



World Mineral Production

2018–2022



British
Geological
Survey

BRITISH GEOLOGICAL SURVEY

WORLD MINERAL PRODUCTION 2018–22

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PREFACE

Welcome to the latest edition of World Mineral Production which includes global mineral production data for 2022. It 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 2018 to 2022. 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.

Toward the end of the first quarter, 2022 witnessed the start of the Russian conflict with Ukraine. This has caused a serious decline in the mineral industry in Ukraine. Every mineral commodity produced showed a decrease by at least 30 per cent. Commodities most affected were copper with a 91 per cent decrease on the previous year followed by aluminium (83%) and uranium (78%). As a result of the conflict, many countries are trying to reduce their reliance on minerals sourced from Russia, but this can prove challenging as it is one of the largest mineral producing nations in the world.

2022 also saw an increase in energy prices across Europe. This had an effect on the energy dependent commodities in the alumina, primary aluminium and zinc producing companies. Industry requested the European Commission step in and help. In quarter three a 'Temporary State Aid Framework' was set up, but this proved too late for some companies, and they were forced to reduce or halt production. Alumina production in Europe dropped by more than 25 per cent in 2022. This subsequently also affected the aluminium industry, in which by the end of 2022 production had also fallen by 2.5 per cent to the lowest in at least 5 years. After making a good recovery in 2021, global zinc production decreased by more than 18 per cent in 2022. Over 50 per cent of zinc producing European countries dropped in production based on 2021. Worst affected appear to be Poland, production declining 84 per cent, followed by Greece at 54 per cent.

Certain commodities continued to experience significant reductions in production during 2022 following on from 2021. Mercury production declined again by 19 per cent on the 2021 figure. Antimony production in China continued to decline and decreased by a further 8.5 per cent on 2021. Over a 5-year period antimony production in China has halved as China continues to have a greater reliance on imported antimony.

Barytes has decreased by 21 per cent over the past 5 years. China and India combined account for almost 50 per cent of the total world production. Barytes production in both countries has decreased considerably (India by 37% and China by 34%). Much of the barytes is mined by the petroleum industry and used as a weighting material in the formulation of drilling mud. This drop in production is expected to be short term. High production levels of oil & gas in USA, Canada, Middle

East and Africa are expected to increase the demand for barytes production.

Global production of vanadium decreased on the previous year by 3 per cent. However, over a 5-year period it has increased by over 40 per cent. At 68 per cent of world production, China continued to be the largest producer of vanadium, followed by Russia and South Africa (18% and 8%). Vanadium has many uses, one of these being primarily as an alloying element in the production of high-strength steel. Growth in the construction, infrastructure development, and automotive industries resulted in higher steel demand, thereby increasing demand for vanadium.

A few commodities increased considerably during 2022. Global production of lithium, zirconium and cobalt continued to increase by more than 20 per cent on 2021. Lithium production increased the most in 2022 at 27 per cent per. Over a 5-year period lithium production has increased by 49 per cent, showing longer-term growth.

Zirconium increased significantly in 2022 by 26 per cent. Australia is the largest producer, providing 37 per cent of the total world production, followed by South Africa and Mozambique (22% and 7%). The increasing production of zirconium is propelled by the global pursuit of cleaner energy alternatives and the establishment of new nuclear power facilities in numerous countries. Zirconium is vital for use in nuclear reactor fuel rods and various components. Zirconium is expected to continue to increase as nations endeavour to reduce carbon emissions and broaden their energy sources.

The world's largest producing country of nickel is Indonesia, accounting for 49 per cent of total world production, followed by Philippines (11%) and Russia (6%). Indonesia nickel production has increased by 47 per cent in 2022 on 2021, and over five years nickel has increased by 160 per cent. Global nickel production in the last 5 years has increased by 37 per cent, driven by the huge growth in Indonesia. With the continued underlying growth of nickel compounds for the electric vehicle batteries sector, the continued increase in nickel production will be needed.

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 a 'Scoping report on the material requirements for a UK hydrogen economy' which examines the sustainability of these targets and provides suggestions for overcoming potential challenges in securing raw material. Also, a 'Scoping study on metals used in specialist alloys in the aerospace industry.' 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 2024

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EXPLANATORY NOTES

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.

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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	2018	2019	2020	2021	2022
Bosnia & Herzegovina	760 244	1 043 343	619 748	675 269	699 926
Croatia	11 780	14 342	14 080	14 450	17 750
France (a)	138 800	120 800	123 500	142 800	118 000
Greece	1 607 000	1 492 000	1 428 000	1 227 498	1 173 000
Hungary	4 200	—	—	—	—
Montenegro	468 164	774 725	897 057	542 049	442 067
Russia	7 039 400	6 954 800	6 943 500	7 045 256	7 858 814
Turkey	678 138	2 255 480	2 399 680	2 764 873	1 383 231
Côte d'Ivoire	—	—	272 295	—	—
Ghana	1 011 302	1 116 334	1 162 086	839 465	773 213
Guinea (b)	59 573 707	70 173 326	87 766 199	87 438 557	103 525 513
Mozambique	9 912	8 024	6 491	7 852	14 583
Sierra Leone	2 034 360	1 962 500	1 441 987	1 455 554	973 599
Tanzania	10 796	—	25 995	38 142	40 921
Dominican Republic	6 525	7 551	9 475	71 517	104 158
Jamaica	10 058 228	9 022 286	7 616 284	5 937 320	4 364 729
USA (c)(d)	399 712	154 870	16 438	—	13 900
Brazil	32 006 900	31 937 900	32 897 800	35 949 600	* 36 000 000
Colombia	13 666	18 032	9 595	3 200	—
Guyana	1 926 053	1 919 747	608 168	618 452	705 631
Venezuela	89 699	* 50 000	—	—	—
China	70 751 214	* 42 000 000	* 42 000 000	* 40 000 000	74 300 000
India	(e) 23 687 721	(e) 22 073 398	(e) 21 825 227	(e) 22 493 947	23 843 329
Indonesia	13 243 197	16 592 739	25 859 895	25 781 187	28 808 674
Iran (f)	805 231	1 163 159	1 115 008	* 1 110 000	* 1 000 000
Kazakhstan	5 736 200	4 118 400	4 057 800	* 4 370 300	4 175 900
Malaysia	589 684	900 561	549 714	47 577	129 825
Pakistan (g)	145 189	92 936	101 047	97 495	* 75 000
Saudi Arabia	4 730 690	5 127 000	5 227 000	5 488 000	* 5 500 000
Vietnam	3 569 700	* 3 200 000	* 3 120 000	* 3 300 000	* 3 200 000
Australia	95 947 593	107 422 912	103 626 811	103 266 404	102 289 514
Fiji	* 58 000	—	—	—	—
Solomon Islands (h)	* 1 601 000	* 1 207 000	* 839 000	* —	* —
World total	338 700 000	332 900 000	352 600 000	350 700 000	401 500 000

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	2018	2019	2020	2021	2022
Bosnia & Herzegovina	261 700	213 518	122 241	172 974	180 278
France	500 000	* 500 000	* 500 000	* 500 000	—
Germany	* 1 000 000	1 025 000	1 050 000	1 065 000	920 000
Greece	678 140	672 400	672 500	697 100	689 100
Ireland, Republic of	1 818 065	1 860 970	1 822 368	1 878 000	1 629 000
Romania	571 772	460 911	426 393	498 603	108 408
Russia	2 763 000	2 755 000	2 873 000	3 054 000	3 080 000
Spain	1 589 000	1 595 000	1 553 000	1 536 000	1 343 000
Turkey	* 260 000	* 260 000	* 260 000	* 260 000	* 260 000
Ukraine	1 715 000	1 690 000	1 725 000	1 800 000	* 300 000
Guinea	182 000	368 000	438 700	409 870	336 100
Canada	1 568 000	1 522 000	1 518 000	1 471 000	1 478 000
Jamaica	2 483 572	2 172 977	1 620 943	1 158 450	634 103
USA	1 570 000	1 410 000	1 340 000	1 000 000	1 200 000
Brazil	8 258 000	9 170 800	20 368 800	10 992 300	* 11 200 000
China	73 607 591	71 474 166	73 131 946	77 480 000	81 862 000
India (a)	6 446 370	6 739 500	6 624 500	7 325 000	7 441 000
Indonesia	842 536	1 148 422	1 162 100	1 363 100	* 1 400 000
Iran (b)	237 563	233 267	231 612	230 682	225 942
Japan	20 000	25 000	17 700	24 200	* 25 000
Kazakhstan	1 493 072	1 406 229	1 399 949	1 315 000	1 338 100
Saudi Arabia	1 774 000	1 798 340	1 782 041	1 879 000	1 745 000
United Arab Emirates	—	1 100 000	1 920 000	2 300 000	2 430 000
Vietnam	1 301 300	1 382 100	1 384 706	1 456 068	1 428 503
Australia	20 061 795	20 239 198	20 837 142	20 624 088	19 528 493
World total	131 000 000	131 200 000	144 800 000	140 500 000	140 800 000

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	2018	2019	2020	2021	2022
Azerbaijan	44 710	32 693	31 492	24 900	33 529
Bosnia & Herzegovina	131 508	67 690	17 858	36 343	37 800
France	380 000	402 000	417 000	438 900	410 000
Germany	528 868	507 934	529 056	509 000	341 000
Greece	184 800	182 100	189 036	183 775	187 100
Iceland	733 523	689 995	728 104	729 813	756 012
Montenegro	40 163	36 522	37 208	45 214	43 196
Netherlands	41 300	81 100	70 600	46 700	* 45 000
Norway	1 295 000	1 312 000	1 330 000	1 419 000	1 393 000
Romania	282 810	280 326	271 307	293 399	191 454
Russia	3 627 000	3 637 000	3 638 000	3 640 000	4 014 000
Slovakia	173 700	174 794	151 875	163 995	71 933
Slovenia	80 544	68 255	50 185	37 867	19 211
Spain	* 350 000	* 220 000	* 200 000	* 190 000	—
Sweden	125 000	120 000	117 000	124 000	120 000
Turkey	73 300	78 100	79 900	79 200	82 000
United Kingdom	44 400	39 400	35 700	37 571	31 337
Cameroon	85 800	68 900	61 700	47 300	62 800
Egypt (a)	317 000	256 000	268 000	* 260 000	* 260 000
Ghana (b)	42 867	43 908	37 566	39 239	55 592
Mozambique (a)	571 125	569 002	569 002	562 633	576 220
South Africa	714 000	717 000	717 000	714 000	718 000
Canada	2 923 204	2 853 771	3 154 493	3 157 762	3 026 236
USA	898 652	1 126 032	1 026 617	907 846	872 300
Argentina	439 600	438 434	309 804	338 239	400 038
Brazil	659 000	650 200	685 100	771 700	810 900
Venezuela	64 700	* 10 000	* 10 000	38 300	8 400
Bahrain	1 011 101	1 365 005	1 548 000	1 561 222	1 600 111
China	36 447 290	35 043 604	37 080 401	38 502 600	40 214 000
India	(c) 3 696 181	(c) 3 635 089	(c) 3 619 237	(c) 4 016 621	2 322 270
Indonesia	242 043	250 393	220 100	200 600	223 800
Iran (d)	301 033	275 717	446 836	562 649	632 166
Kazakhstan	258 400	264 900	265 000	262 500	258 500
Malaysia	760 000	* 800 000	* 800 000	901 000	* 928 000
Oman	380 000	391 000	397 000	395 000	394 800
Qatar	616 000	653 000	655 000	662 000	638 000
Saudi Arabia	932 000	775 600	1 010 563	998 000	776 400
Tajikistan	95 796	100 800	84 000	61 000	62 000
United Arab Emirates	2 640 000	2 600 000	2 520 000	2 540 000	2 720 000
Australia	1 574 240	1 569 591	1 582 947	1 558 529	1 494 598
New Zealand	340 111	353 293	335 405	333 115	333 689
World total	64 100 000	62 700 000	65 300 000	67 400 000	67 200 000

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	2018	2019	2020	2021	2022
Russia	30 828	21 671	17 532	* 9 000	* 11 000
Turkey	3 570	3 810	2 570	4 210	10 692
Canada	6	6	2	2	* 2
Guatemala	—	—	—	—	12
Honduras	20	* 10	* 10	120	—
Mexico	299	290	136	413	632
Bolivia	3 110	2 747	2 629	3 084	3 453
China	95 286	60 229	60 995	42 622	* 39 000
Iran (a)	2 551	5 264	5 006	* 5 000	* 5 000
Kazakhstan	* 100	* —	* —	* 20	* 100
Kyrgyzstan	* 680	* 20	* 30	* —	* 20
Laos	—	70	—	242	* —
Myanmar	* 5 400	* 5 000	* 3 800	* 2 300	* 3 000
Pakistan (b)	—	—	17	63	* 60
Tajikistan	28 881	29 898	* 24 000	* 24 000	* 24 000
Vietnam	244	395	312	268	252
Australia	(b) 2 866	(b) 2 170	3 903	3 380	2 292
World total	174 000	132 000	121 000	95 000	100 000

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	2018	2019	2020	2021	2022
Belgium	* 1 000	* 1 000	* 1 000	* 1 000	1 000
Russia	* 1 500	* 1 500	* 120	* 1 000	* 1 000
Morocco	5 578	5 055	7 694	6 883	5 450
Bolivia	238	* 130	* 130	* 100	* 35
Peru	20 408	24 915	19 014	21 872	25 379
China	* 24 000	* 24 000	* 24 000	* 24 000	* 24 000
Japan	* 45	* 45	* 40	* 40	* 40

Note(s)

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

Production of asbestos

tonnes (metric)

Country	2018	2019	2020	2021	2022
Russia	752 917	790 000	* 720 000	* 700 000	* 700 000
Brazil	111 439	12 205	77 057	172 256	182 965
Colombia	3 550	—	—	—	—
China	* 120 000	* 140 000	* 130 000	* 130 000	* 130 000
Kazakhstan	202 700	210 900	227 400	250 100	* 230 000
World total	1 200 000	1 200 000	1 200 000	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	2018	2019	2020	2021	2022
Bulgaria	* 70 000	* 70 000	* 70 000	* 70 000	* 70 000
Germany	39 218	30 474	26 656	27 921	24 128
Italy	* 3 000	* 3 000	* 3 000	* 3 000	* 3 000
Russia	163 000	163 000	287 000	* 150 000	* 150 000
Slovakia	9 500	5 770	—	—	—
Turkey	465 138	413 811	283 161	256 076	339 870
United Kingdom	* 50 000	* 46 000	* 46 000	* 30 000	* 30 000
Algeria	39 426	31 138	32 940	44 662	* 45 000
Egypt (a)	* 4 000	* 4 000	* 4 000	* 4 000	* 4 000
Morocco	899 365	1 119 811	501 939	840 486	* 840 000
Nigeria	387	370	544	460	* 460
Canada	* 30 000	* 30 000	* 20 000	* 30 000	* 30 000
Guatemala	63	* 60	—	—	—
Mexico	366 234	415 180	480 954	978 652	498 230
USA	(b) 366 000	(b) 414 000	* 125 400	* 125 500	* 125 000
Argentina	7 225	3 898	—	—	—
Bolivia	53 163	39 458	9 611	27 110	48 952
Brazil	* 100 000	* 100 000	* 100 000	* 100 000	* 100 000
Colombia	3 210	2 270	2 046	1 164	1 034
Peru	15 621	16 373	5 242	10 361	29 293
Afghanistan	* 500	* 500	* 500	* 500	* 500
China	* 2 900 000	* 2 800 000	* 2 800 000	* 2 100 000	* 1 900 000
India (c)	2 390 000	* 2 000 000	* 1 500 000	* 1 500 000	* 1 500 000
Iran (d)	201 721	224 412	288 341	* 290 000	* 290 000
Kazakhstan	420 000	530 600	445 300	* 450 000	* 500 000
Laos	35 000	486 009	96 278	37 403	302 709
Myanmar	2 935	12 439	7 227	1 690	* 1 700
Pakistan (a)	88 847	116 480	55 341	51 553	128 000
Thailand	67 490	33 644	22 394	4 988	6 509
Vietnam	41 000	* 31 000	* 43 000	* 43 000	* 43 000
Australia	6 534	1 982	—	158	2 635
World total	8 800 000	9 100 000	7 300 000	7 200 000	7 000 000

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	2018	2019	2020	2021	2022
Armenia					
Bentonite	21 029	32 424	5 956	15 979	13 198
Azerbaijan					
Bentonite	212 336	222 519	155 112	174 242	175 875
Bosnia & Herzegovina					
Bentonite	87 358	94 601	69 183	75 761	28 173
Bulgaria					
Bentonite (a)	* 700 000	737 396	724 003	708 225	750 248
Cyprus					
Bentonite	98 800	83 113	92 645	81 655	86 562
Czech Republic					
Bentonite	277 000	357 000	226 000	198 000	167 000
Denmark					
Bentonite	56 173	48 197	40 054	20 281	24 550
France					
Bentonite (a)	35 696	* 36 000	* 36 000	* 36 000	198 793
Georgia					
Bentonite	25 894	27 872	12 750	16 315	22 955
Germany					
Bentonite	379 000	366 000	333 000	363 000	316 000
Greece					
Bentonite	1 355 000	1 300 000	1 105 000	1 415 000	1 250 000
Attapulгите	53 300	36 700	28 050	29 300	5 900
Hungary					
Bentonite	35 156	33 166	14 871	30 462	34 690
Italy					
Bentonite	100 067	82 720	65 989	32 252	102 264
North Macedonia					
Bentonite	2 945	682	2 196	—	—
Norway					
Bentonite (a)	3 234	—	* —	12 803	—
Poland					
Bentonite	560	500	920	500	—
Romania					
Bentonite	34 809	41 964	45 495	54 648	61 165
Russia					
Bentonite	50 100	* 50 000	* 50 000	* 50 000	* 50 000
Slovakia					
Bentonite	270 000	251 000	275 570	272 880	302 000
Slovenia					
Bentonite	113	99	77	75	68
Spain					
Bentonite	178 463	160 477	205 773	171 572	185 363
Attapulгите	28 021	30 348	30 653	33 008	38 165
Sepiolite	698 058	595 448	531 660	574 439	580 695
Turkey					
Bentonite	1 331 955	1 533 547	1 658 837	2 020 356	2 382 118
Sepiolite	26 300	68 999	65 427	111 900	55 100
Ukraine					
Bentonite	178 000	180 000	180 000	* 180 000	* 90 000
Algeria					
Bentonite	36 000	36 700	34 200	31 700	* 32 000
Angola					
Fuller's earth	* 98 000	* 98 000	* 98 000	* 98 000	* 98 000
Egypt					
Bentonite	* 4 000	* 3 000	* 500	* 2 000	* 3 000
Kenya					
Bentonite	* 110	* 110	* 110	* 110	* 110
Morocco					
Bentonite	172 749	188 080	92 387	134 340	* 134 000
Fuller's earth (b)	99 256	99 790	78 302	* 78 000	* 78 000
Mozambique					
Bentonite	84 276	77 734	80 189	118 692	113 985
Senegal					
Attapulгите	177 900	197 673	186 615	170 851	150 704

Production of bentonite and fuller's earth

tonnes (metric)

Country	2018	2019	2020	2021	2022
South Africa					
Bentonite	173 486	105 084	85 558	98 606	97 019
Attapulgitite	17 121	11 422	11 957	13 189	9 004
Cuba					
Bentonite	630	504	486	517	290
Guatemala					
Bentonite	16 953	850	371	7 378	19 237
Mexico					
Bentonite	264 800	24 321	79 219	—	—
USA					
Bentonite (c)	4 570 000	4 520 000	4 240 000	* 4 300 000	* 4 500 000
Fuller's earth (c)	1 880 000	1 990 000	1 980 000	* 2 000 000	* 2 100 000
Argentina					
Bentonite	184 969	113 750	46 288	* 46 000	* 46 000
Bolivia					
Bentonite	2	* —	* —	* —	* —
Brazil					
Bentonite	* 600 000	403 763	217 055	* 220 000	* 220 000
Chile					
Bentonite	525	395	170	170	1 372
Colombia					
Bentonite	* 9 000	* 9 000	* 9 000	* 9 000	* 9 000
Peru					
Bentonite	2 384	46 887	25 532	56 199	22 931
Uruguay					
Bentonite	7 760	6 726	16 550	19 710	21 570
China					
Bentonite	* 5 600 000	* 2 000 000	* 2 500 000	* 2 100 000	* 2 100 000
India					
Bentonite (d)	3 385 450	* 3 400 000	* 3 500 000	* 3 500 000	* 3 500 000
Fuller's earth (d)	553 294	* 550 000	* 730 000	* 730 000	* 730 000
Indonesia					
Bentonite	* 6 000	* 6 000	* 6 000	* 6 000	* 6 000
Iran					
Bentonite (e)	731 908	1 021 481	1 395 726	1 153 283	* 1 100 000
Iraq					
Bentonite	* 6 300	* 6 300	* 6 300	* 6 300	* 6 300
Japan					
Bentonite	* 420 000	* 420 000	* 420 000	* 420 000	* 420 000
Korea (Rep. of)					
Bentonite	31 824	43 886	5 314	34 243	341 335
Fuller's earth	118 177	185 718	71 855	52 192	28 410
Myanmar					
Bentonite (d)	600	540	* 500	* 500	* 500
Pakistan					
Bentonite (f)	74 268	47 525	107 742	59 744	* 60 000
Fuller's earth (f)	9 188	11 323	2 842	1 840	2 000
Philippines					
Bentonite	658	* 650	* 650	* 650	* 650
Uzbekistan					
Bentonite	12 559	32 588	48 739	59 053	* 50 000
Australia					
Bentonite (f)	87 330	56 215	42 713	46 658	* 50 000
Fuller's earth	* 10 000	* 8 000	* 10 000	* 12 000	* 12 000
New Zealand					
Bentonite	* 750	* 750	* 750	* 750	* 750
World total bentonite	25 700 000	22 100 000	22 100 000	22 300 000	23 000 000
World total fullers earth (g)	3 800 000	3 900 000	3 800 000	3 900 000	3 900 000

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 ended 30 June of that stated
- (g) Including attapulgite and sepiolite

Production of beryl

tonnes (metric)

Country	2018	2019	2020	2021	2022
Madagascar (a)	* 16	* 16	* 16	* 16	* 16
Mozambique	416	45	80	330	1,285
Namibia	...	...	...	15 000	360
Uganda	24	15	186	473	* 500
Zambia	5	6	* 6	* 3	* 4
USA (b)	4 130	* 4 000	* 4 130	* 4 250	* 4 500
China	1 725	1 750	* 1 750	* 1 750	* 1 750

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	2018	2019	2020	2021	2022
Armenia	* 4	* 4	* 4	* 4	* 4
Russia	* 45	* 45	* 45	* 45	* 45
Canada	5	6	4	—	—
Mexico	333	251	—	—	—
Bolivia	19	* 20	* 20	* 60	* 3
Peru (a)	145	73	74	248	251
China	1 804	* 1 804	* 1 804	* 1 804	* 1 800
Japan (a)	547	527	574	478	* 480
Kazakhstan	* 290	* 7	* 450	* 20	* 220
Vietnam	3 099	917	993	2 067	1 938
World total	6 300	3 700	4 000	4 700	4 700

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	2018	2019	2020	2021	2022
Russia	* 80 000	* 80 000	* 80 000	* 80 000	* 80 000
Turkey	3 970 486	4 555 690	2 819 111	4 057 299	2 452 485
USA (a)	* 1 300 000	* 1 300 000	* 1 300 000	* 1 300 000	* 1 300 000
Argentina	71 212	181 818	134 604	* 130 000	* 130 000
Bolivia	232 268	* 214 500	258 143	312 906	295 515
Chile	398 411	352 255	288 103	363 032	421 935
Peru	100 552	111 108	43 645	246 362	308 104
China (b)	* 168 000	* 383 000	* 130 000	* 205 000	* 200 000
Iran (c)	1 200	2 519	1 300	* 1 300	* 1 300
Kazakhstan	* 500 000	* 500 000	* 500 000	* 500 000	* 500 000

Note(s)

- (a) Sold or used by producers
- (b) B₂O₃ equivalent
- (c) Years ended 20 March following that stated

Production of bromine

kilograms

Country	2018	2019	2020	2021	2022
Russia	* —	* —	* 500 000	* 500 000	* 500 000
Ukraine	* 4 500 000	* 4 500 000	* 4 500 000	* 4 500 000	* 2 000 000
USA (a)	* 225 000 000	* 225 000 000	* 225 000 000	* 225 000 000	* 225 000 000
China	68 300 000	* 69 600 000	* 70 000 000	* 70 000 000	* 73 000 000
India (b)	2 813 000	* 2 800 000	* 2 800 000	* 2 800 000	* 2 800 000
Israel	175 000 000	180 000 000	173 000 000	186 000 000	180 000 000
Japan	* 20 000 000	* 20 000 000	* 20 000 000	* 18 000 000	* 20 000 000
Jordan	88 620 000	112 700 000	112 760 000	115 160 000	* 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	2018	2019	2020	2021	2022
Bulgaria	313	315	315	343	315
Germany	* 500	* 450	* 450	* 400	* 400
Netherlands	* 640	* 719	* 351	* 854	* 500
Norway	* 400	* 340	* 340	* 390	* 400
Poland	305	199	80	—	—
Russia	* 1 400	* 1 400	* 1 300	* 1 400	* 1 000
Canada (a)	1 857	1 803	1 800	* 1 800	* 1 800
Mexico	1 307	952	978	1 051	1 174
USA (a)	* 550	* 550	* 550	* 550	* 250
Argentina	74	80	46	50	—
Brazil	* 300	* 450	* 25	* 16	* 20
Peru	765	772	687	279	264
China	10 349	* 10 300	* 10 300	10 349	* 10 000
Japan	1 980	2 000	1 880	1 900	* 1 900
Kazakhstan	* 1 500	* 1 400	* 1 500	* 1 500	* 1 200
Korea (Rep. of)	4 905	* 4 500	* 4 500	* 4 500	* 4 500
Korea, Dem. P.R. of	* 200	* 200	* 200	* 200	* 150
Uzbekistan	237	250	450	470	500
World total	27 600	26 700	25 800	26 000	24 400

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	2018	2019	2020	2021	2022
Albania	1 142 719	1 288 315	626 627	650 200	932 686
Finland (a)	1 099 438	1 183 862	1 453 332	1 464 738	1 208 006
Russia	469 000	698 000	689 000	* 689 000	* 689 000
Turkey	2 896 651	3 369 223	2 128 669	2 779 467	2 477 533
Madagascar (b)	109 200	76 100	12 400	13 500	18 300
South Africa	17 829 038	17 664 239	13 196 880	18 435 250	19 061 754
Sudan	27 000	12 728	9 000	5 575	3 000
Zimbabwe	894 660	1 550 064	1 272 139	1 244 300	1 154 158
Brazil	219 700	199 300	226 800	248 100	* 250 000
Afghanistan	* 4 500	* 4 500	* 4 500	* 4 000	* 4 000
China	71 100	* 84 400	* 66 554	* 130 000	* 130 000
India (c)	3 970 691	3 929 260	2 863 869	3 785 625	3 927 873
Iran (d)(e)	259 918	244 656	251 292	* 250 000	* 250 000
Kazakhstan	6 888 800	7 019 000	6 327 000	6 192 000	* 6 500 000
Oman	884 900	732 600	456 800	488 900	412 000
Pakistan (f)	* 324 700	* 467 400	* 404 800	* 467 100	* 650 000
Philippines (d)	50 650	36 423	35 112	30 721	147 492
Papua New Guinea	* 90 000	115 573	114 569	119 625	* 120 000
World total	37 200 000	38 700 000	30 100 000	37 000 000	37 900 000

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	2018	2019	2020	2021	2022
Albania					
Lignite	98 000	31 000	42 000	24 482	149 312
Bosnia & Herzegovina					
Brown coal & lignite	14 378 767	13 376 548	13 365 730	12 802 517	13 736 665
Bulgaria					
Lignite	* 29 000 000	* 29 000 000	* 20 900 000	27 160 000	35 280 000
Brown coal	* 1 500 000	* 1 300 000	1 100 000	840 000	720 000
Czech Republic					
Bituminous	4 110 000	3 150 000	1 861 000	2 008 000	1 281 000
Brown coal	39 187 000	37 465 000	29 505 000	29 505 000	33 398 000
Georgia	137 912	15 900	99 134	147 878	247 000
Germany					
Anthracite & Bituminous	2 762 000	—	—	—	—
Brown coal	166 258 371	131 314 116	107 377 260	126 256 594	130 801 111
Greece					
Lignite	36 574 360	26 000 000	14 000 000	12 081 578	14 289 000
Hungary					
Bituminous	2 083	6 095	1 513	252	418
Lignite	7 843 000	6 790 000	6 069 000	4 928 000	4 877 000
Brown coal	53 606	50 742	51 591	58 955	51 844
Kosovo					
Lignite	7 169 767	8 063 051	8 537 948	8 535 435	8 344 548
Montenegro					
Lignite	1 539 118	1 561 712	1 656 900	1 548 600	1 722 500
Brown coal	56 758	43 477	8 500	—	—

