeria are believed to produce phosphate rock.

(a) Years ended 30 June of that stated

(b) Including lime phosphates

(c) Including beneficiated and directly shipped material

(d) Exports

(e) Including phosphate dust

(f) Years ended 31 March following that stated

(g) Years ended 20 March following that stated

Mine production of platinum group metals

kilograms (metal content)

Country	2019	2020	2021	2022	2023
Finland					
Platinum	953	1 276	1 447	1 243	933
Palladium	699	858	1 036	960	762
Poland					
Platinum	* 8	* 8	* 8	* 5	* 5
Palladium	* 5	* 7	* 4	* 4	* 2
Russia					
Platinum	21 832	21 615	19 935	20 246	20 650
Palladium	90 874	87 889	81 358	86 769	83 721
Iridium	* 200	* 200	* 200	* 200	* 200
Rhodium	2 500	2 500	2 300	2 300	2 300
Ruthenium	* 300	* 300	* 300	* 300	* 300
Serbia					
Platinum	* 10	* 20	* 30	* 10	* 10
Palladium	* 100	* 100	* 100	* 100	* 100
Ethiopia					
Platinum (a)	* 2	* 2	* 4	* 30	* 30
South Africa					
Platinum	132 989	111 993	141 626	124 401	124 870
Palladium	80 684	66 264	84 336	73 104	74 917
Iridium	6 464	6 186	7 006	6 160	6 222
Rhodium	18 545	16 972	22 256	18 800	18 549
Ruthenium	28 386	25 058	31 463	27 900	28 478
Zimbabwe					
Platinum	13 857	15 004	14 732	16 460	19 180
Palladium	11 639	12 890	12 619	13 935	15 820
Iridium	845	837	612	602	958
Rhodium	1 224	1 368	1 333	1 461	1 672
Ruthenium	791	1 026	1 239	1 341	1 331
Canada					
Platinum	* 7 755	* 4 037	* 4 888	* 5 301	* 5 174
Palladium	24 234	12 616	15 275	16 565	* 16 114
Rhodium	* 323	* 168	* 204	* 221	—
USA					
Platinum	4 152	4 203	4 017	2 737	2 769
Palladium	14 323	14 555	13 725	9 202	9 448
Rhodium	* 100	* 100	* 100	—	—
Colombia					
Platinum	187	414	618	501	893
China					
Platinum	* 2 500	* 2 500	* 2 800	* 2 800	* 2 800
Palladium	* 1 300	* 1 300	* 1 300	* 1 300	* 1 300
Uzbekistan					
Palladium	28	91	160	93	* 90
Australia					
Platinum	99	107	90	100	* 102
Palladium	384	414	380	392	410
World total	468 000	413 000	467 000	436 000	440 000

Note(s)

- (1) Wherever possible, figures relate to quantities of platinum group metals thought to be recovered from ones originating in the country stated.
- (2) South Africa thought to be the only country to produce osmium, however data is unavailable.
- (3) Figures for metal production are only given for countries where recovery is thought to be based predominantly on domestic materials or on imported materials which have not been recorded as mine production elsewhere in the table.
- (4) In addition to the production listed, concentrates produced in Spain, and possibly other countries, are believed to be processed in China to recover platinum group metals.

(a) Years ending 7 July of that stated

Production of potash

tonnes (K₂O content)

Country	2019	2020	2021	2022	2023
Belarus	7 348 293	7 562 153	* 8 000 000	* 3 200 000	* 4 500 000
Germany					
Potassic salts	2 615 284	2 874 026	2 793 326	2 708 650	2 536 308
Russia					
Chloride	7 771 000	8 832 000	9 746 000	4 828 000	7 102 000
Spain					
Chloride	519 644	351 918	375 779	429 896	360 279
United Kingdom					
Polyhalite	632 000	709 000	789 000	953 000	1 009 000
Canada					
Chloride	12 820 345	13 783 530	14 275 819	14 593 478	14 043 046
USA					
Potassic salts	510 000	460 000	480 000	430 000	390 000
Brazil					
Chloride	248 911	254 837	213 028	299 636	363 275
Chile					
Chloride	681 697	951 125	878 507	672 000	741 932
China	5 900 000	* 5 600 000	* 5 200 000	* 5 900 000	* 6 000 000
Israel					
Chloride	2 057 078	2 375 450	2 406 300	2 474 787	2 356 323
Jordan	1 516 500	1 598 200	1 563 400	1 637 240	1 695 800
Laos	462 738	713 718	818 654	1 483 905	3 307 777
World total	43 000 000	46 000 000	47 500 000	39 600 000	44 400 000

Production of rare earth oxides

tonnes (metric)

Country	2019	2020	2021	2022	2023
Russia	2 620	2 663	2 276	2 038	1 964
Burundi	150	250	150	—	—
Madagascar	* 4 000	* 2 800	* 2 000	* 960	* 960
USA	16 800	22 800	* 25 200	* 25 200	* 25 800
China (a)	* 180 000	* 180 000	* 180 000	* 210 000	* 240 000
India (b)	* 4 200	* 4 200	* 4 200	* 4 200	* 4 200
Malaysia	72	14	29	52	134
Myanmar	* 29 000	* 35 000	* 35 000	* 24 000	* 72 000
Vietnam	* 1 300	* 690	* 440	* 1 200	* 600
Australia (c)	20 000	15 000	16 000	16 000	17 000

Note(s)

- (1) All the figures in this table are either reported as rare earth oxides or are calculated to rare earth oxide equivalent.
- (2) Prior to the 2005-2009 edition of this book, a table for the production of 'rare earth minerals' was included rather than the current 'rare earth oxides'. Users should exercise caution when comparing statistics over longer time periods.
- (3) Although rare earth minerals are believed to be extracted in other countries, there is insufficient evidence to estimate the quantities of contained oxides.
- (4) Where possible, data are shown against the country where the mineral is mined.

(a) Includes production from iron ore extraction, bastnasite concentrates and ion absorption clays

(b) Years ending 31 March following that stated

(c) Years ending 30 June of that stated

Production of rhenium

tonnes (metric)

Country	2019	2020	2021	2022	2023
Poland	8	10	9	6	9
Russia	* 2	* 2	* 2	* 2	* 2
USA	8	9	9	9	* 9
Chile	* 30	* 30	* 30	* 29	* 30
China	* 3	* 3	* 3	* 3	* 3
Kazakhstan	* 1	* 1	* 1	* 1	* 1

Production of salt

tonnes (metric)

Country	2019	2020	2021	2022	2023
Albania					
Sea salt	* 30 000	* 30 000	* 30 000	* 30 000	* 30 000
Armenia	24 975	28 168	32 667	22 534	20 388
Austria					
Rock salt	—	28	35	48	* 50
Salt in brine	1 135 790	1 178 489	1 065 786	1 119 350	* 1 120 000
Azerbaijan	4 526	4 045	4 296	4 181	3 636
Belarus	2 517 590	1 198 290	2 265 000	* 2 300 000	* 2 300 000
Bosnia & Herzegovina	1 069 210	947 838	966 358	1 109 253	1 165 909
Bulgaria	* 3 400 000	* 3 400 000	* 3 400 000	* 3 400 000	* 3 400 000
Croatia	47 793	54 381	55 128	52 851	47 614
Denmark	* 600 000	* 600 000	* 600 000	(a) 803 000	(a) 832 000
France	4 364 736	5 200 596	5 543 448	5 621 754	4 373 125
Germany					
Rock salt	7 374 654	5 202 641	8 405 272	6 944 485	6 353 621
Brine salt	* 2 330 000	2 316 705	* 2 300 000	* 2 000 000	* 2 000 000
Salt in brine	9 153 686	8 585 169	8 291 984	7 133 049	6 159 854
Greece (b)	201 107	201 000	210 000	* 210 000	* 210 000
Italy					
Rock salt & brine salt	1 538 072	1 192 956	1 500 458	1 460 833	1 044 156
Montenegro					
Sea salt	* 10 000	* 10 000	* 10 000	* 10 000	* 10 000
Netherlands	5 914 000	5 701 000	6 121 000	5 893 000	4 883 000
Norway	10 000	(a) 5 300	(a) 13 000	(a) —	(a) * —
Poland					
Rock salt	912 000	505 000	1 004 000	1 005 000	955 000
Brine salt	2 929 000	2 711 000	2 722 646	2 879 000	2 320 000
Other salt	361 000	342 000	327 000	49 288	26 839
Portugal					
Rock salt	4 709	4 217	4 471	8 158	* 8 000
Sea salt	107 506	92 887	90 307	117 695	134 200
Romania	1 984 965	1 151 740	1 297 666	1 397 771	1 172 764
Russia	7 091 000	5 529 600	* 6 000 000	* 6 000 000	* 6 000 000
Serbia	13 464	12 853	13 459	15 269	7 824
Slovenia	1 437	805	1 671	2 342	738
Spain					
Rock salt	3 084 140	2 499 402	3 034 268	2 812 154	2 672 146
Sea salt	1 134 195	1 057 339	1 168 671	1 175 536	1 232 411
Other salt	112 179	119 298	126 151	132 783	158 813
Switzerland	477 300	324 500	512 700	422 700	* 373 000
Turkey	6 961 015	7 698 018	7 843 502	9 085 711	8 587 332
Ukraine	2 092 795	* 2 000 000	* 2 000 000	* 2 000 000	* 10 000
United Kingdom	2 377 765	2 327 965	2 687 483	2 645 573	2 715 118

Production of salt

tonnes (metric)

