



World Mineral Production

2017-2021



British
Geological
Survey

BRITISH GEOLOGICAL SURVEY

WORLD MINERAL PRODUCTION 2017–21

Authors: N E Idoine, E R Raycraft, F Price, S F Hobbs, E A Deady, P Everett,
R A Shaw, E J Evans and A J Mills

Technical support: A C MacKenzie

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Keyworth, Nottingham NG12 5GG
☎ 0115-936 3100

The Lyell Centre, Research Avenue South, Edinburgh,
EH14 4AP
☎ 0131-667 1000

London Information Office, Natural History Museum,
Cromwell Road, London SW7 5BD
☎ 020-7589 4090

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The British Geological Survey carries out the geological survey of Great Britain and Northern Ireland (the latter as an agency service for the government of Northern Ireland), and of the surrounding continental shelf, as well as its basic research projects. It also undertakes programmes of British technical aid in geology in developing countries as arranged by the Foreign, Commonwealth & Development Office.

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*All communications regarding the content of this publication should be addressed to the Chief Scientist, Decarbonisation and Resource Management. British Geological Survey, Keyworth, Nottingham NG12 5GG
☎ 0115-936 100 Fax 0115 936 3200
E-mail minerals@bgs.ac.uk*

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PREFACE

Welcome to the latest edition of World Mineral Production which includes global mineral production data for 2021 and 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 have set out the production figures by country for more than 70 mineral commodities, over the five-year period from 2017 to 2021. We have also included a new layout for the tantalum and niobium table and the lithium table, making the presented data more usable and informative. 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 national and international organisations is gratefully acknowledged.

Despite the COVID-19 pandemic, which was still having a negative impact on the global minerals industry in the early part of 2021, almost two-thirds of the commodities considered in this volume increased their total world production during 2021 relative to 2020 levels. Towards the end of 2021 there were hints of the Russia conflict with Ukraine. This was already having an impact on world economies, with a reluctance of several countries to be so reliant on Russia, particularly for oil and gas.

In 2021 the mining industry started to make some recovery after the challenges of the global pandemic. A few commodities increased considerably during 2021. Global production of lithium, bismuth, and chromium increased by more than 17 per cent on the previous year.

Lithium production increased significantly in 2021 relative to 2020 at 30 per cent and demand has grown rapidly since the pandemic. Over a 5-year period lithium production has increased by 42 per cent, showing the longer term growth. Production of all the key battery raw materials, cobalt, graphite, manganese, nickel, and vanadium increased during the same period.

Global production of bismuth increased again on the previous year by 19 per cent in 2021. This is linked to its use in pharmaceuticals and increasingly being used in the automotive industry and a non-toxic alternative to lead. For the first time in 3 years Vietnam produced more bismuth than China, accounting for 44 per cent and 38 per cent respectively. However, over the past 5 years total world bismuth production has decreased by 20 per cent and is still not back to the global production levels of 2017 and 2018.

South Africa is the world's largest producer of chromium ores and concentrates with 53 per cent of total production, followed by Kazakhstan (18%) and Turkey (8%). Over five years chromium has increased by 4 per cent due to South Africa, Zimbabwe, Finland and Russia all increasing their production significantly. A lot of chromium is sent to China, particularly from South Africa, to fuel its ferro-chrome and stainless-steel industries.

Certain commodities experienced significant reductions in production during 2021. Antimony production decreased by more than 24 per cent relative to 2020, and over 5 years this decrease is even higher at 44 per cent. The significant drop in production over the 5 years is predominantly due to reduced production by China (53%), which has started importing a lot more antimony in recent years. Production of mined tin decreased by more than 12 per cent in 2021 relative to the previous year. This has been caused mainly by China, Indonesia, and Myanmar, which are all producing much less than previously. The price of tin dropped which encouraged many companies to bring forward scheduled maintenance work. China has also had issues with its supply chain and the impact of COVID-19 restrictions. It is expected that tin production should pick up in the coming years.

Over a 5-year period, mercury production has decreased significantly, by 38 per cent. Obtaining official reported figures for mercury can be difficult. A few countries are understood to have stopped producing altogether, such as Argentina and Chile, while others have reduced production considerably: notably China, Mexico, and Morocco. In recent years mercury has seen tighter regulatory controls and the implementation of new rules surrounding its use due to its highly toxic nature. The use of mercury in industrial processes and products has reduced.

International interest in the security of supply of minerals continues to grow. In 2022, the UK Government created the Critical Minerals Intelligence Centre (CMIC). Hosted by the BGS, the objective of CMIC is to collect and analyse information on the supply of critical minerals, which are vital to the UK's economic success and national security, and to guide decision-making and research on critical raw materials, with increasing focus on those required for the clean energy transition. Notable publications during the last year include 'the geological potential of the UK for battery minerals' which focuses on 4 main commodities (lithium, nickel, cobalt and graphite) and the 'UK critical minerals list'. These and other reports can be downloaded from the CMIC website (<https://ukcmic.org/>).

BGS has a large programme of UK and international work. Recently BGS has been looking at hard rock lithium resources in Ghana, rare earth element mining in South East Asia and graphite in Africa, which is developing a reconnaissance exploration methodology for flake graphite.

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 2023

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Coverage

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

Arrangement of countries

Countries are ordered alphabetically in geographical groupings as follows:

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

Metals

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

World totals

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

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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, the International Nickel Study Group and the Barytes Association. 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	2017	2018	2019	2020	2021
Bosnia & Herzegovina	740 384	760 244	1 043 343	619 748	675 269
Croatia	12 215	11 780	14 342	14 080	14 450
France (a)	* 131 000	139 000	121 000	123 000	143 000
Greece	1 927 000	1 607 000	1 492 000	1 428 000	1 227 498
Hungary	1 300	4 200	—	—	—
Montenegro	927 847	468 164	774 725	897 057	542 049
Russia	5 523 000	5 651 000	5 574 000	5 570 000	5 679 000
Turkey	1 719 144	678 138	2 255 480	2 399 680	2 764 873
Ghana	1 476 966	1 011 302	1 116 334	1 162 086	839 465
Guinea (b)	51 701 564	59 573 707	70 173 326	87 766 199	87 438 557
Ivory Coast	—	—	—	272 295	* 300 000
Mozambique	3 182	9 912	8 024	6 491	7 852
Sierra Leone	1 823 570	2 034 360	1 962 500	1 441 987	1 455 554
Tanzania	12	7	—	—	—
Dominican Republic	—	6 525	7 551	9 475	89 456
Jamaica	8 244 628	10 058 228	9 022 286	7 616 284	5 937 320
USA (c)(d)	352 096	399 712	154 870	16 438	—
Brazil	38 072 100	32 006 900	31 937 900	32 897 800	* 36 000 000
Colombia	2 400	13 666	18 032	9 595	3 200
Guyana	1 459 223	1 926 053	1 919 747	595 943	618 552
Venezuela	242 099	89 699	* 50 000	—	—
China	* 69 000 000	70 751 214	* 42 000 000	* 42 000 000	* 40 000 000
India (e)	22 786 106	23 687 721	22 073 398	* 19 700 000	* 19 700 000
Indonesia	* 4 200 000	13 243 197	16 592 739	25 859 895	21 500 000
Iran (f)	1 046 634	805 231	1 163 159	1 115 008	* 1 110 000
Kazakhstan	4 846 100	5 736 200	4 118 400	4 057 800	* 4 370 300
Malaysia	189 131	589 684	900 561	549 714	47 577
Pakistan (g)	75 375	145 189	92 936	101 047	97 495
Saudi Arabia	4 117 000	4 730 690	5 127 000	5 227 000	5 488 000
Vietnam	* 2 800 000	3 569 700	* 3 200 000	* 3 120 000	* 3 300 000
Australia	89 420 589	95 947 593	105 543 787	103 626 811	103 266 404
Fiji	* 60 000	* 58 000	—	—	—
Solomon Islands (h)	* 1 524 000	* 1 601 000	* 1 207 000	* 839 000	* —
World total	314 400 000	337 300 000	329 600 000	349 000 000	342 600 000

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	2017	2018	2019	2020	2021
Bosnia & Herzegovina	247 449	261 700	213 518	122 241	172 974
France	500 000	500 000	* 500 000	* 500 000	* 500 000
Germany	* 1 000 000	* 1 000 000	1 025 000	1 050 000	1 050 000
Greece	695 400	678 140	672 400	680 000	720 000
Ireland, Republic of	1 880 057	1 818 065	1 860 970	1 822 368	1 878 000
Romania	472 606	571 772	460 911	426 393	498 603
Russia	2 822 000	2 763 000	2 755 000	2 873 000	3 054 000
Spain	1 588 000	1 589 000	1 595 000	1 553 000	1 536 000
Turkey	* 260 000	* 260 000	* 260 000	* 260 000	* 260 000
Ukraine	1 676 000	1 715 000	1 690 000	1 725 000	1 800 000
Guinea	—	182 000	368 000	453 353	409 870
Canada	1 570 000	1 568 000	1 522 000	1 518 000	1 471 000
Jamaica	1 782 373	2 483 572	2 172 977	1 620 943	1 158 450
USA	1 430 000	1 570 000	1 410 000	1 340 000	1 000 000
Brazil	11 060 600	8 258 000	9 170 800	10 185 000	11 171 300
Venezuela	* 212 000	—	—	—	—
China	69 056 100	73 607 591	71 474 166	73 131 946	77 480 000
India (a)	6 119 449	6 446 370	6 706 500	6 624 500	7 325 000
Indonesia	917 099	842 536	1 148 422	1 162 100	1 363 100
Iran (b)	240 168	237 563	233 267	232 000	231 000
Japan	19 999	20 000	25 000	17 700	24 200
Kazakhstan	1 508 240	1 493 072	1 406 229	1 399 949	1 315 000
Saudi Arabia	1 484 000	1 774 000	1 798 340	1 782 041	1 879 000
United Arab Emirates	—	—	1 100 000	1 920 000	2 300 000
Vietnam	1 062 000	1 301 300	1 382 100	1 384 706	1 456 068
Australia	20 485 770	20 061 795	20 239 198	20 836 304	20 624 088
World total	128 100 000	131 000 000	131 200 000	134 600 000	140 700 000

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	2017	2018	2019	2020	2021
Azerbaijan	25 983	44 710	32 693	31 492	25 724
Bosnia & Herzegovina	125 536	131 508	67 690	17 858	36 343
France	430 000	380 000	402 000	417 000	* 440 000
Germany	549 995	528 868	507 934	529 056	520 000
Greece	181 630	184 800	182 100	189 036	183 775
Iceland	763 618	733 523	689 995	728 104	729 813
Montenegro	39 379	40 163	36 522	37 208	45 214
Netherlands	29 300	41 300	81 100	70 600	46 700
Norway	1 253 000	1 295 000	1 312 000	1 330 000	1 431 000
Romania	282 074	282 810	280 326	271 307	293 399
Russia	3 584 000	3 627 000	3 637 000	3 638 000	3 640 000
Slovakia	173 500	173 700	174 794	151 875	163 995
Slovenia	84 424	80 544	68 255	50 185	37 867
Spain	* 360 000	* 350 000	* 220 000	* 200 000	* 190 000
Sweden	123 000	125 000	120 000	117 000	124 000
Turkey	76 000	73 300	78 100	79 900	79 200
United Kingdom	48 000	44 400	39 400	35 700	37 571
Cameroon	80 600	65 900	53 200	47 500	* 40 000
Egypt (a)	298 000	317 000	* 256 000	* 268 000	* 260 000
Ghana (b)	33 364	42 867	43 908	37 566	39 239
Mozambique (a)	577 495	571 125	569 002	569 002	562 633
South Africa	716 000	714 000	717 000	717 000	714 000
Canada	3 211 882	2 923 204	2 853 771	3 154 493	3 157 762
USA	740 884	898 652	1 126 032	1 026 617	907 846
Argentina	431 239	439 600	438 434	309 804	338 239
Brazil	801 700	659 000	650 200	685 100	771 700
Venezuela	136 000	64 700	* 10 000	* 10 000	38 300
Bahrain	981 016	1 011 101	1 365 005	1 548 000	1 561 222
China	35 189 100	36 447 290	35 043 604	37 080 401	38 502 600
India (c)	3 400 618	3 696 181	3 635 089	3 619 237	* 3 583 800
Indonesia	218 816	242 043	250 393	220 100	200 600
Iran (d)	337 608	301 033	275 717	376 800	563 000
Kazakhstan	255 090	258 400	263 300	265 000	262 500
Malaysia	760 000	760 000	* 800 000	* 800 000	901 000
Oman	253 000	380 000	391 000	397 000	395 000
Qatar	650 000	616 000	653 000	655 000	662 000
Saudi Arabia	916 000	932 000	967 000	1 010 563	998 000
Tajikistan	103 100	95 796	100 800	84 000	61 000
United Arab Emirates	2 600 000	2 640 000	2 600 000	2 520 000	2 540 000
Australia	1 487 555	1 574 240	1 569 591	1 585 017	1 558 529
New Zealand	337 000	340 111	353 293	335 405	333 115
World total	62 600 00	64 100 000	62 900 000	65 200 000	67 000 000

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	2017	2018	2019	2020	2021
Russia	14 400	30 828	21 671	17 532	* 9 000
Turkey	4 840	3 570	3 810	2 570	4 210
Canada	1	6	6	2	2
Guatemala	—	—	* 160	—	—
Honduras	4	20	* 10	* 10	120
Mexico	240	299	290	136	413
Bolivia	2 881	3 110	2 747	2 629	3 084
Ecuador	261	—	—	—	—
China	97 683	95 286	60 229	60 995	42 622
Iran (a)	2 489	2 551	5 264	5 006	* 5 000
Kazakhstan	* 200	* 100	* —	* —	* 20
Kyrgyzstan	* 1 380	* 680	* 20	* 30	* —
Laos	320	—	70	—	242
Myanmar	* 7 000	* 5 400	* 5 000	* 3 800	* 2 300
Pakistan (b)	15	—	—	17	63
Tajikistan	26 450	28 881	29 898	* 22 500	* 20 000
Vietnam	230	244	395	312	305
Australia	(b) 4 294	(b) 2 866	(b) 2 170	3 903	3 380
World total	163 000	174 000	132 000	119 000	91 000

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	2017	2018	2019	2020	2021
Belgium	* 1 000	* 1 000	* 1 000	* 1 000	* 1 000
Russia	* 1 500	* 1 500	* 1 500	* 120	* 100
Morocco	6 879	5 578	5 055	7 694	6 883
Namibia	* 700	—	—	—	—
Bolivia	20	238	* 130	* 130	* 100
Peru	22 319	20 408	24 915	19 014	21 872
China	* 24 000	* 24 000	* 24 000	* 24 000	* 24 000
Japan	* 45	* 45	* 45	* 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	2017	2018	2019	2020	2021
Russia	714 105	752 917	790 000	* 720 000	* 700 000
Brazil	129 000	101 000	12 205	77 057	* 100 000
Colombia	4 423	3 550	—	—	—
China	124 723	* 125 000	* 150 000	* 120 000	* 120 000
Kazakhstan	192 700	202 700	210 900	227 400	250 100
World total	1 200 000	1 200 000	1 200 000	1 100 000	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	2017	2018	2019	2020	2021
Bulgaria	67 000	* 70 000	* 70 000	* 70 000	* 70 000
Georgia	400	—	—	—	—
Germany	34 177	39 218	30 474	26 656	27 921
Italy	* 3 000	* 3 000	* 3 000	* 3 000	* 3 000
Russia	178 000	163 000	163 000	287 000	* 150 000
Slovakia	15 690	9 500	5 770	—	—
Turkey	292 447	465 138	413 811	283 161	256 076
United Kingdom	* 55 000	* 50 000	* 46 000	* 46 000	* 27 000
Algeria	* 52 000	* 52 000	* 52 000	* 52 000	* 52 000
Egypt (a)	4 000	* 4 000	* 4 000	* 4 000	* 4 000
Morocco	818 016	899 365	1 119 811	501 939	* 500 000
Nigeria	717	387	370	544	460
Canada	32 000	* 30 000	* 30 000	* 20 000	* 30 000
Guatemala	43	63	* 60	—	—
Mexico	359 912	366 234	378 295	372 262	320 642
USA	(b) 334 000	(b) 366 000	(b) 414 000	* 125 400	* 125 500
Argentina	5 977	7 225	3 898	—	—
Bolivia	29 114	53 163	39 458	9 611	27 110
Brazil	* 100 000	* 100 000	* 100 000	* 100 000	* 100 000
Colombia	2 028	3 210	2 270	2 046	745
Peru	9 182	15 621	16 373	5 242	10 361
Afghanistan	* 500	* 500	* 500	* 500	* 500
China	* 3 100 000	* 2 900 000	* 2 800 000	* 2 800 000	* 2 800 000
India (c)	2 038 915	2 390 000	* 2 000 000	* 1 500 000	* 1 500 000
Iran (d)	239 132	201 721	224 412	288 341	* 290 000
Kazakhstan	160 000	420 000	530 600	445 000	* 450 000
Laos	33 325	35 000	486 009	96 278	37 403
Malaysia	16 600	—	—	—	—
Myanmar	3 206	2 935	12 439	7 227	1 690
Pakistan (a)	91 711	88 847	116 480	55 341	51 553
Thailand	147 954	67 490	33 644	22 394	4 988
Vietnam	26 000	41 000	* 36 000	* 36 000	* 36 000
Australia	8 957	6 534	1 982	—	158
World total	8 300 000	8 900 000	9 100 000	7 200 000	6 900 000

See notes on the following page.