Production of coal

tonnes (metric)

Country	2018	2019	2020	2021	2022
North Macedonia					
Lignite	4 946 486	5 066 083	4 532 745	4 758 504	5 520 778
Norway					
Bituminous (a)	142 500	107 900	74 503	113 292	110 445
Poland					
Coking coal	12 047 000	12 071 000	12 274 000	12 581 000	12 364 750
Other bituminous coal	51 767 000	50 031 000	42 467 000	42 779 000	40 780 460
Lignite	61 144 000	52 855 000	47 300 000	54 851 000	57 679 000
Romania					
Anthracite & Bituminous	538 092	410 765	428 368	240 128	188 901
Lignite	23 319 839	21 653 000	15 161 420	18 151 887	18 713 709
Russia	714 443 000	714 478 000	673 145 000	706 389 000	273 048 000
Serbia					
Bituminous	101 000	108 000	30 000	26 000	75 000
Lignite (b)	37 253 000	38 420 000	39 330 000	36 118 000	34 819 000
Brown coal	277 000	350 000	306 000	271 000	233 000
Slovakia					
Lignite	169 000	270 000	211 600	205 400	117 000
Brown coal	1 257 000	1 157 000	745 000	858 000	725 000
Slovenia					
Lignite	3 216 735	3 218 696	3 259 309	2 807 476	2 745 022
Spain					
Anthracite	292 898	—	—	—	—
Bituminous	483 159	—	—	—	—
Sub-bituminous	1 630 088	—	—	—	—
Turkey					
Anthracite	1 620 682	1 805 118	1 613 624	1 726 109	1 794 712
Lignite	97 017 695	92 993 461	84 811 522	90 780 036	102 097 457
Ukraine					
Bituminous (c)	26 254 000	25 530 400	24 168 300	23 761 900	16 500 000
United Kingdom					
Anthracite	399 000	510 000	345 000	266 000	157 000
Bituminous	2 383 000	2 082 000	1 328 000	788 000	494 000
Botswana	2 482 313	2 110 891	1 923 990	2 700 377	3 198 223
Congo, Democratic Republic					
Bituminous	* 8 000	* 8 000	* 8 000	* 8 000	* 8 000
Eswatini (Swaziland)					
Anthracite	144 375	109 926	161 768	162 681	215 581
Ethiopia					
Lignite	2 767	* 2 700	* 2 700	* 2 700	* 2 700
Malawi	49 753	54 728	54 876	30 251	* 31 763
Mozambique					
Bituminous	12 926 416	10 339 536	8 041 211	11 079 683	14 806 233
Niger	221 580	225 920	246 880	105 760	235 328
Nigeria					
Bituminous	48 000	55 000	44 000	49 000	* 50 000
South Africa					
Anthracite	3 316 837	3 077 839	4 301 386	3 071 699	3 278 780
Bituminous	249 939 594	251 332 874	243 780 359	225 572 858	226 315 429
Tanzania					
Bituminous	627 652	712 136	689 989	976 319	2 511 419
Zambia					
Bituminous	361 871	335 042	446 153	663 345	781 466
Zimbabwe					
Bituminous	3 347 500	2 729 922	2 750 883	3 246 000	4 185 417
Canada	54 600 000	51 801 000	40 791 647	41 809 481	39 467 993
Mexico					
Bituminous	* 12 000 000	* 1 000 000	* 7 000 000	* 7 000 000	* 7 000 000
USA					
Anthracite	1 719 706	2 368 120	2 151 782	1 915 066	2 255 261
Bituminous	326 777 482	307 431 973	215 789 949	235 778 221	245 417 059
Sub-bituminous	305 613 307	282 577 367	222 923 550	243 175 405	248 222 074
Lignite	51 733 060	48 245 042	44 773 678	42 967 898	43 114 862

Production of coal

tonnes (metric)

Country	2018	2019	2020	2021	2022
Argentina					
Bituminous	39 340	68 830	12 875	13 113	13 110
Brazil					
Bituminous & lignite	10 483 793	9 433 816	9 158 388	12 070 822	11 528 892
Chile					
Bituminous	38 021	41 385	25 778	18 541	14 950
Lignite	2 256 656	1 565 169	165 784	—	—
Colombia					
Anthracite (d)	201 162	127 090	* 120 000	109 798	* 173 000
Coking coal	7 229 915	7 135 797	7 330 000	7 873 559	* 5 700 000
Other bituminous coal	78 824 137	77 079 899	42 000 500	48 659 153	* 54 200 000
Peru					
Anthracite & Bituminous	216 581	181 010	131 516	144 579	180 901
Venezuela					
Bituminous	763 000	434 000	314 000	174 000	200 000
Afghanistan (e)	2 444 600	2 139 200	56 620	340 800	537 127
Bangladesh (f)	923 276	805 696	811 138	753 973	* 750 000
Bhutan	186 824	184 785	72 838	111 545	158 603
China	3 698 000 000	3 846 000 000	3 902 000 000	4 126 000 000	4 560 000 000
India					
Bituminous	(g) 728 718 000	(g) 729 023 000	(g) 716 084 000	(g) 778 190 000	863 441 000
Lignite	(g) 44 282 000	(g) 42 185 000	(g) 36 615 000	(g) 47 490 000	47 395 000
Indonesia					
Anthracite & Bituminous	557 772 940	616 159 594	563 728 255	613 990 000	687 432 384
Iran (e)	1 749 540	1 585 531	1 669 515	1 298 163	* 1 300 000
Kazakhstan					
Bituminous	107 576 600	104 809 100	104 084 100	107 246 300	* 111 000 000
Lignite	6 560 800	5 928 900	5 422 100	4 828 700	* 7 000 000
Korea (Rep. of)					
Anthracite	1 201 920	1 084 000	1 019 298	897 900	820 181
Korea, Dem. P.R. of	* 18 250 000	* 18 000 000	* 17 000 000	* 17 000 000	* 17 000 000
Kyrgyzstan	2 395 200	2 606 000	2 677 700	2 989 900	3 775 400
Laos					
Anthracite	142 994	161 494	320 231	698 521	1 270 812
Lignite	15 903 277	15 263 562	14 366 628	13 618 072	15 358 322
Malaysia	2 652 813	3 459 122	2 978 248	3 110 605	3 405 847
Mongolia					
Brown coal	(d) 51 401 300	(d) 55 799 400	43 844 800	33 691 800	37 294 700
Myanmar	1 200 619	1 941 558	2 054 322	1 371 351	1 370 000
Nepal					
Sub-bituminous (h)	15 463	13 105	11 177	10 714	* 10 000
Pakistan (c)(f)	4 470 000	5 406 878	8 599 166	9 229 377	9 677 000
Philippines					
Bituminous	11 755 360	13 751 291	12 951 291	14 047 681	14 457 257
Tajikistan					
Bituminous	1 838 025	1 963 827	1 951 200	2 055 000	* 2 200 000
Lignite	64 990	63 963	77 939	95 000	* 110 000
Thailand					
Lignite	14 851 950	14 071 710	13 250 574	14 221 573	13 641 283
Uzbekistan					
Bituminous	181 000	249 100	263 700	275 100	* 300 000
Lignite	3 993 400	3 806 000	3 868 100	4 781 200	5 056 200
Vietnam					
Anthracite	42 384 000	47 158 000	44 598 000	48 315 600	49 854 700
Australia					
Bituminous (i)	457 541 000	463 212 000	428 430 000	419 352 000	401 063 000
Brown coal (f)	45 062 000	42 256 000	40 372 000	42 263 000	39 126 000
New Zealand					
Bituminous	1 318 966	1 291 197	1 128 917	1 256 584	1 230 681
Sub-bituminous	1 604 454	1 454 956	1 392 075	1 326 292	1 130 547
Lignite	307 378	287 830	297 690	284 735	276 248
World total	8 304 000 000	8 384 000 000	7 983 000 000	8 424 000 000	8 624 000 000

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 other types of coal
 - (e) Years ended 20 March following that stated
 - (f) Years ended 30 June of that stated
 - (g) Years ended 31 March following that stated
 - (h) Years ended 15 July of that shown
 - (i) Including sub-bituminous

Mine production of cobalt

tonnes (metal content)

Country	2018	2019	2020	2021	2022
Finland	1 377	1 454	1 559	1 084	1 235
Russia	5 450	5 500	5 700	8 000	9 000
Turkey	259	115	250	* 200	* 200
Congo, Democratic Republic	109 402	77 964	86 591	93 144	115 371
Madagascar	2 890	2 930	833	2 111	3 428
Morocco (a)	1 806	2 397	2 416	1 796	1 690
South Africa (a)	1 007	1 027	960	355	250
Zambia	835	379	316	247	252
Zimbabwe	403	400	957	345	241
Canada	5 608	5 132	4 279	3 834	3 186
Cuba	* 5 000	* 5 200	* 5 500	* 4 400	* 4 200
USA	590	500	600	500	500
Brazil	8	30	20	* 20	—
China	2 241	1 742	* 1 750	* 1 750	* 1 750
Indonesia	* 350	* 350	* 1 000	* 2 100	* 9 500
Philippines	5 400	3 750	3 600	3 200	* 3 400
Vietnam	—	—	—	288	278
Australia	(b) 5 616	(b) 5 693	5 626	5 232	5 786
New Caledonia	2 104	1 703	2 197	* 1 500	* 1 750
Papua New Guinea	3 275	2 911	2 941	2 953	2 987
World total	154 000	119 000	127 000	133 000	165 000

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	2018	2019	2020	2021	2022
Belgium (a)	* 1 650	* 1 500	* 1 300	* 1 300	* 1 000
Finland	14 295	14 283	15 148	14 287	12 781
France	48	—	—	—	—
Norway	4 166	4 354	4 384	3 982	3 124
Russia	* 1 800	* 1 900	* 1 800	* 1 800	* 1 800
Congo, Democratic Republic (b)	68	—	—	—	—
Madagascar	2 850	2 897	963	2 111	3 428
Morocco	1 806	2 397	2 416	1 796	1 690
South Africa (c)	1 007	1 027	897	531	* 200
Zambia	1 766	1 271	—	—	—
Canada (d)	6 349	6 075	5 965	* 6 000	5 501
Brazil	8	—	—	—	—
China (a)	78 360	* 86 000	* 86 000	* 113 000	* 125 000
Japan	3 669	3 680	3 467	3 852	* 3 700
Australia	3 244	3 700	3 300	2 800	3 000
New Caledonia (e)	1 662	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) Excludes white alloy and matte which are believed to be further processed in Belgium and elsewhere

(c) Includes metal and cobalt contained in sulphate

(d) Including oxides

(e) Carbonate

Mine production of copper

tonnes (metal content)

Country	2018	2019	2020	2021	2022
Albania	2 601	3 551	3 070	5 134	5 899
Armenia	76 166	97 870	90 154	85 912	66 132
Azerbaijan	1 645	2 210	2 591	2 649	2 516
Bulgaria	69 841	70 927	70 176	66 312	* 67 000
Cyprus	908	703	—	—	—
Finland	46 755	32 592	35 494	32 017	27 553
Georgia	15 704	9 547	8 031	8 147	6 364
North Macedonia	8 000	7 100	5 982	6 213	7 093
Poland	401 300	449 000	442 000	443 000	443 000
Portugal	49 064	41 553	32 032	37 941	64 004
Romania	8 722	9 200	9 100	9 100	* 11 600
Russia	870 500	812 400	924 100	938 800	948 000
Serbia	44 100	43 550	52 207	121 150	203 998
Slovakia	21	17	20	76	30
Spain	187 714	170 556	182 678	142 381	128 796
Sweden	106 142	99 332	100 065	88 108	88 337
Turkey	79 600	73 500	107 000	108 100	* 115 000
Botswana	1 462	—	—	11 742	34 201
Congo, Democratic Republic	1 225 227	1 420 386	1 601 208	1 802 897	2 394 630
Eritrea	17 300	16 008	21 725	20 224	17 098
Mauritania	28 138	29 620	28 491	18 845	13 313
Morocco	32 400	30 700	31 800	* 36 500	* 28 000
Namibia	15 177	15 743	10 853	* 3 000	2 036
South Africa	46 900	52 501	29 068	28 307	49 194
Tanzania	* 38 000	* 17 000	* 59 000	* 115 000	* 118 000
Zambia	875 848	789 942	868 671	800 696	763 550
Zimbabwe	9 077	8 700	7 933	8 650	10 168
Canada	548 011	560 781	584 608	550 418	519 691
Dominican Republic	8 588	6 047	2 193	4 774	5 360
Mexico	696 580	713 704	800 316	782 136	828 180
Panama	—	147 480	205 548	331 000	350 438
USA	1 220 000	1 260 000	1 200 000	* 1 230 000	1 100 000
Argentina	17 400	—	—	—	—
Bolivia	5 216	4 478	2 822	3 310	3 608
Brazil	385 761	363 268	353 258	671 684	297 653
Chile	5 831 600	5 787 400	5 733 100	5 624 900	5 330 500
Colombia	9 918	7 641	9 356	8 195	7 800
Ecuador	5 500	6 300	49 700	89 200	* 120 000
Peru	2 437 035	2 455 440	2 150 126	2 326 035	2 438 631
China	1 615 234	1 683 700	1 723 100	1 818 000	1 937 800
India (a)	34 100	28 000	25 810	27 163	26 005
Indonesia	651 136	351 000	507 000	775 000	965 600
Iran	310 000	310 000	315 000	316 000	344 200
Kazakhstan	635 500	562 100	551 800	511 900	589 800
Korea, Dem. P.R. of	* 2 000	* 2 000	* 2 000	* 2 000	* 2 000
Kyrgyzstan	7 200	7 000	5 100	6 600	7 500
Laos	154 948	140 935	88 163	38 349	43 766
Mongolia	458 780	441 910	446 845	464 205	416 430
Myanmar	* 180 000	* 219 000	* 186 000	* 68 000	—
Pakistan	12 538	13 049	13 200	18 806	16 346
Philippines	69 933	71 892	60 856	51 586	59 500
Saudi Arabia	57 300	67 300	75 400	76 350	* 75 000
Tajikistan	3 210	2 330	978	1 845	1 206
Uzbekistan	141 200	137 300	142 800	148 500	148 500
Vietnam	26 235	30 192	30 782	33 930	34 709
Australia	910 896	925 157	868 019	795 955	818 816
Papua New Guinea	96 287	99 398	86 988	66 958	75 800
World total	20 800 000	20 700 000	20 900 000	21 800 000	22 200 000

Note(s)

(a) Years ended 31 March following that stated

Smelter production of copper

tonnes (metric)

Country	2018	2019	2020	2021	2022
Armenia	8 831	—	—	—	—
Austria	66 700	68 600	75 400	75 400	60 003
Bulgaria	316 900	255 200	286 000	256 600	* 310 000
Finland	139 087	120 369	145 847	151 000	135 203
Germany	311 200	288 600	312 600	516 000	476 000
Norway	20 590	21 962	20 535	20 125	18 475
Poland	461 865	489 242	462 868	581 409	560 724
Russia	789 000	790 500	815 200	1 000 000	984 500
Serbia	66 200	82 400	88 000	78 700	* 30 000
Spain	284 800	245 800	257 700	* 259 000	* 195 000
Sweden	150 000	135 900	155 000	* 155 000	* 160 000
Turkey	85 400	83 700	83 900	93 000	84 005
Congo, Democratic Republic	—	* 2 000	107 782	163 219	164 441
Namibia	48 971	45 953	49 392	40 407	37 230
South Africa	50 000	15 000	—	—	—
Tanzania	* 38 000	* 17 000	* 57 000	* 113 000	* 115 000
Zambia (a)	828 700	638 500	750 600	758 468	771 544
Canada	290 100	290 000	290 000	290 000	288 600
Mexico	286 242	277 654	286 242	287 406	285 438
USA	536 000	466 000	315 000	* 360 000	380 500
Brazil	132 200	110 900	* 64 800	* 60 000	* 60 000
Chile	1 246 100	1 011 200	1 206 300	1 206 600	1 112 400
Peru	327 821	294 315	342 738	* 348 000	324 136
China	6 575 016	7 082 700	* 7 700 000	8 000 000	10 390 000
India	491 500	344 300	243 200	363 002	395 003
Indonesia	258 800	246 100	276 900	280 400	272 464
Iran	204 100	201 100	223 300	246 800	* 230 000
Japan	1 263 456	1 169 664	1 277 303	1 174 957	1 269 940
Kazakhstan	308 900	311 000	319 100	265 500	324 704
Korea (Rep. of)	530 000	520 000	513 900	689 997	690 005
Pakistan	12 538	13 049	13 200	12 388	12 225
Philippines	170 900	217 800	247 000	220 000	185 054
Uzbekistan	117 000	147 300	148 000	148 000	148 900
Vietnam	* 15 100	* 19 200	* 19 200	* 20 000	* 20 000
Australia	360 993	401 277	399 292	381 857	373 788
World total	16 800 000	16 400 000	17 600 000	18 600 000	20 900 000

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	2018	2019	2020	2021	2022
Austria	107 200	128 200	132 000	133 500	107 000
Belgium	390 200	356 600	321 400	386 400	377 500
Bulgaria	224 098	207 196	224 880	218 020	229 000
Cyprus	908	703	—	—	—
Finland	18 201	13 009	2 591	2 132	18 094
Germany	672 400	629 700	643 000	614 000	609 000
Italy	7 500	9 800	15 000	15 400	9 900
North Macedonia	768	719	722	700	600
Norway	20 590	21 962	20 535	20 125	18 475
Poland	501 817	565 588	560 364	577 575	586 006
Russia	1 016 000	1 028 000	1 055 000	1 022 000	1 010 000
Serbia	72 087	74 000	46 937	58 344	24 665
Spain	423 800	386 700	399 700	360 700	297 900
Sweden	224 487	201 345	225 987	223 038	217 800
Turkey	126 300	116 000	126 100	127 000	134 600
Ukraine	24 901	20 409	24 335	26 600	* 2 400
Congo, Democratic Republic	999 513	1 160 223	1 352 000	1 492 000	1 810 000
Egypt	* 4 000	* 4 000	* 4 000	* 4 000	* 4 000
Namibia	15 177	15 743	10 641	950	—
South Africa	* 70 000	* 15 000	* —	* —	* —
Zambia	458 200	264 500	378 400	353 900	348 600
Zimbabwe	100	—	—	—	—
Canada	291 250	281 176	276 100	286 600	278 000
Mexico	473 612	486 903	491 926	472 767	482 136
USA	1 110 000	1 030 000	918 000	971 000	952 000
Argentina	* 14 000	* 14 000	* 14 000	* 14 000	* 14 000
Bolivia	3 300	3 100	1 800	1 700	1 400
Brazil	147 100	175 200	108 600	61 500	8 600
Chile	2 461 200	2 269 100	2 329 300	2 274 000	2 149 100
Peru	336 798	307 862	323 580	343 600	394 900
China	9 023 965	9 784 238	10 025 059	10 486 700	11 115 300
India	550 600	418 300	333 500	489 700	542 000
Indonesia	274 641	257 977	278 377	287 800	290 300
Iran (a)	247 384	250 130	280 275	285 011	300 011
Japan	1 594 517	1 495 359	1 580 086	1 516 684	1 556 452
Kazakhstan	438 115	472 327	477 016	401 883	423 300
Korea (Rep. of)	673 364	665 727	657 000	647 400	637 900
Laos	71 268	71 651	39 730	5 964	6 604
Mongolia	14 175	11 758	9 488	9 690	9 736
Myanmar	179 000	218 000	* 185 000	* 67 000	—
Philippines	170 800	217 300	220 900	214 684	258 729
Uzbekistan	107 400	147 300	148 000	148 000	148 500
Vietnam	15 100	* 19 200	* 19 200	* 20 000	* 20 000
Australia	377 036	426 739	426 997	400 250	400 922
World total	24 000 000	24 200 000	24 700 000	25 000 000	25 800 000

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 are 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	2018	2019	2020	2021	2022
Russia	43 161 058	45 271 212	31 186 551	39 116 970	41 923 910
Angola	8 408 688	9 149 746	7 734 281	8 723 069	8 763 309
Botswana	27 373 000	23 687 000	16 868 000	22 696 000	24 479 000
Cameroon (a)	* 3 600	* 3 500	* 4 200	* 4 500	* 4 200
Central African Republic	13 572	27 549	55 926	92 772	118 044
Congo	47 579	2 963	11 157	4 125	3 534
Congo, Democratic Republic	15 130 800	18 892 000	16 560 000	12 179 000	11 683 000
Côte d'Ivoire	5 678	3 990	4 015	3 942	3 904
Gabon	—	—	—	501	—
Ghana (b)	57 531	33 789	25 292	54 174	82 252
Guinea	292 707	229 180	128 575	273 321	113 848
Lesotho	1 294 283	1 113 526	481 243	339 452	727 737
Liberia	75 554	55 936	54 599	63 027	55 391
Mali	—	—	—	—	92
Namibia	2 091 781	1 745 281	1 484 290	1 517 525	2 054 227
Sierra Leone	739 600	824 430	686 020	829 330	680 432
South Africa	9 911 460	7 177 435	8 470 840	9 723 811	9 646 300
Tanzania	381 302	416 750	147 191	62 545	442 016
Togo	—	16	—	—	—
Zimbabwe	3 252 418	2 119 189	2 670 458	4 224 300	4 844 019
Canada	22 789 001	18 491 388	15 035 711	17 353 418	17 728 144
Brazil	250 940	165 992	124 548	142 661	158 420
Guyana	62 111	54 993	19 240	45 106	83 614
Venezuela	—	—	794	* 800	* 800
China	* 99	* 51	* 21	—	—
India (c)	38 437	28 816	13 917	266	419
Australia	14 008 054	12 154 544	9 980 000	—	—
World total	149 400 000	141 600 000	111 700 000	117 500 000	123 600 000

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	2018	2019	2020	2021	2022
Armenia	* 20 000	* 20 000	* 20 000	* 20 000	* 20 000
Czech Republic	31 000	43 000	46 000	18 000	44 000
Denmark					
Moler (a)	99 375	108 750	115 000	120 625	143 125
France	* 90 000	* 90 000	* 90 000	* 90 000	* 80 000
Germany	58 340	53 802	51 511	57 719	49 821
Hungary	853	860	321	573	575
Poland	580	680	810	980	1 170
Russia	50 600	* 51 000	* 51 000	* 50 000	* 50 000
Spain (b)	61 056	62 741	59 250	55 982	67 095
Turkey	242 789	220 757	100 327	207 732	237 267
Algeria	2 468	2 437	3 040	3 066	* 3 000
Ethiopia (c)	* 5 000	* 5 000	* 5 000	* 5 000	* 5 000
Kenya	1 548	921	928	763	1 401
Mozambique	66 429	72 439	80 189	72 914	51 449
Costa Rica	1 839	1 546	3 763	5 286	5 943
Mexico	152 058	129 274	144 105	140 928	107 060
USA (d)	957 000	768 000	822 000	* 998 000	* 1 100 000
Argentina	72 000	95 000	99 000	* 100 000	* 100 000
Brazil	21 297	17 826	24 758	12 648	33 029
Chile	24 736	21 328	21 477	27 096	24 279
Peru	96 532	91 103	85 406	94 860	104 660
China	* 144 000	141 000	* 274 000	* 270 000	* 270 000
Iran (e)	3 000	—	—	—	—
Japan	* 40 000	* 40 000	* 40 000	* 40 000	* 40 000
Korea (Rep. of)	25 902	40 910	65 240	49 616	11 880
Saudi Arabia	—	—	—	—	45
Australia	4	8	7	3	5
New Zealand	* 44 000	* 44 000	* 44 000	* 44 000	* 40 000
World total	2 300 000	2 100 000	2 200 000	2 500 000	2 600 000

Note(s)

(1) In addition to the countries listed, Georgia, Saudi Arabia 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) Years ended 20 March following that stated

Production of feldspar

tonnes (metric)

Country	2018	2019	2020	2021	2022
Austria	35 000	35 000	35 000	35 000	35 000
Czech Republic	449 000	460 000	419 000	504 000	493 000
Finland	17 469	17 997	16 137	52 706	63 034
France	* 500 000	* 500 000	* 450 000	* 450 000	* 450 000
Germany	252 693	235 289	221 527	223 007	205 330
Greenland	—	19 456	* 20 000	* 20 000	20 000
Italy	4 000 000	4 000 000	2 200 000	* 2 200 000	* 2 200 000
North Macedonia	30 813	29 519	13 115	26 625	37 482
Norway	* 88 000	* 88 000	69 220	60 025	* 60 000
Poland	593 100	593 004	427 200	534 100	540 614
Portugal (a)	227 367	179 584	204 843	156 507	217 766
Romania	* 23 000	* 22 000	* 22 000	* 22 000	* 22 000
Russia	294 411	* 294 000	* 294 000	* 300 000	* 300 000
Serbia	* 20 000	* 20 000	* 20 000	* 20 000	* 20 000
Slovakia	17 000	19 100	29 140	10 300	10 300
Spain	616 229	855 139	911 095	820 749	716 535
Sweden	28 000	* 28 000	* 20 000	* 26 000	* 20 000
Turkey	11 474 040	9 447 810	10 050 911	12 936 959	15 011 271
Ukraine (b)	* 30 000	* 30 000	* 30 000	* 30 000	* 15 000
Algeria	* 170 000	* 170 000	* 170 000	* 170 000	* 170 000
Egypt	* 230 000	* 230 000	* 200 000	* 230 000	* 250 000
Ethiopia (c)	* 600	* 600	* 600	* 600	* 600
Morocco	75 000	75 000	185 772	427 387	* 427 000
Nigeria	41 355	33 702	19 453	43 997	* 44 000
South Africa	76 803	76 255	48 427	65 726	75 382
Sudan	36 000	15 300	25 000	6 400	* 6 000
Uganda	—	—	—	95	* 100
Cuba	3 000	2 100	14 100	17 800	5 900
Guatemala	30 257	28 771	25 578	34 232	* 40 000
Mexico	209 770	304 084	318 120	372 102	377 649
USA	550 000	450 000	430 000	* 540 000	590 000
Argentina	56 500	* 56 500	32 000	* 40 000	* 40 000
Brazil (d)	227 886	389 069	269 423	304 856	354 001
Chile	2 789	55	329	—	—
Colombia	141 794	179 856	134 846	46 886	92 379
Ecuador	43 197	—	—	—	—
Peru	31 588	29 134	24 132	27 274	24 358
Uruguay	380	100	208	24 120	300
Venezuela	11 935	* 30 000	* 30 000	* 30 000	* 30 000
China	* 2 000 000	* 2 000 000	* 2 500 000	* 2 500 000	* 2 400 000
India (e)	* 4 300 000	* 4 300 000	* 4 300 000	* 4 300 000	* 4 300 000
Indonesia	* 11 000	* 11 000	* 11 000	120 477	* 11 000
Iran (f)	2 057 640	2 368 957	3 113 579	* 3 200 000	* 3 200 000
Japan (g)	* 100 000	* 100 000	* 100 000	* 100 000	* 100 000
Korea (Rep. of)	617 166	396 896	415 426	987 309	851 046
Malaysia	414 441	241 189	144 487	168 570	216 394
Pakistan (h)	151 743	295 381	343 075	451 985	* 450 000
Philippines	* 46 600	* 46 600	* 46 000	* 46 000	* 46 000
Saudi Arabia	206 000	216 000	523 000	549 000	* 550 000
Sri Lanka	* 26 000	* 26 000	* 26 000	* 26 000	* 26 000
Thailand	1 117 803	1 251 143	1 105 344	1 346 997	1 953 918
Uzbekistan	26 841	47 784	63 595	106 145	* 106 000
Vietnam	* 100 000	* 100 000	* 100 000	* 100 000	* 100 000
Australia (h)	* 5 100	* 5 800	* 6 700	* 6 500	* 5 000
World total	31 800 000	30 400 000	30 200 000	34 800 000	37 300 000

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	2018	2019	2020	2021	2022
Germany	49 197	79 959	64 933	56 632	104 461
Russia	6 000	4 000	32 000	* 32 000	* 32 000
Spain	176 188	145 185	185 958	187 225	203 768
Turkey	6 200	14 400	19 896	10 348	17 252
United Kingdom	* 11 000	* 14 000	* 15 000	* 15 000	* 13 000
Egypt (a)	* 1 000	* 1 000	* 1 000	* 1 000	* 1 000
Morocco	87 874	73 240	83 833	189 012	* 189 000
South Africa	242 000	210 000	320 000	403 000	* 420 000
Mexico	1 182 058	1 231 465	914 597	1 007 118	990 079
Argentina	7 924	8 000	4 800	4 800	* 4 800
Brazil	28 195	24 399	24 730	28 158	28 969
Colombia	46	—	—	—	—
Afghanistan	* 4 000	* 4 000	* 4 000	* 4 000	* 4 000
China	* 4 000 000	* 4 300 000	* 5 400 000	5 700 000	5 700 000
India	(b) 1 079	(b) 1 315	(b) 1 052	(b) 1 237	988
Iran (c)	89 102	49 705	116 159	* 110 000	* 110 000
Kazakhstan	* 100 000	87 800	77 000	* 77 000	* 67 000
Korea, Dem. P.R. of	* 7 000	* 7 000	* 6 000	* 7 000	* 7 000
Kyrgyzstan	* 4 000	* 4 000	* 4 000	* 4 000	* 4 000
Mongolia	101 200	156 100	127 300	118 300	122 900
Pakistan (a)	2 777	4 186	5 981	7 841	* 8 000
Thailand	16 700	17 747	9 807	9 766	59 243
Vietnam	238 702	238 003	219 920	215 027	217 975
World total	6 400 000	6 700 000	7 600 000	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): 2018: 33; 2019: 29; 2020: 22; 2021: 40; 2022: 40.