Country	2019	2020	2021	2022	2023
Algeria					
Brine salt & sea salt	100 800	95 100	107 800	* 160 000	* 160 000
Angola	* 109 000	* 164 400	* 200 000	* 210 000	* 160 000
Botswana	383 779	418 379	484 628	323 303	387 956
Djibouti	* 30 000	* 30 000	* 30 000	* 20 000	* 20 000
Egypt (c)	493 000	357 000	218 000	* 230 000	* 250 000
Eritrea	* 310 000	* 320 000	* 320 000	* 320 000	* 320 000
Ethiopia (d)	754	* 800	* 900	* 800	* 800
Ghana	* 350 000	* 350 000	* 300 000	* 300 000	* 250 000
Guinea	* 15 000	* 20 000	* 20 000	* 25 000	* 25 000
Kenya (e)	13 728	4 703	7 099	23 215	55 091
Libya	* 50 000	* 50 000	* 50 000	* 50 000	* 50 000
Madagascar	* 110 000	* 110 000	* 120 000	* 120 000	* 110 000
Mauritania	* 1 000	* 1 000	* 1 000	* 1 000	* 1 000
Mauritius (b)	500	* 500	793	674	* 249
Morocco	854 390	490 896	295 741	652 578	* 653 000
Mozambique (b)	* 95 000	* 95 000	* 100 000	* 100 000	* 90 000
Namibia	1 108 364	795 896	926 677	1 157 299	1 154 566
Senegal	286 103	290 873	306 347	320 627	* 320 000
Somalia	* 100	* 100	* 100	100	* 300
South Africa	510 499	538 355	543 955	571 774	614 028
Sudan	256 000	237 000	121 000	* 120 000	* 100 000
Tanzania	99 510	83 974	112 995	181 818	159 020
Tunisia	1 966 528	1 666 075	1 889 614	* 1 900 000	* 1 900 000
Bahamas (f)	653 355	708 642	418 980	623 368	701 158
Bonaire (b)	* 400 000	* 400 000	* 400 000	* 400 000	* 400 000
Canada					
Rock salt	10 986 492	11 416 072	10 543 760	11 673 544	15 245 016
Other salt (g)	955 790	970 009	1 974 511	862 320	804 721
Cuba	210 400	226 000	204 600	195 600	87 900
Dominican Republic (f)	25 700	21 550	19 972	24 957	* 25 000
El Salvador (b)	* 100 000	* 100 000	* 100 000	* 100 000	* 100 000
Guatemala (b)	* 60 000	* 60 000	* 60 000	* 60 000	* 60 000
Honduras	* 60 000	* 60 000	* 60 000	* 60 000	* 60 000
Jamaica	* 14 000	* 14 000	* 14 000	* 14 000	* 14 000
Mexico	8 845 239	9 084 859	7 001 505	7 914 780	8 542 344
Nicaragua (b)	* 30 000	* 30 000	* 30 000	* 30 000	* 30 000
Panama (b)	27 721	25 259	24 149	23 017	30 367
USA					
Rock salt (h)	19 100 000	18 200 000	17 500 000	* 18 060 000	* 18 700 000
Salt in brine (h)	17 900 000	16 400 000	14 500 000	* 16 800 000	* 13 500 000
Evaporated salt (h)	7 800 000	8 050 000	7 250 000	* 7 140 000	* 8 600 000
Argentina	1 412 348	1 256 963	* 1 300 000	* 1 300 000	* 1 300 000
Bolivia	* 5 100	* 5 000	* 22 000	* 20 000	* 22 000
Brazil	700 467	464 330	534 278	609 801	621 278
Chile	10 476 823	9 574 159	8 565 307	10 501 352	10 721 181
Colombia					
Rock salt	376 309	409 976	370 318	379 081	374 873
Ecuador	* 75 000	* 75 000	* 75 000	* 75 000	* 75 000
Peru	1 266 347	1 030 598	1 175 828	1 093 559	1 008 624
Venezuela (b)	* 300 000	* 300 000	* 300 000	* 300 000	* 300 000
Afghanistan	114 245	10 627	3 300	21 663	80 448
Bangladesh (c)	1 564 037	1 582 623	1 640 703	* 16 000 000	* 16 000 000
Cambodia (b)(i)	* 30 000	* 104 000	* 75 000	32 900	81 154
China	62 708 000	58 526 800	57 065 100	53 598 800	52 568 000
India					
Rock salt	(j) 130	(j) 486	(j) 286	434	650
Sea salt (j)	24 152 400	21 352 200	* 21 000 000	* 21 330 000	* 21 000 000
Other salt (j)	3 905 800	5 211 700	* 5 200 000	* 4 600 000	* 4 600 000
Indonesia	* 2 300 000	* 1 400 000	* 1 100 000	900 000	2 500 000
Iran (k)	2 656 887	3 677 501	2 985 602	3 456 028	* 3 500 000
Iraq	* 475 000	* 300 000	* 57 600	* 60 000	* 60 000
Israel (b)	301 100	275 160	262 347	297 861	264 691
Japan (j)	903 000	874 000	855 000	897 000	792 000
Jordan	36 850	39 088	42 359	* 42 000	* 42 000

Production of salt

tonnes (metric)

Country	2019	2020	2021	2022	2023
Kazakhstan	1 094 659	1 237 455	1 231 996	1 678 469	1 859 206
Korea (Rep. of)	308 844	323 470	280 876	261 000	242 000
Korea, Dem. P.R. of	* 100 000	* 100 000	* 100 000	* 100 000	* 100 000
Kuwait	* 58 000	* 58 000	* 58 000	* 58 000	* 58 000
Laos	10 079	3 951	6 846	188	3 538
Lebanon (b)	* 15 000	* 15 000	* 15 000	* 15 000	* 15 000
Mongolia	533	2 624	1 349	394	1 780
Myanmar	213 319	229 755	161 774	138 413	215 185
Oman	15 000	11 700	10 700	11 500	7 300
Pakistan					
Rock salt (c)	3 799 106	3 368 978	3 365 665	2 014 238	2 907 400
Sea salt (c)(e)	213 198	114 754	226 540	* 212 000	* 210 000
Philippines (b)	* 993 000	* 993 000	* 993 000	* 993 000	* 993 000
Saudi Arabia					
Rock salt & brine salt	2 778 000	2 220 000	2 331 000	2 342 000	* 2 342 000
Sri Lanka	57 291	60 076	63 000	111 000	* 78 000
Syria	* 2 500	* 3 000	* 4 000	* 4 000	* 4 000
Taiwan	76 255	77 854	77 297	78 415	111 662
Tajikistan	35 496	37 023	26 898	31 111	44 171
Thailand					
Rock salt	1 580 390	1 439 877	1 563 970	1 737 090	1 392 649
Turkmenistan	* 97 100	96 480	* 96 200	96 480	* 96 500
Uzbekistan	281 827	292 721	409 766	270 228	333 347
Vietnam (b)	945 000	1 134 590	1 208 100	987 000	* 648 700
Yemen, Republic of	* 100 000	* 75 000	* 75 000	* 80 000	* 80 000
Australia (c)	12 489 275	11 960 778	13 002 595	12 170 827	12 216 505
New Zealand	75 000	60 000	76 000	18 000	—
World total	282 600 000	264 400 00	263 800 000	277 600 000	273 900 000

Note(s)

(1) This table does not include production of refined salt.

(2) Salt is known to be produced in many countries for which statistics are not available.

(a) Sales

(b) Sea salt

(c) Years ended 30 June of that stated

(d) Years ended 7 July of that stated

(e) Lake salt

(f) Exports

(g) Including salt in brine

(h) Sold or used by producers

(i) Seasons beginning in November and ending in May of the year stated

(j) Years ended 31 March following that stated

(k) Years ended 20 March following that stated

Production of refined selenium

tonnes (metric)

Country	2019	2020	2021	2022	2023
Armenia	* 20	* 20	* 20	* 20	* 20
Belgium	* 200	* 200	* 200	* 200	* 200
Finland	115	84	100	130	122
Germany (a)	* 300	* 300	* 200	* 200	* 300
Poland	76	74	66	82	58
Russia	184	190	* 194	* 190	* 190
Serbia	17	* 19	* 19	* 19	* 19
Sweden	19	10	10	10	* 4
Canada	57	102	* 100	* 110	* 120
Mexico	127	106	135	141	131
USA	144	66	112	116	85
Chile	* 90	* 100	* 100	* 100	* 100
Peru	40	53	36	* 40	* 40
China	1 358	* 1 200	* 1 260	* 1 290	* 1 500
Japan	740	740	750	* 750	* 750
Kazakhstan	* —	* —	* 12	* 24	* 24
Philippines	* 70	* 70	* 70	* 70	* 70

Note(s)

(1) In addition to the countries listed, Australia, Iran, the Republic of Korea and Zimbabwe are believed to produce refined selenium.

(a) Includes selenium produced from imported material

Production of sillimanite minerals

tonnes (metric)

Country	2019	2020	2021	2022	2023
France					
Andalusite	(a)* 68 000	(a)* 65 000	(b) 139 789	(b) 162 434	(b) 141 816
South Africa					
Andalusite	* 190 000	* 180 000	* 170 000	* 170 000	* 170 000
USA					
Kyanite (c)	91 300	67 100	105 000	85 900	82 400
India					
Kyanite	(d) 3 497	(d) 4 925	(d) 9 432	5 507	2 652
Sillimanite	(d) 13 236	(d) 11 110	(d) 3 432	1 828	910
Nepal					
Kyanite (e)	1	0	—	—	* 1

Note(s)

(1) A number of other countries produce sillimanite minerals but details of output are not reported.

(2) In addition to the countries listed above as producing sillimanite minerals, synthetic mullite is believed to be produced in Brazil, Germany and Hungary.

(3) Production capacity for synthetic mullite also exists in China, India, Japan, the USA and the United Kingdom but output is believed to be zero.

(a) May include other sillimanite minerals

(b) Andalusite, kyanite and sillimanite

(c) Including related minerals

(d) Years ended 31 March following that stated

(e) Years ending 15 July of that stated

Mine production of silver

kilograms (metal content)

Country	2019	2020	2021	2022	2023
Armenia	17 325	18 280	18 983	18 417	15 300
Azerbaijan	8 162	7 595	8 988	12 600	5 212
Bulgaria	40 755	39 128	* 40 700	* 26 300	* 23 400
Cyprus	97	(a) 486	—	—	—
Finland	40 461	54 833	42 736	36 359	43 887
Georgia	7 584	11 172	12 674	22 420	24 000
Germany	400	400	600	7 000	7 000
Greece	43 800	50 300	44 100	32 870	43 000
Ireland, Republic of	1 578	918	1 342	2 750	998
North Macedonia	11 707	11 488	* 15 000	* 15 300	* 16 000
Poland	1 455 000	1 423 000	1 522 000	1 533 000	1 532 000
Portugal	95 300	96 000	97 900	78 400	88 700
Romania	* 18 000	* 18 000	* 18 000	* 18 000	* 18 000
Russia (b)	1 533 000	1 457 000	1 517 000	1 567 000	1 536 000
Serbia (b)	* 14 500	* 15 900	* 11 600	* 10 900	* 10 000
Slovakia	295	269	328	354	400
Spain	77 501	92 751	80 848	58 235	88 796
Sweden	419 926	400 939	428 585	422 086	404 055
Turkey	242 000	98 270	162 670	143 260	96 130
United Kingdom	* 130	* 100	* 410	* 1 340	* 630
Algeria	* 50	—	12	* —	—
Botswana	—	—	10 383	31 174	42 955
Burkina Faso	* 7 700	10 012	* 9 900	7 300	7 900
Congo, Democratic Republic	* 3 400	* 3 400	* 3 400	* 3 400	* 3 400
Côte d'Ivoire	304	956	11 477	* 12 000	* 12 000
Eritrea	44 836	65 284	68 624	49 855	48 532
Ethiopia (c)	* 400	* 400	* 400	* 400	* 400
Ghana	* 4 000	* 1 000	* 1 000	* 1 000	* 1 000
Mali	* 2 700	* 2 800	* 3 000	* 3 000	* 3 000
Morocco	216 600	189 200	194 400	203 200	231 696
Namibia	6 221	6 982	5 330	5 200	* 5 200
Niger	31	12	87	* 29	* 30
Nigeria	—	—	—	* 200	277
Senegal	900	1 100	1 300	1 325	985
South Africa	55 903	38 118	37 147	45 704	41 929
Sudan	* 2 000	* 1 000	* 1 000	* 1 000	* 1 000
Tanzania	12 607	13 187	9 324	13 602	14 481
Zambia	7 212	* 9 000	* 9 000	* 9 000	* 7 000
Zimbabwe	1 493	* 1 522	2 677	1 545	1 550
Canada	398 773	306 913	300 272	289 645	306 263
Dominican Republic	108 685	87 889	79 687	73 413	52 042
Honduras	34 060	34 260	36 700	* 34 000	* 32 000
Mexico	7 485 602	7 424 554	6 492 180	7 067 580	7 277 840
Nicaragua	17 696	21 830	23 078	21 576	37 012
Panama	35 217	49 627	78 419	87 498	84 737
USA	981 000	1 080 000	1 020 000	1 010 000	* 1 000 000
Argentina	729 124	550 052	686 709	534 638	549 194
Bolivia	1 157 580	930 390	1 292 190	1 219 040	1 344 630
Brazil	* 68 400	* 68 400	* 71 500	* 74 700	* 102 600
Chile	1 309 321	1 575 794	1 383 041	1 274 363	1 262 287
Colombia	14 479	20 337	26 750	35 780	51 698
Ecuador	2 892	15 000	34 900	44 300	53 600
Peru	3 706 760	2 768 240	3 375 645	3 084 039	3 040 137
China	3 443 128	3 405 800	3 511 554	3 477 400	3 399 600
India	(d) 609 340	(d) 705 796	(d) 647 140	675 448	812 930
Indonesia	484 900	338 100	295 900	298 600	* 300 000
Iran	* 50 000	* 50 000	* 50 000	* 50 000	* 50 000
Japan	3 467	4 192	3 339	2 923	2 604
Kazakhstan	1 022 126	1 035 181	1 004 789	1 013 069	894 807
Korea (Rep. of)	5 245	5 739	10 001	4 434	2 670
Korea, Dem. P.R. of	* 50 000	* 50 000	* 50 000	* 50 000	* 50 000
Kyrgyzstan	19 000	16 100	16 500	17 400	* 15 400
Laos	34 443	28 672	25 797	21 345	18 322