Production of barytes

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	2017	2018	2019	2020	2021
Armenia					
Bentonite	11 724	21 029	32 424	5 956	2 890
Azerbaijan					
Bentonite	225 288	212 336	222 519	155 112	218 477
Bosnia & Herzegovina					
Bentonite	92 344	87 358	94 601	69 183	75 761
Bulgaria					
Bentonite	54 100	* 700 000	780 542	719 647	767 117
Cyprus					
Bentonite	95 593	98 800	83 113	92 645	81 655
Czech Republic					
Bentonite	254 000	277 000	357 000	226 000	198 000
Denmark					
Bentonite	69 594	56 173	48 197	40 054	20 281
France					
Bentonite (a)	24 497	35 696	* 36 000	* 36 000	* 36 000
Georgia					
Bentonite	* 21 000	25 894	27 872	12 750	16 315
Germany					
Bentonite	416 000	379 000	366 000	335 000	365 000
Greece					
Bentonite	1 087 800	1 355 000	1 300 000	1 105 000	1 415 000
Attapulгите	54 280	53 300	36 700	28 050	29 300
Hungary					
Bentonite	9 852	35 156	33 166	14 871	30 462
Italy					
Bentonite	86 106	100 067	82 720	65 989	32 252
North Macedonia					
Bentonite	912	2 945	682	2 196	—
Norway					
Bentonite	—	(a) 3 234	—	* —	(a) 12 803
Poland					
Bentonite	—	560	500	920	500
Romania					
Bentonite	33 777	34 809	41 964	45 495	54 648
Russia					
Bentonite	91 000	50 100	* 50 000	* 50 000	* 50 000
Slovakia					
Bentonite	226 082	270 000	251 000	275 570	272 880
Slovenia					
Bentonite	147	113	99	77	75
Spain					
Bentonite	177 565	178 463	160 477	205 773	171 572
Attapulгите	58 952	28 021	30 348	30 653	33 008
Sepiolite	482 550	698 058	595 448	531 660	549 744
Turkey					
Bentonite	1 481 617	1 331 955	1 533 547	1 658 837	2 020 356
Sepiolite	15 624	26 300	68 999	65 427	111 900
Ukraine					
Bentonite	113 000	178 000	180 000	180 000	* 180 000

Production of bentonite and fuller's earth

tonnes (metric)

Country	2017	2018	2019	2020	2021
Algeria					
Bentonite	35 600	36 000	36 700	* 36 000	* 36 000
Angola					
Fuller's earth	* 98 000	* 98 000	* 98 000	* 98 000	* 98 000
Egypt					
Bentonite	* 4 600	* 4 000	* 3 000	* 500	* 2 000
Kenya					
Bentonite	* 110	* 110	* 110	* 110	* 110
Morocco					
Bentonite	174 546	172 749	188 080	* 170 000	* 170 000
Fuller's earth (b)	119 070	99 256	99 790	* 99 000	* 99 000
Mozambique					
Bentonite	...	84 276	77 734	80 189	118 692
Senegal					
Attapulgitite	165 900	177 900	197 673	186 615	170 851
South Africa					
Bentonite	165 141	173 486	105 084	85 558	98 606
Attapulgitite	18 333	17 121	11 422	11 957	13 189
Cuba					
Bentonite	589	630	504	486	517
Guatemala					
Bentonite	20 562	16 953	850	371	7 378
Mexico					
Bentonite	148 475	264 800	24 321	79 219	* 80 000
Fuller's earth	110 860	—	—	—	—
USA					
Bentonite (c)	4 450 000	4 570 000	4 520 000	4 240 000	* 4 300 000
Fuller's earth (c)	1 840 000	1 880 000	1 990 000	1 980 000	* 2 000 000
Argentina					
Bentonite	121 735	184 969	113 750	46 288	* 46 000
Bolivia					
Bentonite	68	2	* —	* —	* —
Brazil					
Bentonite	616 929	* 600 000	403 763	217 055	* 220 000
Chile					
Bentonite	1 584	525	395	170	170
Colombia					
Bentonite	* 9 000	* 9 000	* 9 000	* 9 000	* 9 000
Peru					
Bentonite	756	2 384	46 887	25 532	56 199
Uruguay					
Bentonite	6 640	7 760	6 726	16 550	19 710
China					
Bentonite	* 5 600 000	* 5 600 000	* 2 000 000	* 2 500 000	* 2 500 000
India					
Bentonite (d)	3 313 358	3 385 450	* 3 400 000	* 3 500 000	* 3 500 000
Fuller's earth (d)	797 684	553 294	* 550 000	* 730 000	* 730 000
Indonesia					
Bentonite	* 6 000	* 6 000	* 6 000	* 6 000	* 6 000
Iran					
Bentonite (e)	723 718	731 908	1 021 481	1 395 726	* 1 400 000
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	47 306	31 824	43 886	5 314	34 243
Fuller's earth	115 568	118 177	185 718	71 855	52 192
Myanmar					
Bentonite (d)	600	600	540	—	—
Pakistan					
Bentonite (f)	42 770	74 268	47 525	107 742	59 744
Fuller's earth (f)	18 185	9 188	11 323	2 842	1 840

Production of bentonite and fuller's earth

tonnes (metric)

Country	2017	2018	2019	2020	2021
Philippines					
Bentonite	1 249	658	* 650	* 650	* 650
Uzbekistan					
Bentonite	* 40 000	12 559	32 588	48 739	59 053
Australia					
Bentonite (f)	116 762	87 330	56 215	42 713	46 658
Fuller's earth	11 871	* 10 000	* 8 000	* 10 000	* 12 000
New Zealand					
Bentonite	* 750	* 750	* 750	* 750	* 750
World total bentonite	20 600 000	21 900 000	18 300 000	18 300 000	19 200 000
World total fullers earth (g)	3 900 000	3 800 000	3 900 000	3 800 000	3 900 000

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	2017	2018	2019	2020	2021
Madagascar (a)	* 16	* 16	* 16	* 16	* 16
Mozambique	53	416	45	80	330
Uganda	—	24	15	186	* 180
Zambia	3	5	6	* 6	* 6
USA (b)	3 760	4 130	* 4 000	* 4 130	* 4 250
China	* 1 200	* 1 200	* 1 800	* 1 800	* 1 800

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	2017	2018	2019	2020	2021
Armenia	* 4	* 4	* 4	* 4	* 4
Russia	* 45	* 45	* 45	* 45	* 45
Canada	5	5	6	4	—
Mexico	513	333	251	—	—
Bolivia	—	19	* 20	* 20	* 60
Peru (a)	124	145	73	74	248
China	1 748	1 804	* 1 804	* 1 804	* 1 804
Japan (a)	489	547	527	574	478
Kazakhstan	* 240	* 290	* 7	* 450	* 20
Vietnam	2 743	3 099	917	993	2 067
World total	5 900	6 300	3 700	4 000	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	2017	2018	2019	2020	2021
Russia	* 75 000	* 80 000	* 80 000	* 80 000	* 80 000
Turkey	2 494 627	3 970 486	8 555 690	2 819 111	4 057 299
USA (a)	* 1 300 000	* 1 300 000	* 1 300 000	* 1 300 000	* 1 300 000
Argentina	129 918	71 212	181 818	134 604	* 130 000
Bolivia	223 515	232 268	* 214 500	258 143	312 906
Chile	607 076	398 411	352 255	288 103	363 032
Peru	—	100 552	111 108	43 645	246 362
China (b)	* 70 000	* 75 000	* 250 000	* 380 000	* 380 000
Iran (c)	1 150	1 200	2 519	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	2017	2018	2019	2020	2021
Germany	* 1 500 000	* 1 500 000	* 1 500 000	* 1 500 000	* 1 500 000
Russia	* —	* —	* —	* 500 000	* 500 000
Ukraine	* 4 500 000	* 4 500 000	* 4 500 000	* 4 500 000	* 4 500 000
USA (a)	* 225 000 000	* 225 000 000	* 225 000 000	* 225 000 000	* 225 000 000
China	* 60 000 000	* 60 000 000	* 64 000 000	* 70 000 000	* 75 000 000
India (b)	2 266 000	2 813 000	* 2 800 000	* 2 800 000	* 2 800 000
Israel	180 000 000	175 000 000	180 000 000	173 000 000	186 000 000
Japan	* 20 000 000	* 20 000 000	* 20 000 000	* 20 000 000	* 20 000 000
Jordan	84 800 000	88 620 000	* 110 000 000	* 84 000 000	* 84 000 000
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	2017	2018	2019	2020	2021
Bulgaria	333	313	315	* 315	* 315
Germany	* 500	* 500	* 450	* 450	* 400
Netherlands	* 620	* 1 100	* 1 100	* 880	* 900
Norway	416	* 400	* 340	* 340	* 390
Poland	309	305	199	80	—
Russia	* 1 300	* 1 400	* 1 400	* 1 300	* 1 400
Canada (a)	1 802	1 857	1 803	140	* 1 800
Mexico	1 142	1 307	952	978	1 051
USA (a)	* 550	* 550	* 550	* 550	* 550
Argentina	96	74	80	46	50
Brazil	* 200	* 300	* 450	* 25	* 16
Peru	797	765	772	687	279
China	8 411	10 349	* 10 300	* 10 300	10 349
India (b)	47	—	—	—	—
Japan	2 142	1 980	2 000	1 880	1 900
Kazakhstan	* 1 500	* 1 500	* 1 400	* 1 500	* 1 500
Korea (Rep. of)	4 000	4 905	* 4 500	* 4 500	* 4 500
Korea, Dem. P.R. of	* 200	* 200	* 200	* 200	* 200
World total	24 400	27 800	26 800	24 200	25 600

Note(s)

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

(a) Including cadmium sponge and/or secondary metal

(b) Years ended 31 March following that stated

Production of chromium ores and concentrates

tonnes (metric)

Country	2017	2018	2019	2020	2021
Albania	808 016	1 142 719	1 288 315	626 627	650 200
Finland (a)	972 028	1 099 438	1 183 862	1 131 336	1 141 184
Russia	434 000	469 000	698 000	689 000	* 689 000
Turkey	2 554 222	2 896 651	3 363 791	2 128 669	2 779 467
Madagascar	64 200	35 381	(b)* 76 100	(b)* 12 400	(b)* 13 500
South Africa	16 586 863	17 829 038	17 664 239	13 196 880	18 435 250
Sudan	32 000	27 000	12 728	9 000	4 600
Zimbabwe	688 838	894 660	1 550 064	1 272 139	1 244 300
Brazil	245 200	219 700	199 300	226 800	* 200 000
Afghanistan	* 4 500	* 4 500	* 4 500	* 4 500	* 4 000
China	* 30 000	* 30 000	* 30 000	* 30 000	* 30 000
India (c)	3 480 941	3 970 691	3 929 260	2 863 869	* 2 560 000
Iran (d)(e)	301 119	259 918	244 656	251 292	* 250 000
Kazakhstan	6 313 300	6 888 800	7 019 000	6 327 000	6 192 000
Oman	631 600	884 900	732 600	456 800	269 000
Pakistan (f)	* 350 000	* 324 700	* 467 400	* 404 800	* 467 100
Philippines (d)	20 849	50 650	36 423	35 112	30 721
Papua New Guinea (b)	90 121	92 139	112 749	* 113 000	* 113 000
World total	33 600 000	37 100 000	38 600 000	29 800 000	35 100 000

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	2017	2018	2019	2020	2021
Albania					
Lignite	46 000	98 000	31 000	42 000	24 482
Bosnia & Herzegovina					
Brown coal & lignite	14 033 504	14 378 767	13 376 548	13 365 730	12 802 517
Bulgaria					
Lignite	32 136 500	* 29 000 000	* 29 000 000	* 29 000 000	* 29 000 000
Brown coal	2 451 500	* 1 300 000	* 1 300 000	* 1 300 000	* 1 300 000
Czech Republic					
Bituminous	4 870 000	4 110 000	3 150 000	1 861 000	2 008 000
Brown coal	39 310 000	39 187 000	37 465 000	29 505 000	29 505 000
Georgia	268 113	137 912	15 900	99 134	147 878
Germany					
Anthracite & Bituminous	3 840 000	2 762 000	—	—	—
Brown coal	171 286 000	166 258 371	131 314 116	107 377 260	126 256 594
Greece					
Lignite	37 802 600	36 574 360	26 000 000	14 000 000	12 081 578
Hungary					
Bituminous	789	2 083	6 095	1 513	252
Lignite	7 890 000	7 843 000	6 790 000	6 069 000	4 928 000
Brown coal	83 341	53 606	50 742	51 591	58 955
Kosovo					
Lignite	7 574 697	7 169 767	8 063 051	8 537 948	8 535 435
Montenegro					
Lignite	1 419 655	1 539 118	1 561 712	1 656 900	1 548 600
Brown coal	55 200	56 758	43 477	8 500	—

Production of coal

tonnes (metric)

Country	2017	2018	2019	2020	2021
North Macedonia					
Lignite	5 056 918	4 946 486	5 066 083	4 532 745	4 758 504
Norway					
Bituminous (a)	134 000	142 500	107 900	74 503	113 292
Poland					
Coking coal	12 482 000	12 047 000	12 071 000	12 274 000	12 581 000
Other bituminous coal	53 493 000	51 767 000	50 031 000	42 467 000	42 779 000
Lignite	63 060 000	61 144 000	52 855 000	47 300 000	54 851 000
Romania					
Anthracite & bituminous	784 433	538 092	410 765	428 368	* 300 000
Lignite	25 232 160	23 319 839	21 653 000	15 161 420	17 733 000
Russia	410 000 000	439 000 000	439 000 000	398 000 000	432 000 000
Serbia					
Bituminous	79 000	101 000	108 000	30 000	26 000
Lignite (b)	39 353 000	37 253 000	38 420 000	39 330 000	36 118 000
Brown coal	342 000	277 000	350 000	306 000	271 000
Slovakia					
Lignite	56 000	169 000	270 000	211 600	205 400
Brown coal	1 619 000	1 257 000	1 157 000	745 000	858 000
Slovenia					
Lignite	3 355 664	3 216 735	3 218 696	3 259 309	2 807 476
Spain					
Anthracite	370 445	292 898	—	—	—
Bituminous	791 303	483 159	—	—	—
Sub-bituminous	1 833 357	1 630 088	—	—	—
Turkey					
Anthracite	1 764 028	1 620 682	1 805 118	1 613 624	1 726 109
Lignite	84 303 492	97 017 695	92 993 461	84 811 522	90 780 036
Ukraine					
Bituminous (c)	24 167 000	26 254 000	25 530 400	24 168 300	* 24 000 000
United Kingdom					
Anthracite	445 000	399 000	510 000	345 000	266 000
Bituminous	2 596 000	2 383 000	2 081 000	1 328 000	788 000
Botswana	2 215 782	2 482 313	2 110 891	1 939 990	2 700 377
Congo, Democratic Republic					
Bituminous	* 8 000	* 8 000	* 8 000	* 8 000	* 8 000
Eswatini (Swaziland)					
Anthracite	202 277	144 375	109 926	161 768	162 681
Ethiopia					
Lignite	* 35 000	2 767	* 2 700	* 2 700	* 2 700
Malawi	45 230	49 753	54 728	54 876	30 251
Mozambique					
Bituminous	11 260 000	12 926 416	10 339 536	8 041 211	11 079 683
Niger	233 792	221 580	225 920	246 880	105 760
Nigeria					
Bituminous	51 000	48 000	55 000	44 000	49 000
South Africa					
Anthracite	2 886 078	3 316 837	3 077 839	4 301 386	3 071 699
Bituminous	249 456 924	249 939 594	251 332 874	243 780 359	225 572 858
Tanzania					
Bituminous	563 053	627 652	712 136	689 989	976 319
Zambia					
Bituminous	208 608	361 871	335 042	446 153	663 345
Zimbabwe					
Bituminous	2 928 000	3 347 500	2 729 922	2 750 883	3 246 000
Canada	60 866 000	54 600 000	51 801 000	40 791 647	41 809 481
Mexico					
Bituminous	12 748 000	* 12 000 000	* 1 000 000	* 7 000 000	* 7 000 000
USA					
Anthracite	1 734 636	1 719 706	2 368 120	2 151 782	1 915 066
Bituminous	320 642 381	326 777 482	307 431 973	215 789 949	235 778 221
Sub-bituminous	318 812 663	305 613 307	282 577 367	222 923 550	243 175 405
Lignite	61 381 007	51 733 060	48 245 042	44 773 678	42 967 898

Production of coal

tonnes (metric)

Country	2017	2018	2019	2020	2021
Argentina					
Bituminous	16 550	50 570	88 500	16 550	16 500
Brazil					
Bituminous & lignite	10 179 784	10 483 793	9 433 816	9 158 388	12 070 822
Chile					
Bituminous	70 281	38 021	41 385	25 778	18 541
Lignite	2 425 109	2 256 656	1 565 169	165 784	—
Colombia					
Anthracite (d)	25 051	201 162	127 090	231	109 798
Coking coal	5 981 970	7 229 915	7 135 797	7 330 000	7 873 559
Other bituminous coal	85 263 570	78 824 137	77 079 899	42 000 500	48 659 153
Peru					
Anthracite & Bituminous	301 050	216 581	181 010	131 516	142 767
Venezuela					
Bituminous	700 000	700 000	400 000	300 000	200 000
Afghanistan (e)	2 191 400	2 444 600	2 139 200	56 620	108 200
Bangladesh (f)	1 160 658	923 276	805 696	811 138	753 973
Bhutan	161 527	186 824	184 785	72 838	111 545
China	3 524 000 000	3 698 000 000	3 846 000 000	3 747 163 000	3 962 700 000
India					
Bituminous (g)	675 400 000	728 718 000	729 023 000	716 084 000	* 676 300 000
Lignite (g)	46 644 000	44 282 000	42 185 000	36 615 000	* 34 300 000
Indonesia					
Anthracite & Bituminous	461 248 184	557 772 940	616 159 594	563 728 255	613 990 000
Iran (e)	1 371 562	1 749 540	1 585 531	1 669 515	1 298 163
Kazakhstan					
Bituminous	101 797 300	107 576 600	104 809 100	104 084 100	107 246 300
Lignite	6 094 500	6 560 800	5 928 900	5 422 100	4 828 700
Korea (Rep. of)					
Anthracite	1 485 000	1 201 920	1 084 000	1 019 298	897 900
Korea, Dem. P.R. of	21 738 000	* 18 250 000	* 18 000 000	* 17 000 000	* 17 000 000
Kyrgyzstan	1 870 400	2 395 200	2 606 000	2 677 700	2 989 900
Laos					
Anthracite	133 284	142 994	161 494	320 231	698 521
Lignite	13 439 492	15 903 277	15 263 562	14 366 628	13 618 072
Malaysia	2 988 212	2 652 813	3 459 122	2 978 248	3 110 605
Mongolia	48 145 100	51 401 300	55 799 400	43 844 800	30 124 300
Myanmar	677 774	1 200 619	1 941 558	2 054 322	1 371 351
Nepal					
Sub-bituminous (h)	7 270	11 522	61 179	69 418	* 70 000
Pakistan (c)(f)	3 953 992	4 470 000	5 406 878	8 599 166	9 229 377
Philippines					
Bituminous	11 932 328	11 755 360	13 751 291	12 951 291	14 047 681
Tajikistan					
Bituminous	1 707 000	1 838 025	1 963 827	1 951 200	2 055 000
Lignite	53 000	64 990	63 963	77 939	95 000
Thailand					
Lignite	16 258 637	14 851 950	14 071 710	13 250 574	14 221 573
Uzbekistan					
Bituminous	124 000	181 000	249 100	263 700	275 100
Lignite	3 915 000	3 993 400	3 806 000	3 868 100	4 781 200
Vietnam					
Anthracite	38 409 000	42 384 000	47 158 000	44 598 000	48 308 000
Australia					
Bituminous (i)	435 889 000	457 325 000	462 994 000	426 303 000	432 856 000
Brown coal (f)	56 095 000	45 062 000	42 256 000	40 372 000	42 263 000
New Zealand					
Bituminous	1 212 126	1 318 966	1 291 197	1 128 917	1 256 584
Sub-bituminous	1 386 950	1 604 454	1 454 956	1 392 075	1 326 292
Lignite	319 487	307 378	287 830	297 690	284 735
World total	7 687 000 000	8 028 000 000	8 108 000 000	7 559 000 000	7 883 000 000