- (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	2018	2019	2020	2021	2022
Russia	* 13	* 13	* 13	* 13	* 5
Ukraine	* 4	* 8	* 4	* 4	* 2
China	404	357	336	423	* 400
Japan	3	3	3	3	* 3
Korea (Rep. of) (a)	* 3	* 3	* 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.
- (a) Primary production only

Production of germanium metal

tonnes (metric)

Country	2018	2019	2020	2021	2022
Russia	* 6	* 5	* 5	* 5	* 5
USA (a)	* 3	* 5	* 5	* 6	7
China	95	86	* 95	* 155	180

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, 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 an estimated 270 kg for artisanal mining in 2022; 270 kg in 2021; 332 kg in 2020; 259 kg in 2019 and 306 kg in 2018. 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 200 kg per year to something in the order of 1500 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 100 to 300 kg. However, reports suggest that it varies considerably from year to year and may range between 1000 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 2017/18 amounted to 823 kg and in 2018/19 to 3 179 kg. Actual artisanal production could be higher.

France (French Guiana) – the table includes an estimate of 5000 kg to 10000 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 from 2013. The figures in the table include 40 kg for artisanal mining in 2017. Data from 2018 onwards is 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 by under the Extractive Industry Transparency Initiative (EITI). In the table below the following figures are included for artisanal production: 45 992 kg in 2017; 61 812 kg in 2018; 52,229 kg in 2019; and 36 547 in 2020.

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 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 3000 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 6000 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 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 3500 to 4000 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 2000kg and 4000kg 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 1000 kg up to 9000 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.

Mine production of gold

kilograms

Country	2018	2019	2020	2021	2022
Armenia	4 908	5 825	5 900	3 400	* 4 600
Azerbaijan	3 476	3 712	3 571	3 427	3 316
Bulgaria	6 465	7 413	9 590	9 966	11 183
Cyprus	47	33	61	—	—
Finland	8 732	7 927	8 668	9 082	8 390
Georgia	4 299	4 052	5 401	3 513	4 908
Germany	9	* 10	* 10	12	14
Greece	2 839	2 333	3 440	3 313	3 561
North Macedonia	767	593	448	* 500	* 600
Poland	523	674	788	768	769
Romania	* 500	* 500	* 500	* 500	* 500
Russia	279 900	305 100	308 600	313 830	* 320 000
Serbia (a)	839	1 452	1 550	4 796	7 290
Slovakia	515	346	336	392	399
Spain	1 991	1 913	1 602	1 400	1 359
Sweden	7 866	7 972	8 249	8 805	8 054
Turkey	28 000	38 000	42 100	39 290	31 020
United Kingdom	—	* 50	28	79	266
Algeria	286	70	58	71	138
Angola	—	23	59	35	80
Benin	* 5	* 5	* 5	* 5	* 5
Botswana	1 105	942	851	650	426
Burkina Faso	52 898	51 500	62 470	66 931	60 000
Burundi	1 898	1 599	863	893	* 900
Cameroon	478	341	* 450	* 450	* 175
Central African Republic	142	359	401	858	1 507
Congo	* 150	* 150	* 150	* 150	* 150
Congo, Democratic Republic	* 43 800	* 43 000	* 40 000	* 42 000	* 38 000
Côte d'Ivoire	24 488	32 568	38 523	39 779	47 600
Egypt	14 694	14 946	14 069	12 919	13 716
Equatorial Guinea	* 200	* 200	* 200	* 200	* 200
Eritrea	3 768	2 443	3 019	* 2 200	* 3 300
Eswatini (Swaziland)	12	6	1	—	—
Ethiopia (b)(c)	2 570	3 180	3 320	9 190	8 680
Gabon	83	107	371	967	1 063
Ghana	149 216	143 940	125 884	88 013	108 115
Guinea	* 25 086	27 552	91 802	100 958	84 713
Kenya	* 5 472	* 5 395	* 5 150	* 5 292	* 5 564
Liberia	7 289	5 068	4 396	7 860	* 11 718
Madagascar (c)	3 000	2 100	1 500	—	—
Mali	* 61 000	* 63 000	* 65 000	* 69 400	* 72 200
Mauritania	9 235	13 554	14 125	6 302	17 539
Morocco (a)	386	221	143	147	167
Mozambique	507	430	488	764	1 264
Namibia	6 632	6 526	6 254	7 103	6 992
Niger	6 207	5 224	2 361	4 010	2 601
Nigeria (c)	* 18 000	* 9 000	* 5 000	* 3 000	* 12 000
Rwanda (c)	* 18 100	* 11 400	11 532	6 341	9 470
Senegal (c)	14 900	16 100	14 600	18 800	16 200
Sierra Leone	464	75	14	117	150
South Africa	117 150	105 185	95 786	105 019	88 883
South Sudan	* 200	* 200	* 200	* 200	* 200
Sudan	93 600	55 400	35 700	49 700	41 800
Tanzania	39 304	48 408	55 508	59 638	56 943
Togo (c)	* 10 000	8 227	3 565	* 3 600	* 3 600

Mine production of gold

kilograms

Country	2018	2019	2020	2021	2022
Uganda	12	10	* 7	* 7	* 7
Zambia (d)	4 044	4 522	3 994	3 987	3 108
Zimbabwe	35 054	29 429	20 873	31 477	37 225
Canada	194 155	182 783	182 352	222 524	192 012
Costa Rica	3 699	4 500	599	647	* 700
Dominican Republic	31 633	31 801	28 117	25 287	22 177
Guatemala	100	100	—	100	—
Honduras	2 148	1 760	1 790	2 574	1 911
Mexico	141 143	133 893	142 787	133 340	147 700
Nicaragua	7 703	9 190	7 935	10 840	11 460
Panama	* 100	1 969	2 733	4 505	4 447
USA	225 528	200 370	193 000	187 000	173 000
Argentina	58 397	53 092	34 936	37 280	* 44 500
Bolivia	31 599	42 040	23 207	45 662	53 374
Brazil	85 000	75 000	82 000	* 90 000	* 83 000
Chile	37 066	38 455	33 895	34 248	30 966
Colombia (e)	35 965	38 006	48 561	55 321	42 142
Ecuador	8 212	6 293	9 086	12 614	15 111
France (French Guiana)	* 10 000	* 10 000	* 10 000	* 11 000	* 10 000
Guyana	19 069	19 963	18 209	15 522	15 129
Peru	140 211	128 413	88 053	96 586	96 700
Suriname	26 002	24 516	21 959	19 439	20 373
Uruguay	(m) 465	—	—	—	—
Venezuela	10 785	* 9 100	* 30 000	* 30 000	* 30 000
Cambodia	...	...	—	1 465	3 312
China (a)	401 119	380 230	365 340	329 000	372 048
India (f)	1 664	1 724	1 127	1 100	1 155
Indonesia	111 858	108 690	65 890	78 996	85 203
Iran (g)	* 7 600	* 8 140	* 6 919	* 7 000	* 7 000
Japan	6 453	6 312	7 590	6 225	4 886
Kazakhstan	100 299	106 559	116 964	114 843	129 583
Korea (Rep. of)	239	181	189	162	76
Korea, Dem. P.R. of	* 10 000	* 10 000	* 10 000	* 10 000	* 10 000
Kyrgyzstan	19 000	21 200	19 300	20 200	32 000
Laos	5 579	5 207	3 484	3 940	4 023
Malaysia	2 978	3 151	1 716	1 782	1 828
Mongolia	20 700	16 200	20 200	19 100	19 400
Myanmar (f)	1 620	229	716	846	* 500
Philippines	20 765	20 646	17 564	25 333	29 007
Saudi Arabia	11 831	12 258	12 715	9 639	13 375
Taiwan	4	6	3	1	1
Tajikistan	6 432	8 100	8 764	* 8 400	* 9 300
Uzbekistan	92 716	* 93 000	* 100 000	100 360	105 000
Vietnam	570	540	559	664	1 114
Australia	313 028	326 304	327 952	307 577	306 320
Fiji	1 281	1 106	1 090	1 107	584
New Zealand	10 045	8 217	5 860	5 815	6 674
Papua New Guinea	67 562	74 386	48 679	35 584	42 310
World total	3 400 000	3 300 000	3 200 000	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, Cambodia, El Salvador, Haiti, Malawi, Pakistan, Paraguay and Portugal may produce gold.

- (a) Metal production
 (b) Years ended 7 July of that stated
 (c) Exports
 (d) Contained in blister copper, refinery muds and electrolytic copper
 (e) In addition some gold produced by artisanal mining
 (f) Years ended 31 March following that stated
 (g) Years ended 20 March following that stated

Production of graphite

tonnes (metric)

Country	2018	2019	2020	2021	2022
Austria (a)(b)	25 000	20 000	16 500	* 17 000	* 17 000
Bosnia & Herzegovina	5	3	3	4	6
Germany	222	207	108	181	185
Norway	* 9 600	* 9 600	* 9 000	* 9 000	* 9 000
Russia	17 800	18 000	25 000	* 27 000	* 15 000
Turkey	16 752	9 990	15 205	28 336	27 715
Ukraine	* 15 000	* 15 000	16 000	17 000	* 8 000
Madagascar	54 587	45 106	(c) 48 500	(c) 91 100	(c) 116 700
Mozambique	106 773	113 803	18 159	77 116	165 932
Namibia	3 456	—	—	—	—
Zimbabwe	174	—	—	—	—
Canada	11 000	11 000	8 841	7 706	13 000
Mexico	4 130	2 342	2 033	1 509	3 420
Brazil (d)	78 981	81 770	67 020	78 555	79 371
China (e)	* 693 000	* 700 000	* 762 000	* 820 000	* 850 000
India (a)	(f) 39 030	(f) 31 991	(f) 30 168	(f) 57 264	85 873
Korea, Dem. P.R. of	* 40 000	* 40 000	* 30 000	* 40 000	* 40 000
Pakistan (g)	1 840	—	* —	* —	* —
Sri Lanka	* 3 800	* 4 000	* 4 000	* 4 000	* 4 000
World total	1 100 000	1 100 000	1 000 000	1 300 000	1 400 000

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
- (g) Years ended 30 June of that stated

Production of gypsum

tonnes (metric)

Country	2018	2019	2020	2021	2022
Albania	102 016	106 070	111 880	116 295	78 239
Armenia	20 400	22 900	29 000	28 000	38 000
Austria (a)	836 862	900 217	900 619	900 374	876 075
Azerbaijan	12 043	14 675	297 594	416 892	369 908
Bosnia & Herzegovina (a)	122 421	130 778	140 994	297 225	135 408
Bulgaria	* 88 000	* 88 000	* 88 000	* 88 000	* 88 000
Croatia	267 155	279 719	308 214	376 510	382 840
Cyprus	625 721	623 545	646 340	661 175	688 270
Czech Republic	8 000	10 000	17 000	17 000	20 000
France (a)	5 314 983	1 897 609	1 869 312	3 370 757	4 804 110
Georgia	91 699	137 831	87 655	79 515	22 028
Germany (a)	4 550 000	4 850 000	5 200 000	6 260 000	5 820 000
Greece (a)	827 300	840 000	780 000	850 000	800 000
Hungary	1 280	1 185	—	1 043	1 086
Ireland Republic of	* 200 000	200 000	150 000	* 110 000	* 110 000
Italy (a)	188 618	298 242	163 749	165 000	847 447
Latvia	430 650	428 460	483 279	516 638	—
Moldova (b)	* 300 000	* 300 000	* 300 000	* 300 000	* 300 000
North Macedonia (a)	230 029	267 181	229 322	273 497	190 902
Norway (a)(c)	89 655	102 100	93 602	92 794	86 317
Poland (a)	1 120 344	1 150 000	1 132 368	1 123 000	1 034 000
Portugal	232 921	209 076	210 231	254 913	167 673
Romania	799 810	878 546	925 782	952 617	897 176
Russia	* 3 800 000	* 5 500 000	* 4 200 000	* 4 200 000	* 4 100 000
Slovakia (a)	55 000	50 000	65 560	66 760	54 000
Spain	10 593 056	11 279 443	13 376 353	14 629 150	14 381 037
Switzerland	* 330 000	* 330 000	* 320 000	* 330 000	* 330 000
Turkey	10 896 476	7 489 129	9 280 864	10 620 061	10 176 459
Ukraine (a)	1 386 400	1 409 400	1 529 000	1 783 300	* 750 000
United Kingdom	* 1 400 000	* 1 600 000	* 1 300 000	* 2 400 000	* 2 400 000
Algeria	1 884 000	* 2 500 000	* 2 500 000	* 2 500 000	* 2 500 000
Angola	* 190 000	* 190 000	* 190 000	* 190 000	* 190 000
Egypt (a)(d)	72 737	* 75 000	* 92 875	94 541	* 100 000
Eritrea	* 20 000	* 26 000	* 24 000	* 26 000	* 26 000
Ethiopia (e)	52 503	53 897	* 56 000	* 56 000	* 56 000
Guinea	* 100 000	* 200 000	* 300 000	* 300 000	* 200 000
Kenya (a)	* 5 800	* 5 800	* 5 800	* 5 800	* 5 800
Libya	225 000	* 210 000	* 200 000	* 250 000	* 250 000
Mauritania	* 200 000	* 250 000	* 250 000	* 250 000	* 250 000
Morocco	* 600 000	* 600 000	* 600 000	* 600 000	* 600 000
Niger	507	6 211	9 083	27 003	217 451
Nigeria	39 052	22 300	30 706	13 401	* 13 000
South Africa	313 909	277 102	205 542	273 241	243 052
Sudan	226 000	236 000	173 000	136 000	140 000
Tanzania	241 259	256 529	443 926	598 053	604 408
Tunisia	984 031	1 046 885	890 000	* 910 000	* 900 000
Canada (a)	3 246 000	2 446 000	2 915 270	3 135 484	3 174 070
Cuba	99 900	66 300	62 300	53 200	32 600
Dominican Republic	82 896	137 143	132 575	143 318	180 788
Guatemala	132 897	140 901	423 282	138 552	206 143
Honduras	62 200	45 000	45 000	75 000	75 000
Jamaica	47 000	55 391	65 847	65 553	84 000
Mexico	11 275 293	7 759 139	7 977 953	9 157 381	8 283 113
Nicaragua	70 341	39 925	64 573	19 999	39 864
USA	21 100 000	21 700 000	21 200 000	22 300 000	* 22 000 000
Argentina	897 217	761 023	499 092	* 500 000	* 500 000
Bolivia	* 1 100	* 1 100	* 1 100	* 1 100	* 2 900
Brazil	2 666 002	5 685 654	2 851 643	3 260 209	5 155 340
Chile	909 191	977 397	910 310	1 007 206	978 846
Colombia	396 372	294 137	284 222	348 704	283 544
Paraguay	* 4 500	* 4 500	* 4 500	* 4 500	* 4 500
Peru	458 479	254 382	171 093	435 009	315 292

Production of gypsum

tonnes (metric)

Country	2018	2019	2020	2021	2022
Afghanistan	* 3 000	* 3 000	* 3 000	* 3 000	* 3 000
Bhutan	461 128	490 596	331 050	403 753	400 183
China	11 900 000	12 640 000	11 839 000	* 12 000 000	* 12 000 000
India (f)(g)	2 151 727	3 006 158	* 3 000 000	* 3 000 000	* 3 000 000
Iran (h)	13 852 269	16 147 297	18 588 699	* 18 600 000	* 18 600 000
Iraq	* 1 000 000	* 1 000 000	* 1 000 000	* 1 000 000	* 1 000 000
Israel	75 800	72 000	—	35 740	49 062
Japan	* 4 700 000	* 4 300 000	* 4 300 000	* 4 300 000	* 4 300 000
Jordan	190 606	264 724	184 917	399 968	* 400 000
Kazakhstan	121 100	78 200	94 500	184 700	* 185 000
Laos	618 783	606 387	737 749	1 221 959	1 589 771
Mongolia	* 56 000	* 56 000	* 56 000	* 56 000	* 56 000
Myanmar	309 343	299 316	299 630	64 626	* 65 000
Oman	9 666 700	10 982 900	11 120 200	12 290 200	9 510 100
Pakistan (e)	2 489 000	2 517 825	2 149 872	2 527 215	2 325 000
Saudi Arabia	3 307 000	3 472 000	3 803 000	3 993 000	* 4 000 000
Sri Lanka	* 2 200	* 2 200	* 2 200	* 2 200	* 2 200
Syria	* 66 000	* 66 000	* 70 000	* 70 000	* 70 000
Tajikistan	9 613	10 031	8 183	* 8 100	* 8 100
Thailand					
Gypsum	9 680 429	8 367 700	8 012 293	8 788 841	8 022 925
Anhydrite	1 517 228	1 419 587	1 266 826	1 614 157	1 824 637
Uzbekistan	323 809	279 432	288 657	303 938	* 300 000
Yemen, Republic of	* 9 500	* 11 500	* 11 000	* 11 500	* 11 000
Australia (d)	4 066 464	4 286 774	3 763 409	4 328 726	4 826 000
World total	158 100 000	158 100 000	158 700 000	173 400 000	170 100 000

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	2018	2019	2020	2021	2022
Poland	4	4	4	4	4
Russia	5	5	5	* 5	* 5
Algeria	14	14	14	* 14	* 14
USA	76	72	76	76	77
Qatar	45	45	51	* 61	* 59
Australia	* 4	* 4	* 4	* 4	* 4

Refinery production of indium

tonnes (metric)

Country	2018	2019	2020	2021	2022
Belgium	* 22	* 20	* 20	* 20	* 20
France	43	* 40	* 38	* 38	* 20
Italy	* 5	* 5	* 5	* 5	* 5
Russia	* 7	* 7	* 7	* 7	* 5
Canada	* 58	* 61	61	44	* 40
Brazil	* 5	* 5	* 5	* 5	* 5
Peru	11	12	* 12	* 12	* —
China	483	534	* 500	* 580	* 667
Japan	70	70	70	70	* 70
Korea (Rep. of)	* 100	* 100	* 100	* 100	* 100

Note(s)

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

Production of iodine

kilograms

Country	2018	2019	2020	2021	2022
Azerbaijan	185 100	190 300	182 800	167 500	194 700
Russia	7 895	3 112	* 3 000	* 3 000	* 3 000
USA	* 1 150 000	* 1 150 000	* 1 150 000	* 1 150 000	* 1 150 000
Chile	20 216 000	20 826 000	21 941 000	19 194 000	20 616 000
China	* 600 000	* 600 000	* 600 000	* 600 000	* 600 000
Indonesia	38 000	33 000	37 000	36 000	29 000
Iran (a)	368 000	682 000	386 300	* 600 000	* 600 000
Japan	9 136 000	9 122 000	8 876 000	9 221 000	9 857 000
Turkmenistan	* 540 000	* 600 000	* 600 000	* 600 000	* 600 000
World total	32 200 000	33 200 000	33 800 000	31 600 000	33 600 000

Note(s)

(a) Years ended 20 March following that stated

Production of iron ore

tonnes (metric)

Country	2018	2019	2020	2021	2022
Austria (a)	2 803 536	3 242 102	3 043 237	3 311 102	3 236 767
Bosnia & Herzegovina	1 380 488	1 450 205	1 427 410	1 553 961	1 286 283
Germany (b)(c)	448 000	533 700	529 400	488 443	469 796
Norway	1 700 000	* 1 800 000	* 1 800 000	* 1 700 000	* 1 800 000
Russia	96 100 000	97 500 000	100 200 000	100 600 000	* 100 600 000
Spain	—	—	20 000	71 728	—
Sweden	35 774 000	38 913 000	39 228 000	41 313 000	36 757 000
Turkey	15 650 305	14 473 363	21 454 649	16 051 308	17 703 929
Ukraine	60 549 000	76 134 000	78 837 700	83 888 800	* 40 000 000
Algeria	706 000	759 000	753 000	742 000	* 750 000
Egypt (d)	557 000	107 000	4 200	12 900	* 12 000
Guinea	—	—	644 245	1 755 079	304 390
Liberia	4 657 155	4 428 645	4 874 409	5 000 000	* 5 000 000

Production of iron ore

tonnes (metric)

Country	2018	2019	2020	2021	2022
Malawi	2 563	3 000	5 018	4 980	* 5 229
Mauritania	10 710 305	12 196 491	12 515 312	12 618 000	12 722 000
Morocco	51 000	* 50 000	* 50 000	* 50 000	* 50 000
Namibia	13 035	12 530	40 544	75 718	—
Nigeria	1 582	160	5 636	3 078	* 5 000
Sierra Leone	968 585	728 300	—	1 584 115	4 370 072
South Africa (e)	74 263 738	72 430 288	55 635 421	73 090 918	63 711 254
Tunisia	175 853	186 519	172 919	266 400	* 260 000
Uganda	4 500	—	—	10 000	* 15 000
Canada (f)	52 358 000	59 013 000	60 059 572	57 491 803	64 666 561
Guatemala	6 172	69	62	* 60	* 60
Mexico	21 244 460	26 089 068	27 208 553	33 915 683	27 685 197
USA (f)(g)	49 500 000	46 900 000	38 100 000	39 000 000	44 000 000
Bolivia	71 662	79 023	26 576	29 322	372 305
Brazil	450 403 998	396 943 645	388 639 076	423 185 073	403 024 748
Chile	14 013 000	13 137 000	15 553 000	17 685 000	17 638 000
Colombia	575 542	666 715	786 641	749 890	497 481
Peru	9 533 871	10 120 007	8 893 972	12 149 274	12 936 826
Venezuela	3 058 697	2 600 000	1 500 000	* 1 000 000	* 1 000 000
Bhutan	37 843	36 864	14 734	25 917	3 492
China	334 790 000	351 000 000	* 270 500 000	* 266 000 000	* 260 000 000
India (h)	206 446 000	246 081 000	204 481 000	253 973 000	252 317 000
Indonesia	1 321 249	3 450 000	* 3 500 000	* 3 500 000	* 3 500 000
Iran (i)	93 365 420	91 778 118	104 818 915	* 105 000 000	* 105 000 000
Kazakhstan	41 876 500	45 221 900	62 865 000	64 089 700	* 66 000 000
Korea (Rep. of)	380 748	342 346	575 232	538 563	434 000
Korea, Dem. P.R. of	* 3 500 000	* 3 000 000	* 2 500 000	* 3 000 000	* 3 000 000
Laos	99 196	470 300	1 013 042	3 522 598	1 794 798
Malaysia (g)	3 353 634	4 160 462	5 371 411	4 874 485	4 911 625
Mongolia	6 225 400	8 572 200	9 224 400	9 171 900	7 659 900
Nepal (j)	396	183	1 705	—	—
Pakistan (d)	677 206	627 464	573 691	805 696	717 281
Philippines	—	—	42 795	77 536	75 771
Thailand	—	17 660	113 239	324 914	190 000
Vietnam	5 588 496	6 106 000	5 239 000	3 083 900	1 843 000
Australia	903 850 494	917 045 579	918 063 223	922 158 512	944 052 390
New Zealand	* 4 000 000	* 4 000 000	* 4 000 000	* 4 000 000	* 4 000 000
World total	2 513 000 000	2 562 000 000	2 455 000 000	2 574 000 000	2 516 000 000

Note(s)

- (a) Including micaceous iron oxide
- (b) Including manganese 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	2018	2019	2020	2021	2022
Albania	—	—	—	773 668	808 983
Austria	5 269 000	5 750 000	5 300 000	6 100 000	5 800 000
Azerbaijan	—	702	362	1	—
Belgium	4 900 000	4 800 000	3 600 000	4 200 000	* 4 300 000
Bosnia & Herzegovina	664 291	744 778	739 058	1 066 238	756 736
Czech Republic	4 000 000	3 635 000	3 500 000	3 900 000	3 400 000
Finland	2 700 000	2 300 000	1 900 000	2 500 000	1 900 000
France	10 529 559	9 877 027	7 695 671	9 500 000	8 200 000
Germany	27 271 000	* 25 400 000	* 25 500 000	26 200 000	24 200 000
Hungary	1 355 000	1 151 000	1 000 000	600 000	500 000
Italy	(a) 4 836 000	4 606 000	3 405 000	3 926 000	3 500 000
Netherlands	6 150 000	5 900 000	5 400 000	5 900 000	5 500 000
Norway	78 800	74 200	* 70 000	* 70 000	* 70 000
Poland	4 787 696	4 241 941	3 502 468	3 594 504	3 089 147
Romania	1 979 200	2 107 300	1 800 000	2 100 000	1 500 000
Russia	51 800 000	51 200 000	52 000 000	* 53 900 000	* 59 300 000
Serbia	1 593 000	1 577 000	* 1 500 000	* 1 500 000	* 1 500 000
Slovakia	4 200 000	3 185 000	2 753 000	4 014 000	* 4 000 000
Spain	4 500 000	3 900 000	2 900 000	4 000 000	3 400 000
Sweden	2 877 000	3 172 000	2 854 000	3 100 000	3 000 000
Turkey	10 536 000	9 900 000	10 000 000	10 400 000	9 100 000
Ukraine	20 531 200	20 055 900	20 238 000	21 200 000	6 400 000
United Kingdom	5 587 900	5 621 700	5 235 500	5 749 600	4 779 400
Algeria	100 000	1 500 000	2 200 000	3 100 000	* 3 100 000
Egypt	5 800 000	4 400 000	4 800 000	5 400 000	6 000 000
Libya	611 763	880 470	834 550	900 000	1 100 000
South Africa	5 400 000	4 500 000	2 300 000	3 100 000	* 2 600 000
Canada	8 100 000	7 700 000	6 400 000	7 800 000	* 7 200 000
Mexico	10 511 000	9 819 000	7 606 000	8 496 000	8 428 000
Trinidad & Tobago	1 500 000	1 700 000	1 300 000	1 600 000	* 1 600 000
USA	24 058 000	22 301 000	21 700 000	22 000 000	19 800 000
Argentina	3 790 000	3 050 000	2 455 000	3 549 800	3 493 500
Brazil	28 655 000	26 280 000	24 628 000	28 530 000	* 26 700 000
Chile	661 000	595 000	663 000	695 000	625 000
Colombia	205 000	207 000	164 000	211 000	213 000
Paraguay (b)	39 000	41 000	35 000	44 000	* 40 000
Venezuela	442 000	393 000	285 000	290 000	277 000
Bahrain	1 600 000	1 450 000	1 400 000	* 1 500 000	* 1 500 000
China	779 876 300	809 365 000	888 976 100	868 567 800	863 827 800
India	106 823 000	111 574 000	101 400 000	116 600 000	122 200 000
Indonesia	2 967 000	3 020 000	* 3 100 000	* 3 000 000	* 3 000 000
Iran	28 100 000	31 000 000	33 300 000	34 300 000	35 400 000
Japan	77 327 888	74 907 006	61 600 469	70 344 478	64 146 549
Kazakhstan	3 174 116	3 208 744	3 212 375	3 623 764	* 2 900 000
Korea (Rep. of)	47 124 000	47 521 000	45 359 000	46 440 000	43 400 300
Korea, Dem. P.R. of	* 200 000	* 150 000	* 100 000	* 150 000	* 150 000
Malaysia	1 230 000	4 467 000	* 700 000	* 400 000	* 400 000
Oman	1 500 000	1 750 000	1 800 000	1 700 000	* 1 700 000
Qatar	2 525 000	2 423 000	752 569	800 000	1 600 000
Saudi Arabia	5 000 000	4 700 000	5 200 000	6 100 000	6 700 000
Taiwan	14 841 000	14 510 000	13 400 000	15 200 000	13 400 000
United Arab Emirates	3 784 000	3 700 000	3 000 000	3 700 000	3 400 000
Vietnam	8 323 000	9 836 000	* 10 000 000	* 10 000 000	* 10 000 000
Australia	3 882 000	3 664 000	3 700 000	3 800 000	3 700 000
New Zealand	700 000	672 000	600 000	700 000	600 000
World total	1 355 000 000	1 380 000 000	1 414 000 000	1 447 000 000	1 414 000 000