Mine production of silver

kilograms (metal content)

Country	2019	2020	2021	2022	2023
Malaysia	686	422	672	481	625
Mongolia	* 69 400	* 70 200	* 72 900	* 65 400	* 76 700
Philippines	31 267	24 024	30 856	56 227	46 160
Saudi Arabia	5 588	6 493	8 604	* 9 464	* 9 500
Tajikistan	10 800	3 300	* 11 000	* 11 000	* 12 000
Thailand	—	—	—	—	10 409
Uzbekistan	189 700	196 000	211 500	217 700	239 500
Australia	1 325 089	1 337 344	1 329 718	1 169 252	1 032 993
Fiji	692	479	622	475	607
New Zealand	4 060	1 393	3 055	3 922	5 554
Papua New Guinea	157 927	128 886	102 115	111 700	* 140 000
Solomon Islands	—	—	—	—	220
World total	27 960 000	26 482 000	26 680 000	26 502 000	26 691 000

Note(s)

- (a) Production thought to be from stockpiles
- (b) Smelter and/or refinery production
- (c) Years ended 7 July of that stated
- (d) Years ended 31 March following that stated

Production of natural sodium carbonate

tonnes (metric)

Country	2019	2020	2021	2022	2023
Turkey	4 302 000	* 4 000 000	* 4 500 000	* 4 500 000	* 4 700 000
Botswana	269 119	238 476	261 838	285 215	262 052
Ethiopia (a)	1 406	* 1 500	* 1 500	* 1 500	* 1 500
Kenya	282 049	254 579	283 621	321 779	240 784
USA	11 700 000	9 990 000	11 300 000	11 300 000	10 900 000
China	29 864 600	28 123 700	29 132 500	29 202 100	32 624 000

Note(s)

- (a) Years ended 7 July of that stated

Production of strontium minerals

tonnes (metric)

Country	2019	2020	2021	2022	2023
Spain	162 327	121 920	281 535	246 706	72 585
Turkey	9 516	4 869	—	2 046	49 541
Mexico	39 215	59 079	30 283	50 100	66 532
Argentina (a)	* 700	* 700	* 700	* 700	* 700
China	83 600	83 500	* 80 000	* 80 000	* 80 000
Iran (b)	129 040	198 779	* 200 000	* 200 000	* 200 000

Note(s)

- (1) In addition to the countries listed, Germany is believed to produce strontium minerals.

- (a) May contain unbeneficiated material
- (b) Years ended 20 March following that stated

Production of sulfur and pyrites

tonnes (sulfur content)

Country	2019	2020	2021	2022	2023
Austria					
Recovered (a)	* 32 000	* 30 000	* 28 000	* 26 000	* 24 000
Belarus					
Recovered (a)	65 043	64 336	* 66 800	* 62 000	* 58 000
Belgium					
Recovered (b)(a)	* 400 000	* 400 000	* 400 000	* 400 000	* 400 000
Bosnia & Herzegovina					
Recovered	* 3 700	* 3 700	* 3 700	* 3 700	* 3 700
Bulgaria					
Recovered (b)	414 503	486 381	425 188	504 467	422 494
Recovered (a)	* 60 000	* 45 000	* 35 000	* 65 000	* 55 000
Croatia					
Recovered (a)	12 640	8 618	8 659	7 274	7 729
Czech Republic					
Recovered (a)	* 21 000	* 23 000	* 21 000	* 19 000	* 17 000
Denmark					
Recovered (a)	3 554	4 140	4 090	3 727	2 700
Finland					
Pyrites	233 000	194 000	182 000	143 000	* 140 000
Recovered (b)	327 300	358 700	338 400	341 100	314 600
Recovered (a)	* 130 000	* 120 000	* 120 000	* 120 000	* 120 000
France					
Recovered (a)	* 300 000	* 320 000	* 300 000	* 300 000	* 300 000
Recovered (c)	* 55 000	* 55 000	* 55 000	* 55 000	* 55 000
Germany					
Recovered (a)	460 012	353 293	382 049	370 664	276 876
Recovered (c)	280 660	213 398	235 769	227 281	167 783
Greece					
Recovered (a)	505 500	627 800	500 000	390 000	* 390 000
Hungary					
Recovered (a)	* 96 000	* 70 000	* 74 000	* 75 000	* 77 000
Italy					
Recovered (d)	* 480 000	* 610 000	* 550 000	* 500 000	* 480 000
Lithuania					
Recovered (a)	86 041	71 247	72 988	64 498	54 538
Netherlands					
Recovered (b)	* 100 000	* 100 000	* 100 000	* 100 000	* 100 000
Recovered (a)	* 410 000	* 380 000	* 390 000	* 400 000	* 400 000
Norway					
Recovered (b)	72 900	73 187	70 948	69 013	69 982
Recovered (a)	* 18 000	* 21 000	* 21 000	* 20 000	* 19 000
Poland					
Frasch	568 240	422 380	449 100	476 900	472 020
Recovered (b)	* 280 000	* 280 000	* 280 000	* 280 000	* 280 000
Recovered (a)	25 200	24 740	24 240	22 670	22 730
Portugal					
Recovered	* 21 000	* 21 000	* 21 000	* 21 000	* 21 000
Romania					
Recovered	* 48 000	* 47 000	* 45 000	* 42 000	* 40 000
Russia					
Pyrites	* 71 000	* 71 000	* 71 000	* 71 000	* 71 000
Recovered (a)	* 6 730 000	* 6 140 000	* 6 270 000	* 6 420 000	* 6 500 000
Recovered (c)	* 954 000	* 954 000	* 954 000	* 954 000	* 954 000
Sulfur ore	57 427	* 28 000	* 28 000	* 28 000	* 28 000
Serbia					
Recovered (b)	* 29 400	* 29 400	* 29 400	* 29 400	* 29 400
Slovakia					
Recovered (b)	* 4 900	* 4 900	* 4 900	* 4 900	* 4 900
Recovered (a)	* 20 000	* 15 000	* 25 000	* 15 000	* 5 000
Sweden					
Recovered (b)	178 401	165 500	172 700	179 900	185 100
Recovered (a)	50 021	39 085	38 248	28 170	* 28 000
Turkey					
Pyrites	173 731	46 408	39 681	41 788	39 929
Recovered (a)(c)	* 85 000	* 92 000	* 98 000	* 102 000	* 117 000
United Kingdom					
Recovered (a)	131 000	107 000	109 000	123 000	114 000

Production of sulfur and pyrites

tonnes (sulfur content)

Country	2019	2020	2021	2022	2023
Algeria					
Recovered (a)	* 14 000	* 12 000	* 12 000	* 13 000	* 13 000
Egypt					
Recovered (a)	78 787	* 68 000	* 64 000	* 65 000	* 65 000
Libya					
Recovered (a)	169 500	133 300	139 000	139 500	138 200
Morocco					
Recovered	* 60 000	* 60 000	* 60 000	* 60 000	* 60 000
Namibia					
Recovered	72 923	81 500	65 500	* 64 700	63 900
South Africa					
Recovered (b)(a)	919 624	575 491	32 044	70 640	63 695
Zambia					
Recovered (b)	960 200	917 300	691 900	640 800	* 600 000
Canada					
Recovered (b)	520 000	554 746	* 555 000	* 550 000	* 550 000
Recovered (a)	6 418 000	4 349 262	4 193 003	4 348 607	4 431 431
Cuba					
Recovered	3 234	3 176	2 846	2 951	2 653
Recovered (a)	* 20 000	* 20 000	* 20 000	* 20 000	* 20 000
Mexico					
Recovered (b)	* 556 000	* 556 000	* 556 000	* 556 000	* 556 000
Recovered (a)	364 967	315 935	182 871	290 121	255 452
Trinidad & Tobago					
Recovered (a)	* 11 000	* 11 000	* 11 000	* 11 000	* 10 000
USA					
Recovered (b)	596 000	579 000	600 000	636 000	640 000
Recovered (a)	7 789 000	7 029 000	692 000	7 490 000	760 000
Argentina					
Recovered (b)	* 20 000	* 20 000	* 20 000	* 20 000	* 20 000
Brazil					
Pyrites	* 20 000	* 20 000	* 20 000	* 20 000	* 20 000
Recovered (b)	* 292 000	* 292 000	* 292 000	* 292 000	* 292 000
Recovered (a)	* 239 000	* 239 000	* 239 000	* 239 000	* 239 000
Chile					
Recovered (b)	1 263 119	1 476 154	1 400 388	1 334 713	1 258 888
Colombia					
Recovered (a)	* 6 700	* 5 900	* 5 600	* 5 700	* 5 800
Ecuador					
Recovered (a)(e)	* 6 000	* 5 500	* 5 400	* 5 500	* 5 400
Peru					
Recovered (d)	* 556 000	* 556 000	* 556 000	* 556 000	* 556 000
Venezuela					
Recovered (a)	* 165 000	* 110 000	* 110 000	* 115 000	* 135 000
Bahrain					
Recovered (a)	* 120 000	* 120 000	* 110 000	* 110 000	* 110 000
China					
Pyrites	5 700 000	5 240 000	* 5 200 000	* 5 200 000	* 5 200 000
Recovered	13 360 000	18 850 000	* 18 800 000	* 18 800 000	* 19 000 000
India					
Recovered (b)(f)	* 1 200 000	* 1 200 000	* 1 200 000	* 1 200 000	* 1 200 000
Recovered (a)	(f) 900 942	(f) 737 337	(f) 880 858	926 270	981 260
Indonesia					
Recovered (b)	* 160 000	* 160 000	* 160 000	* 160 000	* 160 000
Recovered (a)	* 100 000	* 95 000	* 85 000	* 80 000	* 80 000
Iran					
Recovered (d)	* 1 800 000	* 1 700 000	* 1 900 000	* 2 000 000	* 2 400 000
Iraq					
Recovered (a)	* 234 200	* 208 800	* 200 800	* 221 300	* 213 000
Israel					
Recovered (a)	70 973	45 184	43 664	* 40 000	* 40 000
Japan					
Recovered (b)	1 629 656	1 728 654	1 575 032	1 655 704	1 535 117
Recovered (a)	1 629 365	1 411 860	1 420 094	1 542 244	1 367 438

Production of sulfur and pyrites

tonnes (sulfur content)