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	2017	2018	2019	2020	2021
Finland	* 1 900	1 377	1 454	1 559	1 084
Russia	4 900	5 450	5 500	5 700	8 000
Turkey	220	259	115	250	* 200
Congo, Democratic Republic	82 461	109 402	77 964	86 591	93 011
Madagascar	3 090	2 890	2 930	833	2 111
Morocco (a)	1 924	1 806	2 397	2 416	1 796
South Africa (a)	1 062	1 007	1 027	960	355
Zambia	* 760	835	379	316	247
Zimbabwe	445	403	400	956	230
Canada	6 058	5 608	5 132	4 279	3 834
Cuba	* 4 900	* 5 000	* 5 200	* 5 500	* 4 400
USA	640	590	500	600	* 700
Brazil	185	8	30	20	20
China	10 237	2 241	* 2 000	* 1 750	1 750
Indonesia	* 350	* 350	* 350	* 350	* 350
Philippines	3 700	5 400	3 750	3 600	3 200
Australia (b)	5 221	5 616	5 693	5 796	5 426
New Caledonia	2 780	2 104	1 703	2 197	* 1 500
Papua New Guinea	3 308	3 275	2 911	2 941	2 955
World total	134 000	154 000	119 000	127 000	131 000

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	2017	2018	2019	2020	2021
Belgium (a)	1 600	1 650	* 1 500	* 1 300	* 1 300
Finland	13 585	14 295	14 283	15 148	14 287
France	277	48	—	—	—
Norway	3 473	4 166	4 354	4 384	3 982
Russia	2 077	* 1 800	* 1 900	* 1 800	* 1 800
Congo, Democratic Republic (b)	120	68	—	—	—
Madagascar	3 053	2 850	2 897	963	1 986
Morocco	1 924	1 806	2 397	2 416	1 796
South Africa (c)	1 062	1 007	1 027	897	531
Zambia	2 649	1 766	1 271	—	—
Canada (d)	5 152	6 349	6 075	5 965	* 6 000
Brazil	185	8	—	—	—
China (a)	69 600	78 360	* 86 000	* 86 000	* 128 000
India	* 100	—	—	—	—
Japan	4 159	3 669	3 680	3 467	3 852
Australia	3 042	3 244	3 700	3 300	2 800
New Caledonia (e)	2 302	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	2017	2018	2019	2020	2021
Albania	—	2 601	3 551	3 070	5 134
Armenia	102 847	76 166	97 870	90 154	89 145
Azerbaijan	1 991	1 645	2 210	2 591	2 649
Bulgaria	73 003	69 841	70 927	* 73 500	* 70 000
Cyprus	1 293	908	703	—	—
Finland	53 144	46 755	32 592	35 494	32 017
Georgia	* 15 000	15 704	9 547	8 031	8 147
North Macedonia	9 000	8 000	7 100	5 982	6 213
Poland	419 000	401 300	449 000	442 000	443 000
Portugal	63 812	49 064	41 553	32 032	37 941
Romania	7 400	8 722	9 200	9 100	9 100
Russia	761 100	870 500	812 400	924 100	* 900 000
Serbia	44 800	44 100	43 550	52 207	121 150
Slovakia	32	21	17	20	76
Spain	198 353	187 714	170 556	182 678	142 381
Sweden	104 450	106 142	99 332	100 065	88 108
Turkey	83 000	79 600	73 500	107 000	108 100
Botswana	1 239	1 462	—	—	11 742
Congo, Democratic Republic	1 094 638	1 225 227	1 420 386	1 601 208	1 797 836
Eritrea	7 900	17 300	16 008	21 725	20 224
Mauritania	28 791	28 138	29 620	28 491	18 846
Morocco	35 400	32 400	30 700	31 800	* 36 500
Namibia	15 534	15 177	15 743	10 853	* 3 000
South Africa	65 503	46 900	52 501	29 068	28 307
Tanzania	* 13 000	* 38 000	* 17 000	* 59 000	* 115 000
Zambia	797 266	875 848	789 942	868 671	800 696
Zimbabwe	8 839	9 077	8 700	7 933	8 650
Canada	597 194	548 011	560 781	584 608	550 418
Dominican Republic	9 618	8 588	6 047	2 193	4 774
Mexico	742 246	696 580	713 704	800 316	734 100
Panama	—	—	147 480	205 548	331 000
USA	1 260 000	1 220 000	1 260 000	1 200 000	* 1 230 000
Argentina	33 300	17 400	—	—	—
Bolivia	7 219	5 216	4 478	2 822	3 310
Brazil	384 542	385 800	363 300	352 600	335 761
Chile	5 503 500	5 831 600	5 787 400	5 733 100	5 624 900
Colombia	9 355	9 918	7 641	9 356	8 195
Ecuador	410	2 112	495	2 170	4 220
Peru	2 445 585	2 437 035	2 455 440	2 150 126	2 299 277
China	1 706 400	1 615 234	1 683 700	1 723 100	1 750 000
India (a)	31 800	34 100	28 000	22 837	24 741
Indonesia	622 030	651 136	351 000	507 000	775 000
Iran	295 621	310 000	310 000	315 000	316 000
Kazakhstan	557 800	635 500	562 100	551 800	511 900
Korea, Dem. P.R. of	1 800	* 2 000	* 2 000	* 2 000	* 2 000
Kyrgyzstan	7 500	7 200	7 000	5 100	6 600
Laos	153 304	146 967	140 935	239 449	221 184
Mongolia	461 160	458 780	441 840	446 845	464 205
Myanmar	* 116 000	* 180 000	* 219 000	* 186 000	* 68 000
Pakistan	10 052	12 538	13 049	13 200	18 800
Philippines	68 156	69 933	71 892	60 856	51 586
Saudi Arabia	36 279	57 300	67 300	75 400	76 350
Tajikistan	2 953	3 210	2 330	978	1 845
Uzbekistan	140 100	141 200	137 300	142 800	148 500
Vietnam	21 451	26 235	30 192	30 782	33 579
Australia	849 121	910 896	925 157	879 522	813 145
Papua New Guinea	105 419	96 287	99 398	82 500	63 200
World total	20 200 000	20 800 000	20 700 000	21 000 000	21 400 000

Note(s)

(a) Years ended 31 March following that stated

Smelter production of copper

tonnes (metric)

Country	2017	2018	2019	2020	2021
Armenia	12 051	8 831	—	—	—
Bulgaria	322 700	316 900	255 200	* 270 000	* 250 000
Finland	133 197	139 087	120 369	145 847	151 000
Germany	332 600	311 200	288 600	312 600	300 000
Norway	22 695	20 590	21 962	20 535	20 125
Poland	457 549	461 865	489 242	462 868	482 557
Russia	730 000	789 000	790 500	815 200	1 000 000
Serbia	68 200	66 200	82 400	88 000	78 700
Spain	272 000	284 800	245 800	257 700	278 600
Sweden	150 000	150 000	135 900	155 000	* 155 000
Turkey	53 400	85 400	83 700	78 900	93 000
Congo, Democratic Republic	—	—	* 2 000	107 800	* 170 000
Namibia	40 476	48 971	45 953	49 392	40 407
South Africa	52 600	33 300	26 000	13 000	17 300
Tanzania	* 12 000	* 38 000	* 17 000	* 57 000	* 113 000
Zambia (a)	787 900	828 700	638 500	750 600	760 000
Canada	289 400	290 100	290 000	290 000	290 000
Mexico	270 213	286 242	277 654	286 242	270 213
USA	470 000	536 000	466 000	315 000	* 360 000
Brazil	118 800	132 200	110 900	* 64 800	* 60 000
Chile	1 264 600	1 246 100	1 011 200	1 206 300	1 206 600
Peru	316 882	327 821	294 315	342 738	* 348 000
China	6 424 200	6 575 016	7 082 700	* 7 700 000	8 000 000
India	823 100	491 500	344 300	243 200	360 000
Indonesia	245 800	258 800	246 100	276 900	280 400
Iran	114 200	204 100	201 100	223 300	246 800
Japan	1 192 179	1 263 456	1 169 664	1 277 303	1 174 957
Kazakhstan	296 500	308 900	311 000	319 100	* 281 300
Korea (Rep. of)	510 000	530 000	520 000	513 900	680 000
Oman	264	—	—	—	—
Pakistan	10 052	12 538	13 049	13 200	* 13 000
Philippines	240 000	170 900	217 800	247 000	220 000
Uzbekistan	* 100 000	117 000	147 300	148 000	148 000
Vietnam	11 500	15 100	19 200	19 200	20 000
Australia	359 832	360 993	401 277	399 292	367 107
World total	16 500 000	16 700 000	16 400 000	17 500 000	18 200 000

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	2017	2018	2019	2020	2021
Austria	109 800	107 200	128 200	132 000	133 500
Belgium	398 900	390 200	356 600	321 400	400 000
Bulgaria	228 457	224 098	207 196	225 000	219 000
Cyprus	1 293	908	703	—	—
Finland	13 552	18 201	13 009	2 591	2 132
Germany	694 400	672 400	629 700	643 000	614 000
Italy	8 700	7 500	9 800	15 000	15 400
North Macedonia	958	768	719	722	700
Norway	22 695	20 590	21 962	20 535	20 125
Poland	522 022	501 817	565 588	560 364	577 575
Russia	949 000	1 016 000	1 028 000	1 055 000	* 1 100 000
Serbia	67 179	72 087	74 000	46 937	58 344
Spain	415 200	423 800	386 700	399 700	361 500
Sweden	219 462	224 487	201 345	225 987	223 038
Turkey	95 000	126 300	116 000	126 100	* 126 500
Ukraine	25 186	24 901	20 409	24 335	26 600
Congo, Democratic Republic	825 346	999 513	1 160 223	* 1 200 000	* 1 300 000
Egypt	* 4 000	* 4 000	* 4 000	* 4 000	* 4 000
Namibia	15 466	15 177	15 743	10 641	* 2 700
South Africa	66 200	43 900	* 20 000	* 10 000	20 400
Zambia	466 200	458 200	264 500	378 400	350 000
Zimbabwe	—	100	—	—	—
Canada	330 386	291 250	281 176	276 100	287 500
Mexico	463 349	473 612	486 903	491 926	472 767
USA	1 080 000	1 110 000	1 030 000	918 000	* 923 000
Argentina	* 14 000	* 14 000	* 14 000	* 14 000	* 14 000
Bolivia	2 269	3 300	3 100	1 800	1 700
Brazil	143 000	147 100	175 200	108 600	61 500
Chile	2 429 500	2 461 200	2 269 100	2 329 300	2 274 000
Peru	335 329	336 798	307 862	323 580	* 324 000
China	8 915 100	9 023 965	9 784 238	10 025 059	10 490 000
India	823 100	550 600	826 303	697 109	491 200
Indonesia	270 769	274 641	257 977	278 377	275 900
Iran (a)	160 128	247 384	250 130	280 000	285 000
Japan	1 488 080	1 594 517	1 495 359	1 580 086	1 516 684
Kazakhstan	426 191	438 115	472 327	477 016	401 883
Korea (Rep. of)	663 327	673 364	665 727	657 000	606 000
Laos	62 941	71 268	71 651	39 730	5 964
Mongolia	14 689	14 175	11 758	9 488	9 689
Myanmar	* 115 100	179 000	218 000	* 185 000	* 67 000
Oman (b)	264	—	—	—	—
Philippines	205 000	170 800	217 300	220 900	214 684
Uzbekistan	* 100 000	107 400	147 300	148 000	148 000
Vietnam	11 500	15 100	19 200	19 200	20 000
Australia	386 249	377 036	426 739	426 997	384 750
World total	23 600 000	23 900 000	24 700 000	24 900 000	24 800 000

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 is excluded.

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

(a) Years ended 20 March following that stated

(b) Sales

Production of diamond

Carats

Country	2017	2018	2019	2020	2021
Russia	42 614 780	43 161 058	45 271 212	31 186 551	39 116 970
Angola	9 438 802	8 408 688	9 149 746	7 734 281	8 723 069
Botswana	22 900 000	27 373 000	23 687 000	16 868 000	22 696 000
Cameroon (a)	* 3 500	* 3 600	* 3 500	* 4 200	* 4 500
Central African Republic	47 637	13 572	27 549	55 926	92 772
Congo	46 758	47 579	2 963	11 157	4 125
Congo, Democratic Republic	18 891 800	15 130 800	18 892 000	16 560 000	12 773 000
Gabon	—	—	—	—	501
Ghana (b)	86 925	57 531	33 789	25 292	54 174
Guinea	181 450	292 707	229 180	128 575	273 321
Ivory Coast	7 361	5 678	3 990	4 015	3 942
Lesotho	1 126 409	1 294 283	1 113 526	481 243	339 452
Liberia	60 636	75 554	55 936	54 599	63 027
Namibia	1 815 709	2 091 781	1 745 281	1 484 290	1 517 525
Sierra Leone	288 260	739 600	824 430	686 020	829 330
South Africa	9 685 235	9 911 460	7 177 435	8 470 840	9 723 811
Tanzania	304 456	381 302	416 750	147 191	62 545
Togo	2	—	16	—	—
Zimbabwe	2 507 862	3 252 418	2 119 189	2 670 458	4 224 300
Canada	23 198 761	22 789 001	18 491 388	15 035 711	17 353 418
Brazil	254 896	250 940	165 992	124 548	142 661
Guyana	52 161	62 111	54 993	19 240	18 432
Venezuela	—	—	—	794	* 800
China	* 230	* 99	* 51	* 21	* —
India (c)	39 699	38 437	28 816	13 917	* 15 000
Australia	17 135 000	14 008 054	12 154 544	9 980 000	—
World total	150 700 000	149 400 000	141 600 000	111 700 000	118 000 000

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	2017	2018	2019	2020	2021
Armenia	23 465	* 20 000	* 20 000	* 20 000	* 20 000
Czech Republic	34 000	31 000	43 000	46 000	18 000
Denmark					
Moler (a)	110 000	99 375	108 750	115 000	120 625
France	* 90 000	* 90 000	* 90 000	* 90 000	* 90 000
Germany	56 721	58 340	53 802	51 511	57 719
Hungary	1 173	853	860	321	573
Poland	500	580	680	810	980
Russia	52 000	50 600	* 51 000	* 51 000	* 50 000
Spain (b)	70 550	61 056	62 741	59 250	55 982
Turkey	169 584	242 789	220 757	100 327	207 732
Algeria	2 439	2 468	2 437	* 2 500	* 2 500
Ethiopia (c)	* 5 000	* 5 000	* 5 000	* 5 000	* 5 000
Kenya	1 406	1 548	921	928	763
Mozambique	179	66 429	72 439	80 189	72 914
Costa Rica	1 953	1 839	1 546	3 763	* 4 000
Mexico	96 374	152 058	129 274	144 105	160 956
USA (d)	768 000	957 000	768 000	822 000	* 830 000
Argentina	70 419	72 436	84 610	98 575	* 90 000
Brazil	* 16 000	* 16 000	* 16 000	* 16 000	* 16 000
Chile	27 557	24 736	21 328	21 477	27 096
Peru	96 590	96 532	91 103	85 406	94 860
China	* 420 000	* 420 000	* 150 000	* 140 000	* 140 000
Iran (e)	2 660	3 000	—	—	—
Japan	* 100 000	* 40 000	* 40 000	* 40 000	* 40 000
Korea (Rep. of)	133 741	25 902	40 910	65 240	49 616
Australia (f)	1 081	7	3	10	4
New Zealand	* 44 000	* 44 000	* 44 000	* 44 000	* 44 000
World total	2 400 000	2 600 000	2 100 000	2 100 000	2 200 000

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

(f) Years ended 30 June of that stated

Production of feldspar

tonnes (metric)

Country	2017	2018	2019	2020	2021
Austria	35 000	35 000	35 000	35 000	35 000
Czech Republic	368 000	449 000	460 000	419 000	504 000
Finland	14 926	17 469	17 997	16 137	52 706
France	* 550 000	* 500 000	* 500 000	* 450 000	* 450 000
Germany	276 747	252 693	235 289	213 899	223 007
Greenland	—	—	19 456	* 20 000	* 20 000
Italy	3 500 000	4 000 000	4 000 000	2 200 000	* 2 200 000
North Macedonia	21 237	30 813	29 519	13 115	26 625
Norway	87 894	* 88 000	* 88 000	69 220	60 025
Poland	568 600	593 100	593 004	427 200	534 100
Portugal (a)	228 491	227 367	179 584	204 843	156 507
Romania	* 7 500	* 23 000	* 22 000	* 20 000	* 20 000
Russia	281 236	294 411	* 294 000	* 294 000	* 300 000
Serbia	* 20 000	* 20 000	* 20 000	* 20 000	* 20 000
Slovakia	15 800	17 000	19 100	29 140	10 300
Spain	819 218	616 229	855 139	911 095	801 986
Sweden	22 000	28 000	* 28 000	* 20 000	* 26 000
Turkey	10 273 573	11 474 040	9 447 810	10 050 911	12 936 959
Ukraine (b)	* 30 000	* 30 000	* 30 000	* 30 000	* 30 000
Algeria	* 170 000	* 170 000	* 170 000	* 170 000	* 170 000
Egypt	* 230 000	* 230 000	* 230 000	* 200 000	* 230 000
Ethiopia (c)	* 600	* 600	* 600	* 600	* 600
Morocco	40 000	40 000	* 40 000	* 40 000	* 40 000
Nigeria	27 660	41 355	33 702	19 453	43 997
South Africa	116 400	76 803	76 255	48 427	65 726
Sudan	29 000	36 000	15 300	25 000	6 400
Cuba	3 600	3 000	2 100	14 100	17 800
Guatemala	29 000	30 257	28 771	25 578	34 232
Mexico	233 050	209 770	304 084	318 120	372 102
USA	440 000	550 000	450 000	430 000	* 400 000
Argentina	88 465	56 500	* 56 500	32 000	* 40 000
Brazil	400 000	400 000	* 400 000	* 400 000	* 400 000
Chile	4 421	2 789	55	329	—
Colombia	150 334	141 794	179 856	134 846	46 886
Ecuador	92 871	43 197	—	—	—
Peru	14 930	31 588	29 134	24 132	27 274
Uruguay	370	380	100	208	24 120
Venezuela	36 313	11 935	* 30 000	* 30 000	* 30 000
China	* 1 618 000	* 2 000 000	* 2 000 000	* 2 500 000	* 2 600 000
India (d)	4 270 245	* 4 300 000	* 4 300 000	* 4 300 000	* 4 300 000
Indonesia	* 39 000	* 11 000	* 11 000	* 11 000	* 11 000
Iran (e)	1 339 453	2 057 640	2 368 957	3 113 579	* 3 200 000
Japan (f)	* 100 000	* 100 000	* 100 000	* 100 000	* 100 000
Korea (Rep. of)	717 177	617 166	396 896	415 426	987 309
Malaysia	412 004	414 441	241 189	144 487	168 570
Pakistan (g)	273 468	151 743	295 381	343 075	451 985
Philippines	* 46 600	* 46 600	* 46 600	* 46 000	* 46 000
Saudi Arabia	197 000	206 000	216 000	523 000	549 000
Sri Lanka	26 137	* 26 000	* 26 000	* 26 000	* 26 000
Thailand	1 385 925	1 117 803	1 251 143	1 105 344	1 346 997
Uzbekistan	* 4 300	26 841	47 784	63 595	106 145
Vietnam	* 100 000	* 100 000	* 100 000	* 100 000	* 100 000
Australia (g)	* 5 000	* 5 100	* 5 800	* 6 700	* 7 000
World total	29 762 000	31 952 000	30 327 000	30 155 000	34 356 000