Note(s)

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

(a) Includes ferro-manganese

(b) Including sponge iron

Production of crude steel

tonnes (metric)

Country	2018	2019	2020	2021	2022
Austria	6 885 000	7 423 500	6 765 100	7 884 000	7 512 200
Azerbaijan	381 617	325 895	264 506	308 402	391 865
Belarus	2 572 862	2 717 705	2 559 577	2 481 354	2 080 000
Belgium	7 980 000	7 760 000	6 120 000	6 910 000	6 974 500
Bosnia & Herzegovina	677 443	800 600	740 194	774 832	653 246
Bulgaria	666 100	565 900	483 800	547 500	481 500
Croatia	135 800	69 126	45 273	185 143	169 135
Czech Republic	4 966 000	4 600 000	2 900 000	4 700 000	4 200 000
Finland	4 100 000	3 511 000	3 482 000	4 322 000	3 462 000
France	15 387 355	14 449 651	11 595 698	13 946 700	12 118 600
Germany	42 435 000	39 667 000	35 658 000	40 241 200	36 849 100
Greece	1 467 000	1 350 000	1 408 000	1 498 000	1 543 000
Hungary	1 989 000	1 769 000	1 513 000	1 099 800	857 200
Italy	24 495 800	23 190 400	20 379 100	24 412 700	21 598 100
Luxembourg	2 228 000	2 119 000	1 886 000	2 073 000	1 875 000
Moldova (a)	497 200	392 100	465 000	570 000	560 000
Montenegro	26 552	24 262	19 364	3 042	5 000
Netherlands	6 813 000	6 656 900	6 053 700	6 620 400	6 143 000
North Macedonia	269 658	262 144	236 520	271 811	303 409
Norway	574 600	620 800	623 800	622 500	703 900
Poland	10 336 483	9 123 107	7 855 900	8 552 506	7 521 057
Portugal	2 215 300	2 032 800	2 202 800	1 953 000	1 854 900
Romania	3 529 286	3 421 199	2 818 866	3 375 400	2 625 300
Russia	74 144 495	73 740 141	* 74 600 000	* 77 850 000	71 469 200
Serbia	1 973 400	1 929 400	1 455 700	1 667 400	1 674 100
Slovakia	4 947 000	3 931 000	3 444 000	4 863 000	3 872 000
Slovenia	653 800	623 200	585 200	661 900	601 256
Spain	14 320 500	13 587 700	10 998 400	14 204 900	11 507 400
Sweden	4 655 100	4 721 100	4 408 700	4 678 300	4 404 200
Switzerland	1 561 826	1 325 000	1 175 000	1 291 100	1 200 000
Turkey	37 311 700	33 743 100	35 810 300	40 360 000	35 133 800
Ukraine	21 100 500	20 848 200	20 616 400	21 365 600	6 263 200
United Kingdom	7 267 700	7 218 100	7 085 700	7 221 600	5 962 800
Algeria	2 300 000	2 400 000	3 000 000	3 491 300	* 3 500 000
Angola	275 000	290 000	250 000	275 000	270 000
Congo, Democratic Republic	* 30 000	* 30 000	* 30 000	* 30 000	* 30 000
Egypt	7 806 800	7 257 000	8 228 700	10 293 500	9 818 500
Ghana	* 400 000	* 400 000	* 400 000	* 400 000	* 400 000
Kenya	375 000	400 000	385 000	485 000	450 000
Libya	396 342	606 153	538 176	651 700	687 800
Mauritania	* 5 000	* 5 000	* 5 000	* 5 000	* 5 000
Morocco	520 000	500 000	320 000	500 000	450 000
Nigeria	* 650 000	* 650 000	* 650 000	* 650 000	* 650 000
South Africa	6 327 300	6 151 700	3 876 500	5 019 500	4 402 500
Tunisia	80 000	* 60 000	77 600	85 100	* 80 000
Uganda	* 30 000	* 30 000	* 30 000	* 30 000	* 30 000
Zimbabwe	1 322	3 583	5 196	3 921	* 3 900
Canada	13 443 100	12 897 000	11 078 000	12 976 300	12 097 600
Cuba	225 400	229 900	185 200	230 800	200 400
Dominican Republic	* 60 000	* 60 000	* 60 000	* 60 000	* 60 000
El Salvador	99 000	102 000	82 000	103 000	89 000
Guatemala	299 700	305 700	242 600	306 900	271 100
Mexico	20 440 000	18 692 000	16 802 000	18 454 000	* 18 342 000
USA	86 607 400	87 761 200	72 732 100	85 791 400	80 535 000
Argentina	5 161 700	4 644 500	3 651 100	4 875 300	4 595 200
Brazil	35 407 000	32 569 000	31 415 000	36 071 000	* 34 500 000
Chile	1 145 000	1 133 000	1 157 000	1 318 000	1 151 000
Colombia	1 219 000	1 332 800	1 148 900	1 338 000	1 373 000
Ecuador	583 400	606 800	482 200	611 600	536 300
Paraguay	25 300	26 300	23 300	* 26 000	* 24 000
Peru	1 216 500	1 230 400	730 700	1 234 100	1 101 900
Uruguay	60 000	62 300	49 100	62 800	* 54 900
Venezuela	129 000	50 800	29 200	29 400	27 100

Production of crude steel

tonnes (metric)

Country	2018	2019	2020	2021	2022
Bahrain	720 000	800 000	900 000	1 167 300	1 170 300
China	929 038 400	996 342 000	1 064 766 800	1 035 242 600	1 017 959 000
India	109 272 000	111 350 700	100 256 500	118 201 400	125 067 000
Indonesia	6 183 000	8 564 800	12 871 400	14 834 800	15 570 000
Iran (b)	19 344 198	20 938 860	226 301 205	21 659 618	23 168 319
Iraq	200 000	300 000	300 000	300 000	300 000
Israel	* 300 000	* 300 000	* 300 000	* 300 000	* 300 000
Japan	104 318 836	99 284 114	83 186 485	96 181 132	89 092 932
Jordan	* 350 000	* 350 000	* 350 000	* 350 000	* 350 000
Kazakhstan	4 005 982	4 130 601	4 009 402	4 526 071	4 139 300
Korea (Rep. of)	72 464 000	71 411 000	67 082 000	70 418 000	65 846 000
Korea, Dem. P.R. of	* 810 000	* 800 000	* 700 000	* 700 000	* 1 950 000
Kuwait	* 1 300 000	* 1 270 000	* 1 300 000	* 1 300 000	1 300 000
Malaysia	4 108 500	6 948 500	6 618 500	6 900 000	* 10 000 000
Mongolia	* 50 000	* 50 000	* 50 000	* 50 000	* 50 000
Myanmar	* 300 000	* 350 000	* 350 000	* 400 000	* 400 000
Oman	2 000 000	2 000 000	2 500 000	2 800 000	3 000 000
Pakistan	* 4 719 000	* 3 304 000	* 3 803 000	* 5 437 700	* 6 013 000
Philippines	1 474 800	1 915 000	892 300	2 454 800	1 550 000
Qatar	2 575 000	2 558 000	1 218 100	1 001 800	1 082 000
Saudi Arabia	8 187 000	8 191 000	7 775 000	8 735 000	9 860 000
Singapore	618 200	766 300	419 500	567 900	550 000
Sri Lanka	* 30 000	* 30 000	* 30 000	* 30 000	* 30 000
Syria	* 5 000	* 5 000	* 5 000	* 5 000	* 5 000
Taiwan	22 290 000	21 322 000	20 498 000	22 140 000	19 927 000
Thailand	6 402 500	4 246 000	4 467 200	5 472 900	5 316 400
United Arab Emirates	3 247 500	3 326 600	2 722 000	2 997 500	3 211 400
Uzbekistan	646 000	666 000	939 200	1 050 000	950 000
Vietnam	15 471 000	17 469 000	19 900 000	23 019 000	20 003 600
Australia	5 775 000	5 493 000	5 489 000	5 822 000	5 667 000
New Zealand	651 800	667 100	585 700	645 700	569 934
World total	1 821 000 000	1 870 000 000	2 075 000 000	1 948 000 000	1 873 000 000

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	2018	2019	2020	2021	2022
Albania					
Ferro-chrome	92 850	66 402	53 543	103 700	80 194
Armenia					
Ferro-molybdenum	7 279	7 712	6 718	8 335	9 164
Austria					
Ferro-molybdenum	4 000	4 000	3 000	3 000	3 000
Ferro-nickel	2 500	2 500	2 500	2 500	2 500
Ferro-vanadium	7 000	7 000	7 000	7 000	7 000
Bosnia & Herzegovina					
Ferro-alloys	31 460	31 911	14 641	35 920	24 859
Czech Republic					
Ferro-vanadium	* 6 400	* 6 700	* 5 600	* 6 900	* 5 900
Finland					
Ferro-chrome	497 000	505 000	498 000	515 000	430 000
France					
Ferro-manganese	125 383	* 115 000	* 68 000	* 68 000	* 68 000
Ferro-silico-manganese	56 652	* 68 000	* 62 000	* 62 000	* 62 000
Ferro-silicon	* 50 000	* 48 000	* 41 000	* 41 000	* 41 000
Silicon metal	* 138 000	* 105 000	* 87 000	* 87 000	* 87 000
Georgia					
Ferro-manganese	* 4 500	* 4 500	* 4 500	* 4 500	* 4 500
Ferro-silico-manganese	335 013	291 608	217 463	322 877	12 888
Germany					
Ferro-chrome	31 000	26 000	* 11 000	* 12 000	* 12 000
Silicon metal	28 058	29 606	30 234	31 318	* 32 000
Other ferro-alloys	* 8 200	* 7 800	* 3 700	* 3 700	* 3 700
Greece					
Ferro-nickel	82 615	62 251	30 518	19 394	* —
Iceland					
Ferro-silicon	116 889	120 255	128 187	123 800	121 509
Italy					
Ferro-silico-manganese	91 000	* 90 000	* 90 000	* 90 000	* 90 000
Kosovo					
Ferro-nickel	* 6 000	* 7 200	* 7 000	* 5 000	—
North Macedonia					
Ferro-nickel	10 100	15 202	17 747	17 714	8 349
Ferro-silicon	185	117	—	—	—
Norway					
Ferro-manganese	327 600	* 328 000	* 328 000	* 328 000	* 328 000
Ferro-silico-manganese	* 330 000	* 290 000	* 260 000	* 310 000	* 320 000
Ferro-silicon	(a) 265 964	* 200 000	* 260 000	* 250 000	* 260 000
Silicon metal	* 190 000	* 200 000	* 210 000	* 200 000	* 230 000
Poland					
Ferro-silicon	63 618	65 523	61 709	73 370	51 371
Other ferro-alloys	33 250	16 815	38 104	31 170	28 996
Russia					
Spiegeleisen	* 7 000	* 7 000	* 7 000	* 7 000	* 7 000
Ferro-chrome	332 261	384 089	* 390 000	* 390 000	* 390 000
Ferro-silico-chrome	* 4 200	* 4 200	* 4 200	* 4 200	* 4 200
Ferro-manganese	281 000	273 000	* 240 000	* 240 000	* 240 000
Ferro-silico-manganese	43 334	51 774	* 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	928 797	846 579	* 830 000	* 830 000	* 830 000
Ferro-vanadium	11 383	10 894	* 12 000	* 12 000	* 12 000
Silicon metal	* 48 000	* 48 000	* 48 000	* 48 000	* 48 000
Other ferro-alloys	* 34 000	* 34 000	* 34 000	* 34 000	* 34 000
Slovakia					
Ferro-manganese	32 300	26 200	24 000	30 900	16 000
Ferro-silico-manganese	37 200	49 900	33 800	48 600	3 800
Ferro-silicon	44 100	29 400	29 600	34 700	15 600
Other ferro-alloys	1 300	2 100	1 200	1 500	1 200
Spain					
Ferro-manganese	86 200	55 500	28 000	48 000	* 45 000
Ferro-silico-manganese	156 100	98 400	83 000	77 000	* 70 000
Ferro-silicon	95 000	90 000	77 000	83 000	71 000
Silicon metal	7 500	7 500	5 000	5 800	5 700

Production of ferro-alloys

tonnes (metric)

Country	2018	2019	2020	2021	2022
Sweden					
Ferro-chrome	106 486	120 000	87 000	114 600	* 115 000
Turkey					
Ferro-chrome	91 799	81 743	94 200	100 750	* 100 000
Ferro-silicon	3 160	1 938	1 706	455	* —
Ukraine					
Ferro-manganese	155 869	172 508	117 215	* 117 000	* 35 000
Ferro-silico-manganese	912 300	858 708	* 850 000	* 850 000	* 250 000
Ferro-nickel	79 537	79 334	73 700	* 74 000	* 20 000
Ferro-silicon	97 084	* 97 000	* 97 000	* 97 000	* 30 000
Other ferro-alloys	100 764	* 100 000	* 100 000	* 100 000	* 30 000
Egypt (b)					
Ferro-silicon	* 60 500	* 60 500	* 60 000	* 60 000	* 60 000
Other ferro-alloys	* 13 000	* 12 000	* 5 000	* 9 000	* 10 000
Gabon					
Ferro-silico-manganese	42 900	43 000	37 000	43 860	(c) 47 900
South Africa					
Ferro-alloys	4 081 452	3 806 766	2 984 105	3 478 867	3 157 560
Zimbabwe					
Ferro-chrome (a)(d)	315 685	348 672	197 296	322 295	* 380 000
Canada					
Ferro-niobium	* 7 400	* 6 600	* 6 200	* 7 400	* 7 400
Ferro-silicon	* 36 000	* 37 000	* 34 000	* 30 000	* 30 000
Ferro-vanadium	* 1 000	* 1 200	* 1 300	* 1 100	* 1 100
Silicon metal	* 34 000	* 34 000	* 25 000	* 30 000	* 30 000
Dominican Republic					
Ferro-nickel	53 697	78 662	59 211	75 887	78 887
Mexico					
Ferro-manganese	95 349	72 937	57 127	71 637	72 914
Ferro-silico-manganese	151 991	154 209	147 784	170 929	175 396
USA					
Ferro-silicon & silicon metal	430 000	310 000	277 000	265 000	* 265 000
Argentina					
Ferro-silicon	* 13 000	* 13 000	* 11 200	* 13 000	* 13 000
Brazil					
Ferro-chrome	(d) 175 061	(d) 136 780	(d) 254 346	213 756	* 220 000
Ferro-silico-magnesium	* 20 000	* 20 000	* 20 000	* 20 000	* 20 000
Ferro-manganese	168 000	151 000	73 000	71 000	—
Ferro-nickel (e)	42 310	45 543	* 46 000	41 700	39 800
Ferro-niobium	59 000	60 000	58 300	67 000	* 67 000
Ferro-silicon	* 100 000	* 100 000	* 100 000	* 100 000	* 100 000
Silicon metal	230 193	214 051	203 940	198 000	206 000
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	* 123 000	* 116 000	* 103 000	* 109 000	* 120 000
Venezuela					
Ferro-manganese	* 6 000	* 6 000	* 6 000	* 6 000	* 6 000
Ferro-silico-manganese	* 7 000	* 7 000	* 7 000	* 7 000	* 7 000
Ferro-nickel	* 21 000	* 19 000	* 7 000	* 12 000	* 27 000
Ferro-silicon	* 40 000	* 40 000	* 40 000	* 40 000	* 40 000
Bhutan					
Ferro-silicon	* 120 900	* 138 900	* 103 500	* 130 400	* 115 700
China					
Ferro-alloys	31 234 000	36 577 000	34 856 000	* 35 000 000	* 35 000 000
Silicon metal	2 404 500	2 248 900	2 100 000	2 610 000	* 2 700 000

Production of ferro-alloys

tonnes (metric)

Country	2018	2019	2020	2021	2022
India					
Ferro-aluminium (f)	2 752	1 461	1 119	1 139	851
Ferro-chrome (f)	944 000	921 000	868 000	1 113 000	1 073 000
Ferro-silico-magnesium (f)	19 180	14 173	9 700	15 081	16 789
Ferro-manganese (f)	518 000	—	—	—	—
Ferro-silico-manganese (f)	342 591	320 594	329 295	349 414	344 000
Ferro-molybdenum (f)	1 003	527	428	436	581
Ferro-silicon (f)	90 000	—	—	—	—
Ferro-titanium (f)	118	121	249	416	378
Ferro-vanadium (f)	1 013	665	634	850	1 862
Indonesia					
Ferro-silico-manganese	* 5 000	* 4 000	* 4 000	* 13 000	* 8 000
Ferro-nickel	124 340	128 565	129 850	129 090	121 670
Iran					
Ferro-chrome (g)	* 13 000	* 12 000	* 10 000	* 10 000	* 10 000
Ferro-silicon (g)	* 70 000	* 75 000	* 70 000	* 65 000	* 65 000
Japan					
Ferro-manganese	456 518	462 740	400 331	440 173	405 899
Ferro-nickel	339 844	337 790	234 505	243 275	193 467
Other ferro-alloys	73 094	74 015	49 544	54 275	60 001
Kazakhstan					
Ferro-chrome	1 772 508	1 858 130	1 841 309	1 704 561	* 1 794 127
Ferro-silico-chrome	* 110 500	* 110 500	* 110 500	* 110 500	* 110 500
Ferro-silico-manganese	137 710	123 528	122 743	132 119	* 132 000
Ferro-silicon	65 405	79 930	180 645	* 180 000	* 180 000
Korea (Rep. of)					
Ferro-manganese	* 300 000	* 250 000	* 200 000	* 300 000	* 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	* 41 000	* 46 000	* 15 300	* 37 000	* 35 000
Myanmar					
Ferro-nickel (f)	62 367	54 247	76 347	52 970	* 50 000
Vietnam					
Ferro-silico-manganese	* 160 000	162 000	159 000	194 000	174 000
Australia					
Ferro-manganese & ferro-silico-manganese (b)	275 000	257 000	* 270 000	* 270 000	* 270 000
Silicon metal	* 42 000	* 52 000	* 45 000	* 45 000	* 45 000
New Caledonia					
Ferro-nickel	260 206	247 746	236 421	205 108	223 015

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) Sales

(b) Years ended 30 June of that stated

(c) Exports

(d) Including ferro-silico-chrome

(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	2018	2019	2020	2021	2022
Austria	17 641	16 176	23 230	* 23 000	* 23 000
Belgium	* 300 000	* 300 000	* 300 000	* 300 000	* 300 000
Bosnia & Herzegovina	303 626	118 005	108 174	62 599	24 529
Bulgaria	* 322 000	* 322 000	* 322 000	(a) 382 309	(a) 371 616
Czech Republic (b)	653 000	629 000	626 000	645 000	558 000
France	301 842	* 220 000	231 579	289 057	310 251
Germany (c)	1 004 000	877 000	775 000	864 000	862 000
Hungary	—	—	743	1 952	1 335
Italy	* 180 000	* 180 000	* 180 000	* 180 000	* 180 000
Poland (d)	154 314	151 840	118 000	315 040	317 570
Portugal	374 029	335 354	320 655	387 223	410 584
Russia	1 593 000	1 530 000	* 1 550 000	* 1 550 000	* 1 550 000
Serbia	279 000	254 000	234 000	249 000	301 000
Slovakia	34 400	25 000	30 960	39 000	42 000
Spain (d)	474 462	267 602	274 137	303 743	277 170
Turkey	1 515 609	1 283 776	1 224 746	1 748 014	2 268 717
Ukraine	2 091 525	1 843 561	1 680 891	2 317 723	* 1 000 000
United Kingdom	* 897 000	* 644 000	* 572 000	* 735 000	* 788 000
Algeria	* 100 000	* 100 000	* 100 000	* 100 000	* 100 000
Burkina Faso	42	* 40	* 40	* —	* —
Egypt	* 230 000	* 230 000	* 230 000	* 230 000	* 240 000
Eritrea	* 200	* —	* —	* —	* —
Ethiopia (e)	* 10 000	* 1 000	* 1 000	* 1 000	* 1 000
Kenya	* 1 600	* 1 600	* 1 600	* 1 600	* 1 600
Madagascar	* 220	* 220	* 200	* 200	* 200
Nigeria	11 707	8 649	7 033	23 530	* 23 000
South Africa	23 724	27 827	20 639	29 168	10 553
Sudan	11 000	20 600	19 700	3 700	* 3 700
Tanzania	* 129 383	15 343	98 454	100 950	46 973
Uganda	17 281	10 448	323	6 885	* 7 000
Cuba	2 700	2 100	2 000	1 400	500
Guatemala	724	* 725	402	* 500	2 734
Mexico	898 246	246 645	1 003 889	1 260 800	1 167 760
USA (f)	5 350 000	5 060 000	4 570 000	4 300 000	* 4 600 000
Argentina	17 000	11 853	20 628	* 21 000	* 21 000
Brazil (a)	1 685 255	1 471 610	2 939 591	1 153 884	1 189 531
Chile	88 262	34 801	38 789	49 533	44 232
Colombia	70 799	96 051	29 371	70 032	36 983
Paraguay	* 6 000	* 6 000	* 6 000	* 6 000	* 6 000
Peru	16 004	9 208	12 536	13 142	14 300
Venezuela	* 3 000	* 3 000	* 3 000	* 3 000	* 3 000
China	4 507 000	6 867 000	8 426 800	* 8 400 000	* 8 500 000
India (g)(h)	* 74 000	* 74 000	* 74 000	* 74 000	* 74 000
Indonesia	526 297	1 359 455	629 247	603 093	* 604 000
Iran (i)	1 759 079	1 616 216	2 049 715	* 2 000 000	* 2 000 000
Japan	* 12 000	* 12 000	* 12 000	* 12 000	* 12 000
Jordan	* 100 000	* 100 000	* 100 000	* 100 000	* 100 000
Korea (Rep. of)	369 274	317 626	393 236	352 003	426 960
Malaysia	496 219	417 222	336 565	228 605	236 840
Oman	110 300	34 100	58 300	35 400	—
Pakistan (j)	19 483	15 978	14 919	12 309	17 000
Philippines	* 10 000	* 10 000	* 10 000	* 10 000	* 10 000
Saudi Arabia	216 000	227 000	213 000	224 000	* 220 000
Sri Lanka	* 2 000	* 2 000	* 2 000	* 2 000	* 2 000
Taiwan	20	500	404	30	65
Thailand (b)	96 666	80 776	71 051	101 711	86 076
Uzbekistan (g)	365 503	526 592	495 801	565 502	* 570 000
Vietnam	* 100 000	* 100 000	* 100 000	* 100 000	* 100 000
Australia (j)	208 088	127 602	170 130	189 104	189 928
New Zealand	51 369	50 569	* 51 000	* 51 000	* 51 000
World total	28 200 000	28 300 000	30 900 000	30 800 000	30 300 000

Production of kaolin

Note(s)

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

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

Mine production of lead

tonnes (metal content)

Country	2018	2019	2020	2021	2022
Bosnia & Herzegovina	7 347	2 421	3 360	3 679	3 900
Bulgaria	14 723	17 097	18 929	19 700	7 800
Finland	—	932	1 532	1 494	1 535
Georgia	—	—	1 124	1 190	* 1 000
Greece	15 376	14 827	19 656	16 758	10 100
Ireland, Republic of	16 712	16 100	14 401	13 192	14 200
Kosovo	4 694	3 990	4 737	5 241	3 358
Montenegro	3 100	3 480	1 008	2 004	1 400
North Macedonia	41 902	43 491	44 928	42 873	41 821
Poland	70 340	69 860	65 660	39 514	31 000
Portugal	18 397	27 852	28 178	30 067	23 347
Romania	1 200	200	—	—	—
Russia	206 100	207 900	200 700	* 212 300	* 220 000
Serbia	3 230	5 730	5 400	* 5 000	* 5 000
Slovakia	114	111	102	101	127
Spain	9 936	11 390	11 397	10 965	9 272
Sweden	64 751	68 635	65 402	65 404	70 339
Turkey	* 76 000	* 71 500	* 81 500	* 81 700	* 81 700
United Kingdom	(a)* 100	(b)* 150	(b)* 100	(b)* 100	(b)* 100
Morocco	30 339	32 736	38 162	31 317	35 500
Namibia	4 293	5 892	9 181	9 525	9 365
Nigeria	* 15 000	* 20 000	* 16 000	* 38 000	* 44 000
South Africa	35 118	42 936	28 048	31 224	39 974
Canada	17 874	22 824	3 800	9 300	8 247
Cuba	* 25 400	* 35 000	* 30 000	* 30 000	* 33 000
Guatemala	—	377	422	—	—
Honduras	9 893	12 308	* 12 300	* 12 000	* 11 000
Mexico	240 300	259 500	260 400	272 200	272 100
USA	280 000	274 000	297 000	286 000	264 000
Argentina	28 260	29 766	13 086	17 100	18 600
Bolivia	112 140	88 002	64 619	92 767	89 761
Brazil	7 277	6 000	5 245	6 221	8 304
Chile	712	7	1 386	382	457
Peru	289 123	308 116	241 548	264 427	255 333
China	1 892 173	1 787 400	1 970 000	1 964 400	1 945 900
India	(c) 207 067	(c) 202 964	(c) 217 787	(c) 212 654	213 320
Indonesia	* 11 400	* 10 800	* 6 500	* 7 660	4 800
Iran	49 600	72 500	* 70 000	* 70 000	* 70 000
Kazakhstan	86 400	55 600	30 300	29 300	30 100
Korea (Rep. of)	2 412	1 933	1 681	1 528	974
Korea, Dem. P.R. of	* 20 000	* 25 000	* 25 000	* 25 000	* 25 000
Laos	* 300	* 300	* 100	* 200	1 000
Mongolia	11 304	11 796	12 000	11 004	9 600
Myanmar	(c) 45 964	(d) 42 832	(d) 22 710	(d) 25 355	(d)* 25 400
Nepal	(e) —	(e) —	6 000	18 500	* 6 000
Pakistan	4 822	8 089	7 094	7 277	8 886
Tajikistan	47 141	52 715	33 282	48 058	47 510
Uzbekistan	21 300	19 100	18 400	22 000	23 000
Vietnam	* 12 100	* 10 400	* 12 000	* 14 000	* 20 600
Australia	446 571	500 985	494 271	485 487	437 825
World total	4 500 000	4 500 000	4 500 000	4 600 000	4 500 000

Note(s)

(a) By-product of Pennine fluorspar operations

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

(c) Years ended 31 March following that stated

(d) Years ending 30 September of that stated

(e) Years ended 15 July of that shown

Production of refined lead

tonnes (metric)