Country	2019	2020	2021	2022	2023
Jordan					
Recovered (a)	* 490 000	* 490 000	* 490 000	* 490 000	* 490 000
Kazakhstan					
Recovered (b)	* 604 000	* 604 000	* 604 000	* 604 000	* 604 000
Recovered (a)	* 2 628 000	* 2 486 000	* 2 492 000	* 2 445 000	* 2 612 000
Korea (Rep. of)					
Recovered (b)	* 1 078 000	* 1 078 000	* 1 078 000	* 1 078 000	* 1 078 000
Recovered (a)	1 999 000	2 000 000	2 000 000	2 000 000	* 2 000 000
Kuwait					
Recovered (a)	* 860 000	* 787 000	* 780 000	* 875 000	* 839 000
Oman					
Recovered (a)	* 48 300	* 47 300	* 48 400	* 53 000	* 52 200
Pakistan					
Sulfur ore (g)	20 715	19 948	19 398	12 442	11 690
Philippines					
Recovered (b)	* 169 000	* 169 000	* 169 000	* 169 000	* 169 000
Recovered (a)	* 30 300	* 26 400	* 22 600	* 20 700	* 15 250
Qatar					
Recovered (a)	* 1 373 700	* 1 371 800	* 1 345 200	* 1 381 300	* 1 407 900
Saudi Arabia					
Recovered (a)	* 3 896 000	* 3 637 000	* 3 605 000	* 4 019 000	* 3 722 000
Singapore					
Recovered (a)	* 300 000	* 300 000	* 300 000	* 300 000	* 300 000
Syria					
Recovered (a)	* 4 000	* 5 000	* 5 000	* 5 000	* 5 000
Taiwan					
Recovered	195 358	167 336	192 227	162 571	122 238
Thailand					
Recovered (a)	* 60 200	* 37 300	* 49 200	* 41 000	* 39 700
Turkmenistan					
Recovered (a)	* 263 000	* 216 000	* 252 000	* 244 000	* 193 000
United Arab Emirates					
Recovered (a)	* 2 523 000	* 2 318 000	* 2 300 000	* 2 500 000	* 2 500 000
Uzbekistan					
Recovered (b)	* 131 000	* 131 000	* 131 000	* 131 000	* 131 000
Recovered (a)	* 303 000	* 216 000	* 227 000	* 227 000	* 216 000
Australia					
Recovered (b)	* 810 000	* 810 000	* 810 000	* 810 000	* 810 000
Recovered (a)	* 65 000	* 60 000	* 60 000	* 55 000	* 50 000
New Zealand					
Recovered (a)	* 19 000	* 16 000	* 14 000	* 12 000	* 14 000
World total					
Pyrites	6 200 000	5 600 000	5 500 000	5 500 000	5 500 000
Frasch	600 000	400 000	400 000	500 000	500 000
Recovered	73 000 000	73 600 000	66 100 000	74 200 000	67 300 000
Sulfur	80 000	50 000	50 000	40 000	40 000

Note(s)

(1) In addition to the countries listed Dem. P.R. of Korea may also produce pyrites and may recover sulfur from metal processing; Ukraine may also produce sulfur.

- (a) From petroleum refining and/or natural gas
- (b) From metal sulphide processing
- (c) Other
- (d) Sulfur; all forms
- (e) Including frasch
- (f) Years ended 31 March following that stated
- (g) Years ended 30 June of that stated

Production of talc

tonnes (metric)

Country	2019	2020	2021	2022	2023
Austria	124 184	123 000	157 493	157 047	138 621
Finland	329 891	278 331	296 833	241 538	197 116
France	* 350 000	* 320 000	* 320 000	* 320 000	* 320 000
Italy	* 170 000	* 165 000	* 170 000	* 170 000	* 170 000
Portugal	12 901	9 751	8 277	4 273	* 4 500
Russia	48 000	104 000	* 50 000	* 50 000	* 50 000
Slovakia	70 000	91 670	99 920	121 000	118 000
Spain	13 100	2 920	651	—	—
Turkey					
Talc	3 742	14 178	33 118	43 196	12 571
Pyrophyllite	88 335	129 290	187 232	—	220 357
United Kingdom	3 131	1 386	1 397	2 795	3 824
Egypt (a)	* 22 000	* 20 000	* 15 000	* 20 000	* 20 000
Nigeria	3 414	9 751	65 061	65 000	64 400
South Africa					
Talc	979	—	—	—	614 028
Pyrophyllite	134 451	92 318	270 944	438 698	319 775
Sudan	1 500	* 2 000	4 500	* 4 500	* 2 000
Canada (b)	255 000	153 293	* 160 000	* 150 000	* 150 000
Guatemala	10	3 151	2 111	1	—
Mexico	7 202	29 122	36 465	34 630	20 534
USA	578 000	491 000	577 000	511 000	* 510 000
Argentina	* 11 700	* 11 000	* 11 000	* 11 000	* 11 000
Brazil (c)	650 000	650 000	650 000	650 000	* 650 000
Colombia (c)	1 708	717	3 170	5 222	1 690
Peru					
Talc	18 935	17 418	23 039	23 298	16 019
Pyrophyllite	25 039	20 519	27 316	26 571	37 875
Uruguay (d)	50	520	570	1 160	150
Bhutan	1 375	972	678	740	* 700
China	1 356 900	1 099 800	* 1 100 000	* 1 100 000	* 1 100 000
India					
Pyrophyllite (d)	* 39 000	* 39 000	* 39 000	* 39 000	* 39 000
Steatite (d)	* 1 600 000	* 1 600 000	* 1 600 000	* 1 600 000	* 1 600 000
Iran (e)	45 100	59 155	74 537	93 535	* 95 000
Japan					
Talc	* 10 000	* 10 000	* 10 000	* 10 000	* 10 000
Pyrophyllite	* 144 000	* 116 000	* 135 000	* 136 000	* 140 000
Korea (Rep. of)					
Talc	2 626	1 600	2 091	913	2 900
Pyrophyllite	327 624	474 164	353 013	196 864	304 856
Nepal (f)	3 463	4 931	4 450	2 113	* 5 000
Pakistan (a)	158 109	150 009	289 423	301 000	* 300 000
Saudi Arabia					
Pyrophyllite	96 000	61 000	167 000	175 000	* 175 000
Taiwan	6	—	43	—	—
Thailand					
Talc	8 064	6 624	5 920	—	—
Pyrophyllite	6 500	31 522	26 030	30 369	32 484
Australia	* 167 000	* 131 000	* 105 000	* 131 000	* 141 000
World total	6 900 000	6 500 000	7 000 000	6 900 000	7 600 000

Note(s)

(1) In addition to the countries listed, pyrophyllite may be produced in Vietnam.

(a) Years ended 30 June of that stated

(b) Including pyrophyllite

(c) Including talc, agalmatolite and pyrophyllite

(d) Years ended 31 March following that stated

(e) Years ended 20 March following that stated

(f) Years ended 15 July of that stated

Production of tantalum and niobium minerals

tonnes (metric)

Country	2019	2020	2021	2022	2023
Russia					
Nb content	461	431	454	373	362
Ta content	26	49	34	17	29
Spain					
Ta content	12	11	12	16	20
Burundi					
Columbite-tantalite	22	21	42	10	6
Nb content	9	8	16	4	2
Ta content	3	3	7	2	1
Congo, Democratic Republic					
Columbite-tantalite	1 256	1 712	2 422	* 2 500	* 2 500
Nb content	369	503	711	* 734	* 734
Ta content	360	491	694	* 717	* 717
Ethiopia					
Nb content (a)	* 7	* 7	* 12	* 15	* 15
Ta content (a)	* 25	* 10	* 19	* 19	* 19
Mozambique					
Tantalite	132	209	178	211	205
Ta content	65	103	88	104	101
Nigeria					
Columbite	1 721	* 1 700	1 378	* 1 400	1 860
Nb content	670	* 662	537	* 545	724
Ta content	266	* 263	213	* 217	288
Tantalite	1	* 1	44	4	5
Ta content	1	* 1	22	2	2
Rwanda					
Columbite-tantalite (b)(c)	1 519	1 201	1 118	1 116	1 682
Nb content	591	468	435	435	655
Ta content	235	186	173	173	260
Uganda					
Columbite-tantalite	7	173	404	* 400	* 400
Nb content	3	69	161	* 159	* 159
Ta content	1	21	50	* 49	* 49
Zimbabwe					
Columbite-tantalite	7	4	—	—	—
Nb content	3	2	—	—	—
Ta content	1	1	—	—	—
Canada					
Pyrochlore	* 12 600	* 11 900	* 13 900	* 12 100	* 8 500
Nb content	* 4 800	* 4 500	* 5 200	* 4 500	* 3 240
Bolivia					
Tantalite	* 40	* 40	* 2	* 9	* 4
Ta content	* 20	* 20	* 1	* 4	* 2
Brazil					
Columbite	10 691	10 340	11 201	10 978	10 977
Nb content	3 737	3 614	3 915	3 837	3 837
Pyrochlore	228 885	154 048	198 777	200 940	207 208
Nb content	86 402	58 152	75 036	76 896	76 896
Tantalite	414	380	419	—	—
Ta content	64	59	65	—	—
China					
Columbite-tantalite	* 304	* 296	* 304	* 300	* 316
Nb content	* 118	* 115	* 118	* 117	* 123
Ta content	* 47	* 46	* 47	* 46	* 49
Malaysia					
Struverite	12	9	—	35	49
Ta content	1	1	—	3	5
Australia					
Tantalite	247	153	213	184	159
Ta content	121	75	105	90	78

Production of tantalum and niobium minerals

tonnes (metric)

Country	2019	2020	2021	2022	2023
World total					
Nb content	98 800	69 700	90 000	87 300	86 400
Ta content	1 200	1 300	1 500	1 400	1 600

Note(s)

- (1) Niobium and tantalum minerals are also believed to be produced in Namibia and South Africa.
- (2) The figures in this table refer to gross tonnage of tantalum and niobium concentrates, except where noted.
- (3) Tantalum is also recovered from tin slags and this is believed to have accounted for approximately 20% of raw material supplied.
- (4) The figures in this table include artisanal mining, where data are available.

- (a) Years ended 7 July of that stated
- (b) Years ended 30th June of that stated
- (c) Exports

Production of refined tellurium

tonnes (metric)

Country	2019	2020	2021	2022	2023
Bulgaria	3	4	3	3	1
Russia	50	55	* 56	* 70	* 75
Sweden	41	42	41	33	36
Canada	* 15	23	* 25	* 25	* 27
China	461	330	* 330	* 380	* 430
Japan	50	70	75	* 75	* 75
Uzbekistan	* 50	* 50	48	3	* 3

Note(s)

- (1) In addition to the countries listed, Germany and Belgium are believed to produce refined tellurium.

Mine production of tin

tonnes (metal content)

Country	2019	2020	2021	2022	2023
Portugal	108	104	60	60	* 70
Russia	2 264	2 539	2 908	2 901	3 003
Spain	101	115	220	314	348
Burundi	143	121	124	99	88
Congo, Democratic Republic	10 991	14 673	15 963	20 420	18 460
Namibia	4	284	470	513	881
Nigeria	7 020	5 848	6 900	8 121	6 863
Rwanda (a)(b)	2 688	1 728	2 158	2 290	2 799
Tanzania	18	35	158	404	316
Uganda	15	—	2	—	—
Bolivia	17 122	14 709	19 669	17 557	18 515
Brazil	18 684	16 634	8 203	9 799	25 121
Colombia	22	10	—	—	—
Peru (c)	19 853	20 647	26 995	28 231	26 230
China	85 840	94 463	83 144	67 365	* 66 500
India	(d) 12	(d) 13	(d) 20	28	24
Indonesia	86 947	65 127	52 467	57 735	50 669
Korea (Rep. of)	17	1	1	—	—
Laos	526	601	891	1 130	785
Malaysia	3 611	2 963	3 013	3 521	3 953
Mongolia (e)	* 20	* 20	* 9	* 46	* 17
Myanmar	* 50 000	* 36 000	* 32 000	48 838	47 081
Thailand	46	194	216	84	48
Vietnam	6 071	7 260	7 666	8 139	9 079
Australia	7 738	8 118	8 772	9 001	9 852
World total	320 000	292 000	272 000	287 000	291 000

Note(s)

(1) The figures in this table include artisanal mining, where data are available.