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) Years ended 31 March following that stated
- (e) Years ended 20 March following that stated
- (f) Including weathered granite feldspar
- (g) Years ended 30 June of that stated

Production of fluorspar

tonnes (metric)

Country	2017	2018	2019	2020	2021
Germany	45 375	49 197	79 959	64 933	56 632
Russia	2 700	6 000	4 000	32 000	* 32 000
Spain	154 931	176 188	145 185	185 958	214 587
Turkey	20 150	6 200	14 400	19 896	10 348
United Kingdom	* 11 000	* 11 000	* 14 000	* 15 000	* 15 000
Egypt (a)	* 1 000	* 1 000	* 1 000	* 1 000	* 1 000
Kenya	6 945	—	—	—	—
Morocco	75 509	87 874	73 240	* 70 000	* 70 000
South Africa	257 000	242 000	210 000	320 000	* 420 000
Mexico	741 678	1 959 089	1 931 532	1 571 269	1 007 118
Argentina	13 696	7 924	1 500	4 800	4 800
Brazil	24 000	26 000	* 18 000	* 18 000	* 18 000
Colombia	57	46	—	—	—
Afghanistan	* 4 000	* 4 000	* 4 000	* 4 000	* 4 000
China	* 3 700 000	* 4 000 000	* 4 300 000	* 5 400 000	* 5 400 000
India (b)	1 314	1 079	1 315	1 052	* 740
Iran (c)	36 511	89 102	49 705	116 159	* 116 000
Kazakhstan	* 100 000	* 100 000	87 800	77 000	* 77 000
Korea, Dem. P.R. of	* 7 000	* 7 000	* 7 000	* 6 000	* 7 000
Kyrgyzstan	* 4 000	* 4 000	* 4 000	* 4 000	* 4 000
Mongolia	108 900	101 200	156 100	127 300	118 300
Pakistan (a)	2 263	2 777	4 186	5 981	7 841
Thailand	5 500	16 700	17 747	9 807	9 766
Vietnam	234 905	238 702	238 003	219 920	215 027
World total	5 500 000	7 100 000	7 400 000	8 300 000	7 800 000

Note(s)

- (1) In addition, the USA produced the following amounts of fluorspar equivalent in fluorosilicic acid derived from processing phosphate rock ('000 t): 2017: 40; 2018: 33; 2019: 29; 2020: 22; 2021: 22.

- (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	2017	2018	2019	2020	2021
Russia	* 13	* 13	* 13	* 13	* 13
Ukraine	* 4	* 4	* 8	* 4	* 4
China	319	404	357	* 350	* 350
Japan	3	3	3	3	3
Korea (Rep. of) (a)	* 3	* 3	* 3	* 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	2017	2018	2019	2020	2021
Russia	* 6	* 6	* 5	* 5	* 5
USA (a)	* 3	* 3	* 3	* 3	* 3
China	79	95	86	* 95	* 95

Note(s)

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

(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 250 kg for artisanal mining in 2021; 332 kg in 2020; 259 kg in 2019; 306 kg in 2018 and 150 kg in 2017. 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 also 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 is 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.

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.

Ivory Coast – efforts are being made within Ivory Coast to rationalise artisanal mining as part of the EITI process. Reports suggest that it varies considerably from year to year and may range between 1000 kg and 10 000 kg per year. It is thought that the reported figures include an amount for artisanal mining.

Kenya – The reported figures shown are believed to include 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.

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.

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 plans 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 is 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 artisanal 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	2017	2018	2019	2020	2021
Armenia	* 4 270	4 908	5 825	* 5 900	* 3 400
Azerbaijan	3 667	3 476	3 712	3 571	3 427
Bulgaria	8 682	6 465	7 413	9 590	9 966
Cyprus	48	47	33	61	—
Finland	9 102	8 732	7 927	8 668	9 082
Georgia	3 032	4 299	4 052	5 401	3 513
Germany	—	—	* 10	* 10	12
Greece	1 571	2 839	2 333	3 440	3 313
North Macedonia	972	767	593	448	500
Poland	572	523	674	878	768
Romania	961	* 500	* 500	* 500	* 500
Russia	270 300	279 900	305 100	308 600	313 830
Serbia (a)	1 199	839	1 452	1 550	4 796
Slovakia	447	515	346	336	392
Spain	1 605	1 991	1 913	1 602	1 400
Sweden	7 858	7 866	7 972	8 249	8 805
Turkey	23 090	28 000	38 000	42 100	39 290
United Kingdom	—	—	* 50	28	79
Algeria	137	286	70	58	71
Angola	—	—	23	59	35
Benin	* 5	* 5	* 5	* 5	* 5
Botswana	913	1 105	942	851	650
Burkina Faso	46 436	52 898	51 500	(x) 62 470	(x) 66 000
Burundi	1 742	1 898	1 599	863	847
Cameroon	713	478	341	* 450	* 450
Central African Republic	118	142	359	401	858
Congo	* 150	* 150	* 150	* 150	* 150
Congo, Democratic Republic	* 37 100	* 43 800	* 43 000	* 40 000	* 42 000
Egypt	16 941	14 694	14 946	14 069	12 919
Equatorial Guinea	* 200	* 200	* 200	* 200	* 200
Eritrea	* 2 700	* 3 700	* 3 700	* 3 800	* 4 600
Eswatini (Swaziland)	—	12	6	1	—
Ethiopia (b)(c)	4 704	2 570	3 180	3 320	9 560
Gabon	600	83	107	110	* 100
Ghana	133 303	149 216	146 780	125 874	87 677
Guinea	46 847	25 823	27 708	91 800	99 371
Ivory Coast	25 395	24 488	32 568	38 523	41 800
Kenya	503	472	395	150	292
Liberia	6 071	7 289	5 068	4 396	7 860
Madagascar	2 833	(e) 3 000	(e) 2 100	(e) 1 500	(e) —
Mali	* 51 500	* 61 000	* 63 000	* 65 000	* 69 400
Mauritania	9 096	9 235	13 554	14 125	6 302
Morocco (a)	220	386	221	143	147
Mozambique	166	507	430	488	764
Namibia	7 469	6 632	6 526	6 254	7 103
Niger	914	6 207	5 224	2 361	4 010
Nigeria (c)	* 19 000	* 18 000	* 9 000	* 5 000	* 3 000
Rwanda (c)	* 8 800	* 18 100	* 11 400	11 532	* 6 500
Senegal	11 700	14 900	16 100	14 600	18 800
Sierra Leone	142	464	75	14	92
South Africa	136 833	117 150	105 185	95 786	105 019
South Sudan	* 200	* 200	* 200	* 200	* 200
Sudan	107 300	93 600	55 400	35 700	49 700
Tanzania	43 489	39 304	48 408	55 508	59 638
Togo (c)	* 20 000	* 10 000	* 10 000	* 10 000	* 10 000
Uganda	4	12	10	* 7	* 7
Zambia (d)	4 373	4 044	4 522	3 994	3 987
Zimbabwe	23 929	35 054	29 429	20 873	31 477

Mine production of gold

kilograms

Country	2017	2018	2019	2020	2021
Canada	171 111	194 155	182 783	182 352	222 524
Costa Rica	4 255	3 699	4 500	599	600
Dominican Republic	35 242	31 633	31 801	28 117	25 287
Guatemala	1 647	—	—	—	—
Honduras	2 596	2 148	1 760	1 790	2 574
Mexico	126 820	141 143	133 893	142 787	124 776
Nicaragua	7 367	7 703	9 190	7 935	10 840
Panama	* 100	* 100	1 969	2 733	4 505
USA	236 986	225 528	200 370	193 000	* 187 000
Argentina	60 956	58 397	53 092	34 936	36 487
Bolivia	28 726	31 599	42 040	23 207	45 662
Brazil	80 000	85 000	75 000	82 000	* 90 000
Chile	37 911	37 066	38 455	33 895	34 248
Colombia (d)	43 158	35 965	38 006	48 561	55 534
Ecuador	6 368	8 212	6 293	9 086	12 614
France (French Guiana)	* 8 000	* 10 000	* 10 000	* 10 000	* 11 000
Guyana	20 334	19 069	19 963	18 209	15 522
Peru	151 964	140 211	128 413	88 053	96 586
Suriname	25 844	26 002	24 516	21 959	19 439
Uruguay (e)	1 062	465	—	—	—
Venezuela	* 16 770	10 785	* 9 100	* 9 000	* 9 000
China (a)	426 142	401 119	380 230	365 340	329 000
India (a)	1 651	1 664	1 724	1 127	* 1 060
Indonesia	99 030	111 858	108 690	65 890	102 611
Iran (f)	7 100	* 7 600	* 8 140	* 6 919	* 7 000
Japan	6 369	6 453	6 312	7 590	6 225
Kazakhstan	85 339	100 299	106 559	116 964	114 843
Korea (Rep. of)	283	239	181	189	162
Korea, Dem. P.R. of	* 10 000	* 10 000	* 10 000	* 10 000	* 10 000
Kyrgyzstan	20 500	19 000	21 200	19 300	20 200
Laos	5 988	5 579	5 207	3 484	3 500
Malaysia	2 124	2 978	3 151	1 716	1 781
Mongolia	19 849	20 655	16 251	20 226	19 100
Myanmar (g)	1 446	1 620	229	716	846
Oman	3	—	—	—	—
Philippines	22 749	20 765	20 646	17 564	25 333
Saudi Arabia	10 333	11 831	12 258	12 715	9 639
Taiwan	4	4	6	3	1
Tajikistan	* 5 500	6 432	8 100	8 764	8 400
Uzbekistan	89 900	92 716	* 93 000	* 100 000	* 105 000
Vietnam	557	570	540	559	664
Australia	292 022	313 028	326 304	327 952	311 580
Fiji	1 425	1 281	1 106	1 090	1 107
New Zealand	10 288	10 045	8 217	5 860	5 815
Papua New Guinea	65 246	67 562	74 386	* 52 500	* 39 500
World total	3 360 000	3 400 000	3 300 000	3 200 000	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) Year ended 30 November of the year stated

(f) Years ended 20 March following that stated

(g) Years ended 31 March following that stated

Production of graphite

tonnes (metric)

Country	2017	2018	2019	2020	2021
Austria (a)(b)	24 400	25 000	20 000	16 500	* 17 000
Germany	422	222	207	108	181
Norway	* 9 600	* 9 600	* 9 600	* 9 000	* 9 000
Russia	25 200	17 800	18 000	25 000	* 27 000
Turkey	—	16 752	9 990	15 205	28 336
Ukraine	14 855	* 15 000	* 15 000	16 000	17 000
Madagascar	12 852	54 587	45 106	61 405	* 98 000
Mozambique	802	106 773	113 803	18 159	77 116
Namibia	2 216	3 456	—	—	—
Zimbabwe	1 577	174	* 150	* 300	* 200
Canada	14 000	11 000	11 000	8 841	7 706
Mexico	10 310	4 130	2 342	2 033	1 778
Brazil (c)	90 000	* 95 000	* 96 000	* 95 000	* 95 000
China (d)	* 625 000	* 693 000	* 700 000	* 762 000	* 820 000
India (a)(e)	33 649	39 030	31 991	30 168	* 27 900
Korea, Dem. P.R. of	* 140 000	* 40 000	* 40 000	* 30 000	* 40 000
Pakistan (f)	—	1 840	—	* —	* —
Sri Lanka	3 769	* 3 800	* 4 000	* 4 000	* 4 000
World total	1 000 000	1 100 000	1 100 000	1 100 000	1 300 000

Note(s)

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

- (a) Crude
- (b) Sales
- (c) Including beneficiated and directly shipped material
- (d) Including flake graphite
- (e) Years ended 31 March following that stated
- (f) Years ended 30 June of that stated

Production of gypsum

tonnes (metric)

Country	2017	2018	2019	2020	2021
Albania	104 120	102 016	106 070	111 880	116 295
Armenia	14 300	20 400	22 900	29 000	28 000
Austria (a)	712 469	836 862	900 217	900 619	900 374
Azerbaijan	33 037	12 043	14 675	297 594	416 892
Bosnia & Herzegovina (a)	99 001	122 421	130 778	140 994	297 225
Bulgaria	88 000	* 88 000	* 88 000	* 88 000	* 88 000
Croatia	200 932	267 155	279 719	308 214	376 510
Cyprus	703 079	625 721	623 545	646 340	661 175
Czech Republic	7 000	8 000	10 000	17 000	17 000
France (a)(b)	1 873 581	2 836 329	1 950 850	1 891 190	* 1 900 000
Georgia	85 468	91 699	137 831	87 655	79 515
Germany (a)	4 450 000	4 550 000	4 850 000	5 200 000	5 470 000
Greece (a)	855 000	827 300	840 000	780 000	900 000
Hungary	1 564	1 280	1 185	—	1 043
Ireland, Republic of	* 200 000	* 200 000	* 200 000	150 000	110 000
Italy (a)	469 044	188 618	298 242	163 749	165 000
Latvia	374 381	430 650	428 460	483 279	516 638
Moldova (c)	* 300 000	* 300 000	* 300 000	* 300 000	* 300 000
North Macedonia (a)	217 491	230 029	267 181	229 322	273 497
Norway (a)(b)	87 891	89 655	102 100	93 602	92 794
Poland (a)	1 108 000	1 120 344	1 150 000	1 132 368	1 509 669
Portugal	152 059	232 921	209 076	210 231	254 913
Romania	813 520	799 810	878 546	925 782	952 617
Russia	* 4 000 000	* 3 800 000	* 5 500 000	* 4 200 000	* 4 200 000
Slovakia (a)	45 700	55 000	50 000	65 560	66 760
Spain	9 545 228	10 593 056	11 279 443	13 376 353	14 370 558
Switzerland	* 330 000	* 330 000	* 330 000	* 320 000	* 320 000
Turkey	10 223 112	10 896 476	7 489 129	9 280 864	10 620 061
Ukraine (a)	1 528 900	1 386 400	1 409 400	1 529 000	* 1 500 000
United Kingdom	* 1 300 000	* 1 400 000	* 1 600 000	* 1 300 000	* 2 400 000
Algeria	2 200 000	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)	835 614	72 737	* 75 000	* 75 000	* 80 000
Eritrea	* 19 000	* 20 000	* 26 000	* 26 000	* 26 000
Ethiopia (e)	74 299	52 503	53 897	* 53 000	* 53 000
Guinea	* 200 000	* 200 000	* 200 000	* 200 000	* 200 000
Kenya (a)	* 5 800	* 5 800	* 5 800	* 5 800	* 5 800
Libya	328 000	310 000	* 210 000	* 200 000	* 200 000
Madagascar	* 130	* —	* —	* —	* —
Mauritania	* 70 000	* 70 000	* 70 000	* 70 000	* 70 000
Morocco	* 600 000	* 600 000	* 600 000	* 600 000	* 600 000
Niger	3 395	507	6 211	9 083	27 003
Nigeria	* 35 000	39 052	22 300	30 706	13 401
South Africa	317 990	313 909	277 102	205 542	273 241
Sudan	333 000	226 000	236 000	173 000	136 000
Tanzania	123 645	241 259	256 529	443 926	598 053
Tunisia	944 245	984 031	1 046 885	890 000	* 910 000
Uganda	60	—	—	—	* —
Canada (a)	3 010 000	3 246 000	2 446 000	2 915 270	3 135 484
Cuba	85 400	99 900	66 300	62 300	53 200
Dominican Republic	94 595	82 896	137 143	132 575	143 318
Guatemala	135 154	132 897	140 901	423 282	138 552
Honduras	* 70 500	* 62 200	* 60 000	* 60 000	* 60 000
Jamaica	46 000	47 000	55 391	65 847	65 553
Mexico	7 609 704	11 275 293	7 759 139	7 977 953	* 8 000 000
Nicaragua	66 800	70 341	39 925	64 573	19 999
USA	20 700 000	21 100 000	21 700 000	21 200 000	* 21 700 000
Argentina	1 275 608	897 217	761 023	499 092	* 500 000
Bolivia	* 1 100	* 1 100	* 1 100	* 1 100	* 1 100
Brazil	* 3 000 000	* 3 000 000	* 3 000 000	* 3 000 000	* 3 000 000
Chile	1 157 466	909 191	977 397	910 310	1 007 206
Colombia	406 623	396 372	294 137	284 222	293 185
Paraguay	* 4 500	* 4 500	* 4 500	* 4 500	* 4 500
Peru	286 657	458 479	254 382	171 093	435 009

Production of gypsum

tonnes (metric)