Country	2018	2019	2020	2021	2022
Austria	* 27 000	* 27 000	* 27 000	* 27 000	* 27 000
Belgium	138 106	138 618	122 748	155 840	108 800
Bosnia & Herzegovina	1	—	—	—	—
Bulgaria	102 808	102 473	106 145	104 495	103 428
Croatia	* 5 000	* 5 300	* 4 800	* 5 100	* 4 500
Czech Republic	* 43 000	* 43 000	* 42 000	* 42 000	* 43 000
Estonia	7 393	8 226	9 925	* 10 000	* 10 000
France	* 70 000	* 70 000	* 60 000	* 70 000	* 70 000
Germany	* 315 000	* 326 000	* 335 000	* 310 006	* 220 000
Greece	30 000	30 000	30 900	* 32 000	* 34 000
Hungary	16 000	16 000	15 000	* 17 000	* 18 000
Ireland, Republic of	15 000	16 300	12 000	14 000	15 000
Italy	167 500	159 100	152 700	158 300	133 400
Netherlands	36 000	36 000	34 000	* 36 000	* 36 000
Poland	159 470	158 600	139 800	144 000	135 300
Portugal	* 9 000	* 10 000	* 9 000	* 10 000	* 10 000
Romania	21 000	20 000	19 000	20 000	* 20 000
Russia	140 000	141 000	142 000	152 800	* 160 000
Serbia	* 14 000	* 16 000	* 14 000	* 15 000	* 16 000
Slovakia	9 000	9 000	8 000	9 000	* 9 000
Slovenia	12 000	12 000	11 000	* 12 000	* 12 000
Spain	190 000	192 000	174 600	* 192 000	* 192 000
Sweden	75 784	75 327	74 370	73 431	71 400
Turkey	* 110 000	* 114 000	* 110 000	* 120 000	* 90 000
Ukraine	29 755	24 704	24 968	28 000	* 15 000
United Kingdom	303 000	311 000	315 000	329 000	309 900
Algeria	9 000	9 000	8 000	* 9 000	* 9 000
Egypt	* 26 000	* 28 000	* 26 000	* 27 000	* 27 000
Ghana (a)	2 000	5 000	10 000	13 456	16 273
Kenya	1 000	1 000	1 000	* 1 000	* 1 000
Morocco	8 000	8 000	7 000	8 000	* 8 000
Mozambique (a)	3 422	3 943	4 200	4 594	5 263
Nigeria	* 7 000	* 17 000	* 14 000	* 19 000	* 36 000
Senegal (a)	3 693	4 121	4 223	4 868	5 924
South Africa	* 56 000	* 56 000	* 55 000	* 56 000	* 58 000
Tanzania	—	—	3 429	* 6 100	* 6 500
Uganda	* 800	* 800	* 800	* 800	* 800
Zambia	5 004	5 004	4 008	5 004	* 5 000
Canada	260 956	260 267	189 900	197 400	182 400
Costa Rica	10 000	9 000	8 000	10 000	* 9 000
Cuba	* 5 000	* 5 000	* 5 000	* 5 000	* 5 000
Dominican Republic	* 7 000	* 7 000	* 6 000	* 7 000	* 7 000
Guatemala	* 12 000	* 12 000	* 11 000	* 12 000	—
Honduras	* 8 000	* 5 000	* 4 000	* 6 000	* 6 000
Mexico	433 107	446 889	410 000	426 355	419 100
USA (b)	1 140 000	1 170 000	1 150 000	975 000	951 000
Argentina	113 900	100 000	80 000	82 000	85 000
Bolivia	* 4 000	* 4 200	3 200	* 4 000	* 4 000
Brazil	250 100	253 700	257 500	265 248	* 278 000
Chile	15 000	14 000	12 000	14 000	* 14 000
Colombia	* 44 000	* 44 000	* 41 000	* 41 000	* 41 000
Peru	15 000	15 000	10 200	* 14 000	* 15 000
Venezuela	9 600	8 400	7 000	6 996	* 8 000
China	4 942 947	5 221 500	6 443 071	7 365 000	5 471 000
India	626 000	599 000	365 000	893 158	966 010
Indonesia	* 54 000	* 54 000	* 53 000	* 54 000	* 55 000
Iran	125 000	* 125 000	* 120 000	* 125 000	* 125 000
Israel	28 700	24 090	23 946	23 896	16 852
Japan	* 240 000	* 237 000	* 237 600	* 247 000	* 292 900
Kazakhstan	148 570	127 476	123 371	111 361	121 200
Korea (Rep. of)	801 000	813 000	770 000	790 000	760 000
Korea, Dem. P.R. of	* 2 000	* 3 000	* 3 000	* 3 000	* 3 000
Lebanon	* 6 000	* 26 000	* 22 000	* 22 000	* 22 000
Malaysia	* 35 000	* 35 000	* 33 000	* 35 000	* 37 000

Production of refined lead

tonnes (metric)

Country	2018	2019	2020	2021	2022
Myanmar	* 7 300	* 14 800	* 10 500	* 11 000	* 11 000
Oman	10 000	10 000	9 000	* 10 000	* 10 000
Pakistan (b)	18 000	32 000	32 000	* 32 000	* 32 000
Philippines	* 10 000	* 10 000	* 10 000	* 10 000	* 10 000
Saudi Arabia	* 68 000	* 68 000	66 000	* 70 000	* 70 000
Sri Lanka (a)	* 4 700	* 4 700	* 5 000	* 5 100	* 3 000
Taiwan	58 000	55 000	55 000	* 55 000	* 70 000
Tajikistan	...	...	2 800	* 3 000	* 3 000
Thailand	86 000	86 000	80 000	86 000	88 000
United Arab Emirates	25 000	25 000	24 000	25 000	* 30 000
Uzbekistan	* 22 000	* 22 000	* 19 000	* 22 000	* 20 000
Vietnam	* 32 000	* 34 000	* 34 000	* 34 000	* 34 000
Australia	188 800	124 388	161 897	166 892	166 478
World total	12 000 000	12 300 000	13 000 000	14 500 000	12 500 000

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) Years ended 30 June of that stated

Production of lithium minerals

tonnes (metric)

Country	2018	2019	2020	2021	2022
Portugal					
Lepidolite	76 818	59 912	23 185	18 533	* 19 000
Li content	535	417	161	129	132
Namibia					
Lepidolite	30 000	—	—	—	325 400
Li content	88	—	—	—	951
Nigeria					
Petalite	1 267	133	* 130	* 130	* 130
Li content	24	2	* 2	* 2	* 2
Zimbabwe					
Petalite	70 000	62 623	20 859	40 726	86 330
Li content	1 332	1 191	397	775	1 642
Canada					
Spodumene	140 000	9 000	* —	—	—
Li content	4 092	263	* —	—	—
USA (a)					
Li content	* 7 000	* 4 000	* 4 000	* 5 000	* 2 700
Argentina					
Carbonate	29 707	30 009	26 846	47 917	* 50 000
Li content	5 585	5 642	5 047	9 008	* 9 400
Chloride	5 005	4 284	7 705	6 017	* 6 200
Li content	816	698	1 256	981	* 1 011
Bolivia					
Carbonate	* 230	* 400	191	540	617
Li content	* 43	* 75	* 36	* 102	* 116
Brazil					
Spodumene	87 029	100 787	114 260	102 938	143 720
Li content	365	1 196	1 888	2 634	3 652
Chile					
Hydroxide	6 468	9 934	9 030	12 129	15 763
Li content	1 067	1 639	1 490	2 001	2 601
Carbonate	87 029	100 787	114 260	150 348	201 950
Li content	16 361	18 948	21 481	28 265	37 967
Chloride	3 826	1 886	—	—	—
Li content	624	307	—	—	—
China					
Li content	* 7 100	* 10 800	* 13 300	* 14 000	* 14 000
Australia					
Spodumene	1 965 912	1 588 263	1 477 240	1 966 744	2 683 754
Li content	54 731	44 217	41 126	54 754	74 716
World total (Li content)	99 800	89 400	90 200	117 700	148 900

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	2018	2019	2020	2021	2022
Austria	808 239	691 909	816 370	844 226	771 043
Finland	49 601	37 002	136 167	179 781	324 226
Greece	464 689	365 792	275 100	309 600	322 391
Netherlands (a)	349 000	292 000	243 000	242 000	199 000
Poland	102 110	91 490	65 250	65 820	66 380
Russia	* 2 600 000	* 2 600 000	* 2 600 000	* 2 600 000	* 2 600 000
Slovakia	615 500	615 200	516 900	576 700	512 000
Spain	738 994	634 580	626 055	703 834	676 699
Turkey	1 958 847	1 496 081	1 560 818	1 927 280	1 820 068
South Africa	* 9 000	* 7 000	* 6 000	* 5 000	* 4 900
Canada (b)	* 150 000	* 180 000	* 160 000	* 200 000	* 200 000
Guatemala	4 745	* 2 000	706	4 700	14 534
Mexico	101 000	800	—	—	—
Brazil (c)	2 981 000	2 962 000	1 993 600	* 2 000 000	* 2 000 000
Colombia	1 039	1 847	1 077	3 116	2 694
China	* 18 500 000	* 19 000 000	* 19 000 000	* 18 000 000	* 19 000 000
India	(d) 146 581	(d) 97 684	(d) 78 144	(d) 72 800	112 892
Iran (e)	169 953	153 525	274 369	* 280 000	* 280 000
Israel (f)	113 000	105 350	113 903	131 201	94 220
Korea, Dem. P.R. of	* 170 000	* 170 000	* 150 000	* 170 000	* 170 000
Pakistan (g)	23 596	42 996	16 165	15 120	5 886
Philippines	140	* 140	* 140	* 140	* 140
Saudi Arabia	325 950	* 315 000	* 244 000	* 271 000	* 288 990
Australia (g)	288 069	433 712	820 057	2 739 388	* 2 700 000
World total	30 700 000	30 300 000	29 700 000	31 300 000	32 200 000

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	2018	2019	2020	2021	2022
Russia	15 753	15 336	12 795	15 000	* 15 736
Turkey	* 4 500	* 4 500	* 4 500	* 4 500	* 4 500
USA	* 10 000	* 11 000	* 5 500	* 500	* 500
Brazil	15 000	22 000	20 000	* 20 000	* 20 000
China	848 079	969 000	858 000	898 000	893 600
Israel	21 100	21 350	18 500	18 200	21 500
Korea (Rep. of)	110	—	—	—	—

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 150,000 t, Japan 50,000 t and Russia 25,000 t.

Production of manganese ore

tonnes (metric)

Country	2018	2019	2020	2021	2022
Georgia (a)	349 354	305 562	302 200	332 400	352 200
Romania	* 26 000	* 45 000	* 29 000	* 29 000	* 18 000
Turkey	85 334	114 037	101 766	86 654	64 204
Ukraine	1 845 156	1 854 240	* 1 850 000	* 1 850 000	* 900 000
Congo, Democratic Republic (b)	14 884	4 935	* 5 000	* 5 000	* 5 000
Côte d'Ivoire	930 559	1 181 803	1 325 525	928 930	* 929 000
Egypt (c)	* 120 000	* 120 000	* 100 000	* 90 000	* 90 000
Gabon	6 542 000	7 186 000	8 147 000	9 241 000	10 200 000
Ghana	4 551 754	5 383 014	2 357 515	3 336 273	3 171 722
Morocco	79 538	71 210	84 087	82 507	* 83 000
Namibia	23 045	32 145	37 072	* 30 832	23 269
South Africa	14 919 207	17 008 951	16 198 506	19 156 479	18 966 594
Sudan	* 4 000	* 1 000	* —	* —	* —
Zambia	77 277	15 904	46 515	132 241	161 611
Mexico	556 220	534 044	565 619	560 742	574 665
Bolivia	* 550	* 3 550	* 4 700	* 5 100	* 420
Brazil	3 306 735	369 737	2 469 313	1 435 561	1 344 155
Colombia	* 470	* 864	—	—	—
Peru	* 46 400	* 41 800	* 22 500	* 25 313	* 2 600
China	* 7 900 000	* 6 500 000	* 6 600 000	* 5 000 000	* 5 000 000
India (d)	2 820 227	2 910 186	2 688 038	2 695 991	2 798 694
Iran (e)	128 617	130 625	289 927	* 290 000	* 290 000
Kazakhstan	1 427 300	1 142 300	813 500	1 248 700	1 100 000
Malaysia	1 262 725	1 130 749	869 864	668 558	744 576
Myanmar	* 519 000	* 982 000	* 634 000	* 515 000	* 518 000
Oman	44 700	50 000	14 500	15 100	13 500
Thailand	4 000	4 800	1 400	—	660
Vietnam	115 000	106 000	121 000	146 000	* 146 000
Australia	7 212 118	6 649 432	6 425 848	6 188 587	6 665 707
World total	54 900 000	53 900 000	52 100 000	54 000 000	54 200 000

Note(s)

(1) In addition to the countries listed, Colombia, Cuba and Nigeria 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	2018	2019	2020	2021	2022
Russia	* 50 000	* 50 000	* 50 000	* 30 000	* 30 000
Morocco	* 3 000	* 2 000	* 1 000	* 2 000	* 2 000
Mexico (a)	* 230 000	* 70 000	* 70 000	* 40 000	* 10 000
USA	* 15 000	* 15 000	* 15 000	* 15 000	* 15 000
China	2 317 000	2 232 000	1 993 000	1 280 000	* 1 000 000
Kyrgyzstan	* 10 000	* 10 000	* 7 000	* 6 000	5 000
Tajikistan	100 000	90 600	177 700	* 350 000	* 330 000
World	2 700 000	2 500 000	2 300 000	1 700 000	1 400 000

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

Production of mica

tonnes (metric)

Country	2018	2019	2020	2021	2022
Finland	12 122	9 440	7 247	10 138	9 465
France (a)	* 15 000	* 19 000	* 19 000	* 19 000	* 19 000
Russia	4 465	* 4 500	* 4 500	* 4 500	* 4 500
Spain (a)	6 932	7 769	7 126	9 220	9 342
Turkey	5 732	454	4 139	1 663	6 066
Madagascar (b)	* 48 763	* 33 585	* 68 300	* 57 100	* 52 600
Morocco	49 751	48 892	39 600	25 685	* 26 000
South Africa	32	9	194	630	392
Canada	* 21 000	* 21 000	* 15 000	* 15 000	* 15 000
Mexico	408	595	219	90	—
USA (a)(c)	42 000	40 100	36 400	* 43 000	* 42 000
Argentina	120	—	—	...	...
Brazil	2 391	* 3 221	9 203	4 126	1 309
Colombia	239	252	322	97	139
China	86 400	98 000	* 95 000	* 100 000	* 85 000
India (d)	* 1 000	* 1 000	* 1 000	* 1 000	* 1 000
Iran (e)	1 500	1 120	2 600	* 2 600	* 2 600
Korea (Rep. of) (f)	16 559	23 433	20 983	10 985	23 433
Malaysia (g)	4 388	4 358	4 083	3 406	3 779
Sri Lanka	* 1 500	* 1 500	* 1 500	* 1 500	* 1 500
Taiwan	2 970	3 312	3 186	10 983	1 795
World total	323 000	322 000	340 000	321 000	305 000

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	2018	2019	2020	2021	2022
Armenia	5 666	7 360	12 691	11 310	11 390
Norway	* 2	* 2	* 2	* 2	* 2
Poland	1 190	1 230	1 210	1 230	1 230
Russia	2 262	1 989	1 707	* 2 000	* 1 700
Canada	5 036	3 955	2 671	2 023	1 146
Mexico	20 265	21 694	20 577	19 894	19 330
USA	41 400	43 600	51 100	41 100	42 000
Argentina	728	...	...	...	...
Brazil	* 200	* 200	* 200	* 200	* 200
Chile	60 248	53 541	59 319	49 403	45 551
Peru	28 034	30 441	32 185	34 148	31 588
China	113 308	104 435	96 000	95 300	* 95 000
Iran (a)	7 662	8 711	6 762	* 6 700	* 6 700
Kazakhstan	149	258	400	396	2 679
Kyrgyzstan	* 20	* 23	* 20	* 15	* 15
Mongolia	2 579	2 492	2 889	2 973	2 780
Uzbekistan	696	666	725	1 600	* 1 600
World total	289 000	281 000	288 000	268 000	263 000

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	2018	2019	2020	2021	2022
Norway	* 305 000	* 300 000	* 255 000	* 320 000	* 270 000
Russia					
Nepheline syenite	4 294 000	4 244 000	4 599 000	4 390 000	4 363 000
Nepheline concentrates	986 000	1 188 000	1 159 400	1 123 100	1 175 800
Turkey	17 975	—	—	—	36 100
Canada	549 000	506 000	506 000	650 000	689 600

Mine production of nickel

tonnes (metal content)

Country	2018	2019	2020	2021	2022
Albania	4 204	2 830	3 764	4 178	1 574
Finland (a)	43 572	38 530	41 429	42 163	44 921
Greece	17 900	13 700	7 100	4 700	1 700
Kosovo	4 791	3 314	3 958	4 735	387
Norway	300	200	300	200	200
Poland	700	720	710	740	830
Russia	218 000	223 200	237 300	* 190 000	220 000
Turkey	13 559	4 742	20 201	11 647	14 535
Côte d'Ivoire	12 300	9 100	18 600	22 600	* 24 500
Madagascar	33 183	33 736	9 908	29 285	35 737
Morocco	126	131	100	100	200
South Africa	43 236	43 443	34 908	31 846	29 033
Zambia	487	2 500	3 226	3 834	4 059
Zimbabwe	17 850	16 279	16 480	13 949	13 753
Canada	185 962	180 904	167 243	133 581	96 757
Cuba	49 000	45 500	46 300	43 400	42 800
Dominican Republic	19 214	28 450	22 005	27 848	29 223
Guatemala	39 200	36 300	50 300	61 600	48 200
USA	17 974	14 297	16 718	18 353	* 18 000
Brazil	65 300	55 700	68 100	76 000	77 400
Colombia	47 700	45 000	40 500	43 800	46 400
China	108 200	104 674	104 674	103 900	109 400
Indonesia	606 000	853 000	767 000	1 069 000	1 579 000
Myanmar	(b)* 21 000	(b) 18 986	* 22 200	* 18 000	* 10 000
Philippines	344 966	323 325	328 372	386 359	360 000
Australia	160 022	158 751	169 344	150 876	154 378
New Caledonia	216 225	208 185	199 475	186 284	199 951
Papua New Guinea	35 355	33 091	33 659	31 594	34 302
World total	2 326 000	2 500 000	2 434 000	2 711 000	3 197 000

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	2018	2019	2020	2021	2022
Austria	* 700	* 700	* 700	* 700	* 700
Cyprus					
Sulfate	—	—	—	227	953
Finland	92 591	90 151	90 837	68 006	91 466
France	3 700	6 900	6 700	8 900	* 7 600
Greece	15 720	11 974	6 012	4 080	1 400
Kosovo	* 5 500	* 6 500	* 6 900	* 5 900	—
North Macedonia	10 100	15 300	17 700	17 700	8 400
Norway	90 758	92 132	91 120	91 246	81 898
Russia	158 000	166 300	172 400	121 100	* 143 000
Ukraine	15 807	14 200	14 719	16 200	* 8 000
United Kingdom	38 211	34 976	35 177	30 654	33 384
Madagascar	33 183	33 736	9 908	29 285	35 737
Morocco					
Sulfate	—	—	—	100	* 100
South Africa	39 500	39 100	29 100	40 000	* 40 000
Canada	137 411	124 736	124 043	119 000	143 266
Cuba	14 700	12 900	14 800	13 800	13 700
Dominican Republic	18 794	27 532	20 724	26 560	27 610
Guatemala	14 688	20 323	22 894	19 900	* 18 000
Brazil	62 200	54 300	59 600	60 800	63 400
Colombia	43 055	40 571	36 094	38 300	41 816
China	705 000	806 000	* 745 000	669 000	* 850 000
India	* 100	* 50	—	—	—
Indonesia	289 900	409 000	632 000	876 000	1 165 000
Japan	186 736	182 652	170 014	180 721	147 600
Korea (Rep. of)	43 386	41 067	45 600	44 000	* 43 500
Myanmar (a)	11 475	* 16 000	* 22 200	* 18 000	* 10 000
Australia	114 517	106 470	115 800	98 970	96 500
New Caledonia	107 914	87 921	72 455	56 603	66 220
World total	2 254 000	2 441 000	2 563 000	2 656 000	3 139 000

Note(s)

(1) Data relate to refined nickel plus the nickel content of ferro-nickel, nickel oxide and nickel salts. It does not include nickel content of nickel hydroxide cake or nickel matte as these are further refined elsewhere.

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

(a) Years ending 31 March following that stated

Production of perlite

tonnes (metric)

Country	2018	2019	2020	2021	2022
Armenia	51 222	80 676	173 504	168 242	* 170 000
Bulgaria	* 5 000	* 5 000	* 5 000	* 5 000	* 5 000
Georgia	22 577	21 000	31 736	31 572	51 829
Greece	790 412	719 000	718 000	975 000	850 000
Hungary	80 396	76 723	42 112	83 628	85 505
Italy	* 60 000	* 60 000	* 60 000	* 60 000	* 60 000
Russia	* 45 000	* 45 000	* 45 000	* 45 000	* 45 000
Slovakia	36 000	32 000	37 310	35 320	38 000
Turkey	1 088 983	1 174 486	1 146 341	1 428 695	1 319 432
Ukraine	* 17 000	* 17 000	* 17 000	* 17 000	* 8 000
South Africa	* 1 000	* 1 000	* 1 000	* 1 000	* 1 000
Mexico	26 400	24 497	—	28 800	—
USA	504 000	629 000	845 000	496 000	458 000
Argentina	18 794	* 19 000	13 176	18 016	* 18 000
Chile	5 020	4 700	—	—	—
China	935 600	1 472 100	1 422 200	* 1 500 000	* 1 500 000
Iran (a)	194 216	726 749	540 676	* 540 000	* 540 000
Philippines	9 696	6 608	* 10 000	* 10 000	* 10 000
Thailand	5 600	15 000	3 500	3 500	2 500
Australia (b)	2 285	1 264	2 185	3 821	3 800

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	2018	2019	2020	2021	2022
Albania	910 683	1 005 088	757 393	712 532	657 402
Austria (a)(b)	664 009	626 877	594 789	559 947	521 211
Azerbaijan (b)	38 814 300	37 501 200	34 531 900	34 580 300	32 646 400
Belarus	1 670 000	1 690 000	1 710 000	1 690 000	1 590 000
Bulgaria	* 20 600	* 21 930	21 000	20 300	* 19 700
Croatia	682 128	657 553	585 567	559 204	542 644
Czech Republic	109 000	81 000	91 000	83 000	75 000
Denmark	5 635 500	4 979 725	3 522 230	3 247 085	3 183 250
Estonia (c)	2 376 608	1 671 050	1 160 186	622 572	637 606
France	6 146 655	5 269 899	5 634 302	5 376 432	5 276 869
Georgia	30 159	35 070	31 293	35 477	51 829
Germany	2 066 642	1 923 232	1 895 942	1 805 932	1 699 014
Greece	365 000	365 000	261 000	271 000	271 000
Hungary	816 111	1 158 129	848 800	891 413	903 501
Italy	4 670 000	4 270 000	5 380 000	4 830 000	4 450 000
Lithuania	46 029	39 572	31 631	28 916	27 040
Netherlands	1 478 000	1 111 000	1 035 000	* 1 000 000	* 1 000 000
Norway	91 080 000	85 386 000	98 686 000	99 625 000	93 467 000
Poland	1 010 332	972 564	937 462	888 082	854 050
Romania	3 485 778	3 439 564	3 334 019	3 195 648	3 019 473
Russia	556 000 000	561 000 000	512 000 000	536 400 000	548 500 000
Serbia	876 592	854 000	831 000	811 000	801 000
Slovakia	5 000	4 000	3 000	5 000	3 000
Slovenia	270	267	247	142	—
Spain	89 476	39 861	26 819	5 785	910
Turkey	2 850 828	2 984 800	3 202 924	3 441 659	3 583 040
Ukraine	2 293 000	2 453 600	2 429 700	2 432 200	* 1 500 000
United Kingdom	51 188 000	52 488 000	48 985 000	40 864 000	37 752 000
Algeria	65 300 000	64 300 000	57 500 000	58 200 000	63 600 000
Angola	74 100 000	69 100 000	64 200 000	56 600 000	57 800 000
Cameroon	3 518 600	3 639 400	3 717 800	2 701 000	1 242 400
Chad	6 100 000	6 700 000	6 600 000	6 100 000	6 500 000
Congo	16 870 000	16 340 000	14 050 000	13 178 000	13 032 000
Congo, Democratic Republic	1 152 050	1 120 345	1 199 249	1 177 446	1 027 490
Côte d'Ivoire	1 617 658	1 811 136	1 893 641	1 708 962	1 573 733
Egypt	32 800 000	31 800 000	31 100 000	29 600 000	29 900 000
Equatorial Guinea	8 100 000	7 400 000	7 400 000	6 100 000	5 500 000
Gabon	9 650 000	10 901 000	10 766 000	19 085 000	10 400 000
Ghana	8 679 635	10 063 629	10 123 201	9 337 136	8 780 943
Libya	55 146 520	57 800 000	20 000 000	59 600 000	51 000 000
Morocco	5 000	* 5 000	* 5 000	* 5 000	* 5 000
Niger	597 432	547 646	472 967	398 288	398 300
Nigeria	96 300 000	101 100 000	88 400 000	78 400 000	69 000 000
Senegal	20 200	28 600	3 300	* 3 000	* 3 000
South Africa	23 781	—	—	—	—
South Sudan	7 100 000	8 400 000	8 100 000	7 500 000	6 900 000
Sudan	3 588 400	3 600 000	3 100 000	3 200 000	3 100 000
Tunisia	1 764 000	1 686 000	1 557 600	* 1 930 000	1 664 700
Barbados	30 254	28 733	23 736	20 899	19 254
Canada	228 300 000	232 900 000	222 600 000	234 500 000	274 000 000
Cuba	2 462 500	2 371 500	2 320 200	2 433 300	* 2 400 000
Guatemala	466 496	486 250	395 591	319 291	313 237
Mexico	107 070 000	99 212 000	98 850 000	99 521 955	100 504 249
Trinidad & Tobago	3 271 538	3 032 284	2 917 631	3 083 709	3 010 870
USA	699 400 239	782 673 293	747 021 029	748 130 549	759 500 000
Argentina	26 013 729	26 060 312	25 603 785	26 521 000	30 079 000
Bolivia	3 440 000	3 225 000	3 065 000	3 030 000	2 870 000
Brazil	139 356 470	149 550 768	157 682 321	154 975 843	161 042 769
Chile	158 795	159 977	101 658	108 933	127 282
Colombia	45 600 000	46 700 000	41 300 000	38 800 000	39 700 000
Ecuador	27 700 000	28 500 000	25 800 000	25 300 000	25 800 000
Peru	6 635 696	6 898 900	6 159 700	5 889 000	5 775 500
Suriname	964 639	971 528	967 898	959 832	990 482
Venezuela	83 800 000	52 100 000	32 700 000	33 400 000	37 300 000

Production of crude petroleum

tonnes (metric)

Country	2018	2019	2020	2021	2022
Afghanistan	* 900	* 900	* 900	* 900	* 900
Bahrain (b)	2 769 000	3 178 000	3 210 000	2 993 000	2 884 000
Bangladesh	617 500	591 800	* 600 000	...	...
Brunei	5 478 268	5 442 245	5 435 513	5 254 692	4 500 000
China (a)	189 324 200	191 014 100	194 768 600	198 881 100	204 722 400
East Timor (b)	603 000	* 819 000	826 007	828 750	544 198
India	(d) 34 203 000	(d) 32 169 000	(d) 30 491 000	(d) 29 691 000	29 392 000
Indonesia	38 600 000	37 264 000	35 513 000	32 927 021	30 620 822
Iran	219 600 000	158 600 000	144 400 000	168 800 000	176 500 000
Iraq	227 000 000	234 200 000	202 000 000	200 800 000	221 300 000
Israel	75 292	85 563	132 820	167 786	134 250
Japan	455 000	477 000	468 000	447 000	384 000
Jordan	1 000	200	2 500	14 300	13 000
Kazakhstan	90 359 000	90 555 400	85 656 100	85 879 400	84 100 000
Kuwait (e)	146 800 000	143 400 000	130 300 000	131 100 000	145 700 000
Kyrgyzstan	200 000	233 100	239 200	275 600	295 100
Malaysia	31 192 900	29 138 900	26 559 400	24 123 200	23 979 800
Mongolia	878 762	946 818	564 773	641 967	352 875
Myanmar	486 000	432 000	356 000	358 000	* 360 000
Oman	48 719 782	48 346 316	47 340 450	48 361 255	51 400 000
Pakistan (f)	4 367 729	4 359 424	3 831 787	3 760 982	3 745 333
Philippines	730 952	656 462	572 350	489 873	448 097
Qatar	74 800 000	71 900 000	72 000 000	73 300 000	74 100 000
Saudi Arabia (e)	576 800 000	556 600 000	519 600 000	515 000 000	573 100 000
Syria	1 100 000	1 500 000	2 000 000	4 600 000	4 600 000
Taiwan	4 678	3 860	2 169	2 462	1 868
Tajikistan	23 939	23 293	24 466	* 24 400	* 24 000
Thailand	17 000 000	16 900 000	15 100 000	14 100 000	11 600 000
Turkmenistan	12 600 000	12 500 000	10 300 000	11 600 000	11 600 000
United Arab Emirates	176 000 000	179 900 000	165 900 000	163 400 000	181 100 000
Uzbekistan	2 900 000	3 000 000	2 800 000	2 700 000	2 800 000
Vietnam (b)	13 969 000	13 090 000	11 470 000	10 970 000	10 840 000
Yemen, Republic of	4 100 000	4 100 000	3 800 000	3 500 000	3 400 000
Australia	16 206 743	20 931 300	20 442 600	19 430 000	18 505 668
New Zealand (b)	1 086 450	1 128 870	964 420	840 780	736 140
Papua New Guinea	467 300	367 500	* 390 000	* 370 000	* 340 000
World total	4 482 000 000	4 467 000 000	4 164 000 000	4 231 000 000	4 392 000 000