(a) Years ended 30 June of that stated

(b) Exports

(c) Recoverable

(d) Years ended 31 March following that stated

(e) Estimates based on reported exports

Smelter production of tin

tonnes (metric)

Country	2019	2020	2021	2022	2023
Belgium	9 296	8 980	9 998	8 200	9 310
Poland	4 099	3 915	4 617	4 275	3 988
Russia	1 650	1 650	2 600	2 400	* 2 500
Congo, Democratic Republic	—	—	—	—	880
Rwanda	92	547	395	643	782
Bolivia (a)	15 111	10 414	16 258	14 834	14 899
Brazil	* 16 000	* 16 000	* 16 389	17 189	15 394
Peru	19 555	19 585	25 947	26 647	25 398
China	182 772	202 910	200 488	* 200 500	* 198 000
Indonesia	73 567	41 511	69 086	50 318	40 427
Japan	1 547	1 558	1 878	1 540	1 765
Malaysia	25 752	22 325	16 619	19 385	20 722
Taiwan	* 3 800	* 3 700	* 4 000	* 4 200	* 4 200
Thailand	9 597	11 307	12 069	9 526	9 180
Vietnam	* 5 500	* 5 500	* 5 500	* 5 500	* 6 000
Australia	99	112	73	106	114
World total	368 000	350 000	386 000	365 000	354 000

Note(s)

(1) Figures relate to both primary and secondary metal.

(2) In addition to the countries listed, many countries produce small amounts of secondary metal.

(a) Refined, including alloys

Production of titanium minerals

tonnes (metric)

Country	2019	2020	2021	2022	2023
Norway					
Ilmenite	546 000	517 000	545 000	492 000	401 000
Russia					
Ilmenite	—	—	1 961	1 532	1 603
Turkey					
Rutile	6 450	6 795	7 451	7 226	—
Ukraine					
Ilmenite	818 543	773 093	702 249	* 410 000	* 130 000
Rutile	* 115 500	* 110 500	* 100 300	* 58 600	* 18 600
Gambia					
Ilmenite	* 9 000	* 6 000	* 14 000	* 12 000	* 35 000
Kenya					
Ilmenite	352 000	334 900	345 000	188 000	192 000
Rutile	85 796	72 836	69 844	163 242	67 604
Madagascar					
Ilmenite (a)	461 800	424 000	582 000	545 000	* 613 200
Rutile	5 947	* 6 000	* 6 000	* 6 000	* 6 000
Mozambique					
Ilmenite	892 900	756 000	1 119 400	1 088 334	986 300
Rutile	8 278	5 957	8 914	8 870	8 400
Nigeria					
Ilmenite	* —	* —	30	3 062	25 637
Senegal					
Ilmenite	491 602	505 000	543 061	498 000	421 000
Leucoxene (b)	10 130	9 500	11 395	10 487	8 023

Production of titanium minerals

tonnes (metric)

Country	2019	2020	2021	2022	2023
Sierra Leone					
Ilmenite	63 350	50 963	53 802	58 610	41 040
Rutile	136 790	116 569	131 311	135 818	100 970
South Africa					
Ilmenite (c)	1 100 000	1 020 000	1 000 000	900 000	* 1 000 000
Rutile	110 000	86 000	95 000	100 000	* 100 000
Canada					
Ilmenite (d)(c)	* 2 100 000	* 1 900 000	* 1 700 000	* 2 100 000	* 1 900 000
USA	100 000	* 100 000	* 200 000	* 300 000	* 300 000
Brazil					
Ilmenite (e)	90 070	61 848	132 998	17 369	21 298
China					
Ilmenite	4 600 000	5 442 000	5 714 000	* 6 300 000	* 3 100 000
India					
Ilmenite (f)	* 265 000	* 265 000	* 265 000	* 265 000	* 265 000
Rutile (f)	* 11 000	* 11 000	* 11 000	* 11 000	* 11 000
Kazakhstan	* 10 000	* 8 000	* 10 000	* 15 000	* 14 000
Korea (Rep. of)					
Ilmenite	295 987	287 895	322 581	137 976	645 949
Malaysia					
Ilmenite	2 334	2 548	4 598	24 083	14 096
Rutile	5 947	5 136	11 513	8 359	3 708
Saudi Arabia					
Ilmenite	* 100	* 2 800	* 3 700	* 9 700	* 12 000
Sri Lanka					
Ilmenite	43 789	18 016	49 068	29 741	53 856
Rutile	1 959	1 311	1 881	740	2 150
Thailand					
Ilmenite	5 095	153	66	2	—
Vietnam					
Ilmenite	216 700	268 800	300 000	331 500	* 220 200
Australia					
Ilmenite (g)	596 288	634 165	519 875	496 805	502 360
Rutile (g)	154 507	156 389	138 906	99 995	177 961
Leucoxene (g)	46 743	79 058	31 754	38 453	38 617
World total					
Ilmenite (wt of concs)	13 100 000	13 400 000	14 100 000	14 200 000	10 900 000
Rutile (wt of concs)	600 000	600 000	500 000	600 000	500 000
All forms (TiO ₂ content)	6 900 000	7 000 000	7 300 000	7 400 000	5 700 000

Note(s)

- (1) The figures in this table refer to gross tonnage of titanium concentrates.
(2) Some ilmenite is converted to synthetic rutile in Australia, India, Japan and USA.

- (a) Exports
(b) Including natural rutile
(c) It is believed that the majority of this is processed into slag
(d) Canada produces some ilmenite which is sold as such and not processed into slag, but tonnages are small
(e) Including synthetic rutile
(f) Years ended 31 March following that state
(g) Years ended 30 June of that stated

Mine production of tungsten

tonnes (metal content)

Country	2019	2020	2021	2022	2023
Austria	892	896	919	910	835
Portugal (a)	518	535	502	448	* 500
Russia	2 433	2 274	2 143	1 846	* 1 900
Spain	414	238	643	741	897
Burundi	150	167	120	77	69
Congo, Democratic Republic	246	137	127	148	418
Nigeria	15	* 13	21	20	50
Rwanda (b)(c)	1 303	956	1 281	1 808	1 786
Uganda	110	9	32	48	30
Mexico	15	32	40	50	50
Bolivia	813	1 030	1 194	1 038	1 150
Brazil	306	257	301	302	284
China	75 452	* 76 000	* 75 000	* 75 000	* 62 000
Korea, Dem. P.R. of	* 1 100	* 400	* 500	* 1 500	* 1 600
Kyrgyzstan	* 100	* 100	* 100	* 100	* 100
Malaysia	...	...	4	24	97
Mongolia	* 460	* 40	* 160	* 210	* 320
Myanmar (d)	220	118	71	64	* 20
Thailand	(a) 45	(e) 70	(e) 72	(e) 74	(e) 40
Uzbekistan	2	2	2	1	16
Vietnam	4 816	8 066	15 858	15 477	12 227
Australia (b)	30	* 100	160	285	284
World total	89 400	91 400	99 300	100 200	85 700

Note(s)

(1) In addition to the countries listed, the USA is known to produce tungsten.

(2) The figures in this table include artisanal mining, where data are available.

(a) Wolframite and scheelite

(b) Years ended 30 June of that stated

(c) Exports

(d) Including tungsten content of tin-tungsten concentrates

(e) Scheelite

Mine production of uranium

tonnes (metal content)

Country	2019	2020	2021	2022	2023
Czech Republic	33	29	27	21	13
Germany	24	8	—	—	—
Russia	2 911	2 846	2 635	2 508	2 710
Ukraine	801	744	455	100	* 100
Namibia	5 622	5 413	5 754	5 612	6 987
Niger	2 863	2 991	2 282	2 020	* 1 000
South Africa	163	124	153	188	275
Canada	6 979	3 613	4 768	7 368	11 373
USA	58	6	8	75	* 75
Brazil	—	15	29	43	* 40
China	1 885	1 885	* 1 600	* 1 700	* 1 700
India	308	400	615	* 600	* 600
Iran	* 71	* 71	* 21	* 20	* 20
Kazakhstan	22 808	19 477	21 819	21 227	* 21 000
Pakistan	* 45	* 45	* 45	* 45	* 45
Uzbekistan	* 3 500	* 3 500	* 3 520	* 3 300	* 3 300
Australia	6 552	6 168	3 794	4 703	5 199
World total	54 600	47 300	47 500	49 500	54 400
World total (U ₃ O ₈ equivalent)	64 400	55 800	56 000	58 400	64 200

Note(s)

(1) Excluding uranium production from decommissioning operations.

Mine production of vanadium

tonnes (metal content)

Country	2019	2020	2021	2022	2023
Russia	18 380	19 533	20 058	* 20 000	* 20 000
South Africa	14 858	14 421	15 424	8 870	* 9 100
USA	460	17	—	—	—
Brazil	5 923	6 622	5 779	10 436	5 421
China	60 000	70 200	70 300	66 900	* 68 000
India (a)	400	400	400	* 400	* 400
World total	100 000	111 000	112 000	107 000	103 000

Note(s)

(1) This table includes vanadium in slag products but excludes vanadium recovered as a by-product of the refining and burning of heavy oils.

(a) Years ending 31 March following that stated

Production of vermiculite

tonnes (metric)

Country	2019	2020	2021	2022	2023
Bulgaria	* 10 500	* 10 000	* 10 000	* 10 000	* 10 000
Russia	29 266	29 900	28 510	* 29 000	* 29 000
Turkey	1 370	19 230	3 300	21 230	10 500
Kenya	* 400	* 400	* 400	* 400	* 400
South Africa	158 013	118 223	217 109	171 898	169 797
Uganda	9 674	14 170	21 754	22 947	* 23 000
Zimbabwe	25 704	26 388	27 713	26 380	28 276
Mexico	148	104	—	—	76
USA (a)	* 100 000	* 100 000	* 100 000	* 100 000	* 100 000
Brazil	50 000	* 50 000	* 50 000	* 50 000	* 50 000
China	* 31 000	* 35 000	* 39 000	* 39 000	* 39 000
India	(b) 2 774	(b) 1 260	(b) 3 061	2 091	1 537
Uzbekistan	* 2 000	* 2 000	* 2 000	* 3 000	* 3 000

Note(s)

(a) Sold or used by producers

(b) Years ended 31 March following that stated

Production of wollastonite

tonnes (metric)

Country	2019	2020	2021	2022	2023
Finland	* 11 000	* 11 000	* 11 000	* 11 000	* 11 000
Spain	7 165	17 412	17 246	18 741	23 456
Mexico	159 498	131 518	200 588	162 410	154 934
USA	* 50 000	* 40 000	* 50 000	* 50 000	* 50 000
China	* 890 000	* 890 000	* 890 000	* 900 000	* 900 000
India	(a) 124 657	(a) 103 902	(a) 108 383	104 294	115 458
Australia (b)	—	2 426	4 495	2 000	2 000

Note(s)

(1) In addition to the countries listed, Canada also produces wollastonite (since 2014).