Country	2017	2018	2019	2020	2021
Afghanistan	* 3 000	* 3 000	* 3 000	* 3 000	* 3 000
Bhutan	328 128	461 128	490 596	331 050	403 753
China	* 15 500 000	* 15 500 000	* 15 500 000	* 12 600 000	* 13 000 000
India (f)(g)	2 223 870	* 2 151 727	* 2 000 000	* 2 000 000	* 2 000 000
Iran (h)	13 476 148	13 852 269	16 147 297	18 588 699	* 18 600 000
Iraq	* 1 000 000	* 1 000 000	* 1 000 000	* 1 000 000	* 1 000 000
Israel	116 000	75 800	72 000	—	—
Japan	* 4 700 000	* 4 700 000	* 4 300 000	* 4 300 000	* 4 300 000
Jordan	344 191	190 606	264 724	184 917	399 968
Kazakhstan	133 200	121 100	78 200	94 500	184 700
Laos	463 039	618 783	606 387	737 749	1 221 959
Mongolia	* 56 000	* 56 000	* 56 000	* 56 000	* 56 000
Myanmar	361 015	309 343	299 316	299 630	64 626
Oman	8 664 700	9 666 700	10 982 900	11 120 200	12 290 200
Pakistan (d)	2 079 629	2 489 000	2 517 825	2 149 872	2 527 215
Saudi Arabia	3 150 000	3 307 000	3 472 000	3 803 000	3 993 000
Sri Lanka	2 213	* 2 200	* 2 200	* 2 200	* 2 200
Syria	* 10 000	* 10 000	* 10 000	* 10 000	* 10 000
Tajikistan	48 800	9 613	10 031	8 183	* 8 100
Thailand					
Gypsum	9 253 951	9 680 429	8 367 700	8 012 293	8 788 841
Anhydrite	1 392 693	1 517 228	1 419 587	1 266 826	1 614 157
Uzbekistan	* 80 000	323 809	279 432	288 657	303 938
Yemen, Republic of	* 12 500	* 9 500	* 11 500	* 11 500	* 11 500
Australia (d)	3 629 716	4 066 464	4 286 774	3 734 078	* 4 170 878
World total	151 200 000	160 200 000	157 100 000	158 300 000	168 300 000

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) Sales

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

(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	2017	2018	2019	2020	2021
Poland	4	4	4	4	4
Russia	5	5	5	5	* 5
Algeria	14	14	14	14	* 14
USA	81	76	72	76	* 71
Qatar	45	45	45	51	* 51
Australia	* 4	* 4	* 4	* 4	* 4

Refinery production of indium

tonnes (metric)

Country	2017	2018	2019	2020	2021
Belgium	* 20	* 22	* 20	* 20	* 20
France	30	43	* 40	* 38	* 35
Italy	* 5	* 5	* 5	* 5	* 5
Russia	* 7	* 7	* 7	* 7	* 7
Canada	67	* 58	* 61	61	44
Brazil	* 5	* 5	* 5	* 5	* 5
Peru	10	11	12	* 12	* 12
China	478	483	534	* 500	* 500
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	2017	2018	2019	2020	2021
Azerbaijan	198 400	185 100	190 300	182 800	167 500
Russia	7 844	7 895	3 112	* 3 000	* 3 000
USA	* 1 150 000	* 1 150 000	* 1 150 000	* 1 150 000	* 1 150 000
Chile	17 976 000	20 216 000	20 826 000	21 941 000	19 194 000
China	* 600 000	* 600 000	* 600 000	* 600 000	* 600 000
Indonesia	* 34 000	* 38 000	* 40 000	* 31 000	* 30 000
Iran (a)	400 000	368 000	682 000	1 086 300	* 400 000
Japan	8 839 000	9 136 000	9 122 000	8 876 000	9 221 000
Turkmenistan	544 000	* 540 000	* 600 000	* 600 000	* 600 000
Uzbekistan	* 2 000	—	—	—	—
World total	29 800 000	32 200 000	33 200 000	34 500 000	31 400 000

Note(s)

(a) Years ended 20 March following that stated

Production of iron ore

tonnes (metric)

Country	2017	2018	2019	2020	2021
Austria (a)	2 981 737	2 803 536	3 242 102	3 043 237	3 311 102
Bosnia & Herzegovina	1 621 907	1 380 488	1 450 205	1 427 410	1 553 961
Germany (b)(c)	447 300	448 000	533 700	529 400	400 000
Norway	1 622 477	1 700 000	1 800 000	* 1 800 000	* 1 600 000
Russia	95 000 000	96 100 000	97 500 000	100 200 000	100 600 000
Spain	—	—	—	20 000	50 000
Sweden	31 763 000	35 774 000	38 913 000	39 228 000	41 313 000
Turkey	9 992 455	15 650 305	14 473 363	21 454 649	16 051 308
Ukraine	60 574 000	60 549 000	76 134 000	78 837 700	* 79 000 000
Algeria	* 830 000	* 830 000	* 830 000	* 830 000	* 830 000
Egypt (d)	565 000	557 000	107 000	* 100 000	* 100 000
Guinea	—	—	—	644 245	1 752 558

Production of iron ore

tonnes (metric)

Country	2017	2018	2019	2020	2021
Liberia	1 604 763	4 657 155	4 428 645	4 874 409	5 000 000
Malawi	5 000	2 563	3 000	5 018	4 980
Mauritania	11 813 000	10 710 305	12 196 491	12 515 312	12 618 000
Morocco	100 000	51 000	* 50 000	* 50 000	* 50 000
Namibia	2 450	3 824	15 646	66 164	75 718
Nigeria	* 1 550	1 582	160	127	3 078
Sierra Leone	6 531 460	968 585	722 305	—	1 584 115
South Africa (e)	74 643 475	74 263 738	72 430 288	55 635 421	73 090 918
Tunisia	197 965	175 853	186 519	172 919	266 400
Uganda	2 320	4 500	—	—	* —
Canada (f)	51 836 000	52 358 000	59 013 000	60 059 572	57 491 803
Guatemala	6 360	6 172	69	62	* 60
Mexico	17 746 262	21 244 460	26 089 068	27 208 553	* 27 500 000
USA (f)(g)	47 900 000	49 500 000	46 900 000	38 100 000	48 700 000
Bolivia	38 330	71 662	79 023	26 576	29 322
Brazil	453 703 525	450 393 000	396 841 000	387 990 000	430 550 725
Chile	15 426 000	14 013 000	13 137 000	15 553 000	17 685 000
Colombia	712 868	575 542	666 715	786 641	749 890
Peru	8 806 452	9 533 871	10 120 007	8 893 972	12 149 274
Venezuela	4 601 000	3 058 697	2 600 000	1 500 000	* 1 000 000
Bhutan	32 974	37 843	36 864	14 734	25 917
China	1 229 373 000	763 374 000	844 356 000	* 845 000 000	* 850 000 000
India (h)	201 426 000	206 446 000	246 081 000	204 481 000	* 198 300 000
Indonesia	1 955 926	1 321 249	3 450 000	* 3 500 000	* 3 500 000
Iran (i)	75 843 536	93 365 420	91 778 118	104 818 915	* 104 900 000
Kazakhstan	38 728 200	41 876 500	45 221 900	62 865 000	64 089 700
Korea (Rep. of)	310 550	380 748	342 346	575 232	538 563
Korea, Dem. P.R. of	4 473 000	* 3 500 000	* 3 000 000	* 2 500 000	* 3 000 000
Laos	250 000	99 196	470 300	1 013 042	3 522 598
Malaysia (g)	3 919 632	3 353 634	4 160 462	5 371 411	4 874 485
Mongolia	7 694 700	6 225 400	8 572 200	9 224 400	9 171 900
Nepal (j)	772	396	267	—	* —
Pakistan (d)	501 664	677 206	627 464	573 691	805 696
Philippines	—	—	—	42 795	77 536
Thailand	135	—	17 660	113 239	324 914
Vietnam	5 515 000	5 588 496	6 106 000	5 239 000	3 651 430
Australia	885 356 738	907 818 648	917 045 579	918 063 223	922 159 323
New Zealand	4 008 000	* 4 000 000	* 4 000 000	* 4 000 000	* 4 000 000
World total	3 360 000 000	2 945 000 000	3 056 000 000	3 029 000 000	3 108 000 000

Note(s)

- (a) Including micaceous iron oxide
- (b) Including manganeseiferous 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	2017	2018	2019	2020	2021
Austria	6 335 000	5 269 000	5 750 000	5 300 000	6 100 000
Azerbaijan	315	—	702	362	1
Belgium	4 860 000	4 900 000	4 800 000	3 600 000	* 4 200 000
Bosnia & Herzegovina	738 476	664 291	744 778	739 058	1 066 238
Czech Republic	3 691 000	4 000 000	3 635 000	3 500 000	3 900 000
Finland	2 600 000	2 700 000	2 300 000	1 900 000	2 500 000
France	10 677 830	10 529 559	9 877 027	7 695 671	9 500 000
Germany	27 816 000	27 271 000	* 25 400 000	* 25 500 000	26 200 000
Hungary	1 311 000	1 355 000	1 151 000	1 000 000	600 000
Italy	(a) 5 052 000	(a) 4 836 000	4 606 000	3 405 000	3 926 000
Netherlands	6 145 000	6 150 000	5 900 000	5 400 000	5 900 000
Norway	74 100	78 800	74 200	* 70 000	* 70 000
Poland	5 159 128	4 787 696	4 241 941	3 502 468	3 594 504
Romania	1 766 958	1 979 200	2 107 300	1 800 000	2 100 000
Russia	52 100 000	51 800 000	51 200 000	52 000 000	* 53 900 000
Serbia	1 340 000	1 593 000	1 577 000	* 1 500 000	* 1 500 000
Slovakia	4 106 000	4 200 000	* 3 100 000	* 3 000 000	* 3 000 000
Spain	4 462 000	4 500 000	3 900 000	2 900 000	4 000 000
Sweden	3 111 000	2 877 000	3 172 000	2 854 000	3 100 000
Turkey	10 589 000	10 536 000	9 900 000	10 000 000	10 400 000
Ukraine	19 797 900	20 531 200	20 055 900	20 238 000	21 200 000
United Kingdom	5 996 500	5 587 900	5 621 700	5 235 500	5 749 600
Algeria	300 000	100 000	1 500 000	2 200 000	3 100 000
Egypt	4 700 000	5 800 000	4 400 000	4 800 000	5 400 000
Libya	561 956	611 763	880 470	834 550	900 000
South Africa	5 277 000	5 400 000	4 500 000	2 300 000	3 100 000
Canada	7 914 000	8 100 000	7 700 000	6 400 000	7 800 000
Mexico	10 256 000	10 511 000	9 819 000	7 606 000	* 8 414 000
USA	22 395 000	24 058 000	22 301 000	21 700 000	* 23 400 000
Argentina	3 402 000	3 790 000	3 050 000	2 455 000	3 500 000
Brazil	32 392 000	32 765 000	30 901 000	29 655 000	28 500 000
Chile	670 000	661 000	595 000	663 000	700 000
Colombia	203 000	205 000	207 000	164 000	211 000
Paraguay (b)	38 000	39 000	41 000	35 000	* 44 000
Venezuela	491 000	442 000	393 000	285 000	290 000
Bahrain	1 260 000	1 600 000	1 450 000	1 400 000	* 1 400 000
China	713 619 300	779 876 300	809 365 000	888 976 100	868 600 000
India	96 313 000	106 823 000	111 574 000	101 400 000	116 600 000
Indonesia	2 572 000	2 967 000	3 020 000	* 3 100 000	* 3 000 000
Iran	21 694 000	28 100 000	31 000 000	33 300 000	32 500 000
Japan	78 329 729	77 327 888	74 907 006	61 600 469	70 344 478
Kazakhstan	3 766 322	3 174 116	3 208 744	3 212 375	3 623 764
Korea (Rep. of)	47 100 000	47 124 000	47 521 000	45 359 000	46 440 000
Korea, Dem. P.R. of	* 250 000	* 200 000	* 150 000	* 100 000	* 150 000
Malaysia	952 000	1 230 000	4 467 000	* 700 000	* 700 000
Oman	1 526 000	1 500 000	1 750 000	1 800 000	1 700 000
Qatar	2 548 000	2 525 000	2 423 000	752 569	800 000
Saudi Arabia	4 812 000	5 000 000	4 700 000	5 200 000	6 100 000
Taiwan	14 361 000	14 841 000	14 510 000	13 400 000	15 200 000
United Arab Emirates	3 608 000	3 784 000	3 700 000	3 000 000	3 700 000
Vietnam	4 250 000	8 323 000	9 836 000	* 10 000 000	* 10 000 000
Australia	3 758 000	3 882 000	3 664 000	3 700 000	3 800 000
New Zealand	683 000	700 000	672 000	600 000	700 000
World total	1 268 000 000	1 358 000 000	1 383 000 000	1 418 000 000	1 443 000 000

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	2017	2018	2019	2020	2021
Austria	8 134 600	6 885 000	7 423 500	6 765 100	7 920 000
Azerbaijan	387 258	381 617	325 895	264 506	304 077
Belarus	2 432 580	2 572 862	2 717 705	2 559 577	2 390 000
Belgium	7 842 300	7 980 000	7 760 000	6 120 000	6 910 000
Bosnia & Herzegovina	734 518	677 443	800 600	740 194	774 832
Bulgaria	652 400	666 100	565 900	483 800	547 500
Croatia	—	135 800	69 126	45 273	185 143
Czech Republic	4 553 000	4 966 000	4 600 000	2 900 000	4 700 000
Finland	4 003 634	4 100 000	3 511 000	3 482 000	4 322 000
France	15 504 683	15 387 355	14 449 651	11 595 698	13 946 700
Germany	43 297 000	42 435 000	39 667 000	35 658 000	40 000 000
Greece	1 359 000	1 467 000	1 350 000	1 408 000	1 498 000
Hungary	1 900 000	1 989 000	1 769 000	1 513 000	1 099 800
Italy	24 007 000	24 496 000	23 190 000	20 379 000	24 413 000
Luxembourg	2 172 000	2 228 000	2 119 000	1 886 000	2 073 000
Moldova (a)	469 000	497 200	392 100	465 000	570 000
Montenegro	27 638	26 552	24 262	19 364	3 042
Netherlands	6 781 300	6 813 000	6 656 900	6 053 700	6 620 400
North Macedonia	271 287	269 658	262 144	236 520	271 811
Norway	603 100	574 600	620 800	623 800	622 500
Poland	10 540 354	10 336 483	9 123 107	7 855 900	8 552 506
Portugal	2 075 900	2 215 300	2 032 800	2 202 800	1 953 000
Romania	3 442 786	3 529 286	3 421 199	2 818 866	3 375 000
Russia	72 968 168	74 144 495	73 740 141	* 74 600 000	* 77 850 000
Serbia	1 476 700	1 973 400	1 929 400	1 455 700	1 667 400
Slovakia	4 980 000	4 947 000	3 931 000	3 444 000	4 863 000
Slovenia	648 400	653 800	623 200	585 200	661 900
Spain	14 440 900	14 320 500	13 587 700	10 998 400	14 185 400
Sweden	4 926 500	4 655 100	4 721 100	4 408 700	4 678 300
Switzerland	1 569 963	1 561 826	1 325 000	1 175 000	1 200 000
Turkey	37 523 900	37 311 700	33 743 100	35 810 300	40 360 000
Ukraine	21 417 300	21 100 500	20 848 200	20 616 400	21 365 600
United Kingdom	7 491 300	7 267 700	7 218 100	7 085 700	7 221 600
Algeria	415 000	2 300 000	* 2 400 000	* 4 000 000	* 4 000 000
Angola	250 000	275 000	290 000	250 000	275 000
Congo, Democratic Republic	* 30 000	* 30 000	* 30 000	* 30 000	* 30 000
Egypt	6 870 100	7 806 800	7 257 000	8 228 700	10 293 500
Ghana	* 250 000	* 250 000	* 250 000	* 250 000	* 250 000
Kenya	350 000	375 000	400 000	385 000	485 000
Libya	421 648	396 342	606 153	538 176	651 700
Mauritania	* 5 000	* 5 000	* 5 000	* 5 000	* 5 000
Morocco	550 000	520 000	500 000	320 000	500 000
Nigeria	* 600 000	* 650 000	* 650 000	* 650 000	* 650 000
South Africa	6 301 200	6 327 300	6 151 700	3 876 500	5 019 500
Tunisia	80 000	80 000	* 60 000	* 60 000	* 80 000
Uganda	* 30 000	* 30 000	* 30 000	* 30 000	* 30 000
Zimbabwe	1 294	1 322	3 583	5 196	* 4 800
Canada	13 208 000	13 443 100	12 897 000	11 078 000	12 770 000
Cuba	221 000	225 400	229 900	185 200	* 230 800
Dominican Republic	* 60 000	* 60 000	* 60 000	* 60 000	* 60 000
El Salvador	96 000	99 000	102 000	82 000	103 000
Guatemala	293 800	299 700	305 700	242 600	306 900
Mexico	19 995 000	20 440 000	18 692 000	16 802 000	* 18 761 000
USA	81 612 000	86 607 400	87 761 200	72 732 100	* 85 800 000
Argentina	4 624 173	5 161 700	4 644 500	3 651 100	4 875 300
Brazil	34 778 000	35 407 000	32 569 000	31 415 000	36 039 400
Chile	1 158 000	1 145 000	1 133 000	1 157 000	1 326 000
Colombia	1 252 800	1 219 000	1 332 800	1 148 900	1 314 000
Ecuador	561 000	583 400	606 800	482 200	611 600
Paraguay	24 300	25 300	26 300	23 300	* 26 000
Peru	1 207 000	1 217 000	1 230 000	731 000	1 234 000
Uruguay	57 800	60 000	62 300	49 100	62 800
Venezuela	443 800	129 000	50 800	29 200	29 400

Production of crude steel

tonnes (metric)