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 Production of crude
- (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	2018	2019	2020	2021	2022
Albania	92	80	57	57	51
Austria	969	891	743	654	607
Azerbaijan	19 207	24 514	26 487	32 578	34 956
Belarus	211	218	219	* 200	* 200
Bulgaria	22	29	55	31	17
Croatia	1 279	1 070	888	782	745
Czech Republic	179	146	138	153	165
Denmark	3 929	2 980	1 351	1 283	1 275
France	9	17	—	—	—
Georgia	10	9	9	15	* 15
Germany	6 888	6 699	5 692	5 731	5 281
Greece	11	11	6	* 5	* 5
Hungary	2 104	1 852	1 888	1 663	1 706
Ireland, Republic of	3 057	2 385	1 838	1 398	1 294
Italy	5 500	4 980	4 420	3 500	3 390
Netherlands	36 735	31 671	22 831	20 524	17 040
Norway	121 560	115 130	112 300	115 230	123 780
Poland	5 348	5 374	5 302	4 871	4 759
Romania	10 752	10 448	9 357	9 381	9 500
Russia	726 000	738 000	694 000	662 000	618 400
Serbia	506	477	448	401	373
Slovakia	80	75	65	66	54
Slovenia	15	7	5	5	4
Spain	93	131	47	38	33
Turkey	436	483	458	415	408
Ukraine	20 806	20 520	20 171	19 759	17 500
United Kingdom	40 736	39 386	39 433	32 570	37 737
Algeria	93 800	87 000	81 400	101 100	98 200
Angola	6 455	6 740	7 503	5 860	* 5 900
Cameroon	1 463	2 006	2 130	1 578	2 195
Congo	916	1 025	1 332	913	686
Côte d'Ivoire	1 957	2 090	2 339	2 495	* 2 500
Egypt	58 600	64 900	58 500	67 800	64 500
Equatorial Guinea (a)	6 765	5 883	5 255	6 121	* 6 000
Gabon (a)	622	464	502	454	* 450
Ghana	2 590	4 802	2 600	2 900	* 3 000
Libya	13 200	13 500	12 400	14 500	14 800
Morocco	93	105	100	100	* 100
Mozambique	5 038	4 549	4 857	4 712	* 4 700
Nigeria	48 300	49 300	49 400	45 200	40 400
Senegal	11	16	14	6	4
South Africa	624	668	563	44	3 656
Tanzania	58 951	* 60 000	* 60 000	* 60 000	* 60 000
Tunisia	1 961	1 795	1 864	2 212	2 029
Barbados	14	14	11	11	9
Canada	157 176	161 367	158 325	164 272	185 000
Cuba	970	951	895	864	844
Mexico	50 000	51 000	50 000	49 000	49 000
Trinidad & Tobago	36 647	36 658	31 177	26 348	27 414
USA (a)	870 912	961 282	947 633	966 862	978 600
Argentina	40 294	46 305	41 560	44 129	47 159
Bolivia	17 300	15 100	14 700	15 100	13 400
Brazil	26 687	27 358	25 403	25 382	24 098
Chile	1 221	1 339	1 316	1 275	1 355
Colombia	12 400	12 600	12 500	12 600	12 400
Ecuador	368	340	283	312	510
Peru	12 741	13 418	11 993	11 368	13 697
Venezuela	31 600	25 600	21 600	28 100	29 200
Afghanistan	(b) 153	(b) 129	(b) 80	(b) 285	(c) 153
Bahrain	21 879	24 887	25 114	26 088	25 675
Bangladesh (c)	27 613	27 196	24 998	25 172	23 903
Brunei	11 851	12 140	11 795	10 765	10 600
China	160 159	176 174	192 495	207 584	220 110
East Timor	6 554	7 152	6 770	6 449	2 911

Production of natural gas

million cubic metres

Country	2018	2019	2020	2021	2022
India	(d) 32 057	(d) 30 260	(d) 28 670	(d) 34 024	33 363
Indonesia	72 601	67 184	59 206	58 651	57 374
Iran	224 900	232 900	249 500	256 700	259 400
Iraq	10 600	11 000	7 000	9 400	9 400
Israel	10 480	10 500	15 000	19 000	22 000
Japan	2 707	2 524	2 295	2 304	2 148
Jordan	88	102	151	185	153
Kazakhstan	55 453	56 681	55 379	54 179	26 000
Kuwait (e)	16 900	18 200	16 500	17 400	13 400
Kyrgyzstan	27	24	22	22	30
Malaysia	66 171	68 660	63 330	67 482	71 811
Myanmar	16 028	18 800	19 050	18 185	16 900
Oman	34 640	36 484	35 146	35 469	42 100
Pakistan (c)	41 318	40 684	37 283	36 223	37 030
Philippines	4 380	4 410	4 000	3 430	3 178
Qatar	175 200	177 200	174 900	177 000	178 400
Saudi Arabia (e)	112 100	111 200	113 100	117 300	120 400
Syria	3 500	3 300	2 900	3 100	3 100
Taiwan	198	167	105	110	96
Tajikistan	1	1	1	* 1	* 1
Thailand	36 453	37 446	33 715	33 115	27 369
Turkmenistan	61 500	63 200	66 000	79 300	78 300
United Arab Emirates	58 000	58 000	55 400	57 000	58 000
Uzbekistan	57 200	57 300	47 100	50 900	48 900
Vietnam	10 010	10 200	9 160	7 460	8 080
Yemen, Republic of	100	100	100	100	100
Australia	130 987	154 485	154 107	156 463	163 112
New Zealand	4 323	4 608	4 508	3 945	3 694
Papua New Guinea	9 809	11 204	* 11 000	11 400	10 840
World total	4 042 000	4 200 000	4 082 000	4 161 000	4 149 000

Note(s)

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

- (a) Dry gas
- (b) Years ended 20 March following that stated
- (c) Years ended 30 June of that stated
- (d) Years ended 31 March following that stated
- (e) Including one-half of the output of the Neutral Zone

Production of phosphate rock

tonnes (metric)

Country	2018	2019	2020	2021	2022
Finland	989 073	994 572	995 066	990 261	923 245
Russia	13 600 000	13 800 000	13 800 000	* 13 800 000	* 13 800 000
Turkey	—	315 215	872 894	957 045	963 323
Algeria	1 204 100	1 338 400	1 205 500	1 811 800	* 1 800 000
Burkina Faso	1 320	1 800	2 803	2 400	2 500
Egypt (a)	3 003 000	3 378 000	3 052 000	3 098 000	* 2 000 000
Malawi	1 594	1 753	—	—	—
Mali	45 000	110 000	57 600	65 000	84 206
Morocco	37 600 000	35 300 000	40 700 000	38 122 000	30 456 000
Senegal					
Phosphate rock	1 782 000	2 295 975	2 138 434	2 402 469	2 536 954
Aluminium phosphate (b)	917 200	643 900	1 427 500	* 1 400 000	549 556
South Africa	2 058 274	1 825 719	581 392	2 132 135	1 985 458
Tanzania	—	—	28 376	24 493	26 597
Togo	930 857	703 573	1 300 000	1 450 000	1 541 772
Tunisia	2 802 000	4 108 800	3 194 100	3 726 400	3 563 000
Zimbabwe	* 20 000	14 649	9 192	15 850	20 022
Cuba	—	—	1 600	1 400	1 100
Mexico	741 678	831 737	304 136	483 514	97 390
USA	25 800 000	23 300 000	23 500 000	* 22 000 000	* 21 000 000
Brazil (c)	5 272 566	3 029 180	5 150 451	5 029 390	5 307 266
Chile					
Guano	4 154	3 405	2 091	2 229	3 346
Colombia	52 945	81 903	56 846	51 353	41 467
Peru	10 308 276	11 091 502	8 594 180	10 776 136	10 954 831
Venezuela	13 890	* 70 000	* 70 000	* 70 000	* 70 000
China	96 326 000	93 324 000	90 000 000	104 107 000	* 93 000 000
Christmas Island (d)(e)(a)	643 000	486 000	387 000	525 000	523 000
India	(f) 1 284 580	(f) 1 400 186	(f) 1 455 627	(f) 1 395 079	1 778 138
Iran (g)	86 579	119 227	96 160	* 181 000	* 97 000
Iraq	* 377 120	* 300 000	* 300 000	* —	* 300 000
Israel	3 028 800	2 649 800	2 505 200	1 957 200	1 795 072
Jordan	8 022 393	9 223 346	8 937 752	10 015 243	11 257 794
Kazakhstan	* 1 300 000	* 1 500 000	* 1 300 000	* 1 500 000	* 1 500 000
Laos					
Guano	—	635	230	—	—
Pakistan (a)	68 541	96 208	87 724	120 216	* 120 000
Philippines					
Phosphate rock	1 236	* 1 500	* 1 500	...	...
Guano	1 500	* 1 500	* 1 500	* 1 500	* 1 500
Saudi Arabia	5 444 000	5 716 000	8 000 000	8 400 000	* 9 000 000
Sri Lanka	46 530	47 438	52 103	68 217	35 309
Syria	* 100 000	* 100 000	* 130 000	* 350 000	* 350 000
Uzbekistan	617 900	588 600	646 000	681 000	* 900 000
Vietnam	4 332 216	4 489 600	2 022 160	2 713 200	2 513 800
Australia (a)	850 987	720 615	936 043	* 900 741	* 900 000
Nauru (d)	61 042	81 500	119 498	274 423	260 276
World total	230 000 000	224 000 000	224 000 000	242 000 000	222 000 000

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	2018	2019	2020	2021	2022
Finland					
Platinum	1 576	953	1 276	1 447	1 243
Palladium	1 157	699	858	1 036	960
Poland					
Platinum	* 8	* 8	* 8	* 8	* 5
Palladium	* 7	* 5	* 7	* 4	* 4
Russia					
Platinum	23 800	22 100	23 500	* 21 000	20 248
Palladium	85 300	86 600	92 300	* 85 000	86 779
Iridium	* 200	* 200	* 200	* 200	* 200
Rhodium	* 2 500	2 500	* 2 500	* 2 300	* 2 300
Ruthenium	* 300	* 300	* 300	* 300	* 300
Serbia					
Platinum	5	* 10	* 20	* 30	* 10
Palladium	55	* 100	* 100	* 100	* 100
Ethiopia					
Platinum (a)	* 4	* 2	* 2	* 4	* 30
South Africa					
Platinum	137 053	132 989	111 993	141 626	124 401
Palladium	80 629	80 684	66 264	84 336	73 104
Iridium	6 357	6 464	6 186	7 006	* 6 100
Rhodium	18 608	18 545	16 972	22 256	18 800
Ruthenium	27 999	28 386	25 058	31 463	27 900
Zimbabwe					
Platinum	14 703	13 857	15 004	14 732	16 460
Palladium	12 094	11 639	12 890	12 619	13 935
Iridium	586	845	837	612	602
Rhodium	1 334	1 224	1 368	1 333	1 461
Ruthenium	1 165	791	1 026	1 239	1 341
Canada					
Platinum	8 200	* 7 755	* 4 037	* 4 888	* 5 301
Palladium	20 880	24 234	12 616	15 275	16 565
Iridium	* 286	—	—	—	—
Rhodium	750	* 323	* 168	* 204	* 221
Ruthenium	* 572	—	—	—	—
USA					
Platinum	4 160	4 150	* 4 500	* 4 500	3 003
Palladium	14 300	14 300	* 14 800	* 14 800	10 096
Rhodium	* 100	* 100	* 100	* 100	* 100
Colombia					
Platinum	270	178	414	618	310
China					
Platinum	2 500	2 500	* 2 500	* 5 300	* 2 800
Palladium	1 300	1 300	* 1 300	* 1 300	* 1 300
Uzbekistan					
Palladium	—	28	91	160	93
Australia					
Platinum	111	99	107	90	100
Palladium	430	384	414	380	392
World total	469 000	464 000	420 000	476 000	437 000

Note(s)

- (1) Wherever possible, figures relate to quantities of platinum group metals thought to be recovered from ores originating in the country stated.
- (2) South Africa thought to be the only country to produce osmeium, 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	2018	2019	2020	2021	2022
Belarus	7 346 096	7 348 293	7 562 153	* 8 000 000	* 4 000 000
Germany					
Potassic salts	2 754 085	2 615 284	2 874 026	2 793 326	2 708 650
Russia					
Chloride	7 015 000	6 771 000	6 893 000	7 503 000	* 7 500 000
Spain					
Chloride	603 812	519 644	351 918	375 779	398 233
United Kingdom					
Chloride	210 000	—	—	—	—
Polyhalite	400 000	632 000	709 000	789 000	953 000
Canada					
Chloride	13 944 000	12 851 000	13 783 530	14 244 472	14 593 478
USA					
Potassic salts	520 000	510 000	460 000	430 000	440 000
Brazil					
Chloride	201 200	200 000	* 200 000	* 200 000	* 200 000
Chile					
Chloride	988 512	681 697	951 125	878 507	672 000
China	5 450 000	5 900 000	* 5 600 000	* 6 000 000	* 6 000 000
Israel					
Chloride	2 344 600	2 057 078	2 375 450	2 406 300	2 474 787
Jordan	1 486 000	1 516 500	1 598 200	1 563 400	1 637 240
Laos	554 103	462 738	713 718	818 654	1 483 905
World total	43 800 000	42 000 000	44 000 000	46 000 000	43 000 000

Production of rare earth oxides

tonnes (metric)

Country	2018	2019	2020	2021	2022
Russia	2 596	2 620	2 663	2 276	* 2 038
Burundi	480	150	250	150	—
Madagascar	* 2 000	* 4 000	* 5 000	* 2 000	* 2 000
USA	10 800	16 800	22 800	* 25 800	25 800
China (a)	* 180 000	* 180 000	* 180 000	* 180 000	* 210 000
India (b)	4 215	* 4 200	* 4 200	* 4 200	* 4 200
Malaysia	1 012	72	14	29	52
Myanmar	* 34 000	* 29 000	* 35 000	* 35 000	* 24 000
Vietnam	* 920	* 1 300	* 690	* 440	* 440
Australia (c)	17 754	19 737	14 562	15 761	15 970

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	2018	2019	2020	2021	2022
Poland	9	8	10	9	6
Russia	* 2	* 2	* 2	* 2	* 2
USA	8	8	9	* 9	9
Chile	* 27	* 30	* 30	* 30	* 29
China	* 3	* 3	* 3	* 3	* 3
Kazakhstan	* 1	* 1	* 1	* 1	* 1

Production of salt

tonnes (metric)

Country	2018	2019	2020	2021	2022
Albania					
Sea salt	* 31 500	* 30 000	* 30 000	* 30 000	* 30 000
Armenia	22 583	24 975	28 168	32 667	22 534
Austria					
Rock salt	350	—	28	35	48
Salt in brine	1 105 740	1 135 790	1 178 489	1 065 786	1 119 350
Azerbaijan	4 208	4 526	4 045	4 296	4 181
Belarus	2 904 097	2 517 590	1 198 290	2 265 000	* 2 300 000
Bosnia & Herzegovina	1 063 457	1 069 210	947 838	966 358	1 109 253
Bulgaria	* 3 400 000	* 3 400 000	* 3 400 000	* 3 400 000	* 3 400 000
Croatia	50 825	47 793	54 381	55 128	52 851
Denmark (a)	* 439 000	* 449 000	* 466 000	* 459 000	* 425 000
France	4 532 085	4 364 736	5 200 596	5 543 040	* 5 500 000
Germany					
Rock salt	7 185 794	7 374 654	5 202 641	8 405 272	6 944 485
Brine salt	2 609 664	* 2 330 000	2 316 705	* 2 300 000	* 2 000 000
Salt in brine	8 711 720	9 153 686	8 585 169	8 291 984	7 133 049
Greece (b)	163 474	201 107	201 000	210 000	* 210 000
Italy					
Rock salt & brine salt	1 514 829	1 538 072	1 192 956	1 500 458	1 460 833
Montenegro					
Sea salt	* 10 000	* 10 000	* 10 000	* 10 000	* 10 000
Netherlands	6 744 000	5 914 000	5 701 000	6 121 000	5 893 000
Norway	56 000	10 000	(c) 5 300	(c) 13 000	(c) —
Poland					
Rock salt	853 210	912 000	505 000	1 004 000	1 005 000
Brine salt	2 928 781	2 929 000	2 711 000	2 722 646	2 879 000
Other salt	497 354	361 000	342 000	327 000	492 888
Portugal					
Rock salt	6 201	4 709	4 217	4 471	8 158
Sea salt	94 624	107 506	92 887	90 307	117 695
Romania	2 333 555	1 984 965	1 151 740	1 294 889	* 1 300 000
Russia	6 710 000	7 091 000	5 529 600	* 6 000 000	* 6 000 000
Serbia	7 811	13 464	6 703	6 469	* 6 500
Slovenia	2 018	1 437	805	1 671	2 342
Spain					
Rock salt	3 199 559	3 084 140	2 499 402	3 034 268	2 829 624
Sea salt	1 194 812	1 134 195	1 057 339	1 168 671	903 625
Other salt	117 872	112 179	119 298	126 151	131 583
Switzerland	530 414	477 000	325 000	513 000	* 423 000
Turkey	6 298 705	6 961 015	7 698 018	7 843 502	9 085 711
Ukraine	2 191 619	2 092 795	* 2 000 000	* 2 000 000	* 1 000 000
United Kingdom	3 430 266	2 377 765	2 327 965	2 687 483	2 587 790

Production of salt

tonnes (metric)

Country	2018	2019	2020	2021	2022
Algeria					
Brine salt & sea salt	106 200	100 800	95 100	107 800	* 160 000
Angola	* 110 000	* 109 000	* 164 400	* 160 000	* 160 000
Botswana	367 988	383 779	418 379	484 628	321 563
Djibouti	* 2 500 000	* 3 800 000	* 3 500 000	* 3 500 000	* 3 500 000
Egypt (d)	522 000	493 000	357 000	218 000	* 230 000
Eritrea	* 310 000	* 310 000	* 320 000	* 320 000	* 320 000
Ethiopia (e)	754	754	* 800	* 900	* 800
Ghana	* 330 000	* 300 000	* 330 000	* 300 000	* 300 000
Guinea	* 15 000	* 15 000	* 20 000	* 20 000	* 25 000
Kenya (f)	28 841	13 728	4 703	7 099	23 215
Libya	* 50 000	* 50 000	* 50 000	* 50 000	* 50 000
Madagascar	* 110 000	* 110 000	* 110 000	* 120 000	* 120 000
Mauritania	* 1 000	* 1 000	* 1 000	* 1 000	* 1 000
Mauritius (b)	500	500	* 500	793	674
Morocco	691 637	854 390	490 896	295 741	* 575 000
Mozambique (b)	* 91 000	* 95 000	* 95 000	* 100 000	* 100 000
Namibia	833 193	1 108 364	795 896	882 238	1 157 299
Senegal	245 700	286 103	290 873	306 347	320 627
South Africa	476 107	510 499	538 355	543 955	571 774
Sudan	267 000	256 000	237 000	121 000	* 120 000
Tanzania	36 392	99 510	83 974	112 995	181 818
Tunisia	2 116 972	1 966 528	1 666 075	1 889 614	* 1 900 000
Bahamas (a)	854 223	653 355	708 642	418 980	623 368
Bonaire (b)	* 400 000	* 400 000	* 400 000	* 400 000	* 400 000
Canada					
Rock salt	9 675 013	10 986 492	11 416 072	10 543 760	11 673 544
Other salt (g)	1 016 444	955 790	970 009	1 974 511	862 320
Cuba	192 700	210 400	226 000	204 600	195 600
Dominican Republic	* 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	9 392 052	8 845 239	9 084 859	7 001 505	7 914 780
Nicaragua (b)	* 30 000	* 30 000	* 30 000	* 30 000	* 30 000
Panama (b)	17 490	27 721	25 259	23 878	23 017
USA					
Rock salt (h)	17 999 000	17 220 000	16 810 000	* 16 400 000	18 060 000
Salt in brine (h)	17 121 000	16 380 000	15 990 000	* 15 600 000	16 800 000
Evaporated salt (h)	8 341 000	7 980 000	7 790 000	* 7 600 000	7 140 000
Argentina	1 406 020	1 412 348	1 256 963	* 1 300 000	* 1 300 000
Bolivia	5 373	* 5 100	* 5 000	* 20 000	* 20 000
Brazil	1 227 332	700 467	464 330	534 278	609 801
Chile	10 012 105	10 476 823	9 574 159	8 565 307	10 501 352
Colombia					
Rock salt	339 503	347 183	359 559	342 496	359 288
Sea salt	51 720	—	—	—	—
Ecuador	* 75 000	* 75 000	* 75 000	* 75 000	* 75 000
Peru	1 509 564	1 266 347	1 030 598	1 175 828	1 093 559
Venezuela (b)	* 300 000	* 300 000	* 300 000	* 300 000	* 300 000
Afghanistan (i)	47 944	114 245	10 627	107	21 663
Bangladesh (c)	1 513 022	1 564 037	1 582 623	1 640 703	* 16 000 000
Cambodia (b)(j)	* 20 000	* 30 000	* 104 000	* 75 000	40 000
China	63 636 100	62 708 000	58 526 800	57 065 100	53 598 800
India					
Rock salt (k)	17	130	486	320	434
Sea salt (k)	25 127 300	24 152 400	21 352 200	* 21 000 000	* 21 330 000
Other salt (k)	4 906 300	3 905 800	5 211 700	* 5 200 000	* 4 600 000
Indonesia	2 700 000	* 2 300 000	* 1 000 000	* 1 000 000	* 1 000 000
Iran (i)	2 768 733	2 656 887	3 677 501	* 3 700 000	* 3 700 000
Iraq	* 271 500	* 475 000	* 300 000	* 300 000	* 300 000
Israel (b)	376 800	301 100	275 160	262 347	297 861
Japan (k)	929 000	903 000	874 000	855 000	897 000

Production of salt

tonnes (metric)

Country	2018	2019	2020	2021	2022
Jordan	48 901	36 850	39 088	42 359	* 42 000
Kazakhstan	885 715	1 094 659	1 237 455	1 231 996	* 1 112 456
Korea (Rep. of)	282 590	308 844	323 470	280 876	* 250 000
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
Lebanon (b)	* 15 000	* 15 000	* 15 000	* 15 000	* 15 000
Mongolia	997	533	2 624	1 349	394
Myanmar	189 146	213 000	229 000	162 000	* 162 000
Oman	11 500	15 000	11 700	10 700	11 500
Pakistan					
Rock salt (d)	3 653 746	3 799 106	3 368 978	3 365 665	2 716 000
Sea salt (d)(f)	234 598	213 198	114 754	226 540	225 000
Philippines (b)	* 993 000	* 993 000	* 993 000	* 993 000	* 993 000
Saudi Arabia					
Rock salt & brine salt	2 646 000	2 778 000	2 220 000	2 331 000	* 2 400 000
Sri Lanka	68 834	57 291	60 076	63 000	111 000
Syria	* 2 500	* 2 500	* 3 000	* 4 000	* 4 000
Taiwan	78 539	76 255	77 854	77 297	78 415
Tajikistan	15 670	35 496	37 023	* 37 000	* 37 000
Thailand					
Rock salt	1 487 364	1 580 390	1 439 877	1 563 970	1 737 090
Turkmenistan	* 230 000	* 230 000	* 230 000	* 230 000	* 230 000
Uzbekistan	300 653	281 827	292 720	409 765	* 320 000
Vietnam (b)	996 513	945 000	1 134 590	1 287 190	987 000
Yemen, Republic of	* 75 000	* 100 000	* 75 000	* 75 000	* 80 000
Australia (d)	13 582 811	12 489 275	11 960 778	13 083 595	* 13 000 000
New Zealand	50 000	75 000	60 000	76 000	18 000
World total	288 700 000	283 200 000	265 400 000	268 600 000	281 200 000

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) Exports
- (b) Sea salt
- (c) Sales
- (d) Years ended 30 June of that stated
- (e) Years ended 7 July of that stated
- (f) Lake salt
- (g) Including salt in brine
- (h) Sold or used by producers
- (i) Years ended 20 March following that stated
- (j) Seasons beginning in November and ending in May of the year stated.
- (k) Years ended 31 March following that stated

Production of refined selenium

tonnes (metric)

Country	2018	2019	2020	2021	2022
Armenia	* 20	* 20	* 20	* 20	* 20
Belgium	* 200	* 200	* 200	* 200	* 200
Finland	109	115	84	100	130
Germany (a)	* 300	* 300	* 300	* 200	* 200
Poland	66	76	74	66	82
Russia	176	184	190	* 194	* 350
Serbia	29	17	* 19	* 19	* 19
Sweden	90	19	19	5	* 5
Canada	85	57	102	* 100	* 110
Mexico	107	127	106	135	141
USA	152	144	66	112	112
Chile	* 110	* 90	* 100	* 100	* 100
Peru	45	40	53	36	* 40
China	1 150	1 358	* 1 200	* 1 260	* 1 300
Japan	768	740	740	750	* 750
Kazakhstan	* 5	* —	* —	* 12	* 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	2018	2019	2020	2021	2022
France					
Andalusite (a)	* 65 000	* 68 000	* 65 000	* 65 000	* 65 000
South Africa					
Andalusite	* 200 000	* 190 000	* 180 000	* 170 000	* 160 000
USA					
Kyanite (b)	89 200	91 300	67 100	* 186 000	* 100 000
India					
Kyanite (c)	4 889	3 497	4 925	9 432	5 507
Sillimanite (c)	69 033	13 236	11 110	3 432	1 828
Nepal					
Kyanite (d)	0	1	0	—	—

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) Including related minerals

(c) Years ended 31 March following that stated

(d) Years ending 15 July of that stated

Mine production of silver

kilograms (metal content)

Country	2018	2019	2020	2021	2022
Armenia	* 15 000	17 325	18 280	18 983	18 417
Azerbaijan	8 943	8 160	7 600	8 986	12 125
Bulgaria	41 315	35 145	32 760	31 816	* 38 000
Cyprus	180	97	(a) 486	—	—
Finland	12 849	40 461	54 833	42 736	36 359
Georgia	20 042	4 052	11 172	12 674	22 420
Germany	500	400	400	600	700
Greece	34 900	43 800	50 300	47 900	* 50 000
Ireland, Republic of	1 160	1 578	920	1 342	2 750
North Macedonia	12 694	11 707	11 488	15 000	* 15 000
Poland	1 471 000	1 455 000	1 423 000	1 522 000	1 533 000
Portugal	90 800	95 300	96 000	97 900	78 400
Romania	* 18 000	* 18 000	* 18 000	* 18 000	* 18 000
Russia (b)	1 400 100	1 407 000	1 380 000	1 508 000	* 1 300 000
Serbia (b)	9 000	* 14 500	* 15 900	* 11 600	* 12 000
Slovakia	345	295	269	328	354
Spain	87 780	77 501	92 751	80 848	58 235
Sweden	443 624	419 926	400 939	428 585	422 086
Turkey	197 320	242 000	98 270	162 670	143 260
United Kingdom	—	* 130	* 100	* 400	1 300
Algeria	* 100	* 50	—	12	* —
Botswana	—	—	—	67 563	1 099 644
Burkina Faso	* 8 000	* 7 700	10 012	* 9 900	7 300
Congo, Democratic Republic	* 3 400	* 3 400	* 3 400	* 3 400	* 3 400
Côte d'Ivoire	137	304	956	11 477	* 12 000
Eritrea	31 000	44 836	65 284	68 624	49 855
Ethiopia (c)	* 340	* 400	* 400	* 400	* 400
Ghana	4 000	* 4 000	* 1 000	* 1 000	* 1 000
Mali	* 2 600	* 2 700	* 2 800	* 3 000	* 3 000
Morocco	190 500	216 600	189 200	194 400	200 300
Namibia	3 602	6 221	6 982	5 330	5 048
Niger	64	31	12	87	* 29
Nigeria	—	—	—	—	* 200
Senegal	940	900	1 100	1 300	1 325
South Africa	46 467	55 903	38 118	37 147	45 704
Sudan	* 2 000	* 2 000	* 1 000	* 1 000	* 1 000
Tanzania	12 041	12 607	13 187	9 324	13 602
Zambia	93	7 212	* 9 000	* 9 000	* 9 000
Zimbabwe	1 542	1 493	* 1 500	* 1 500	1 545
Canada	404 000	410 000	295 051	325 026	334 480
Dominican Republic	166 499	108 685	87 889	79 687	73 413
Honduras	31 181	34 060	34 260	36 700	* 37 000
Mexico	7 243 245	7 485 602	7 424 554	6 492 180	7 067 580
Nicaragua	11 263	17 362	20 186	23 078	21 576
Panama	—	35 217	49 627	78 419	87 498
USA	934 000	981 000	1 080 000	1 020 000	1 010 000
Argentina	1 023 768	1 070 700	767 100	824 200	855 400
Bolivia	1 191 024	1 152 628	929 909	1 289 456	1 214 301
Brazil	49 600	* 68 400	* 68 400	80 900	* 80 000
Chile	1 370 237	1 309 321	1 575 794	1 383 041	1 274 363
Colombia	16 691	14 479	19 948	26 963	32 650
Ecuador	192	2 892	1 792	2 273	2 027
Peru	4 160 162	3 860 306	2 723 879	3 334 000	3 080 000
China	3 421 355	3 443 128	3 405 800	3 511 554	3 477 400
India	(d) 679 376	(d) 672 380	(d) 746 377	(d) 680 000	675 448
Indonesia	335 491	484 900	338 100	295 900	298 600
Iran	* 50 000	* 50 000	* 50 000	* 50 000	* 50 000
Japan	3 596	3 467	4 192	3 339	2 923
Kazakhstan	969 347	1 022 068	1 035 181	1 004 789	1 013 100
Korea (Rep. of)	7 090	5 245	5 739	10 001	4 434
Korea, Dem. P.R. of	* 50 000	* 50 000	* 50 000	* 50 000	* 50 000
Kyrgyzstan	18 300	19 000	16 100	16 500	* 20 000
Laos	37 464	34 443	28 672	25 797	21 345
Malaysia	1 542	686	422	672	481