(a) Years ended 31 March following that stated

(b) Years ended 30 June of that stated

Mine production of zinc

tonnes (metal content)

Country	2019	2020	2021	2022	2023
Armenia	6 743	7 758	6 904	5 967	5 305
Bosnia & Herzegovina	6 440	4 849	5 309	5 629	5 900
Bulgaria	14 570	15 689	14 556	13 762	14 195
Finland	70 068	61 216	57 726	62 433	58 387
Georgia	875	2 243	2 059	4 412	4 602
Greece	22 298	28 037	22 598	10 502	16 600
Ireland, Republic of	122 500	127 008	112 249	103 300	53 327
Kosovo	3 089	3 909	4 513	2 776	2 730
Montenegro	9 518	10 133	9 357	9 038	7 638
North Macedonia	31 041	31 748	30 074	29 625	27 884
Poland	37 645	39 500	40 388	6 300	5 000
Portugal	161 569	176 849	187 703	182 262	184 000
Romania	* 1 300	* 100	* 2 500	1 033	878
Russia	275 400	260 700	287 900	304 250	305 000
Serbia	6 900	6 500	6 400	* 6 500	* 10 000
Slovakia	119	96	25	95	90
Spain	90 980	90 368	90 481	82 963	89 219
Sweden	247 657	234 811	236 416	233 958	217 596
Turkey	146 800	136 300	180 600	* 186 000	187 900
Algeria	1 000	1 600	500	900	200
Burkina Faso	95 611	73 543	74 295	23 200	—
Congo	* 4 800	1 100	* 10 000	* 20 000	20 000
Congo, Democratic Republic	6 134	15 305	16 079	13 578	11 287
Eritrea	121 260	121 930	129 641	120 529	116 829
Morocco	43 600	35 800	40 200	* 35 000	33 000
Namibia	53 392	47 920	43 348	41 426	38 795
Nigeria	* 23 500	* 19 600	* 29 004	* 20 000	* 18 000
South Africa	125 157	160 816	193 785	224 356	197 630
Zambia	—	245	500	400	400
Canada	323 019	371 491	230 187	180 256	99 789
Cuba	* 57 800	* 57 700	* 45 000	* 52 000	* 60 000
Dominican Republic	5 527	2 361	4 896	5 485	10 837
Honduras	29 223	* 27 000	* 32 000	28 200	* 30 000
Mexico	859 194	1 008 252	742 926	877 000	744 285
USA	753 000	723 000	704 000	763 000	* 618 400
Argentina	16 407	8 569	6 187	3 893	3 233
Bolivia	529 115	359 695	499 536	518 480	491 768
Brazil	163 000	173 167	157 778	150 897	190 928
Chile	5 620	28 662	27 915	24 092	22 059
Peru	1 382 753	1 334 570	1 533 135	1 369 649	1 468 994
China	3 685 800	4 058 000	4 136 000	4 041 000	3 266 000
India	(a) 723 412	(a) 756 998	(a) 797 044	832 194	853 507
Indonesia	* 26 200	* 17 420	* 15 151	11 400	10 400
Iran	209 900	215 200	195 100	228 700	* 235 000
Kazakhstan	321 900	341 400	318 400	315 100	352 900
Korea (Rep. of)	4 106	4 252	4 371	3 959	807
Korea, Dem. P.R. of	* 30 000	* 28 000	* 28 000	* 28 000	* 23 300
Laos	* 1 200	* 250	* 6 300	* 18 000	* 7 000
Mongolia	41 550	38 150	37 600	199 800	201 450
Myanmar (b)	25 960	6 755	9 800	10 200	8 800
Pakistan	37 365	35 054	35 391	42 349	41 300
Saudi Arabia	18 900	50 819	53 360	51 013	* 23 500
Tajikistan	78 148	48 416	70 573	59 056	45 071
Uzbekistan	37 000	41 000	42 000	42 900	44 100
Vietnam	* 12 000	* 12 000	* 12 000	* 14 000	* 20 000
Australia	1 337 321	1 314 910	1 315 160	1 237 473	1 094 398
World total	12 400 000	12 800 000	12 900 000	12 900 000	11 600 000

Note(s)

(a) Years ended 31 March following that stated

(b) Years ending 30 September of that stated

Production of slab zinc

tonnes (metric)

Country	2019	2020	2021	2022	2023
Belgium (a)	270 708	278 004	281 886	240 151	199 293
Bulgaria	73 512	74 520	72 418	72 527	72 324
Finland	290 844	297 257	292 648	294 122	293 960
France	142 000	166 000	165 000	109 300	123 100
Germany	182 000	161 000	165 100	134 900	300
Italy	132 900	126 100	179 800	108 100	120 000
Netherlands	* 240 000	* 260 000	* 281 700	* 209 100	* 238 900
Norway	195 374	191 576	180 323	181 139	164 142
Poland	159 436	160 300	164 700	161 900	152 300
Russia	206 700	211 800	197 000	389 700	204 010
Spain	507 900	504 100	508 800	* 505 000	519 600
Algeria	543	849	383	800	1 000
Namibia	64 985	16 206	—	—	—
Canada	653 194	678 558	640 718	587 000	504 200
Mexico	388 588	363 383	357 038	337 020	352 767
USA	115 000	180 000	220 000	220 000	* 220 000
Brazil	241 900	247 000	237 600	233 700	230 500
Peru	356 925	318 619	340 200	349 500	346 100
China	6 236 423	6 424 876	6 561 000	6 802 000	7 152 000
India	(a) 688 282	(a) 715 445	(a) 775 808	683 903	748 255
Iran	180 000	170 000	185 000	195 000	* 195 000
Japan	526 717	501 146	517 221	516 638	484 687
Kazakhstan	318 399	311 322	300 886	532 537	279 906
Korea (Rep. of)	973 000	994 047	960 000	980 000	* 980 000
Korea, Dem. P.R. of	* 15 000	* 15 000	* 15 000	* 15 000	* 15 000
Uzbekistan	67 844	72 993	90 020	90 050	75 440
Vietnam	11 600	* 12 000	12 500	12 500	* 13 000
Australia	435 977	447 250	461 601	385 029	467 045
World total	13 700 000	13 900 000	14 200 000	14 300 000	14 200 000

Note(s)

(a) Years ended 31 March following that stated

Production of zirconium minerals

tonnes (metric)

Country	2019	2020	2021	2022	2023
Russia (a)	6 300	6 000	6 650	5 600	* 5 600
Ukraine	* 22 000	* 22 000	* 22 000	* 10 000	* —
Gambia	* 3 000	* —	* —	* 4 000	* 4 000
Kenya	48 356	32 224	25 928	90 698	21 094
Madagascar (b)	28 500	25 300	23 100	26 800	* 34 400
Mozambique	87 181	78 138	100 158	103 553	96 800
Nigeria	* 500	* 400	* 3 530	* 600	* 600
Senegal	58 432	59 000	64 000	57 000	48 000
Sierra Leone	8 500	6 600	4 100	2 437	2 768
South Africa	370 000	280 000	320 000	320 000	* 400 000
USA	* 80 000	* 40 000	* 35 000	* 40 000	* 40 000
Brazil (c)	17 136	10 994	43	6 513	8 397
China	* 33 500	* 40 000	* 35 000	* 50 000	* 50 000
India (d)	* 12 000	* 10 000	* 10 000	* 10 000	* 10 000
Indonesia (e)	* 73 000	* 64 000	* 54 000	* 97 000	* 95 000
Malaysia	449	157	1 518	768	704
Sri Lanka	917	419	400	267	556
Vietnam	* 6 200	* 11 000	* 30 000	* 17 000	* 18 000
Australia (f)	499 335	434 339	427 565	493 992	462 126
World total	1 400 000	1 100 000	1 200 000	1 300 000	1 300 000

Note(s)

(1) In this table the term 'zirconium minerals' is understood to mean zircon, unless otherwise stated.

(a) Baddeleyite concentrate

(b) Exports

(c) Including caldasite rock containing zircon and baddeleyite

(d) Years ending 31 March following that stated

(e) Conservative BGS estimates, based on exports

(f) Years ended 30 June of that stated

APPENDIX 1

Additional tables relating to Europe only

Production of primary aggregates (sand and gravel and crushed rock)

tonnes (metric)

Country	2019	2020	2021	2022	2023
Austria					
Sand and gravel	30 761 767	29 439 450	32 177 816	31 085 910	27 589 806
Crushed rock (a)	27 674 453	27 471 201	* 28 728 000	* 28 256 000	26 213 744
Belgium					
Sand and gravel	* 12 000 000	* 13 500 000	* 14 700 000	* 13 200 000	* 13 300 000
Crushed rock	* 40 000 000	* 38 500 000	* 39 700 000	* 38 400 000	* 39 000 000
Bulgaria					
Sand and gravel (a)	9 509 000	9 509 000	14 578 000	10 307 000	9 968 257
Crushed rock	21 771 000	21 771 000	37 443 000	22 693 000	* 25 000 000
Croatia					
Sand and gravel	4 105 831	4 585 010	5 268 779	4 811 109	4 694 510
Cyprus					
Crushed rock	8 422 664	7 905 100	9 401 246	9 445 246	10 035 309
Czech Republic					
Sand and gravel	19 982 000	20 335 000	21 370 000	21 213 000	18 578 000
Crushed rock	42 225 000	42 915 000	44 464 000	45 058 000	41 593 000
Denmark					
Sand and gravel	47 803 000	51 558 000	53 128 000	51 652 000	45 700 000
Crushed rock	233 000	175 000	465 000	522 000	205 000
Estonia					
Sand and gravel	7 746 800	9 544 800	7 877 690	4 275 500	* 4 275 000
Crushed rock	5 771 800	7 013 440	8 326 500	7 575 300	(a) 6 395 426
Finland					
Sand and gravel	23 800 000	23 000 000	22 000 000	23 500 000	* 23 500 000
Crushed rock	51 000 000	45 000 000	47 000 000	49 000 000	* 49 000 000
France					
Sand and gravel	126 717 000	117 851 000	* 120 000 000	121 633 000	109 581 000
Crushed rock	198 951 000	183 627 000	* 196 000 000	191 174 000	175 797 000
Germany					
Sand and gravel	259 000 000	288 000 000	277 000 000	253 000 000	232 000 000
Crushed rock	217 000 000	223 000 000	219 000 000	210 000 000	203 000 000
Greece	* 43 000 000	* 41 000 000	* 45 000 000	* 52 000 000	* 52 000 000
Hungary					
Sand and gravel	49 419 275	36 217 375	43 363 062	40 018 515	36 571 543
Crushed rock	9 345 548	8 072 859	6 691 343	17 141 210	15 364 751
Iceland					
Sand and gravel	* 291 000	* 291 000	* 291 000	* 291 000	* 291 000
Ireland, Republic of					
Sand and gravel	8 000 000	7 500 000	8 000 000	7 000 000	* 7 000 000
Crushed rock	30 000 000	28 000 000	30 000 000	30 000 000	* 30 000 000
Italy					
Sand and gravel	52 111 877	54 606 351	64 702 438	76 820 507	61 875 745
Crushed rock	24 870 935	43 995 003	36 924 610	17 720 894	16 944 736
Latvia					
Sand and gravel	23 333 846	10 743 532	10 521 791	13 613 620	9 451 983
Crushed rock	9 200 000	9 700 000	10 100 000	10 100 000	* 10 000 000
Lithuania					
Sand and gravel	11 675 361	12 539 223	12 640 698	11 311 682	11 693 136
Crushed rock	7 517 080	8 281 359	8 089 675	7 832 850	8 441 904
Malta					
Crushed rock	1 953 416	1 917 978	1 670 854	1 541 878	(b)* 1 755 376
Montenegro					
Sand and gravel	156 612	380 976	210 876	135 000	199 000
Crushed rock	143 219	163 573	136 293	225 946	231 016
Netherlands					
Sand and gravel	68 600 000	69 400 000	70 300 000	66 800 000	* 67 000 000
Norway					
Sand and gravel	13 362 555	14 053 691	13 146 511	12 331 997	10 665 176
Crushed rock	84 412 381	79 020 476	77 470 569	75 513 649	70 676 736
Poland					
Sand and gravel	182 811 000	180 243 000	185 076 000	170 776 000	167 078 000
Crushed rock	81 562 000	76 286 654	77 774 012	79 158 123	79 602 550
Portugal					
Sand and gravel	10 187 542	10 784 029	7 377 376	10 584 119	* 11 000 000
Crushed rock	32 134 534	35 063 333	43 017 417	34 560 066	* 35 000 000
Romania					
Sand and gravel	67 500 000	79 500 000	81 500 000	85 500 000	* 85 000 000
Crushed rock	19 800 000	26 500 000	34 000 000	40 500 000	* 40 000 000