Country	2017	2018	2019	2020	2021
China	870 740 900	929 038 400	996 342 000	1 064 766 800	1 032 790 000
India (b)	112 783 000	131 573 000	102 058 000	95 122 000	* 93 800 000
Indonesia	5 195 100	6 183 000	8 564 800	12 871 400	14 300 000
Iran (c)	18 143 471	19 344 198	20 626 585	22 630 000	21 660 000
Israel	* 300 000	* 300 000	* 300 000	* 300 000	* 300 000
Japan	104 661 087	104 318 836	99 284 114	83 186 485	96 032 787
Jordan	* 330 000	* 350 000	* 350 000	* 350 000	* 350 000
Kazakhstan	4 657 009	4 005 982	4 130 601	4 009 402	4 526 071
Korea (Rep. of)	71 080 000	72 464 000	71 411 000	67 082 000	70 418 000
Korea, Dem. P.R. of	* 1 090 000	* 810 000	* 800 000	* 700 000	* 700 000
Kuwait	* —	* 1 300 000	* 1 270 000	* 1 300 000	* 1 300 000
Malaysia	3 772 057	4 108 500	6 948 500	6 618 500	6 900 000
Mongolia	* 50 000	* 50 000	* 50 000	* 50 000	* 50 000
Myanmar	* 250 000	* 300 000	* 350 000	* 350 000	* 400 000
Pakistan	* 4 966 000	* 4 719 000	* 3 304 000	* 3 803 000	* 5 282 700
Philippines	1 377 600	1 474 800	1 915 000	892 300	1 800 000
Qatar	2 645 000	2 575 000	2 558 000	1 218 100	1 001 800
Saudi Arabia	4 831 400	8 187 000	8 191 000	7 775 000	8 735 000
Singapore	595 500	618 200	766 300	405 600	571 800
Sri Lanka	* 30 000	* 30 000	* 30 000	* 30 000	* 30 000
Syria	* 5 000	* 5 000	* 5 000	* 5 000	* 5 000
Taiwan	21 370 000	22 290 000	21 322 000	20 498 000	22 140 000
Thailand	6 761 800	6 402 500	4 246 000	4 467 200	5 472 900
United Arab Emirates	3 309 300	3 247 500	3 326 600	2 722 000	3 000 000
Uzbekistan	654 000	646 000	666 000	939 200	885 000
Vietnam	11 473 000	15 471 000	17 469 000	19 900 000	23 019 200
Australia	5 335 000	5 775 000	5 493 000	5 489 000	5 808 000
New Zealand	657 500	651 800	667 100	585 700	645 700
World total	1 741 000 000	1 840 000 000	1 857 000 000	1 863 000 000	1 915 000 000

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 31 March following that stated
- (c) Years ended 20 March following that stated

Production of ferro-alloys

tonnes (metric)

Country	2017	2018	2019	2020	2021
Albania					
Ferro-chrome	23 987	92 850	66 402	53 543	103 700
Armenia					
Ferro-molybdenum	6 588	7 279	7 712	6 718	8 335
Austria					
Ferro-molybdenum	4 000	4 000	4 000	3 000	3 000
Ferro-nickel	2 500	2 500	2 500	2 500	2 500
Ferro-vanadium	8 000	7 000	7 000	7 000	7 000
Bosnia & Herzegovina					
Ferro-alloys	30 473	31 460	31 911	14 641	35 920
Czech Republic					
Ferro-vanadium	* 6 600	* 6 400	* 6 700	* 5 600	* 6 900
Finland					
Ferro-chrome	415 000	497 000	505 000	498 000	515 000
France					
Ferro-manganese	95 442	125 383	* 115 000	* 68 000	* 68 000
Ferro-silico-manganese	58 443	56 652	* 68 000	* 62 000	* 62 000
Ferro-silicon	* 50 000	* 50 000	* 48 000	* 41 000	* 41 000
Silicon metal	149 000	* 138 000	* 105 000	* 87 000	* 87 000
Georgia					
Ferro-manganese	* 4 500	* 4 500	* 4 500	* 4 500	* 4 500
Ferro-silico-manganese	289 765	335 013	291 608	217 463	322 877
Germany					
Ferro-chrome	29 000	31 000	26 000	* 11 000	* 12 000
Silicon metal	31 915	28 058	29 606	30 234	31 318
Other ferro-alloys	* 8 200	* 8 200	* 8 200	* 8 000	* 8 000
Greece					
Ferro-nickel	86 136	82 615	62 251	30 518	19 394
Iceland					
Ferro-silicon	116 811	116 889	120 255	128 187	123 800
Italy					
Ferro-silico-manganese	91 000	91 000	* 90 000	* 90 000	* 90 000
Kosovo					
Ferro-nickel	* 23 000	* 6 000	* 7 200	* 7 000	* 5 000
North Macedonia					
Ferro-nickel	7 175	10 100	15 202	17 747	17 714
Ferro-silicon	21	185	117	—	—
Norway					
Ferro-manganese	400 800	327 600	* 330 000	* 330 000	* 330 000
Ferro-silico-manganese	* 284 500	* 330 000	* 290 000	* 260 000	* 310 000
Ferro-silicon	(a) 240 813	(a) 265 964	* 200 000	* 260 000	* 240 000
Silicon metal	* 160 000	* 190 000	* 200 000	* 210 000	* 200 000
Poland					
Ferro-manganese	66	—	* —	* —	* —
Ferro-silicon	65 732	63 618	65 523	61 709	73 370
Other ferro-alloys	24 800	33 250	16 815	38 104	31 170
Russia					
Spiegeleisen	* 7 000	* 7 000	* 7 000	* 7 000	* 7 000
Ferro-chrome	434 452	332 261	384 089	* 390 000	* 390 000
Ferro-silico-chrome	* 4 200	* 4 200	* 4 200	* 4 200	* 4 200
Ferro-manganese	253 000	281 000	273 000	* 240 000	* 240 000
Ferro-silico-manganese	44 917	43 334	51 774	* 50 000	* 50 000
Ferro-molybdenum	4 726	* 4 700	* 4 700	* 4 700	* 4 700
Ferro-nickel	* 20 000	* 20 000	* 20 000	* 20 000	* 20 000
Ferro-silicon	840 352	928 797	846 579	* 830 000	* 830 000
Ferro-vanadium	12 588	11 383	10 894	* 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	41 300	32 300	26 200	24 000	30 900
Ferro-silico-manganese	40 100	37 200	49 900	33 800	48 600
Ferro-silicon	44 600	44 100	29 400	29 600	34 700
Other ferro-alloys	2 700	1 300	2 100	1 200	1 500
Spain					
Ferro-manganese	132 100	86 200	55 500	28 000	* 25 000
Ferro-silico-manganese	138 700	156 100	98 400	83 000	* 83 000
Ferro-silicon	95 000	95 000	90 000	77 000	83 000
Silicon metal	7 500	7 500	7 500	5 000	5 800

Production of ferro-alloys

tonnes (metric)

Country	2017	2018	2019	2020	2021
Sweden					
Ferro-chrome	114 101	106 486	120 000	* 120 000	* 120 000
Turkey					
Ferro-chrome	83 894	91 799	81 743	94 200	100 750
Ferro-silicon	* 7 500	* 7 500	* 7 500	* 5 000	* 5 800
Ukraine					
Ferro-manganese	211 124	155 869	172 508	117 215	* 117 000
Ferro-silico-manganese	875 031	912 300	858 708	* 850 000	* 850 000
Ferro-nickel	74 459	79 537	79 334	73 700	* 74 000
Ferro-silicon	118 371	97 084	* 97 000	* 97 000	* 97 000
Other ferro-alloys	87 094	100 764	* 100 000	* 100 000	* 100 000
Egypt (b)					
Ferro-silicon	63 719	* 60 500	* 60 500	* 60 000	* 60 000
Other ferro-alloys	22 871	* 20 000	* 20 000	* 20 000	* 20 000
Gabon					
Ferro-silico-manganese	21 300	42 900	43 000	37 000	* 22 000
South Africa					
Ferro-alloys	4 058 305	4 081 452	3 806 766	2 984 105	3 478 867
Zimbabwe					
Ferro-chrome	(a) 328 386	(a) 315 685	308 593	* 134 000	306 847
Canada					
Ferro-niobium	6 981	* 7 400	* 6 600	* 6 200	* 7 400
Ferro-silicon	* 40 000	* 36 000	* 37 000	* 34 000	* 30 000
Ferro-vanadium	* 1 000	* 1 000	* 1 200	* 1 300	* 1 100
Silicon metal	28 300	* 34 000	* 34 000	* 25 000	* 30 000
Dominican Republic					
Ferro-nickel	43 894	53 697	78 662	59 211	75 887
Mexico					
Ferro-manganese	90 010	95 349	72 937	57 127	71 637
Ferro-silico-manganese	148 142	151 991	154 209	147 784	170 929
USA					
Ferro-silicon & silicon metal	415 000	430 000	310 000	277 000	411 000
Argentina					
Ferro-silico-manganese	* 10 000	* —	* —	* —	* —
Ferro-silicon	* 13 000	* 13 000	* 13 000	* 11 200	* 13 000
Brazil					
Ferro-chrome (c)	171 531	175 061	136 780	254 346	300 000
Ferro-silico-magnesium	* 20 000	* 20 000	* 20 000	* 20 000	* 20 000
Ferro-manganese	149 000	168 000	151 000	73 000	71 000
Ferro-nickel (d)	43 800	42 310	45 543	* 46 000	41 700
Ferro-niobium	58 690	* 60 000	* 60 000	* 60 000	* 60 000
Ferro-silicon	* 100 000	* 100 000	* 100 000	* 100 000	* 100 000
Silicon metal	183 067	230 193	214 051	203 940	* 200 000
Other ferro-alloys	* 40 000	* 40 000	* 40 000	* 40 000	* 40 000
Chile					
Ferro-molybdenum	* 14 500	* 14 500	* 14 500	* 14 500	* 14 500
Colombia					
Ferro-nickel	116 016	* 123 000	* 116 000	* 103 000	* 109 000
Venezuela					
Ferro-manganese	* 12 000	* 6 000	* 6 000	* 6 000	* 6 000
Ferro-silico-manganese	* 14 000	* 7 000	* 7 000	* 7 000	* 7 000
Ferro-nickel	* 50 000	* 25 000	* 25 000	* 25 000	* 25 000
Ferro-silicon	* 80 000	* 40 000	* 40 000	* 40 000	* 40 000
Bhutan					
Ferro-silicon	* 109 000	* 120 900	* 138 900	* 103 500	* 130 400
China					
Ferro-alloys	32 887 000	31 234 000	36 577 000	* 36 000 000	* 36 000 000
Silicon metal	2 204 700	2 404 500	* 2 400 000	* 2 400 000	* 2 400 000

Production of ferro-alloys

tonnes (metric)

Country	2017	2018	2019	2020	2021
India (e)					
Ferro-aluminium	4 423	2 752	1 461	1 119	* 1 100
Ferro-chrome	944 000	944 000	921 000	868 000	* 855 300
Ferro-silico-magnesium	15 978	19 180	14 173	9 700	* 9 700
Ferro-manganese	518 000	518 000	—	—	—
Ferro-silico-manganese	311 326	342 591	320 594	329 295	* 328 000
Ferro-molybdenum	1 205	1 003	527	428	* 430
Ferro-silicon	90 000	90 000	—	—	—
Ferro-titanium	281	118	121	249	* 210
Ferro-vanadium	1 331	1 013	665	634	* 610
Indonesia					
Ferro-silico-manganese	* 6 000	* 5 000	* 4 000	* 4 000	* 13 000
Ferro-nickel	108 810	124 340	128 565	129 850	129 090
Iran (f)					
Ferro-chrome	* 8 000	* 8 000	* 8 000	* 8 000	* 8 000
Ferro-silicon	* 50 000	* 70 000	* 70 000	* 60 000	* 60 000
Japan					
Ferro-manganese	456 460	456 518	462 740	400 331	440 173
Ferro-nickel	312 324	339 844	337 790	234 505	243 275
Other ferro-alloys	79 809	73 094	74 015	49 544	54 275
Kazakhstan					
Ferro-chrome	1 640 299	1 772 508	1 858 130	1 841 309	1 704 561
Ferro-silico-chrome	110 497	* 110 500	* 110 500	* 110 500	* 110 500
Ferro-silico-manganese	123 977	137 710	123 528	122 743	132 119
Ferro-silicon	60 001	65 405	79 930	180 645	* 180 000
Korea (Rep. of)					
Ferro-manganese	* 355 000	* 355 000	* 355 000	* 355 000	* 355 000
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	* 30 000	* 41 000	* 46 000	* 15 300	* 37 000
Myanmar					
Ferro-nickel (e)	64 462	62 367	54 247	76 347	52 970
Australia					
Ferro-manganese & ferro-silico-manganese (b)	245 000	275 000	257 000	* 270 000	* 270 000
Silicon metal	* 49 000	* 42 000	* 52 000	* 45 000	* 45 000
New Caledonia					
Ferro-nickel	269 961	260 206	247 746	236 421	205 108

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) Including ferro-silico-chrome
(d) Nickel content
(e) Years ended 31 March following that stated
(f) Years ended 20 March following that stated

Production of kaolin

tonnes (metric)

Country	2017	2018	2019	2020	2021
Austria	* 13 500	17 641	16 176	23 230	* 23 000
Belgium	* 300 000	* 300 000	* 300 000	* 300 000	* 300 000
Bosnia & Herzegovina	252 959	303 626	118 005	108 174	62 599
Bulgaria	321 800	* 322 000	* 322 000	* 322 000	719 213
Czech Republic (a)	676 000	653 000	629 000	626 000	645 000
France (b)	223 842	264 606	* 220 000	197 817	* 200 000
Germany (c)	1 109 000	1 004 000	877 000	775 000	864 000
Hungary	—	—	—	743	1 952
Italy	* 180 000	* 180 000	* 180 000	* 180 000	* 180 000
Poland (d)	143 700	154 314	151 840	118 000	315 040
Portugal	307 982	374 029	335 354	320 655	387 223
Russia	1 593 000	1 593 000	1 530 000	* 1 550 000	* 1 550 000
Serbia	255 000	279 000	254 000	234 000	249 000
Slovakia	21 400	34 400	25 000	30 960	39 000
Spain (d)	475 074	474 462	267 602	274 137	291 631
Turkey	1 362 799	1 515 609	1 283 776	1 224 746	1 748 014
Ukraine	2 379 636	2 091 525	1 843 561	1 680 891	* 1 600 000
United Kingdom	* 970 000	* 996 000	* 715 000	* 635 000	* 735 000
Algeria	* 100 000	* 100 000	* 100 000	* 100 000	* 100 000
Burkina Faso	37	42	* 40	* 40	* —
Egypt	* 232 000	* 230 000	* 230 000	* 230 000	* 230 000
Eritrea	* 200	* 200	* —	* —	* —
Ethiopia (e)	* 5 000	* 10 000	* 1 000	* 1 000	* 1 000
Kenya	* 1 600	* 1 600	* 1 600	* 1 600	* 1 600
Madagascar	* 220	* 220	* 220	* 200	* 200
Nigeria	46 935	11 707	8 649	7 033	23 530
South Africa	31 295	23 724	27 827	20 639	29 168
Sudan	6 000	11 000	20 600	19 700	3 700
Tanzania	13 816	* 129 383	15 343	98 454	100 950
Uganda	55 317	17 281	10 448	323	* 300
Cuba	1 500	2 700	2 100	2 000	1 400
Guatemala	657	724	* 725	402	* 500
Mexico	325 864	898 246	246 645	1 003 889	* 1 000 000
USA (f)	2 450 000	5 350 000	5 060 000	4 570 000	* 4 100 000
Argentina	19 940	17 000	11 853	20 628	* 21 000
Brazil (b)	1 771 000	1 800 000	1 700 000	1 700 000	* 1 700 000
Chile	60 000	88 262	34 801	38 789	49 533
Colombia	164 077	70 799	96 051	29 371	70 032
Ecuador	548	—	—	—	—
Paraguay	* 6 000	* 6 000	* 6 000	* 6 000	* 6 000
Peru	17 700	16 004	9 208	12 536	13 142
Venezuela	* 3 000	* 3 000	* 3 000	* 3 000	* 3 000
China	* 3 200 000	* 3 200 000	* 5 000 000	* 6 500 000	* 6 400 000
India (g)(h)	131 173	* 74 000	* 74 000	* 74 000	* 74 000
Indonesia	283 291	526 297	1 359 455	629 247	* 650 000
Iran (i)	2 036 670	1 759 079	1 616 216	2 049 715	* 2 100 000
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)	724 194	369 274	317 626	393 236	352 003
Malaysia	540 297	496 219	417 222	301 503	697 593
Oman	218 600	110 300	34 100	58 300	35 400
Pakistan (j)	28 710	19 483	15 978	14 919	12 309
Philippines	* 10 000	* 10 000	* 10 000	* 10 000	* 10 000
Saudi Arabia	206 000	216 000	227 000	213 000	224 000
Sri Lanka	1 941	* 2 000	* 2 000	* 2 000	* 2 000
Taiwan	1 665	20	500	404	30
Thailand (a)	102 659	96 666	80 776	71 051	101 711
Uzbekistan (g)	* 150 000	365 503	526 592	495 801	565 502
Vietnam	* 100 000	* 100 000	* 100 000	* 100 000	* 100 000

Production of kaolin

tonnes (metric)

Country	2017	2018	2019	2020	2021
Australia (j)	217 673	208 088	127 602	170 130	* 187 421
New Zealand	50 424	51 369	50 569	* 51 000	* 51 000
World total	24 000 000	27 000 000	26 700 000	27 700 000	29 000 000

Note(s)

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

- (a) Beneficiated
- (b) Sales
- (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	2017	2018	2019	2020	2021
Bosnia & Herzegovina	7 092	7 347	2 421	3 360	3 679
Bulgaria	16 099	14 723	17 097	19 500	21 400
Finland	—	—	937	1 530	1 494
Georgia	—	—	—	1 124	1 190
Greece	12 600	15 376	14 827	19 656	16 758
Ireland, Republic of	17 083	16 712	16 100	14 401	13 192
Kosovo	5 142	4 694	3 990	4 737	5 241
Montenegro	3 110	3 100	3 480	640	—
North Macedonia	39 635	41 902	43 491	44 928	42 873
Poland	73 530	70 340	69 860	65 660	7 814
Portugal	5 164	18 397	27 852	28 178	30 067
Romania	900	1 200	200	—	—
Russia	204 700	206 100	207 900	200 700	* 200 000
Serbia	3 200	3 230	5 730	5 400	* 5 000
Slovakia	147	114	111	102	101
Spain	3 258	9 936	11 390	11 397	10 965
Sweden	71 112	64 751	68 635	65 402	65 404
Turkey	* 75 000	* 76 000	* 71 500	* 81 500	* 93 700
United Kingdom	(a)* 100	(a)* 100	(b)* 150	(b)* 100	(b)* 100
Morocco	38 009	30 339	32 736	38 162	* 32 000
Namibia	6 577	4 293	5 892	9 181	9 525
Nigeria	* 21 000	* 15 000	* 20 000	* 16 000	* 40 000
South Africa	48 150	35 118	42 936	28 048	31 224
Canada	20 477	17 874	22 824	13 600	17 800
Cuba	* 1 500	* 25 400	* 35 000	* 30 000	* 30 000
Guatemala	4 200	—	377	422	—
Honduras	6 761	9 893	12 308	* 12 300	* 6 000
Mexico	243 022	230 869	372 106	468 486	272 200
USA	310 000	280 000	274 000	297 000	286 000
Argentina	40 135	28 260	42 957	23 008	17 100
Bolivia	113 285	112 140	88 002	64 619	92 767
Brazil	6 157	7 277	6 000	5 400	6 300
Chile	1 562	712	7	1 386	382
Peru	306 784	289 123	308 116	241 548	264 124
China	1 852 200	1 892 173	1 787 400	1 970 000	* 2 000 000
India (c)	173 789	207 067	202 964	217 787	* 182 500
Indonesia	* 7 900	* 11 400	* 10 800	* 6 500	* 7 660
Iran	48 000	49 600	72 500	* 70 000	* 70 000
Kazakhstan	111 200	86 400	55 600	30 300	29 300
Korea (Rep. of)	3 762	2 412	1 933	1 681	1 528
Korea, Dem. P.R. of	32 621	* 20 000	* 25 000	* 25 000	* 25 000
Laos	* 700	* 300	* 300	* 100	* 200
Mongolia	7 400	11 600	14 000	12 400	9 100
Myanmar	(c) 20 322	(c) 45 964	(d) 42 832	(d) 22 710	(d) 25 355
Nepal (e)	3 900	—	—	—	—
Pakistan	3 047	4 822	8 089	4 256	3 930
Tajikistan	57 100	47 141	52 715	33 282	48 058
Uzbekistan	26 000	21 300	19 100	18 400	30 500
Vietnam	* 3 800	* 12 100	* 10 400	* 12 000	* 14 000
Australia	395 190	446 571	500 985	494 271	487 563
World total	4 500 000	4 500 000	4 600 000	4 700 000	4 600 000