Mine production of silver

kilograms (metal content)

Country	2018	2019	2020	2021	2022
Mongolia	72 094	69 443	70 219	72 947	65 439
Philippines	29 782	31 267	24 024	30 856	56 227
Saudi Arabia	5 322	5 588	6 493	6 818	* 7 000
Tajikistan	9 500	10 800	3 300	11 000	* 11 000
Uzbekistan	183 500	189 700	196 000	* 211 500	217 700
Australia	1 254 480	1 325 089	1 337 344	1 329 718	1 169 252
Fiji	358	692	479	622	475
New Zealand	6 332	4 060	1 393	3 055	3 922
Papua New Guinea	104 004	157 927	128 886	102 115	84 000
World total	28 013 000	28 389 000	26 585 000	26 848 000	27 616 000

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	2018	2019	2020	2021	2022
Turkey	3 400 000	4 302 000	* 4 000 000	* 4 500 000	* 4 500 000
Botswana	297 237	269 119	238 476	261 838	285 215
Ethiopia (a)	5 357	1 406	* 1 500	* 1 500	* 1 500
Kenya	294 856	282 049	254 579	283 621	321 779
USA	11 900 000	11 700 000	9 990 000	11 300 000	11 300 000
China	26 479 600	29 864 600	28 123 700	29 132 500	29 202 100

Note(s)

- (a) Years ended 7 July of that stated

Production of strontium minerals

tonnes (metric)

Country	2018	2019	2020	2021	2022
Spain	90 506	162 327	121 920	281 535	246 706
Turkey	1 100	9 516	4 869	—	2 046
Mexico	35 489	39 215	59 079	30 283	50 100
Argentina (a)	* 700	* 700	* 700	* 700	* 700
China	61 600	83 600	83 500	* 80 000	* 80 000
Iran (b)	94 200	129 040	198 779	* 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	2018	2019	2020	2021	2022
Austria					
Recovered (a)	* 44 000	* 44 000	* 44 000	* 44 000	* 44 000
Belarus					
Recovered (a)	72 718	65 043	64 336	* 64 000	* 64 000
Belgium					
Recovered (a)(b)	* 400 000	* 400 000	* 400 000	* 400 000	* 400 000
Bosnia & Herzegovina					
Recovered	3 702	* 3 700	* 3 700	* 3 700	* 3 700
Bulgaria					
Recovered (b)	463 393	414 503	486 381	425 188	400 000
Recovered (a)	* 60 000	* 60 000	* 60 000	* 60 000	* 60 000
Croatia					
Recovered (a)	23 406	12 640	8 618	8 659	7 274
Czech Republic					
Recovered (a)	* 30 000	* 22 000	* 25 000	* 23 000	* 21 000
Denmark					
Recovered (a)	4 194	3 554	4 140	4 090	3 727
Finland					
Pyrites	271 000	233 000	194 000	182 000	143 000
Recovered (b)	343 377	327 300	358 700	338 400	341 100
Recovered (a)	* 130 000	* 130 000	* 120 000	* 120 000	* 120 000
France					
Recovered (a)	* 370 000	* 370 000	* 370 000	* 370 000	* 370 000
Recovered (c)	54 592	* 55 000	* 55 000	* 55 000	* 55 000
Germany					
Recovered (a)	419 597	460 012	353 293	382 049	370 664
Recovered (c)	254 400	280 660	213 398	235 769	227 281
Greece					
Recovered (a)	395 000	505 500	627 800	500 000	390 000
Hungary					
Recovered (a)	* 54 000	* 54 000	* 54 000	* 54 000	* 54 000
Italy					
Recovered (d)	550 000	550 000	* 550 000	* 550 000	235 628
Lithuania					
Recovered (a)	93 958	86 041	71 247	72 988	64 498
Netherlands					
Recovered (b)	* 96 000	* 86 000	* 90 000	* 90 000	* 90 000
Recovered (a)	* 520 000	510 000	* 510 000	* 500 000	* 500 000
Norway					
Recovered (b)	69 998	72 900	73 187	70 948	69 013
Recovered (a)	* 22 000	* 22 000	* 22 000	* 22 000	* 22 000
Poland					
Frasch	617 370	568 240	422 380	449 100	476 900
Recovered (b)	* 280 000	* 280 000	* 280 000	* 280 000	* 280 000
Recovered (a)	23 770	25 200	24 740	24 240	22 670
Portugal					
Recovered	* 21 000	* 21 000	* 21 000	* 21 000	* 21 000
Romania					
Recovered	* 42 000	* 42 000	* 42 000	* 42 000	* 42 000
Russia					
Pyrites	* 71 000	* 71 000	* 71 000	* 71 000	* 71 000
Recovered (a)	* 6 700 000	* 6 700 000	* 6 100 000	* 6 400 000	* 6 582 000
Recovered (c)	* 954 000	* 954 000	* 954 000	* 954 000	* 954 000
Sulfur ore	83 707	57 427	* 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)	* 25 000	* 20 000	* 15 000	* 25 000	* 15 000
Sweden					
Recovered (b)	200 122	178 401	165 500	172 700	179 900
Recovered (a)	86 967	50 021	39 085	38 248	28 170
Turkey					
Pyrites	9 142	173 731	46 408	39 681	41 788
Recovered (a)(c)	* 81 000	* 85 000	* 92 000	* 98 000	* 102 000
Sulfur ore	900	—	—	—	—
United Kingdom					
Recovered (a)	129 000	130 000	106 000	107 000	121 000

Production of sulfur and pyrites

tonnes (sulfur content)

Country	2018	2019	2020	2021	2022
Algeria					
Recovered (a)	* 10 000	* 10 000	* 10 000	* 10 000	* 10 000
Egypt					
Recovered (a)	80 208	78 787	* 68 000	* 65 000	* 65 000
Libya					
Recovered (a)	116 000	169 500	133 300	139 000	139 500
Morocco					
Recovered	* 60 000	* 60 000	* 60 000	* 60 000	* 60 000
Namibia					
Recovered	78 612	72 923	81 500	65 500	* 74 500
South Africa					
Recovered (b)(a)	239 405	919 624	575 491	32 044	70 640
Zambia					
Recovered (b)	947 800	960 200	917 300	691 900	* 700 000
Canada					
Recovered (b)	505 000	520 000	554 746	* 555 000	* 555 000
Recovered (a)	4 828 000	6 418 000	4 349 262	4 193 003	4 348 607
Cuba					
Recovered	3 154	3 234	3 176	2 846	2 951
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)	442 657	364 967	315 935	182 871	290 121
Trinidad & Tobago					
Recovered (a)	* 10 000	* 10 000	* 10 000	* 10 000	* 10 000
USA					
Recovered (b)	672 000	596 000	581 000	* 600 000	* 600 000
Recovered (a)	9 000 000	8 110 000	7 310 000	* 7 500 000	* 8 000 000
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)	1 476 456	1 263 119	1 476 154	1 400 388	1 334 713
Colombia					
Recovered (a)	* 6 500	* 6 700	* 5 900	* 5 600	* 5 700
Ecuador					
Recovered (a)(e)	* 5 000	* 5 000	* 5 000	* 5 000	* 5 000
Peru					
Recovered (d)	* 556 000	* 556 000	* 556 000	* 556 000	* 556 000
Venezuela					
Recovered (a)	* 250 000	* 155 000	* 100 000	* 100 000	* 100 000
Bahrain					
Recovered (a)	* 100 000	* 120 000	* 120 000	* 110 000	* 110 000
China					
Pyrites	* 5 610 000	5 700 000	5 240 000	* 5 200 000	* 5 200 000
Recovered	12 080 000	13 360 000	13 610 000	* 13 600 000	* 13 600 000
India					
Recovered (b)	* 1 200 000	* 1 200 000	* 1 200 000	* 1 200 000	* 1 200 000
Recovered (a)(f)	890 400	900 942	737 337	723 400	926 270
Indonesia					
Recovered (b)	* 160 000	* 160 000	* 160 000	* 160 000	* 160 000
Recovered (a)	* 120 000	* 120 000	* 120 000	* 120 000	* 120 000
Iran					
Recovered (d)	* 2 500 000	* 1 800 000	* 1 600 000	* 1 900 000	* 2 000 000
Iraq					
Recovered (a)	* 6 583 000	* 6 792 000	* 5 858 000	* 5 823 000	* 6 417 700
Israel					
Recovered (a)	75 934	70 973	45 184	43 664	* 40 000
Japan					
Recovered (b)	1 710 961	1 629 656	1 728 654	1 575 032	1 655 704
Recovered (a)	1 697 355	1 629 365	1 411 860	1 420 094	1 542 244

Production of sulfur and pyrites

tonnes (sulfur content)

Country	2018	2019	2020	2021	2022
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)	* 2 620 000	* 2 625 000	* 2 484 000	* 2 490 000	* 2 438 900
Korea (Rep. of)					
Recovered (b)	* 1 078 000	* 1 078 000	* 1 078 000	* 1 078 000	* 1 078 000
Recovered (a)	2 000 000	1 999 000	2 000 000	2 000 000	2 000 000
Kuwait					
Recovered (a)	* 880 000	* 860 000	* 780 000	* 785 000	* 874 200
Oman					
Recovered (a)	* 49 000	* 48 000	* 48 000	* 48 000	* 51 400
Pakistan					
Sulfur ore (g)	22 040	20 715	19 948	19 398	16 288
Philippines					
Recovered (b)	* 169 000	* 169 000	* 169 000	* 169 000	* 169 000
Recovered (a)	* 33 800	* 30 300	* 26 400	* 22 600	* 20 700
Qatar					
Recovered (a)	* 1 571 700	* 1 509 700	* 1 512 900	* 1 539 700	* 1 556 100
Saudi Arabia					
Recovered (a)	* 3 900 000	* 3 700 000	* 3 500 000	* 3 400 000	* 3 820 667
Singapore					
Recovered (a)	* 300 000	* 300 000	* 300 000	* 300 000	* 300 000
Syria					
Recovered (a)	* 3 000	* 4 000	* 5 000	* 12 000	* 12 000
Taiwan					
Recovered	169 698	195 358	167 336	192 227	162 571
Thailand					
Recovered (a)	* 61 300	* 60 200	* 37 300	* 49 200	* 41 000
Turkmenistan					
Recovered (a)	* 365 000	* 363 000	* 299 000	* 348 000	* 336 000
United Arab Emirates					
Recovered (a)	* 2 474 000	* 2 523 000	* 2 318 000	* 2 300 000	* 2 500 000
Uzbekistan					
Recovered (b)	* 131 000	* 131 000	* 131 000	* 131 000	* 131 000
Recovered (a)	* 84 000	* 87 000	* 81 000	* 78 000	* 81 200
Australia					
Recovered (b)	* 810 000	* 810 000	* 810 000	* 810 000	* 810 000
Recovered	(a)* 90 000	(a)* 90 000	(a)* 90 000	(a)* 90 000	(b)* 90 000
New Zealand					
Recovered (a)	* 18 000	* 19 000	* 16 000	* 14 000	* 12 000
World total					
Pyrites	6 000 000	6 200 000	5 600 000	5 500 000	5 500 000
Frasch	600 000	600 000	400 000	400 000	500 000
Recovered	78 500 000	80 000 000	74 200 000	73 500 000	75 700 000
Sulfur	100 000	100 000	50 000	50 000	50 000

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	2018	2019	2020	2021	2022
Austria	127 866	124 184	123 000	157 493	157 047
Finland	374 398	329 891	278 331	296 833	241 538
France	* 350 000	* 350 000	* 320 000	* 320 000	* 320 000
Italy	* 170 000	* 170 000	* 165 000	* 170 000	* 170 000
North Macedonia	319	—	—	—	—
Portugal	10 144	12 901	9 751	8 277	4 273
Russia	12 500	48 000	104 000	* 100 000	* 100 000
Slovakia	43 000	70 000	91 670	99 920	121 000
Spain	15 500	13 100	2 920	—	—
Turkey					
Talc	18 105	3 742	14 178	33 118	43 196
Pyrophyllite	266 111	88 335	129 290	187 232	—
United Kingdom	1 640	3 131	1 386	1 397	2 795
Egypt (a)	* 25 000	* 22 000	* 20 000	* 20 000	* 20 000
Nigeria	1 427	3 414	* 3 500	65 061	* 65 000
South Africa					
Talc	3 897	979	—	—	—
Pyrophyllite	98 245	134 451	92 318	270 944	438 698
Sudan	* 4 000	1 500	* 2 000	4 500	* 4 500
Canada (b)	289 000	255 000	153 293	* 160 000	* 160 000
Guatemala	2 187	10	3 151	2 111	1
Mexico	8 448	7 202	29 122	36 465	34 630
USA	648 000	578 000	490 000	577 000	511 000
Argentina	11 728	* 11 700	* 11 000	* 11 000	* 11 000
Brazil (c)	660 000	650 000	650 000	650 000	650 000
Colombia (c)	2 062	1 708	717	45	2 866
Peru					
Talc	20 634	18 935	17 418	23 039	23 298
Pyrophyllite	26 675	25 039	20 519	27 316	26 571
Uruguay	422	50	520	570	1 160
Bhutan	2 042	1 375	972	678	740
China	1 500 000	1 360 000	1 100 000	* 1 100 000	* 1 000 000
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)	48 750	45 100	59 155	45 000	* 45 000
Japan					
Talc	* 10 000	* 10 000	* 10 000	* 10 000	* 10 000
Pyrophyllite	* 160 000	* 160 000	* 160 000	* 160 000	* 160 000
Korea (Rep. of)					
Talc	1 887	2 626	1 600	2 091	913
Pyrophyllite	345 550	338 834	314 346	353 013	320 954
Nepal (f)	17 215	3 463	7 112	4 450	* 4 000
Pakistan (a)	141 504	167 148	150 000	289 000	301 000
Saudi Arabia					
Pyrophyllite	46 000	48 000	* 48 000	* 48 000	* 48 000
Taiwan	17	6	—	43	—
Thailand					
Talc	7 756	8 064	6 624	5 920	—
Pyrophyllite	50 920	6 500	31 522	26 030	30 369
Australia	* 153 000	* 167 000	* 131 000	* 105 000	* 131 000
World total	7 300 000	6 900 000	6 400 000	7 000 000	6 800 000

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	2018	2019	2020	2021	2022
Russia					
Nb content	486	461	431	454	384
Ta content	36	26	49	34	20
Spain					
Ta content	—	12	11	12	16
Burundi					
Columbite-tantalite	22	22	21	42	* 42
Nb content	9	9	8	16	* 16
Ta content	3	3	3	7	* 7
Congo, Democratic Republic					
Columbite-tantalite	2 267	1 256	1 712	2 422	* 2 500
Nb content	666	369	503	711	* 734
Ta content	650	360	491	694	* 717
Ethiopia (a)					
Nb content	* 26	* 7	* 7	* 12	* 15
Ta content	* 37	* 25	* 10	* 19	* 19
Mozambique					
Tantalite	146	132	209	178	211
Ta content	72	65	103	87	104
Nigeria					
Tantalite	0	1	* 1	44	* 45
Ta content	—	1	* 1	22	* 22
Columbite	1 814	1 721	* 1 700	1 378	* 1 400
Nb content	706	670	* 662	537	* 545
Ta content	281	266	* 263	213	* 217
Rwanda					
Columbite-tantalite (b)(c)	1 861	1 519	1 201	1 118	1 116
Nb content	725	591	468	435	435
Ta content	288	235	186	173	* 173
Uganda					
Columbite-tantalite	7	7	173	404	* 400
Nb content	3	3	69	161	* 159
Ta content	1	1	21	50	* 49
Zimbabwe					
Tantalite	14	7	4	—	—
Nb content	5	3	2	—	—
Ta content)	2	1	1	—	—
Canada					
Pyrochlore	* 14 100	* 12 600	* 11 900	* 13 900	* 12 400
Nb content	* 5 300	* 4 800	* 4 500	* 5 200	* 4 700
Bolivia					
Tantalite	59	* 40	* 40	* 2	* 9
Ta content	29	* 20	* 20	* 1	* 4
Brazil					
Pyrochlore	170 835	239 163	164 008	209 560	* 210 000
Nb content	69 593	88 529	59 819	78 822	* 76 896
Columbite-tantalite	562	414	380	419	* 420
Ta content	116	63	85	94	* 98
China					
Columbite-tantalite	* 360	* 304	* 296	* 304	* 300
Nb content	* 140	* 118	* 115	* 118	* 117
Ta content	* 56	* 47	* 46	* 47	46
Malaysia					
Struverite	274	12	9	—	35
Ta content	27	1	1	—	3
Australia					
Tantalite	117	247	153	208	88
Ta content	57	121	75	102	43

Production of tantalum and niobium minerals

tonnes (metric)

Country	2018	2019	2020	2021	2022
World total					
Nb content	77 700	95 500	66 600	86 500	84 000
Ta content	1 700	1 200	1 400	1 600	1 500

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	2018	2019	2020	2021	2022
Bulgaria	4	3	4	3	3
Russia	46	50	55	* 56	* 80
Sweden	45	41	42	41	33
Canada	* 17	* 15	23	* 25	* 25
USA	...	...	...	...	2
China	357	461	330	* 330	* 340
Japan	58	50	70	75	* 75
Uzbekistan	* 50	* 50	* 50	48	* 50

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	2018	2019	2020	2021	2022
Portugal	111	108	104	60	60
Russia	1 530	2 471	2 539	2 908	3 507
Spain	81	101	115	220	314
United Kingdom	* 230	—	—	—	—
Burundi	126	143	121	* 100	* 100
Congo, Democratic Republic	8 950	10 991	14 673	15 963	14 971
Namibia	—	4	284	470	522
Nigeria	7 852	7 020	5 848	6 900	8 121
Rwanda (a)(b)	3 190	2 688	1 728	2 158	2 290
Tanzania	6	18	35	158	404
Uganda	53	15	—	2	—
Bolivia	17 251	17 147	14 709	19 628	17 613
Brazil	17 984	18 684	16 634	8 203	9 799
Colombia	—	22	10	—	—
Peru (c)	18 601	19 853	20 647	26 995	28 231
China	94 838	85 840	94 463	83 144	67 365
India (d)	6	5	3	* 15	20
Indonesia	82 809	86 947	65 127	52 467	57 735
Korea (Rep. of)	10	17	1	1	—
Laos	432	526	601	891	1 130
Malaysia	3 868	3 611	2 963	3 013	3 521
Mongolia	(e)* 26	(e)* 20	(e)* 20	* 10	46
Myanmar	* 55 000	* 50 000	* 36 000	* 32 000	40 500
Thailand	47	46	194	216	84
Vietnam	5 521	6 071	7 260	7 666	8 139
Australia	6 871	7 738	8 118	8 772	9 001
World total	325 000	320 000	292 000	272 000	273 000

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) Estimate based on reported exports

Smelter production of tin

tonnes (metric)

Country	2018	2019	2020	2021	2022
Belgium	9 329	9 296	8 980	9 998	8 200
Poland	3 817	4 099	3 915	4 617	4 275
Russia	* 1 100	* 1 650	* 1 600	* 2 400	2 500
Rwanda	* 10	92	547	395	643
Bolivia (a)	15 611	15 111	10 414	16 258	14 834
Brazil	* 16 500	* 16 000	* 16 000	* 16 400	* 17 200
Peru	18 255	19 555	19 585	25 947	26 630
China	177 407	182 772	202 910	200 488	* 200 500
India (b)	7	—	—	—	* —
Indonesia	83 015	76 389	58 790	* 72 400	* 74 000
Japan	1 647	1 551	1 507	1 878	1 551
Malaysia	27 085	25 752	22 325	16 619	19 385
Taiwan	* 2 800	* 3 800	* 3 700	* 4 000	* 4 200
Thailand	10 880	9 597	11 307	12 069	9 526
Vietnam	* 5 500	* 5 500	* 5 500	* 5 500	* 5 500
Australia	82	99	112	73	66
World total	373 000	371 000	367 000	389 000	389 000

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

(b) Years ended 31 March following that stated

Production of titanium minerals

tonnes (metric)

Country	2018	2019	2020	2021	2022
Norway					
Ilmenite	* 630 000	* 630 000	522 221	671 833	615 995
Russia					
Ilmenite	—	—	—	1 961	1 532
Turkey					
Rutile	6 498	6 450	6 795	7 451	7 226
Ukraine					
Ilmenite	745 417	818 543	773 093	702 249	* 350 000
Rutile	106 858	* 115 500	* 110 500	* 97 500	* 50 000
Gambia					
Ilmenite	* 1 000	* 9 000	* 6 000	* 14 000	* 12 000
Kenya					
Ilmenite	463 000	352 000	334 900	345 000	188 000
Rutile	98 132	85 796	72 836	69 844	163 242
Madagascar					
Ilmenite	381 924	448 185	499 768	(a) 582 000	(a) 545 000
Rutile	5 070	5 947	* 6 000	* 6 000	* 6 000
Mozambique					
Ilmenite	958 500	892 900	756 000	1 119 400	1 088 334
Rutile	8 154	8 278	5 957	8 914	8 870
Senegal					
Ilmenite	506 938	491 602	505 000	723 600	742 000
Leucoxene (b)	9 605	10 130	9 500	16 400	10 487
Sierra Leone					
Ilmenite	49 510	63 350	50 963	53 802	58 610
Rutile	108 320	136 790	116 569	131 311	135 818

Production of titanium minerals

tonnes (metric)

Country	2018	2019	2020	2021	2022
South Africa					
Ilmenite (c)	765 000	1 100 000	1 020 000	1 000 000	900 000
Rutile	103 000	110 000	86 000	95 000	* 95 000
Canada					
Ilmenite (c)(d)	* 2 000 000	* 2 100 000	* 1 900 000	* 1 700 000	* 2 100 000
USA	100 000	100 000	* 100 000	* 100 000	* 200 000
Brazil					
Ilmenite (e)	76 039	90 070	61 848	132 998	17 369
China					
Ilmenite	4 200 000	4 600 000	* 5 100 000	* 5 100 000	* 5 100 000
India					
Ilmenite (f)	265 931	* 265 000	* 265 000	* 265 000	* 265 000
Rutile (f)	11 045	* 11 000	* 11 000	* 11 000	* 11 000
Kazakhstan	* 10 000	* 10 000	* 8 000	* 10 000	* 16 000
Korea (Rep. of)					
Ilmenite	213 184	295 987	287 895	322 581	137 976
Malaysia					
Ilmenite	14 158	2 334	2 548	4 598	24 076
Rutile	5 070	5 947	5 136	11 513	8 359
Saudi Arabia					
Ilmenite	* 500	* 100	* 2 800	* 3 700	* 9 700
Sri Lanka					
Ilmenite	60 847	43 789	18 016	49 068	31 492
Rutile	2 174	1 959	1 311	1 881	741
Thailand					
Ilmenite	41	5 095	153	66	2
Vietnam					
Ilmenite	235 126	216 700	268 800	300 000	331 500
Australia					
Ilmenite (g)	569 472	596 288	634 165	519 875	* 500 000
Rutile (g)	209 762	154 507	156 389	138 906	99 995
Leucoxene (g)	69 183	46 743	79 058	31 754	35 946
World total					
Ilmenite (wt of concs)	12 200 000	13 100 000	13 100 000	13 700 000	13 200 000
Rutile (wt of concs)	700 000	600 000	600 000	600 000	600 000
All forms (TiO ₂ content)	13 000 000	13,800 000	13 800 000	14 300 000	13 900 000

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 stated
(g) Years ended 30 June of that stated

Mine production of tungsten

tonnes (metal content)

Country	2018	2019	2020	2021	2022
Austria	936	892	896	919	910
Portugal (a)	715	518	535	502	448
Russia	2 661	2 825	2 692	* 2 700	* 2 300
Spain	856	414	238	643	588
United Kingdom	* 1 240	—	—	—	—
Burundi	118	164	182	131	* 131
Congo, Democratic Republic	230	246	137	127	* 140
Nigeria	66	13	* 13	* 20	* 20
Rwanda (b)(c)	1 039	1 303	956	1 281	1 808
Uganda	144	110	9	25	* 25
Mexico	45	15	32	* 40	50
Bolivia	1 043	813	1 030	1 194	1 038
Brazil	346	306	257	301	302
China	64 938	75 452	* 76 000	* 75 000	* 75 000
Korea, Dem. P.R. of	* 1 370	* 1 100	* 1 192	* 500	* 500
Kyrgyzstan	* 100	* 100	* 100	* 100	* 100
Malaysia	...	...	...	4	24
Mongolia	* 543	* 463	* 42	* 156	* 263
Myanmar (d)	303	220	118	71	* 71
Thailand	(a) 81	(a) 45	(e) 70	(e) 72	(e) 74
Uzbekistan	4	2	2	2	* 2
Vietnam	4 350	4 816	8 066	15 858	15 477
Australia (b)	* 5	* 5	* 5	* 5	* 5
World total	81 100	89 800	92 600	99 700	99 200

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	2018	2019	2020	2021	2022
Czech Republic	34	33	29	27	21
Germany	—	24	8	—	—
Russia	2 904	2 911	2 846	2 635	2 508
Ukraine	790	801	744	455	100
Namibia	5 882	5 622	4 204	5 754	5 613
Niger	2 910	2 863	2 991	2 282	2 020
South Africa	196	163	124	153	188
Canada	7 320	6 871	4 085	4 616	5 231
USA	582	58	6	8	75
Brazil	—	—	15	29	43
China	* 1 885	* 1 885	* 1 885	* 1 600	* 1 700
India	* 423	* 308	* 400	* 615	* 600
Iran	* 71	* 71	* 71	* 21	* 20
Kazakhstan	21 705	22 808	19 477	21 819	21 227
Pakistan	* 45	* 45	* 45	* 45	* 45
Uzbekistan	* 3 450	* 3 500	* 3 500	* 3 500	* 3 500
Australia	6 562	6 553	6 168	3 794	4 519
World total	54 800	54 500	46 600	47 400	47 400
World total (U ₃ O ₈ equivalent)	64 700	64 300	55 000	55 900	55 900

Note(s)

(1) Excluding uranium production from decommissioning operations.