Production of primary aggregates (sand and gravel and crushed rock)

tonnes (metric)

Country	2019	2020	2021	2022	2023
Serbia					
Crushed rock (a)	* 11 145 000	11 618 000	* 13 095 000	* 12 760 000	* 10 833 000
Slovakia					
Sand and gravel	1 982 000	1 785 727	1 748 620	1 715 560	1 720 448
Crushed rock	11 551 000	10 823 895	11 506 270	11 945 216	12 210 717
Slovenia					
Sand and gravel	1 437 101	1 869 851	2 225 198	2 577 923	1 804 643
Crushed rock	9 550 639	8 983 918	11 351 196	11 514 122	11 877 908
Spain					
Sand and gravel	43 000 000	45 000 000	43 000 000	44 900 000	48 300 000
Crushed rock	79 000 000	82 000 000	80 700 000	80 700 000	80 000 000
Sweden					
Sand and gravel	10 617 896	9 290 761	8 961 969	7 474 346	6 453 710
Crushed rock	92 890 100	91 730 897	92 450 569	88 727 346	80 908 832
Switzerland					
Sand and gravel	35 188 140	34 830 600	35 547 050	34 584 650	* 31 890 000
Crushed rock	2 270 000	2 390 000	2 450 000	2 250 000	* 2 080 000
United Kingdom					
Sand and gravel	65 660 000	57 571 000	64 270 000	59 493 000	54 956 000
Crushed rock (c)	129 636 000	118 146 000	137 124 000	126 680 000	121 471 000
European total	2 480 000 000	2 475 000 000	2 571 000 000	2 484 000 000	2 358 000 000

Note(s)

- (1) So far as possible, these production statistics include construction sand; gravel, pebbles, shingle and flint; crushed stone used for concrete aggregates, roadstone and other construction uses; granules, chippings and powders.
- (2) Where official sources show more than one series for aggregates the higher series has generally been used in this compilation.
- (3) Where marine sands and gravels have been identified, these are included.
- (4) Information may be incomplete or absent due to reporting methods, confidentiality or lack of available information.
- (5) Production from many small operations are not officially compiled. The minimum number of employees for which establishments are required to report production varies between different countries and can also vary from year to year within a country.
- (6) Quantities of sand from sand and gravel operations may be discarded due to low demand. This may or may not be included in the statistics.

- (a) Sales
- (b) Estimated by official source based on a previous year census and the rate of change observed from a sample of quarries in subsequent years
- (c) Includes small quantities for other purposes in Northern Ireland

Production of cement clinker

tonnes (metric)

Country	2019	2020	2021	2022	2023
Austria	* 19 000	19 630	39 019	* 30 000	25 519
Belgium	* 2 250 000	2 394 779	* 230 000	* 230 000	* 230 000
Bulgaria	2 127 514	1 999 877	1 989 255	1 951 982	1 986 477
Croatia	2 267 721	2 353 571	2 403 438	2 262 669	2 300 928
Cyprus	1 643 193	2 001 957	1 706 031	2 480 346	1 906 463
Czech Republic	3 722 188	3 556 702	3 673 000	3 497 014	2 814 289
Estonia	504 000	52 000	—	—	—
France	13 005 000	11 759 000	12 222 000	12 074 000	10 505 000
Germany	22 923 753	23 464 980	24 000 116	21 910 970	19 914 000
Greece	6 429 107	5 958 786	6 533 048	6 523 328	6 723 500
Hungary	* 400 000	* 400 000	* 400 000	* 400 000	* 400 000
Italy	14 855 163	12 928 011	14 079 222	12 084 914	4 590 111
Latvia	* 1 500 000	* 1 500 000	* 1 500 000	* 1 500 000	* 1 500 000
Luxembourg	* 700 000	* 700 000	* 700 000	* 700 000	* 700 000
Norway	1 407 000	1 389 000	1 361 000	1 391 000	1 181 000
Poland	14 178 000	14 361 461	13 996 134	14 602 804	12 655 200
Portugal	4 272 085	4 568 932	* 4 600 000	* 4 600 000	* 4 600 000
Romania	7 208 688	7 541 962	7 765 023	7 045 637	6 962 125
Serbia	* 1 300 000	* 1 300 000	* 1 300 000	* 1 300 000	1 877 108
Slovakia	* 2 000 000	* 2 000 000	* 2 100 000	* 1 700 000	* 1 500 000
Spain	17 226 700	15 731 000	17 300 000	15 400 000	15 100 000
Sweden	2 539 000	2 397 000	2 402 000	2 251 000	2 166 000
Turkey	56 966 272	71 767 003	80 127 408	72 171 959	73 030 103
Ukraine	7 243 200	7 419 000	7 904 100	* 3 800 000	* 5 600 000
United Kingdom	7 830 000	6 941 000	7 367 000	7 160 000	6 357 000
European total	195 000 000	205 000 000	216 000 000	197 000 000	185 000 000

Production of finished cement

tonnes (metric)

Country	2019	2020	2021	2022	2023
Austria (a)	4 516 947	4 508 448	4 949 683	4 711 481	3 957 228
Belgium	6 773 000	6 717 000	6 935 000	* 6 900 000	* 6 900 000
Bulgaria (a)(b)	2 371 458	2 175 279	2 147 439	2 112 048	2 257 600
Croatia	2 918 863	3 101 874	3 244 819	3 116 469	3 212 625
Cyprus	1 537 017	1 496 494	1 439 679	1 858 334	1 726 098
Czech Republic	4 569 379	4 513 409	4 721 036	4 476 038	3 647 491
Denmark	2 440 600	2 497 680	2 509 227	2 519 076	2 019 102
Estonia (a)	411 300	253 600	365 900	256 600	191 600
Finland (a)	1 430 226	1 435 646	1 533 734	1 512 060	1 058 006
France	16 710 000	16 422 000	17 496 000	16 791 000	15 378 000
Germany	34 185 343	35 478 000	34 966 000	32 901 000	28 185 000
Greece	5 755 532	5 797 058	7 022 337	7 098 036	8 316 454
Hungary (a)	1 138 851	1 025 392	* 1 000 000	886 030	* 800 000
Ireland, Republic of	* 1 700 000	* 1 800 000	* 1 800 000	* 1 700 000	* 1 500 000
Italy	19 481 760	19 818 320	21 444 788	21 382 498	18 744 265
Latvia	* 1 000 000	* 1 000 000	* 1 000 000	* 1 000 000	* 1 000 000
Lithuania	1 222 934	1 220 837	1 354 192	1 463 001	1 087 609
Luxembourg	* 1 000 000	* 1 000 000	* 1 000 000	* 1 000 000	* 1 000 000
Netherlands (a)	* 2 352 000	* 2 239 000	5 100 000	4 845 000	4 100 000
North Macedonia	896 030	927 566	934 987	864 552	810 980
Norway	1 780 000	1 737 000	1 780 000	1 756 000	1 558 000
Poland	18 946 000	19 048 709	19 624 709	19 502 584	16 785 063
Portugal (a)	4 297 556	4 498 364	* 4 500 000	* 4 500 000	* 4 500 000
Romania	9 936 772	10 539 046	10 676 280	10 203 567	10 093 242
Serbia	2 151 000	2 364 000	2 610 000	2 625 000	2 667 000
Slovakia	4 030 506	4 071 834	4 164 903	3 414 000	* 3 000 000
Slovenia	* 770 000	* 762 000	* 732 000	* 754 000	* 754 000
Spain	16 998 100	16 177 000	18 600 000	18 500 000	18 000 000
Sweden	2 844 000	2 515 000	2 691 000	2 543 000	2 335 000
Switzerland (c)	4 210 000	4 150 000	4 180 000	4 146 000	3 729 872
Turkey	56 528 236	72 299 054	78 945 029	73 708 026	81 451 065
Ukraine	9 064 200	9 567 600	11 009 900	5 400 000	7 400 000
United Kingdom	9 079 000	8 046 000	9 008 000	8 393 000	7 689 000
European total	253 000 000	269 000 000	289 000 000	273 000 000	266 000 000

Note(s)

(a) Sales

(b) Portland cement only

(c) Includes production in Liechtenstein

APPENDIX 2

Further acknowledgments

Further Acknowledgments

In addition to the acknowledgments section on page iv, supplementary information is also obtained from publications dealing with a wide range of commodities such as the African Development Bank Group, African Statistical Yearbook; BP PLC and Energy Institute, Statistical Review of World Energy; Austrian Federal Ministry of Finance, World Mining Data; Extractive Industries Transparency Initiative (EITI); London Stock Exchange Group, World Bureau of Metal Statistics, Monthly Bulletins; United States Geological Survey, Mineral Commodity Summaries.

Information has been obtained from the websites of the following international organisations:

AfricaFertilizer Org; The Cobalt Institute; The European Cement Association (CEMBUREAU); European Aggregates Association (UEPG) credit for Jim O'Brien; Eurostat; The European Steel Association (EUROFER); Federacciai; International Energy Agency; International Manganese Institute; La Banque des Etats de l'Afrique Centrale (BEAC); Kimberley Process; The Nautilus Institute; Oxford Business Group; SFA (Oxford); The Silver Institute; United Nations agencies; United States Energy Information Administration; World Nuclear Association; World Steel Association.