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	2017	2018	2019	2020	2021
Austria	* 26 000	* 27 000	* 27 000	* 27 000	* 27 000
Belgium	138 606	138 106	138 618	122 748	155 840
Bosnia & Herzegovina	25	1	—	—	—
Bulgaria	103 105	102 808	102 473	* 100 600	* 101 000
Croatia	* 4 300	* 5 000	* 5 300	* 4 800	* 5 100
Czech Republic	43 000	43 000	43 000	42 000	* 42 000
Estonia	9 606	7 393	8 226	9 925	* 10 000
France	* 70 000	* 70 000	* 70 000	* 60 000	* 70 000
Germany	354 000	315 000	326 000	335 000	310 006
Greece	* 28 000	* 30 000	* 28 000	* 26 000	* 29 000
Ireland, Republic of	17 500	15 000	16 300	12 000	14 000
Italy	173 700	167 500	159 100	152 700	158 300
Netherlands	36 000	36 000	36 000	34 000	* 34 000
Poland	157 000	159 470	158 600	139 800	144 000
Portugal	10 000	9 000	10 000	9 000	* 10 000
Romania	24 000	21 000	20 000	19 000	20 000
Russia	140 000	140 000	141 000	142 000	* 140 000
Serbia	* 15 000	* 14 000	* 16 000	* 14 000	* 15 000
Slovakia	9 000	9 000	9 000	8 000	9 000
Slovenia	12 000	12 000	12 000	11 000	* 12 000
Spain	188 400	190 000	192 000	174 600	* 192 000
Sweden	78 241	75 784	75 327	74 370	73 431
Turkey	* 58 000	* 58 000	* 58 000	* 56 000	* 56 000
Ukraine	33 633	29 755	24 704	24 968	59 100
United Kingdom	309 000	303 000	311 000	315 000	329 000
Algeria	* 9 000	9 000	9 000	8 000	* 9 000
Egypt	* 26 000	* 26 000	* 28 000	* 26 000	* 26 000
Ghana (a)	1 150	1 200	1 000	1 000	13 456
Kenya	1 400	1 000	1 000	1 000	* 1 000
Morocco	8 000	8 000	8 000	7 000	* 7 000
Mozambique (a)	3 828	3 422	3 943	4 200	4 594
Nigeria	* 8 000	* 7 000	* 17 000	* 14 000	* 15 000
Senegal (a)	3 424	3 693	4 121	4 223	4 868
South Africa	* 56 000	* 56 000	* 56 000	* 55 000	* 56 000
Tanzania	—	—	—	* 2 800	* 6 000
Uganda	* 800	* 800	* 800	* 800	* 800
Zambia	4 000	5 004	5 004	4 008	5 004
Canada	274 061	260 956	260 267	189 900	197 400
Costa Rica	10 400	10 000	9 000	8 000	* 10 000
Cuba	5 000	5 000	5 000	5 000	* 5 000
Dominican Republic	* 7 000	* 7 000	* 7 000	* 6 000	* 6 000
Guatemala	* 12 000	* 12 000	* 12 000	* 11 000	* 12 000
Honduras	4 500	* 8 000	* 5 000	* 5 000	* 6 000
Mexico	422 800	433 107	446 889	410 000	426 355
USA (b)	1 140 000	1 140 000	1 170 000	1 150 000	975 000
Argentina	43 600	39 900	27 600	19 200	22 000
Bolivia	1 100	100	1 200	3 200	3 300
Brazil	243 000	250 100	253 700	257 500	265 248
Chile	12 000	15 000	14 000	12 000	* 14 000
Colombia	* 43 000	* 44 000	* 44 000	* 41 000	* 41 000
Peru	15 000	15 000	15 000	10 200	* 13 000
Venezuela	15 600	9 600	8 400	7 000	6 996
China	4 726 200	4 942 947	5 221 500	6 443 071	7 365 000
India	573 000	626 000	599 000	365 000	893 158
Indonesia	* 46 000	* 54 000	* 54 000	* 53 000	* 54 000
Iran	132 000	125 000	122 000	117 000	* 120 000
Israel	25 261	28 700	24 090	23 946	23 896
Japan	* 239 000	* 240 000	* 237 000	* 237 600	* 247 000
Kazakhstan	147 328	148 570	127 476	123 371	111 361
Korea (Rep. of)	806 600	801 000	813 000	770 000	800 000
Korea, Dem. P.R. of	* 2 000	* 2 000	* 3 000	* 3 000	* 3 000
Lebanon	* 11 900	* 6 000	* 26 000	* 22 000	* 20 000
Malaysia	* 30 000	* 30 000	* 35 000	* 33 000	* 33 000
Myanmar	* 12 100	* 7 300	* 14 800	* 10 500	* 11 000

Production of refined lead

tonnes (metric)

Country	2017	2018	2019	2020	2021
Oman	5	10	10	9	10
Pakistan (c)	5 000	18 000	32 000	32 000	* 32 000
Philippines	* 10 000	* 10 000	* 10 000	* 10 000	* 10 000
Saudi Arabia	72 000	* 68 000	* 68 000	66 000	* 70 000
Sri Lanka (a)	4 500	4 700	4 700	5 000	4 054
Taiwan	48 000	58 000	55 000	55 000	* 55 000
Tajikistan	2 800	* 3 000
Thailand	88 000	85 000	82 000	80 000	86 000
United Arab Emirates	25 000	25 000	25 000	24 000	25 000
Uzbekistan	* 26 000	* 21 300	* 21 000	* 20 000	* 20 000
Vietnam	* 31 200	* 32 000	* 34 000	* 34 000	* 34 000
Australia	211 200	188 800	124 388	161 897	163 911
World total	11 700 000	11 900 000	12 100 000	12 900 000	14 400 000

Note(s)

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

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

Production of lithium minerals

tonnes (metric)

Country	2017	2018	2019	2020	2021
Portugal					
Lepidolite	65 743	76 818	59 912	23 185	18 533
Li content	458	535	417	161	129
Namibia					
Lepidolite	—	30 000	—	—	—
Li content	—	88	—	—	—
Nigeria					
Petalite	—	1 267	133	* 130	* 130
Li content	—	24	2	* 2	* 2
Zimbabwe					
Petalite	51 000	70 000	65 000	20 859	25 000
Li content	970	1332	1237	397	476
Canada					
Spodumene	1 100	140 000	9 000	* —	—
Li content	32	4092	263	* —	—
USA (a)					
Li content	* 4 000	* 7 000	* 4 000	* 4 000	* 5 000
Argentina					
Carbonate	26 559	29 707	30 009	26 846	47 917
Li content	4 993	5 585	5 642	5 047	9 008
Chloride	4 501	5 005	4 284	7 705	6 017
Li content	734	816	698	1 256	981
Bolivia					
Carbonate	* 60	* 230	* 400	191	540
Li content	* 11	* 43	* 75	* 36	* 102
Brazil					
Spodumene	9 200	5 000	4 000	3 200	* 3 300
Li content	255	139	111	88	* 93
Chile					
Lithium minerals (hydroxide)	5 280	6 468	9 934	9 030	12 129
Li content	871	1 067	1 639	1 490	2 001
Carbonate	73 563	87 029	100 787	114 260	150 348
Li content	13 830	16 361	18 948	21 481	28 265
Chloride	2 535	3 826	1 886	—	—
Li content	413	624	307	—	—
China					
Li content	* 7 000	* 7 100	* 10 800	* 13 300	* 14 000
Australia					
Spodumene	1 706 619	1 965 912	1 588 263	1 479 872	1 985 672
Li content	47512	54731	44217	41200	55281
World total (Li content)	81 000	99 500	88 400	88 500	115 300

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	2017	2018	2019	2020	2021
Austria	730 482	808 239	691 909	816 370	844 226
Finland	63 850	49 601	37 002	136 167	179 781
Greece	499 381	464 689	365 792	275 100	309 600
Netherlands (a)	282 551	349 000	292 000	243 000	242 000
Poland	101 920	102 110	91 490	65 250	65 820
Russia	* 2 600 000	* 2 600 000	* 2 600 000	* 2 600 000	* 2 600 000
Slovakia	610 000	615 500	615 200	516 900	576 700
Spain	788 991	738 994	634 580	626 055	703 834
Turkey	1 694 071	1 958 847	1 496 081	1 560 818	1 927 280
South Africa	* 12 000	* 9 000	* 7 000	* 6 000	* 5 000
Canada (b)	* 150 000	* 150 000	* 180 000	* 160 000	* 200 000
Guatemala	16 298	4 745	* 2 000	706	4 700
Mexico	101 000	101 000	800	—	—
Brazil (c)	3 377 000	2 981 000	2 962 000	1 993 600	* 2 000 000
Colombia	1 913	1 039	1 847	1 077	—
China	* 19 000 000	* 18 500 000	* 19 000 000	* 19 000 000	* 21 000 000
India (d)	195 055	146 581	97 684	78 144	* 72 800
Iran (e)	154 860	169 953	153 525	274 369	* 280 000
Israel (f)	90 000	113 000	105 350	113 903	131 201
Korea, Dem. P.R. of	172 488	* 170 000	* 170 000	* 150 000	* 170 000
Pakistan (g)	19 656	23 596	42 996	16 165	15 120
Philippines	200	140	* 140	* 140	* 140
Saudi Arabia	302 100	325 950	* 315 000	* 244 000	* 271 000
Australia (d)	234 704	288 069	433 712	820 057	* 2 735 767
World total	31 200 000	30 700 000	30 300 000	29 700 000	34 300 000

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	2017	2018	2019	2020	2021
Russia	15 593	15 753	15 336	12 795	15 000
Turkey	* 4 000	* 4 500	* 4 500	* 4 500	* 4 500
USA	* 30 000	* 32 000	* 32 000	* 32 000	* 32 000
Brazil	15 000	15 000	22 000	20 000	20 000
China	904 600	848 079	969 000	858 000	898 000
Israel	23 000	21 100	21 350	18 500	18 200
Korea (Rep. of)	3 000	110	—	—	—
Malaysia	* 30	* —	* —	* —	* —

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.
- (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: Russia 50,000 t, Kazakhstan 10,000 t and Ukraine 8 000 t.

Production of manganese ore

tonnes (metric)

Country	2017	2018	2019	2020	2021
Bulgaria	2 000	—	—	* —	* —
Georgia (a)	* 370 000	349 354	305 562	302 200	332 400
Romania	* 8 000	* 26 000	* 45 000	* 29 000	* 29 000
Turkey	77 895	85 334	114 037	101 766	86 654
Ukraine	1 758 172	1 845 156	1 854 240	* 1 850 000	* 1 850 000
Congo, Democratic Republic	—	(b) 14 884	(b) 4 935	(b)* 5 000	(b)* 5 000
Egypt (c)	124 794	* 120 000	* 120 000	* 100 000	* 90 000
Gabon	5 079 000	6 542 000	7 186 000	8 147 000	9 241 000
Ghana	3 003 580	4 551 754	5 383 014	2 357 515	3 336 273
Ivory Coast	511 868	930 559	1 181 803	1 325 525	* 1 400 000
Morocco	99 008	79 538	71 210	84 087	* 84 000
Namibia	27 915	23 045	32 145	37 072	* 38 000
South Africa	14 143 794	14 919 207	17 008 951	16 198 506	19 156 479
Sudan	* 4 000	* 4 000	* 1 000	* —	* —
Zambia	92 675	77 277	15 904	46 515	132 241
Mexico	561 612	556 220	534 044	565 619	560 742
Bolivia	—	* 550	* 3 550	* 4 700	* 5 100
Brazil	3 273 029	3 189 000	3 726 000	2 385 000	1 775 217
Colombia	—	* 470	* 864	—	—
Peru	* 2 500	* 46 400	* 41 800	* 22 500	* 20 160
China	11 333 000	7 977 000	* 6 650 000	* 6 700 000	* 6 500 000
India (d)	2 599 815	2 820 227	2 910 186	2 688 038	* 2 457 000
Iran (e)	100 780	128 617	130 625	289 927	* 290 000
Kazakhstan	1 460 000	1 427 300	1 142 300	813 500	1 248 700
Malaysia	1 226 106	1 262 725	1 130 749	869 864	668 558
Myanmar	* 346 000	* 519 000	* 982 000	* 634 000	* 515 000
Oman	33 900	44 700	50 000	14 500	15 100
Thailand	8 020	4 000	4 800	1 400	—
Vietnam	50 000	68 194	76 106	* 80 000	* 80 000
Australia	6 172 266	7 212 118	6 649 432	4 752 200	6 285 057
World total	52 500 000	54 800 000	57 400 000	50 400 000	56 200 000

Note(s)

(1) In addition to the countries listed 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	2017	2018	2019	2020	2021
Russia	* 50 000	* 50 000	* 50 000	* 50 000	* 50 000
Morocco	* 14 000	* 3 000	* 2 000	* 1 000	* 1 000
Mexico	(a)* 140 000	(a)* 160 000	(a)* 32 000	* 32 000	* 32 000
USA	* 15 000	* 15 000	* 15 000	* 15 000	* 15 000
Argentina	54 469	* —	* —	* —	* —
Chile (a)(b)	* 11 000	* —	* —	* —	* —
China	3 573 000	2 317 000	2 232 000	1 993 000	* 2 000 000
Kyrgyzstan	* 20 000	* 20 000	* 20 000	* 15 000	* 15 000
Tajikistan	* 100 000	100 000	90 600	177 700	* 350 000
World total	4 000 000	2 700 000	2 400 000	2 300 000	2 500 000

Note(s)

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

(a) BGS estimates based on net exports

(b) From copper solvent extraction and electrowinning processes

Production of mica

tonnes (metric)

Country	2017	2018	2019	2020	2021
Finland	10 740	12 122	9 440	7 247	10 138
France (a)	* 19 200	* 15 000	* 19 000	* 19 000	* 19 000
Russia	5 219	4 465	* 4 500	* 4 500	* 4 500
Spain (a)	6 333	6 932	7 769	7 126	9 463
Turkey	204	5 732	454	4 139	1 663
Madagascar (b)	34 817	48 763	33 585	68 700	56 100
South Africa	—	32	9	194	630
Canada	* 22 000	* 21 000	* 21 000	* 15 000	* 15 000
Mexico	145	408	595	219	* 250
USA (a)(c)	40 000	42 000	40 100	36 400	* 43 000
Argentina	189	120	—	—	* —
Brazil	* 10 100	* 11 000	* 11 000	* 11 000	* 11 000
Colombia	159	239	252	—	97
China	* 100 000	* 100 000	* 100 000	* 95 000	* 95 000
India (d)	* 1 700	* 1 000	* 1 000	* 1 000	* 1 000
Iran (e)	4 500	1 500	1 120	2 600	* 2 600
Korea (Rep. of) (f)	14 576	16 559	23 433	20 983	10 985
Malaysia (g)	4 787	4 388	4 358	4 083	3 406
Sri Lanka	1 422	* 1 500	* 1 500	* 1 500	* 1 500
Taiwan	750	2 970	3 312	3 186	10 983
World total	277 000	296 000	282 000	302 000	296 000

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	2017	2018	2019	2020	2021
Armenia	5 886	5 666	7 360	12 691	11 310
Norway	* 2	* 2	* 2	* 2	* 2
Poland	1 220	1 190	1 230	1 210	1 230
Russia	3 227	2 262	1 989	1 707	* 2 000
Canada	4 941	5 036	3 955	2 671	2 023
Mexico	13 985	20 265	21 694	20 577	16 319
USA	40 700	41 400	43 600	51 100	41 100
Argentina	1 297	728	* —	* —	* —
Brazil	* 200	* 200	* 200	* 200	* 200
Chile	62 454	60 248	53 541	59 319	49 403
Peru	28 141	28 034	30 441	32 185	34 148
China	117 104	113 308	104 435	* 120 000	* 130 000
Iran (a)	7 767	7 662	8 711	6 762	* 6 800
Kazakhstan	—	149	258	400	396
Kyrgyzstan	* 21	* 20	* 23	* 20	* 15
Mongolia	2 707	2 579	2 492	2 889	2 973
Uzbekistan	700	696	666	725	—
World total	290 000	289 000	281 000	312 000	298 000

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	2017	2018	2019	2020	2021
Norway	* 324 000	* 324 000	* 324 000	* 324 000	* 324 000
Russia					
Nepheline syenite	4 332 000	4 294 000	4 244 000	4 599 000	4 390 000
Nepheline concentrates	998 100	986 000	1 188 000	1 159 400	1 123 100
Canada	632 000	549 000	506 000	506 000	650 000

Mine production of nickel

tonnes (metal content)