Mine production of vanadium

tonnes (metal content)

Country	2018	2019	2020	2021	2022
Russia	17 052	18 380	19 533	20 058	* 20 000
South Africa	14 904	14 858	14 421	15 424	9 100
USA	—	460	17	—	—
Brazil	5 505	5 923	6 622	5 779	5 844
China	* 40 000	* 54 000	* 70 000	* 73 000	* 76 000
India (a)	442	* 76	* 100	* 100	* 100
Kazakhstan (b)	125	152	237	260	306
World total	78 000	94 000	111 000	115 000	111 000

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

(b) Tonnes of vanadium pentoxide

Production of vermiculite

tonnes (metric)

Country	2018	2019	2020	2021	2022
Bulgaria	* 10 000	* 10 000	* 10 000	* 10 000	* 10 000
Russia	25 904	29 266	* 29 000	* 30 000	* 29 000
Turkey	18 183	1 370	19 230	3 300	11 190
Kenya	* 400	* 400	* 400	* 400	* 400
South Africa	141 346	158 013	118 223	217 109	171 898
Uganda	10 413	9 674	14 170	15 838	* 16 000
Zimbabwe	(a) 33 161	25 704	26 388	27 713	26 380
Mexico	244	148	104	—	—
USA (a)	* 100 000	* 100 000	* 100 000	* 100 000	* 100 000
Brazil	50 000	50 000	* 50 000	* 50 000	* 50 000
China	* 33 000	* 31 000	* 35 000	* 39 000	* 39 000
India	(b) 2 992	(b) 2 774	(b) 1 260	(b) 3 061	2 091
Uzbekistan	* 2 000	* 2 000	* 2 000	* 2 000	* 2 000

Note(s)

(a) Sold or used by producers

(b) Years ended 31 March following that stated

Production of wollastonite

tonnes (metric)

Country	2018	2019	2020	2021	2022
Finland	* 10 000	* 11 000	* 11 000	* 11 000	* 11 000
Spain	12 235	7 165	17 412	17 246	18 741
Mexico	145 814	159 498	131 518	200 588	162 410
USA	* 60 000	* 50 000	* 40 000	* 50 000	* 50 000
China	* 890 000	* 890 000	* 890 000	* 890 000	* 900 000
India	(a) 184 063	(a) 124 657	(a) 103 902	(a) 108 383	104 294
Australia (b)	2 007	—	2 426	4 495	* 4 500

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	2018	2019	2020	2021	2022
Armenia	6 497	6 743	7 758	6 373	5 967
Bosnia & Herzegovina	10 603	6 440	4 849	5 309	5 629
Bulgaria	11 367	14 570	15 689	14 556	13 762
Finland	85 335	70 068	61 216	57 726	62 433
Georgia	—	875	2 243	2 059	4 412
Greece	21 456	22 298	28 037	22 598	10 502
Ireland, Republic of	131 742	122 500	127 008	112 249	103 300
Kosovo	3 619	3 089	3 909	4 513	5 718
Montenegro	10 668	9 518	10 133	9 357	8 100
North Macedonia	29 715	31 041	31 748	30 074	29 506
Poland	41 886	37 645	39 500	40 388	6 300
Portugal	144 983	161 569	176 849	187 703	182 262
Romania	* 600	* 1 300	* 100	* 2 500	* 7 000
Russia	288 000	275 400	* 260 700	287 900	293 000
Serbia	11 800	6 900	6 500	6 400	6 500
Slovakia	151	119	96	25	95
Spain	106 352	90 980	90 368	90 481	82 963
Sweden	237 715	247 657	234 811	236 416	233 958
Turkey	184 468	146 800	136 300	180 600	* 186 000
Algeria	* 500	1 000	1 600	500	900
Burkina Faso	99 162	95 611	73 543	74 295	23 200
Congo	* 500	* 4 800	* 1 100	* 2 600	* 20 000
Congo, Democratic Republic	1 129	6 134	15 305	16 079	14 613
Eritrea	125 000	121 260	121 930	129 641	120 529
Morocco	43 567	43 600	35 800	40 200	* 35 000
Namibia	118 435	114 735	62 333	83 362	40 500
Nigeria	* 27 000	* 23 000	* 26 900	* 32 200	* 40 000
South Africa	28 129	125 157	160 816	193 785	224 356
Zambia	—	—	245	500	400
Canada	304 964	323 019	371 491	310 158	116 533
Cuba	* 42 000	* 57 800	* 57 700	* 45 000	* 52 000
Dominican Republic	4 038	5 527	2 361	4 896	5 485
Honduras	28 421	29 223	* 27 000	* 32 000	* 25 000
Mexico	662 355	859 194	1 008 252	2 542 751	877 000
USA	824 000	753 000	723 000	704 000	761 000
Argentina	22 050	16 407	8 569	6 187	3 893
Bolivia	519 630	527 521	358 411	499 257	517 523
Brazil	169 800	163 400	173 000	159 000	150 000
Chile	26 810	5 620	28 662	27 915	24 092
Peru	1 474 383	1 404 382	1 334 570	1 533 135	1 369 532
China	3 721 100	3 685 800	4 058 000	4 136 000	4 041 000
India	(a) 728 402	(a) 723 412	(a) 756 998	(a) 1 532 044	832 194
Indonesia	* 20 100	* 26 200	* 17 420	* 15 151	11 400
Iran	* 145 000	* 150 000	* 150 000	* 150 000	* 150 000
Kazakhstan	346 000	321 900	341 400	318 400	315 100
Korea (Rep. of)	3 656	4 106	4 252	4 371	3 959
Korea, Dem. P.R. of	* 35 000	* 30 000	* 28 000	* 28 000	* 28 000
Laos	* 3 100	* 1 300	* 1 200	* 5 400	* 18 000
Mongolia	43 950	41 550	38 150	37 600	103 600
Myanmar	(a) 11 700	(b)* 25 960	(b) 6 755	(b) 9 800	(b) 12 000
Pakistan	26 979	37 365	35 054	35 391	42 349
Saudi Arabia	18 000	18 900	50 819	53 360	24 700
Tajikistan	82 329	78 148	48 416	70 573	59 056
Uzbekistan	31 000	37 000	41 000	42 000	* 42 000
Vietnam	* 12 000	* 12 000	* 12 000	* 12 000	* 14 000
Australia	1 146 781	1 337 321	1 314 910	1 315 160	1 243 715
World total	12 200 000	12 500 000	12 700 000	15 500 000	12 600 000

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	2018	2019	2020	2021	2022
Belgium (a)	275 000	271 200	270 000	267 086	* 260 000
Bulgaria	75 150	73 512	74 520	72 418	72 527
Finland	295 029	290 844	297 257	292 648	294 122
France	155 000	142 000	166 000	165 000	109 300
Germany	180 000	182 000	161 000	165 100	134 900
Italy	131 600	132 900	126 100	179 800	96 100
Netherlands	268 000	* 240 000	* 260 000	270 700	180 100
Norway	190 570	195 374	191 576	180 323	181 139
Poland	159 739	159 436	160 300	164 700	161 900
Russia	254 600	206 700	211 800	197 200	195 000
Spain	511 000	507 900	504 100	508 800	* 505 000
Algeria	2 045	543	849	383	—
Namibia	67 122	64 985	16 206	—	—
Canada	620 202	653 194	678 558	640 718	587 000
Mexico	336 378	388 588	363 383	357 038	337 000
USA	116 000	115 000	180 000	220 000	220 000
Brazil	251 000	241 900	247 000	237 600	233 700
Peru	333 677	356 925	318 619	340 200	349 500
China	5 607 103	6 236 423	6 424 876	6 561 000	6 358 100
India (a)	696 283	688 282	715 445	775 808	683 903
Iran	130 000	144 000	* 135 000	* 140 000	* 140 000
Japan	521 110	526 717	501 146	517 221	516 638
Kazakhstan	317 965	318 399	311 322	300 886	266 300
Korea (Rep. of)	1 008 957	973 000	994 047	960 000	980 000
Korea, Dem. P.R. of	* 15 000	* 15 000	* 15 000	* 15 000	* 15 000
Uzbekistan	70 458	67 844	72 993	90 020	* 90 000
Vietnam	* 10 000	* 10 000	* 10 000	* 10 000	* 10 000
Australia	489 967	435 977	447 250	432 903	377 737
World total	13 000 000	13 600 000	13 900 000	14 000 000	13 400 000

Note(s)a

(a) Years ended 31 March following that stated

Production of zirconium minerals

tonnes (metric)

Country	2018	2019	2020	2021	2022
Russia (a)	7 400	6 300	6 000	* 5 500	* 5 000
Turkey	1 950	—	—	—	—
Ukraine	21 614	* 22 000	* 22 000	* 22 000	* 10 000
Gambia	* 1 000	* 3 000	* —	* —	* 4 000
Kenya	36 604	48 356	32 224	25 928	90 698
Madagascar	22 757	29 473	26 029	(b) 23 100	(b) 26 800
Mozambique	76 550	87 181	78 138	100 158	103 553
Nigeria	531	* 500	* 400	* 500	* 600
Senegal	64 278	58 432	59 000	64 000	57 000
Sierra Leone	11 400	8 500	6 600	4 100	4 000
South Africa	350 000	370 000	280 000	320 000	320 000
USA	* 100 000	* 20 000	* 20 000	* 20 000	* 100 000
Brazil (c)	17 844	17 136	10 994	43	6 513
China	* 33 500	* 33 500	* 40 000	* 35 000	* 50 000
India (d)	11 906	* 12 000	* 10 000	* 10 000	* 10 000
Indonesia (e)	* 54 000	* 73 000	* 64 000	* 54 000	* 97 000
Malaysia	509	449	157	1 518	768
Sri Lanka	785	917	419	400	268
Vietnam	* 11 000	* 6 200	* 11 000	* 30 000	* 30 000
Australia (f)	414 672	499 335	434 339	427 565	529 067
World total	1 238 000	1 296 000	1 101 000	1 144 000	1 445 000

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	2018	2019	2020	2021	2022
Austria					
Sand and gravel	31 736 640	30 761 767	30 655 318	32 069 197	30 762 181
Crushed rock (a)	27 684 134	27 674 453	27 471 201	* 29 000 000	* 28 000 000
Belgium					
Sand and gravel	* 11 500 000	* 12 000 000	* 13 500 000	* 14 700 000	* 13 200 000
Crushed rock	* 45 000 000	* 40 000 000	* 38 500 000	* 39 700 000	* 38 400 000
Bulgaria					
Sand and gravel (a)	8 610 204	8 340 200	8 376 618	8 775 171	8 263 258
Crushed rock	(a) 21 468 893	(a) 23 096 412	(a) 25 155 464	* 25 000 000	* 25 000 000
Croatia					
Sand and gravel	3 646 945	4 105 831	4 585 010	5 268 779	4 740 035
Cyprus					
Crushed rock	7 978 133	8 422 664	7 905 100	9 401 246	9 445 246
Czech Republic					
Sand and gravel	20 473 000	19 982 000	20 335 000	21 370 000	21 213 000
Crushed rock	41 648 000	42 225 000	42 915 000	44 464 000	45 058 000
Denmark					
Sand and gravel	48 950 000	47 803 000	51 558 000	53 128 000	51 652 000
Crushed rock	537 000	233 000	175 000	465 000	522 000
Estonia					
Sand and gravel	6 467 500	7 746 800	9 544 800	7 877 690	4 275 500
Crushed rock	6 148 300	5 771 800	7 013 440	8 326 500	7 575 300
Finland					
Sand and gravel	24 500 000	23 800 000	23 000 000	22 000 000	23 500 000
Crushed rock	51 100 000	51 000 000	45 000 000	47 000 000	49 000 000
France					
Sand and gravel	126 365 000	126 717 000	117 851 000	* 126 700 000	* 130 000 000
Crushed rock	195 998 000	198 951 000	183 627 000	* 196 000 000	* 200 000 000
Germany					
Sand and gravel	259 000 000	259 000 000	288 000 000	277 000 000	253 000 000
Crushed rock	226 000 000	217 000 000	223 000 000	219 000 000	210 000 000
Greece					
Sand and gravel	34 439 069	* 34 000 000	* 34 000 000	* 34 000 000	* 34 000 000
Hungary					
Sand and gravel	46 866 306	49 419 275	36 217 375	43 363 062	40 018 515
Crushed rock	10 562 195	9 345 548	8 072 859	6 691 343	17 141 210
Iceland					
Sand and gravel	* 291 000	* 291 000	* 291 000	* 291 000	* 291 000
Ireland, Republic of					
Sand and gravel	* 7 000 000	* 7 000 000	* 7 000 000	* 7 000 000	* 7 000 000
Crushed rock	* 23 000 000	* 23 000 000	* 23 000 000	* 23 000 000	* 23 000 000
Italy					
Sand and gravel	69 575 607	52 111 877	54 606 351	64 702 438	76 820 507
Crushed rock	34 169 132	24 870 935	43 995 003	36 924 610	17 720 894
Latvia					
Sand and gravel	12 266 904	23 333 846	10 743 532	10 521 791	13 613 620
Crushed rock	1 856 977	1 341 708	1 935 975	4 250 016	4 500 000
Lithuania					
Sand and gravel	9 992 563	11 675 361	12 539 223	12 640 698	11 311 682
Crushed rock	7 340 099	7 517 080	8 281 359	8 089 675	7 832 850
Malta					
Crushed rock	1 598 151	1 953 416	1 917 978	(b) 1 885 435	(b) 1 348 067
Montenegro					
Sand and gravel	159 528	156 612	380 976	210 876	135 000
Crushed rock	166 550	143 219	163 573	136 293	225 946
Netherlands					
Sand and gravel	64 800 000	68 600 000	* 69 000 000	* 69 000 000	* 69 000 000
Norway					
Sand and gravel	13 324 347	13 362 555	14 053 691	13 146 511	12 332 000
Crushed rock	80 300 804	84 412 381	79 020 476	77 470 569	75 857 063
Poland					
Sand and gravel	197 005 000	182 811 000	180 243 000	185 076 000	170 776 000
Crushed rock	80 161 000	81 562 000	76 286 654	77 774 012	79 158 123
Portugal					
Sand and gravel	8 370 573	10 187 542	10 784 029	7 377 376	10 584 119
Crushed rock	30 620 462	32 134 534	35 063 333	43 017 417	34 560 066
Romania					
Sand and gravel	* 88 000 000	* 67 500 000	* 79 500 000	* 81 500 000	* 82 000 000
Crushed rock	* 28 000 000	* 19 800 000	* 26 500 000	* 34 000 000	* 34 000 000

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

tonnes (metric)

Country	2018	2019	2020	2021	2022
Slovakia					
Sand and gravel	2 096 000	1 982 000	1 785 727	1 748 620	1 715 560
Crushed rock	12 790 000	11 551 000	10 823 895	11 506 270	11 945 216
Slovenia					
Sand and gravel	1 810 666	1 437 101	1 869 851	2 225 198	2 577 923
Crushed rock	10 282 002	9 550 639	8 983 918	11 351 196	11 514 122
Spain					
Sand and gravel	42 600 000	43 000 000	45 000 000	43 000 000	43 000 000
Crushed rock	70 000 000	79 000 000	82 000 000	80 700 000	73 000 000
Sweden					
Sand and gravel	12 187 744	10 617 896	9 290 761	8 961 969	7 474 346
Crushed rock	91 730 406	92 890 100	91 730 897	92 450 569	88 727 346
Switzerland					
Sand and gravel	* 35 160 000	* 35 140 000	* 34 550 000	* 35 110 000	* 34 600 000
Crushed rock	2 410 000	2 270 000	2 390 000	* 2 450 000	2 340 000
United Kingdom					
Sand and gravel	69 882 000	65 660 000	57 571 000	64 270 000	56 792 000
Crushed rock (c)	129 998 000	129 636 000	118 146 000	137 124 000	126 474 000
European total	2 496 000 000	2 444 000 000	2 446 000 000	2 520 000 000	2 437 000 000

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 is 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	2018	2019	2020	2021	2022
Austria	* 18 000	* 19 000	19 630	39 019	* 40 000
Belgium	2 234 195	* 2 250 000	2 394 779	230 000	230 000
Bulgaria	2 334 741	2 297 773	1 999 876	1 989 255	* 2 000 000
Croatia	2 316 706	2 267 721	2 353 571	2 403 438	2 262 669
Cyprus	1 671 205	1 643 193	2 001 957	1 706 031	2 480 346
Czech Republic	3 514 288	3 722 188	3 556 702	3 673 000	3 497 000
Estonia	505 300	504 000	52 000	—	—
France	12 845 000	13 005 000	11 759 000	12 222 000	* 12 000 000
Germany	22 835 000	22 923 753	23 464 980	24 000 116	21 910 970
Greece	6 576 608	6 429 107	5 958 786	6 533 048	6 523 328
Hungary	* 400 000	* 400 000	* 400 000	* 400 000	* 400 000
Italy	13 354 776	14 855 163	12 928 011	14 079 222	12 084 914
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	1 429 400	1 407 000	1 389 000	1 361 000	1 391 000
Poland	14 221 000	14 178 000	14 361 461	13 996 134	14 602 804
Portugal	4 294 389	4 272 085	4 568 932	* 4 600 000	* 4 600 000
Romania	6 586 702	7 208 688	7 541 962	7 765 023	7 045 637
Serbia	* 1 300 000	* 1 300 000	* 1 300 000	* 1 300 000	* 1 300 000
Slovakia	* 1 900 000	* 2 000 000	* 2 000 000	* 2 100 000	* 2 100 000
Spain	18 266 325	17 226 700	15 731 000	17 300 000	15 400 000
Sweden	2 957 600	2 539 000	2 397 000	2 402 000	2 251 000
Turkey	70 343 788	56 966 272	71 767 003	80 127 408	72 171 959
Ukraine	6 605 600	7 243 200	7 419 000	7 904 100	* 4 000 000
United Kingdom	7 734 000	7 830 000	6 941 000	7 367 000	7 160 000
European total	206 000 000	195 000 000	205 000 000	216 000 000	198 000 000

Production of finished cement

tonnes (metric)

Country	2018	2019	2020	2021	2022
Austria (a)	5 227 834	4 516 947	4 508 448	4 949 683	4 711 481
Belgium	6 643 000	6 773 000	6 717 000	6 935 000	* 6 900 000
Bulgaria (a)(b)	2 208 116	2 371 458	2 175 279	2 147 439	2 112 048
Croatia	2 828 285	2 918 863	3 101 874	3 244 819	3 116 469
Cyprus	1 357 991	1 537 017	1 496 494	1 439 679	1 858 334
Czech Republic	4 427 713	4 569 379	4 513 409	4 721 036	4 476 000
Denmark	2 372 246	2 440 600	2 497 680	2 509 227	2 519 076
Estonia (a)	526 900	411 300	253 600	365 900	256 600
Finland (a)	1 462 240	1 430 226	1 435 646	1 533 734	1 182 215
France	16 537 000	16 710 000	16 422 000	17 496 000	* 17 500 000
Germany	33 654 985	34 185 343	35 478 000	34 966 000	32 901 000
Greece	6 676 881	5 755 532	(a) 5 504 966	(a) 6 678 403	(a) 7 222 572
Hungary (a)	* 1 000 000	1 138 851	1 025 392	* 1 000 000	886 030
Ireland Republic of	* 2 100 000	* 1 700 000	* 1 800 000	* 1 800 000	* 1 700 000
Italy	18 644 359	19 481 760	19 818 320	21 444 788	21 382 498
Latvia	* 1 000 000	* 1 000 000	* 1 000 000	* 1 000 000	* 1 000 000
Lithuania	1 150 635	1 222 934	1 220 837	1 354 192	1 463 001
Luxembourg	* 1 000 000	* 1 000 000	* 1 000 000	* 1 000 000	* 1 000 000
Netherlands	* 2 236 000	* 2 303 000	* 2 142 000	* 2 100 000	* 2 100 000
North Macedonia	920 810	896 030	927 566	934 987	864 552
Norway	1 856 800	1 780 000	1 737 000	1 780 000	1 756 000
Poland	18 957 000	18 946 000	19 048 709	19 624 709	19 502 584
Portugal (a)	3 963 088	4 297 556	4 498 364	* 4 500 000	* 4 500 000
Romania	8 951 154	9 936 772	10 539 046	(a) 9 640 634	(a) 9 223 640
Serbia	2 092 501	2 151 000	2 364 000	2 610 000	2 625 000
Slovakia	3 912 674	4 030 506	4 071 834	4 164 903	3 414 000
Slovenia	* 700 000	* 700 000	* 700 000	* 700 000	* 700 000
Spain	16 214 663	16 998 100	16 177 000	18 600 000	18 400 000
Sweden	3 152 300	2 844 000	2 515 000	2 691 000	2 543 000
Switzerland (c)	4 289 000	4 210 000	4 150 000	4 180 000	* 4 150 000
Turkey	71 830 736	56 528 236	72 299 054	78 945 029	73 708 026
Ukraine	8 921 500	9 064 200	9 567 600	11 009 900	* 6 000 000
United Kingdom	9 198 000	9 079 000	8 046 000	9 008 000	8 393 000
European total	266 000 000	253 000 000	269 000 000	285 000 000	270 000 000

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 total Energy; Austrian Federal Ministry of Science, Research and Economy, World total Mining Data; Société de l'Industrie Minérale, Annuaire Statistique Mondial des Minerais et Métaux; Publications of the Interstate Statistical Committee of the CIS; World total Bureau of Metal Statistics, World total Metal Statistics and Metallstatistik.

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

Alacero; CEMBUREAU The European Cement Association; Extractive Industries Transparency Initiative (EITI); European Aggregates Association (UEPG) credit for Jim O'Brien; Eurostat; Federacciai; La Banque des Etats de l'Afrique Centrale (BEAC); International Tin Association Ltd; Kimberley Process; South East Asia Iron and Steel Institute (SEASIS); The European Steel Association (EUROFER); The Silver Institute; United Nations agencies; United States Energy Information Administration; United States Geological Survey; World total Nuclear Association; World total Steel Association.

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

Alcoa; ALRO S.A.; Aluar; Alumina Ltd; Anglo America; Anglo Asian Mining Plc; AngloGold Ashanti; Arab Potash Company; ARMZ Uranium Holding Co; Arsi Group; Ascendant Resources Inc; Aura Minerals Inc; Avesoro Resources Inc; Aya Gold & Silver Inc; AzerGold; B2Gold; Barrick Gold Corporation; BEB Erdgas und Erdöl GmbH & Co; BHP Billiton; Bikita Minerals; Boliden Group; Calibre Mining; Camimex; Canadian Clay Products Inc; Centamin Plc; Central Asia Metals; Chaarat Gold Holding; China National Nuclear Corp; CI Resources Ltd; Conic Metals Corp; Dominion Salt; Dundee Precious Metals Inc; Eldorado Gold; Endeavour Mining; Endiama EP; Eramet Group; ETI Aluminium Inc; EVRAZ Plc; Fenix Metals Ltd; Ferbasa; First Quantum Mineral Ltd; Freeport McMoran; Fortuna Silver Mines Inc; Galane Gold; Galaxy Resources; Gazprom; Glencore International AG; Graftitbergbau Kaisersberg GmbH; Gravita India Ltd; Grecian Magnesite SA; Heidelberg Materials AG; Hindalco Industries Ltd; Hudson Resources Inc; Hummingbird Resources; IAMGold Corporation; Iluka Resources; Inception Mining Inc; (ICL) Israel Chemicals Company; IRC Company Limited; Johnson Matthey; Jordan Phosphate Mines Company; KAZ Minerals Plc; Kenmare Resources Plc; LARCO; Largo Resources Ltd; Liberty and Alvanco; Libyan Iron and Steel company; 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; Minera Alumbrera; Mineros S.A.; MMG Limited; National Aluminium Company; Nevsun Resource Ltd; Newcrest Mining Ltd; Newmont; Nexa Resources S.A.; Nordgold; Norilsk Nickel; Norsk Hydro

ASA; Northern Minerals; Nyrstar; OCP Group; OM Holdings Ltd; Orocobre Ltd; Orosur mining Inc; Orvana Minerals Corp; Outokumpu; Paladin Energy Ltd; Pan-American Silver; PanAust Ltd; PEMEX Petróleos Mexicanos; Peñoles; Phnom Penh Post; PhosAgro; Polymetal International PLC; PT Antam Tbk; PT Indonesia Asahan Aluminium; Qatalum; Qatar Steel; Rainbow Rare Earths Limited; Resolute Mining; Rio Tinto Ltd; Robex Resources; Ronphos Corporation; Roxgold; RUSAL; RW Silicium GmbH; Salinen Austria AG; Sherritt International Corporation; SMZ Company; Solway Investment Group Ltd; South32; Southern Copper Corporation; Syrah Resources Ltd; Talco; Talum Group; Tasmania Mines Ltd; Teranga Gold Corporation; Thaisarco; Tibet Everest Resource Co. Ltd; TiZr Ltd; Trafigura; 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; Weatherly International PLC; 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, Argentina; GeoProMining, Armenia; Statistical Committee of the Republic of Armenia; Department of Natural Resources and Mines (Queensland), Australia; Primary Industries and Resources SA (South Australia), 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 (New South Wales), Australia; Office of chief economist, Australia; Statistik Austria; The State Statistical Committee of the Republic of Azerbaijan; Aluminium Bahrain; Ministry of Oil, 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; Ministry of Mines and Energy, Brazil; Energy Department, Prime Minister's Office, Brunei; Ministry of Energy, Brunei; Bulgarian Association of Metal Industries, Bulgaria; Ministry of Energy, 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; West African Resources, Burkina Faso; SEMAFO, Burkina Faso; Central Statistical Organization, Burma; Institut de Statistiques et d'Etudes Economiques du Burundi;

Ministry of Mines, Industry and Technological Development, Cameroon; Société Nationale des Hydrocarbures, Cameroon; Natural Resources Canada; Canadian Association of Petroleum Producers, Canada; Statistics Canada; The Chilean Copper Commission, Chile; Servicio Nacional de Geología y Minería, Chile; China Gold 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, Congo, Democratic Republic; Direccion de Geología y Minas, Costa Rica; Oxford Business Group, Cote D'Ivoire; Croatian Bureau of Statistics, Croatia; Ministry of Economy and Sustainable Development, Croatia; Oficina Nacional de Estadísticas e Información, 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; Autoridade Nacional do Petróleo e Minerais, East Timor; Agencia de Regulación y Control Minero, Ecuador; Banco central del Ecuador; Central Agency for Public Mobilisation and Statistics, Egypt; Egyptalum, Egypt; Dirección Reguladora de Hidrocarburos y Minas, Ministerio de Economía, El Salvador; Statistics Estonia; Central Bank of Eswatini; Geological Survey of Ethiopia; Ministry of Finance and Economic Cooperation, Ethiopia; National Bank of Ethiopia; The Ministry of Mines and Petroleum, Ethiopia; Fiji Bureau of Statistics; Statistics Office, Fiji; Reserve bank of Fiji; Finnish Safety and Chemicals Agency (Tukes), Finland; Geological Survey of Finland; Sotkamo Silver Oy, Finland; Terrafame, Finland; Bureau de Recherches Géologiques et Minières, France; Federation Française 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; Chamber of Mines, Ghana; Bank of Ghana, Ghana; Greek Institute of Geology and Mineral Exploration, Greece; Greek Statistical Authority, Greece; Greek Mining Enterprises Association, Greece; Ministerio de Energía 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.

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, Iran; Kinsale Energy, Ireland; Sustainable Energy Authority of Ireland; Department of Communications, Energy and Natural Resources, Ireland; Ministry of National Infrastructure, Energy and Water, Israel; Italian National Institute of Statistics, Italy; Ministry of Economical progress, Italy; Jamaica Bauxite Institute, Jamaica; Mines and Geology Division, Jamaica; Japan Aluminium Association, Japan; 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); The Nautilus Institute; Independent Commission for Mines and Minerals, Kosovo; Ministry of Natural Resources and Environment, Lao PDR; Ministry of Planning and Investment, Lao PDR; Central Statistical Bureau of Latvia; Central Bank of Liberia; Central Bank of Libya; Statistics Lithuania; Statistical Portal Grand Duchy of Luxembourg; Ambatovy, Madagascar; Madagascar Chamber of Mines; Banque Centrale de Madagascar; Mineral and Geoscience Department, Malaysia; Bank Negara Malaysia; Africa Fertilizer Org, Mali; 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; Central Statistics Office, Mauritius; Instituto Nacional de Estadística y Geografía, Mexico; Mexican Geological Survey, Mexico; Minera Autlan, Mexico; Servicio Geológico Mexicano, Mexico; National Statistics Office, Mongolia; Statistical Office of Montenegro; High Commission for Planning of the Kingdom of Morocco, 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; Rossing Uranium, Namibia; Swakop Uranium, Namibia; Central Statistics Bureau, Nepal; Department of Mines and Geology, Nepal; Statistics Netherlands; Nedmag, 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; Institut National de la Statistique, Niger; National Bureau of Statistics, Nigeria; 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; Geological Survey of Pakistan, Pakistan; Metallurgical Corp of China Ltd, Pakistan; Pakistan Bureau of Statistics, Pakistan; Instituto Nacional de Estadística y Censo, Panama; Chamber of Mines and Petroleum, Papua New Guinea; Ministry of Energy and Mines, Peru; Department of Energy, Philippines; Mines and Geoscience Bureau, Philippines; Polish Geological Institute - National Research Institute, Poland; Central Statistical Office, Poland; Polish Academy of Science, Poland; Direção Geral de Energia e Geologia, Portugal; Directorate-General for Natural Resources, Safety and Maritime Services, Portugal; Qatar Aluminium manufacturing Company, Qatar; National Institute of Statistics, Romania; Ministry of Natural Resources, Russia; Elem, Russia; LuNa Smelter, Rwanda; National Bank of Rwanda; National Institute of Statistics Rwanda; General Authority for Statistics, Saudi Arabia; Agence Nationale de la Statistique et de la Démographie, Senegal; Statistical Office for the Republic of Serbia; Bank of Sierra Leone; Geological Survey National Minerals Agency, Sierra Leone; State Geological Institute of Dionýz Štúr, Slovakia; Statistical Office of the Slovak Republic, Slovakia; Geological Survey of Slovenia; Central Bank of Solomon Islands; Ministry of Mining, South Sudan; Ministry of Industry, Energy and Tourism, Spain; Central

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