In addition, information has been obtained from the websites of the following companies:

Alcoa; ALRO S.A.; Aluar; Alumina Ltd; Ambatovy; Anglo America; Anglo Asian Mining Plc; AngloGold Ashanti; Arab Potash Company; ARMZ Uranium Holding Co; Arsi Group; Autlán; Aura Minerals Inc; Avesoro Resources Inc; Aya Gold & Silver Inc; B2Gold; Barrick Gold Corporation; BEB Erdgas und Erdöl GmbH & Co; BHP Billiton; Bikita Minerals; Boliden Group; Calibre Mining; Camimex; Centamin Plc; Central Asia Metals PLC; CGN Swakop Uranium; Chaarat Gold Holding; Chifeng Gold; China National Nuclear Corp; CI Resources Ltd; Compagnie Minière de Touissit (CMT); Conic Metals Corp; Dominion Salt; Dundee Precious Metals Inc; Eldorado Gold; Elem Group; Emirates Global Aluminium; Endeavour Mining; Eramet Group; ETI Aluminium Inc; EVRAZ Plc; Fenix Metals Ltd; First Quantum Mineral Ltd; Fortuna Silver Mines Inc; Freeport McMoran; Galane Gold; Galaxy Resources; Gazprom; Gemfields Plc; Glencore International AG; Gräfitbergbau Kaisersberg GmbH; Gravita India Ltd; Groupe Toguna; Grecian Magnesite SA; Heidelberg Materials AG; Hindalco Industries Ltd; Hudson Resources Inc; Hummingbird Resources; IAMGold Corporation; Iluka Resources Ltd; Inception Mining Inc; (ICL) Israel Chemicals Company; IRC Company Limited; Johnson Matthey; Jordan Phosphate Mines Company; KAZ Minerals Plc; Kenmare Resources Plc; Kingsgate Consolidated Ltd; LARCO; Largo Resources Ltd; Liberty and Alvanco; Libyan Iron and Steel company; LuNa Smelter Ltd; Lundin Mining Corporation; Lynas Corporation Ltd; Ma'aden Saudi Arabian Mining Company; Malaysia Smelting Corporation; Managem Group; Mandalay Resources Ltd; Masan Resources Corporation; Maverix Metals; Maya Gold & Silver Inc; MedcoEnergi; Metallurgical Corporation of China Ltd (MCC); Mineros S.A.; National Aluminium Company; Nedmag B V;

Nemaska Lithium; Nevsun Resource Ltd; Newcrest Mining Ltd; Newmont; Nexa Resources S.A.; Nordgold; Nor Nickel; Norsk Hydro ASA; Northern Minerals; Nyrstar; OCP Group; OFS, a.s.; OM Holdings Ltd; Orano; Orocobre Ltd; Orosur mining Inc; Orvana Minerals Corp; Outokumpu; Pacific Nickel Mines Ltd; Paladin Energy Ltd; Pan-American Silver; PanAust Ltd; PEMEX Petróleos Mexicanos; Peñoles; PhosAgro; Polymetal International PLC; PT Antam Tbk; PT Indonesia Asahan Aluminium; PT Merdeka Copper Gold; QAMCO; Rainbow Rare Earths Limited; Resolute Mining; Rio Tinto Ltd; Robex Resources; Ronphos Corporation; Rossing Uranium Ltd; Roxgold; RUSAL; RW Silicium GmbH; Salinen Austria AG; Sandisons Unst; Seligdar; Sherritt International Corporation; SMZ Company; Solvay SA/NV, Solway Investment Group Ltd; Sotkamo Silver Oy; South32; Southern Copper Corporation; Syrah Resources Ltd; Talum Group; Tasmania Mines Ltd; Teranga Gold Corporation; Terrafame Ltd; Thaisarco; Tibet Everest Resource Co. Ltd; TiZir Ltd; Treibacher Industrie AG; Trevali Mining Corporation; United States Antimony Corporation; Uralkali; Vale; Vargon Alloys AB; Vedanta Resources Ltd; Verband der Kali- und Salzindustrie EV; Vimetco; Wanguo International Mining Group Ltd; Wolfram Bergbau und Hütten AG; Zavalievsky Graphite Ltd; Zijin Mining Company.

Information has also been obtained from the following organisations either by direct correspondence or by website consultation:

Geological Survey, Afghanistan; National Statistic and Information Authority, Afghanistan; National Agency of Natural Resources, Albania; Albanian Geological Survey, Albania; Institute of Statistics, Albania; Ministère de l'Energie et des Mines, Algeria; Office National des Statistiques, Algeria; Acero Argentino, Argentina; CIMA Mining Information Centre, Argentina; Instituto Argentino del Petróleo y del Gas, Argentina; The National Institute and Statistics and Censuses (INDEC), Argentina; GeoProMining, Armenia; Statistical Committee of the Republic of Armenia; Department of Natural Resources and Mines (Queensland), Australia; Primary Industries and Resources SA, Australia; Department of Primary Industries (Victoria), Australia; Department of Mines and Energy (Northern Territories), Australia; Department of Regional NSW, Australia; Dept of Energy and Mining (South Australia), Australia; Mineral Resources Tasmania, Australia; Department of Mines Industry Regulation and Safety (Western Australia); NSW Department of Primary Industries, Australia; Office of Chief Economist, Australia; Statistik Austria; AzerGold CISC, Azerbaijan; The State Statistical Committee of the Republic of Azerbaijan; Depart of Statistics, Bahamas; Aluminium Bahrain; Ministry of Oil, Bahrain; National Oil and Gas Authority, Bahrain; Bangladesh Bureau of Statistics; Energy Division, Barbados; National Statistical Committee Belarus; Federation de l'Industrie Cimentiere Belge, Belgium; National Statistics Bureau, Bhutan; Ministerio de minería y metalurgia, Bolivia; Agency for Statistics of Bosnia and Herzegovina; Department of Mines, Botswana; Statistics Botswana; Associacao Brasileira do Alumínio, Brazil; Gov.br Portal, Brazil; Ministry of Mines and Energy, Brazil; Department of Energy, Prime Minister's Office, Brunei; Bulgarian Association of Metal Industries (BAMI), Bulgaria; Ministry of Energy, Bulgaria; National Statistics Institute,

Bulgaria; Chambre des Mines du Burkina, Burkina Faso; Institut National de la Statistique et de la Démographie (INSD), Burkina Faso; Le Bureau des Mines et de la Géologie du Burkina, Burkina Faso; SEMAFO, Burkina Faso; West African Resources, Burkina Faso; Institut de Statistiques et d'Etudes Economiques du Burundi; Société Nationale des Hydrocarbures, Cameroon; Natural Resources Canada; Canadian Association of Petroleum Producers, Canada; Statistics Canada; Canadian Clay Products Inc, Canada; Chilean Copper Commission (Cochilco), Chile; Servicio Nacional de Geología y Minería, Chile; China Gold Association; China Mining Association; National Bureau of Statistics of China; China Non-Ferrous Metals Industry Association; Agencia Nacional de Minería, Columbia; Ministry of Mines and Energy, Columbia; Banque Centrale du Congo, Democratic Republic Congo; Direccion de Geología y Minas, Costa Rica; Ministère des Mines, du Pétrole et de l'Energie, Cote D'Ivoire; Croatian Bureau of Statistics, Croatia; Ministry of Economy and Sustainable Development, Croatia; Oficina Nacional de Estadísticas e Informacion, Cuba; Ministry of Agriculture Natural Resources and Environment, Cyprus; Czech Cement Association, Czech Republic; Czech Geological Survey, Czech Republic; Steel Union, Czech Republic; Danish Energy Agency, Denmark; Statistics Denmark; Direccion General de Minería, Dominican Republic; National Petroleum and Minerals Authority (ANPM), East Timor; Banco central del Ecuador; Central Agency for Public Mobilisation and Statistics, Egypt; Statistics Estonia; Central Bank of Eswatini; Geological Survey of Ethiopia; National Bank of Ethiopia; Fiji Bureau of Statistics; Reserve bank of Fiji; Finnish Safety and Chemicals Agency (Tukes), Finland; Geological Survey of Finland (GTK); Bureau de Recherches Géologiques et Minières, France; Federation Francaise de l'Acier, France; Infociments, France; Ministry of Mines, Gabon; National Statistics Office of Georgia; National Agency for Mines, Georgia; Federal Institute for Geosciences and Natural Resources, Germany; Wvmetalle, Germany; Chamber of Mines, Ghana; Bank of Ghana; Greek Institute of Geology and Mineral Exploration, Greece; Greek Statistical Authority, Greece; Greek Mining Enterprises Association, Greece; Ministerio de Energia y Minas, Guatemala; Republic of Guinea Ministry of Mines and Geology, Republic of Guinea; Direction Nationale de la Statistique, Guinea; Bank of Guyana; Mining and Geological Survey of Hungary; Supervisory Authority for Regulatory Affairs Hungary. Statistics Iceland; Indian Bureau of Mines, India; Ministry of Mines, India; Ministry of Steel, India; Office of the Salt Commissioner, India; Ministry of Energy and Mineral Resources of Indonesia; Statistics Indonesia; Statistical Centre of Iran; Iranian Mines & Mining Industries Development & Renovation Organization (IMIDRO), Iran; Sustainable Energy Authority of Ireland; Department of Communications, Energy and Natural Resources, Ireland; Ministry of Energy and Infrastructure, Israel; Italian National Institute of Statistics, Italy; Ministry of Economical progress, Italy; Geological Survey of Japan (GSJ); Jamaica Bauxite Institute, Jamaica; Japan Aluminium Association, Japan; Japan Mining Industry Association; Japan Oil Gas and Metals National Corporation, Japan; Ministry of Economy Trade and Industry, Japan; Metal Economics Research Institute, Japan; Ministry of Finance, Japan; Sulfuric Acid Association of Japan; Ministry of Energy and Mineral Resources, Jordan; Kazakhstan Statistics Agency, Kazakhstan; Kenya National Bureau of Statistics; Korea Institute of Geoscience & Mineral

Resources, Korea (Rep. of); Korean Statistical Information Service (KOSIS); Independent Commission for Mines and Minerals, Kosovo; Statistics Office, Kyrgyzstan; Ministry of Natural Resources and Environment, Lao PDR; Central Statistical Bureau of Latvia; Central Bank of Liberia; Central Bank of Libya; Statistics Lithuania; Statistical Portal Grand Duchy of Luxembourg; Madagascar Chamber of Mines; Banque Centrale de Madagascar; Mineral and Geoscience Department, Malaysia; Bank Negara Malaysia; Ministère des Mines, Mali; Direction Nationale de la Géologie et des Mines (DNGM), Mali; Institute National de la Statistique (INSTAT), Mali; Wassoul'or, Mali; National Statistics Office, Malta; National agency for statistics, Mauritania; Central Statistics Office, Mauritius; Instituto Nacional de Estadística y Geografía, Mexico; Mexican Geological Survey, Mexico; Servicio Geológico Mexicano, Mexico; National Statistics Office, Mongolia; Statistical Office of Montenegro (Monstat); High Commission for Planning of the Kingdom of Morocco; Morocco Statistics; National Office of Hydrocarbons and Mines, Morocco; Instituto Nacional de Estadística, Mozambique; Central Statistical Organisation, Myanmar; Bank of Namibia; Geological Survey of Namibia; Chamber of Mines, Namibia; Central Statistics Bureau, Nepal; Statistics Netherlands; NLOG, Netherlands; Direction de l'Industrie, des Mines et de l'Energie, New Caledonia; Institut Territorial de la Statistique et des Etudes Economiques, New Caledonia; Ministry of Business, Innovation & Employment, New Zealand; New Zealand Petroleum & Minerals; New Zealand's Aluminium Smelter; Banco Central de Nicaragua; Ministerio de Energia y Minas, Nicaragua; Institut National de la Statistique, Niger; Nigerian Geological Survey Agency, Nigeria; State Statistical Office, North Macedonia; Norwegian Petroleum Directorate, Norway; Norwegian Directorate of Mining, Norway; Statistics Norway; National Centre for Statistics & Information, Oman; Central Bank of Oman.

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of Statistics; Ministry of Ecology and Natural Resources of Ukraine; State Statistics Service of Ukraine; DUBAL and EMAL, United Arab Emirates; Iron and Steel Statistics Bureau, United Kingdom; Department for Energy Security and Net Zero, United Kingdom; Office for National Statistics, United Kingdom; Instituto Nacional de Estadística del Uruguay; Ministerio de Industria, Energía y Minería, Uruguay; National Statistics Committee, Uzbekistan; General Statistics Office, Vietnam; Bank of Zambia; Zambia; Ministry of Finance, Zambia; Ministry of Mines and Mineral Development, Zambia; Minerals Marketing Corporation of Zimbabwe (MMCZ); Zimbabwe National Statistics Agency; Ministry of Finance and Economic Development, Zimbabwe.



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