Country	2017	2018	2019	2020	2021
Albania	5 323	4 204	2 830	3 764	4 178
Finland (a)	34 641	43 572	38 530	41 429	42 163
Greece	19 100	17 900	13 700	7 100	4 800
Kosovo	7 120	4 791	3 314	3 958	4 735
Norway	200	300	200	300	200
Poland	720	700	720	710	740
Russia	221 000	218 000	223 200	237 300	* 190 000
Turkey	14 770	13 559	4 742	20 201	11 647
Ivory Coast	400	12 300	9 100	18 600	* 22 000
Madagascar	35 474	33 183	33 736	9 908	29 285
Morocco	196	126	131	100	100
South Africa	48 383	43 236	43 443	34 908	31 846
Zambia	—	487	1 110	3 226	3 834
Zimbabwe	16 617	17 850	16 279	16 480	13 949
Canada	214 302	185 962	180 904	167 243	133 581
Cuba	49 300	49 000	45 500	* 50 000	48 000
Dominican Republic	15 632	19 214	28 450	22 005	27 848
Guatemala	54 517	39 200	36 300	50 300	64 900
USA	21 302	17 974	14 297	16 718	18 353
Brazil	83 200	65 300	55 700	77 100	76 000
Colombia	40 606	43 055	40 571	36 094	38 300
China	102 300	108 200	104 674	104 674	98 602
Indonesia	355 000	651 600	1 036 200	816 700	1 173 200
Myanmar (b)	21 828	11 475	* 16 000	* 22 200	* 20 000
Philippines	339 377	344 966	323 325	328 372	386 359
Australia	185 466	160 022	158 751	169 344	150 876
New Caledonia	215 382	216 225	208 185	199 475	186 284
Papua New Guinea	34 666	35 355	33 091	33 650	31 600
World total	2 137 000	2 358 000	2 673 000	2 492 000	2 813 000

Note(s)

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

(b) Years ended 31 March of the year following that stated

Smelter/refinery production of nickel

tonnes (metric)

Country	2017	2018	2019	2020	2021
Austria	* 700	* 700	* 700	* 700	* 700
Cyprus					
Sulfate	—	—	—	—	227
Finland	85 780	92 591	90 151	90 837	68 006
France	2 300	3 700	6 900	6 700	8 900
Greece	16 781	15 720	11 974	6 012	4 080
Kosovo	* 7 500	* 5 500	* 6 500	* 6 900	* 5 900
North Macedonia	7 200	10 100	15 300	17 700	17 700
Norway	86 495	90 758	92 132	91 120	91 246
Poland	720	700	720	700	700
Russia	212 300	158 000	166 300	172 400	121 100
Ukraine	15 300	15 807	14 200	14 719	15 700
United Kingdom	37 090	38 211	34 976	35 177	30 654
Madagascar	35 474	33 183	33 736	9 908	29 285
Morocco					
Sulfate	—	—	—	—	100
South Africa	43 000	39 500	39 100	29 100	38 000
Canada	154 759	137 411	124 736	124 043	119 000
Cuba	15 800	14 700	12 900	14 800	15 000
Dominican Republic	15 363	18 794	27 532	20 724	26 560
Guatemala	12 416	14 688	20 323	22 894	19 900
Brazil	68 500	62 200	54 300	59 600	60 800
Colombia	40 606	43 055	40 571	36 094	38 300
China	670 000	705 000	806 000	* 745 000	669 000
India	* 100	* 100	* 50	—	—
Indonesia	204 300	289 900	409 000	632 000	873 100
Japan	187 046	186 736	182 652	170 014	180 721
Korea (Rep. of)	43 861	43 386	41 067	45 600	47 300
Myanmar (a)	21 828	11 475	* 16 000	* 22 200	* 20 000
Australia	108 500	114 517	106 470	115 800	98 970
New Caledonia	104 094	107 914	87 921	72 455	56 603
World total	2 198 000	2 254 000	2 442 000	2 563 000	2 658 000

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	2017	2018	2019	2020	2021
Armenia	78	8	—	* —	* —
Bulgaria	4 800	* 5 000	* 5 000	* 5 000	* 5 000
Georgia	* 20 000	22 577	21 000	31 736	31 572
Greece	932 950	790 412	719 000	718 000	975 000
Hungary	71 412	80 396	76 723	42 112	83 628
Italy	* 60 000	* 60 000	* 60 000	* 60 000	* 60 000
Russia	* 45 000	* 45 000	* 45 000	* 45 000	* 45 000
Slovakia	47 510	36 000	32 000	37 310	35 320
Turkey	1 116 629	1 088 983	1 174 486	1 146 341	1 428 695
Ukraine	16 560	* 17 000	* 17 000	* 17 000	* 17 000
South Africa	* 1 000	* 1 000	* 1 000	* 1 000	* 1 000
Mexico	15 899	26 400	24 497	—	* —
USA	587 000	504 000	629 000	845 000	* 860 000
Argentina	19 924	18 794	19 000	* 18 000	* 20 000
Chile	4 210	5 020	4 700	—	—
China	1 219 000	* 1 300 000	* 1 300 000	* 1 500 000	* 1 500 000
Iran (a)	368 601	194 216	726 749	540 676	* 540 000
Philippines	40 789	9 696	6 608	* 10 000	* 10 000
Thailand	5 850	5 600	15 000	3 500	3 500
Australia (b)	275	2 285	1 264	2 185	3 821

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	2017	2018	2019	2020	2021
Albania	954 768	910 683	1 005 088	757 393	712 532
Austria (a)(b)	741 890	664 009	626 877	594 789	559 947
Azerbaijan (b)	38 688 400	38 814 300	37 501 200	34 531 900	34 580 700
Belarus	1 650 000	1 670 000	1 690 000	1 710 000	1 690 000
Bulgaria	21 930	* 21 930	* 21 930	* 20 500	* 20 500
Croatia	682 339	682 128	657 553	585 567	559 204
Czech Republic	107 000	109 000	81 000	91 000	83 000
Denmark	6 740 075	5 635 500	4 979 725	3 522 230	3 247 085
Estonia (c)	2 537 881	2 376 608	1 671 050	1 160 186	622 572
France	5 886 993	6 146 655	5 269 899	5 634 302	5 376 432
Georgia	31 995	30 159	35 070	31 293	35 477
Germany	2 218 406	2 066 642	1 923 232	1 895 942	1 805 932
Greece	313 000	365 000	365 000	261 000	250 000
Hungary	705 274	816 111	1 158 129	848 800	891 413
Italy	4 140 000	4 670 000	4 270 000	5 380 000	4 830 000
Lithuania	55 829	46 029	39 572	31 631	28 916
Netherlands	1 464 000	1 478 000	1 111 000	1 035 000	* 1 000 000
Norway	96 830 000	91 080 000	85 386 000	98 625 000	99 625 000
Poland	996 049	1 010 332	972 564	937 462	888 082
Romania	3 538 345	3 485 778	3 439 564	3 334 019	3 197 700
Russia	547 000 000	556 000 000	561 000 000	512 000 000	536 400 000
Serbia	893 000	876 592	854 000	831 000	811 000
Slovakia	5 000	5 000	4 000	3 000	5 000
Slovenia	241	270	267	247	142
Spain	118 809	89 476	39 861	26 819	5 785
Turkey	2 551 929	2 850 828	2 984 800	3 202 924	3 441 659
Ukraine	2 098 200	2 293 000	2 453 600	2 429 700	* 2 500 000
United Kingdom	46 630 000	51 188 000	52 488 000	48 985 000	40 864 000
Algeria	66 600 000	65 300 000	64 300 000	57 500 000	58 200 000
Angola	81 600 000	74 100 000	69 100 000	64 200 000	56 600 000
Cameroon	3 880 800	3 518 600	3 639 400	3 717 800	2 701 000
Chad	5 200 000	6 100 000	6 700 000	6 600 000	6 100 000
Congo	12 250 000	16 870 000	16 340 000	14 050 000	13 178 124
Congo, Democratic Republic	1 034 393	1 152 050	1 120 345	1 199 249	1 177 446
Egypt	32 200 000	32 800 000	31 800 000	31 100 000	29 600 000
Equatorial Guinea	9 000 000	8 100 000	7 400 000	7 400 000	6 400 000
Gabon	10 500 000	9 650 000	10 900 000	10 800 000	9 900 000
Ghana	7 582 380	8 679 635	10 063 629	10 123 201	9 337 136
Ivory Coast	1 707 688	1 617 658	1 811 136	1 893 641	1 708 962
Libya	43 757 120	55 146 520	57 800 000	20 000 000	59 600 000
Mauritania	165 603	—	—	—	—
Morocco	4 000	5 000	* 5 000	* 5 000	* 5 000
Niger	647 220	597 432	547 646	472 967	398 288
Nigeria	94 400 000	96 300 000	101 100 000	88 400 000	77 900 000
Senegal	13 000	20 200	28 600	3 300	* 4 000
South Africa	31 145	23 781	—	—	—
South Sudan	7 300 000	7 100 000	8 400 000	8 100 000	7 500 000
Sudan	3 589 000	3 588 400	3 600 000	3 100 000	3 200 000
Tunisia	1 827 600	1 764 000	1 686 000	1 557 600	* 1 930 000
Barbados	32 046	30 254	28 733	23 736	20 899
Canada	209 600 000	228 300 000	232 900 000	222 600 000	234 500 000
Cuba	2 522 200	2 462 500	2 371 500	2 320 200	* 2 300 000
Guatemala	488 068	466 496	486 250	395 591	319 291
Mexico	115 135 269	107 070 000	99 212 000	98 850 000	99 521 955
Trinidad & Tobago	3 700 692	3 271 538	3 032 284	2 917 631	3 083 709
USA	599 786 771	699 400 239	782 673 293	747 021 029	748 130 549
Argentina	25 463 642	26 013 729	26 060 312	25 603 785	26 521 000
Bolivia	3 620 000	3 440 000	3 225 000	3 070 000	3 030 000
Brazil	141 362 424	139 356 470	149 550 768	157 682 321	154 975 843
Chile	176 065	158 795	159 977	101 658	108 933
Colombia	45 000 000	45 600 000	46 700 000	41 300 000	38 900 000
Ecuador	28 500 000	27 700 000	28 500 000	25 800 000	25 300 000
Peru	6 620 481	6 635 696	6 898 900	6 159 700	5 889 000
Suriname	959 752	964 639	971 528	967 898	967 898
Venezuela	114 100 000	83 800 000	52 100 000	32 700 000	33 400 000

Production of crude petroleum

tonnes (metric)

Country	2017	2018	2019	2020	2021
Afghanistan	* 900	* 900	* 900	* 900	* 900
Bahrain (b)	2 807 000	2 769 000	3 177 000	* 3 000 000	* 3 000 000
Bangladesh	491 300	617 500	591 800	* 600 000	—
Brunei	5 555 999	5 478 268	5 442 245	5 435 513	5 254 692
China (a)	191 506 100	189 324 200	191 014 100	* 190 000 000	* 200 000 000
East Timor (b)	800 000	603 000	* 819 000	826 007	828 750
India (d)	35 684 000	34 203 000	32 169 000	30 491 000	* 30 410 000
Indonesia	40 051 000	38 600 000	37 264 000	35 513 000	32 927 021
Iran	231 900 000	219 200 000	158 300 000	143 200 000	167 700 000
Iraq	222 400 000	227 000 000	234 200 000	202 000 000	200 800 000
Israel	65 488	75 292	85 563	132 820	167 786
Japan	512 000	455 000	477 000	467 540	* 470 000
Jordan	300	1 000	200	2 500	14 300
Kazakhstan	86 194 000	90 359 000	90 555 400	85 656 100	85 879 400
Kuwait (e)	145 000 000	146 800 000	143 400 000	130 300 000	131 100 000
Kyrgyzstan	173 200	200 000	233 100	239 200	275 600
Malaysia	31 527 300	31 192 900	29 138 900	26 559 400	24 409 800
Mongolia	1 048 707	878 762	946 818	564 773	641 967
Myanmar	579 000	486 000	432 000	356 000	358 000
Oman	48 331 377	48 719 782	48 346 316	47 340 450	48 361 255
Pakistan (f)	4 329 140	4 367 729	4 359 424	8 131 787	3 760 982
Philippines	755 014	730 952	656 462	572 350	489 873
Qatar	73 600 000	74 800 000	71 900 000	72 000 000	73 300 000
Saudi Arabia (e)	559 300 000	576 800 000	556 600 000	519 600 000	515 000 000
Syria	1 100 000	1 100 000	1 500 000	2 000 000	4 600 000
Taiwan	5 407	4 678	3 860	2 169	2 462
Tajikistan	23 400	23 939	23 293	24 466	* 24 400
Thailand	13 390 000	12 795 000	12 812 000	10 532 857	13 900 000
Turkmenistan	13 100 000	12 600 000	12 500 000	10 300 000	12 000 000
United Arab Emirates	176 200 000	176 700 000	180 200 000	182 260 000	164 400 000
Uzbekistan	2 800 000	2 900 000	3 000 000	2 800 000	2 700 000
Vietnam (b)	15 518 000	13 969 000	13 090 000	11 470 000	10 970 000
Yemen, Republic of	2 400 000	4 100 000	4 100 000	3 800 000	2 800 000
Australia	15 495 471	16 206 743	20 931 300	20 442 600	19 430 000
New Zealand (b)	1 400 440	1 085 220	1 121 090	963 870	840 010
Papua New Guinea	946 000	467 300	367 500	* 365 000	* 360 000
World total	4 373 000 000	4 478 000 000	4 463 000 000	4 174 000 000	4 224 000 000

Note(s)

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

- (a) Including oil from shale and coal
- (b) including natural gas liquids
- (c) From oil shale
- (d) Years ended 31 March following that stated
- (e) Including shares of production from the Neutral Zone
- (f) Years ended 30 June of that stated

Production of natural gas

million cubic metres

Country	2017	2018	2019	2020	2021
Albania	102	92	80	57	57
Austria	1 742	969	891	743	654
Azerbaijan	18 186	19 207	24 514	26 487	32 574
Belarus	205	211	218	219	* 200
Bulgaria	65	* 65	* 65	* 65	* 65
Croatia	1 530	1 279	1 070	888	782
Czech Republic	171	179	146	138	153
Denmark	4 592	3 929	2 980	1 351	1 283
France	17	9	17	—	—
Georgia	9	10	9	9	15
Germany	7 932	6 888	6 699	5 692	5 731
Greece	8	11	11	6	* 6
Hungary	1 885	2 104	1 852	1 888	1 663
Ireland, Republic of	3 171	3 057	2 385	1 838	1 398
Italy	5 650	5 500	4 980	4 420	3 500
Netherlands	43 915	36 735	31 671	22 831	20 524
Norway	124 160	121 560	115 130	112 300	115 230
Poland	5 408	5 348	5 374	5 302	5 274
Romania	11 071	10 752	10 448	9 357	8 919
Russia	691 000	726 000	738 000	694 000	662 000
Serbia	548	506	477	448	401
Slovakia	88	80	75	65	65
Slovenia	8	15	7	5	5
Spain	13	93	131	47	38
Turkey	364	436	483	458	415
Ukraine	20 510	20 806	20 520	20 171	* 20 200
United Kingdom	42 100	40 827	39 386	39 433	32 568
Algeria	93 000	93 800	87 000	81 500	100 800
Angola	5 776	6 455	6 740	7 503	5 860
Cameroon	392	1 463	2 006	2 130	1 578
Congo	1 263	916	1 025	1 332	913
Egypt	55 900	59 600	59 000	58 300	61 900
Equatorial Guinea (a)	7 192	6 765	5 883	5 255	6 121
Gabon (a)	565	622	464	502	454
Ghana	2 189	2 590	4 802	2 600	2 900
Ivory Coast	2 155	1 957	2 090	2 339	2 495
Libya	13 600	13 200	13 500	12 100	12 400
Morocco	88	93	105	100	100
Mozambique	5 029	5 038	4 549	4 857	4 712
Nigeria	47 200	48 300	49 300	49 400	45 900
Senegal	18	11	16	14	6
South Africa	749	624	668	563	44
Tanzania	51 054	58 951	* 60 000	* 60 000	* 60 000
Tunisia	2 089	1 961	1 795	1 864	2 212
Barbados	15	14	14	11	11
Canada	160 885	157 176	161 367	158 325	164 272
Cuba	1 051	970	951	895	652
Mexico	52 000	50 000	51 000	50 000	49 000
Trinidad & Tobago	34 391	36 647	36 658	31 177	26 348
USA (a)	773 738	870 912	961 282	947 633	966 862
Argentina	44 595	40 294	46 305	41 560	39 801
Bolivia	18 300	17 100	15 000	14 500	15 100
Brazil	28 663	26 687	27 358	25 403	25 382
Chile	1 200	1 221	1 339	1 316	1 275
Colombia	11 800	12 400	12 600	12 500	12 600
Ecuador	481	368	340	283	312
Peru	12 934	12 741	13 418	11 993	11 368
Venezuela	38 600	31 600	25 600	21 600	24 000
Afghanistan (b)	156	153	129	80	132
Bahrain	21 465	21 879	24 887	17 953	18 632
Bangladesh (c)	27 445	27 430	54 465	24 993	25 174
Brunei	12 290	11 851	12 140	11 795	10 765
China	148 035	160 159	176 174	* 176 000	* 205 000
East Timor	5 270	6 554	7 152	6 770	6 449

Production of natural gas

million cubic metres

Country	2017	2018	2019	2020	2021
India (d)	32 649	32 057	30 260	28 670	* 27 000
Indonesia	72 295	72 601	67 184	59 206	58 651
Iran	213 900	224 900	232 900	249 500	256 700
Iraq	10 100	10 600	11 000	7 000	9 400
Israel	9 570	10 480	10 500	15 000	19 000
Japan	3 008	2 707	2 524	2 295	2 304
Jordan	94	88	102	151	185
Kazakhstan	52 921	55 453	56 681	55 379	54 179
Kuwait (e)	16 200	16 900	18 200	16 500	17 400
Kyrgyzstan	26	27	24	22	22
Malaysia	70 251	66 171	68 660	63 330	67 482
Myanmar	18 644	16 028	18 800	19 050	18 185
Oman	30 463	34 640	36 484	35 146	35 469
Pakistan (c)	41 684	41 318	40 684	37 283	36 223
Philippines	3 923	4 380	4 410	4 000	3 430
Qatar	170 500	175 200	177 200	174 900	177 000
Saudi Arabia (e)	109 300	112 100	111 200	113 100	117 300
Syria	3 500	3 500	3 300	2 700	2 900
Taiwan	266	198	167	105	110
Tajikistan	2	1	1	1	* 1
Thailand	37 925	37 393	38 047	32 700	31 500
Turkmenistan	58 700	61 500	63 200	66 000	79 300
United Arab Emirates	59 500	58 000	58 000	55 400	57 000
Uzbekistan	53 400	57 200	57 300	47 100	50 900
Vietnam	9 866	10 010	10 200	9 160	7 460
Yemen, Republic of	300	100	300	300	400
Australia	113 805	130 987	154 485	154 263	155 843
New Zealand	4 896	4 323	4 608	4 508	3 945
Papua New Guinea	11 018	9 809	11 204	* 11 000	* 11 400
World total	3 875 000	4 044 000	4 222 000	4 057 000	4 126 000

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	2017	2018	2019	2020	2021
Finland	978 613	989 073	994 572	995 066	990 261
Russia	13 200 000	13 600 000	13 800 000	13 800 000	* 13 800 000
Turkey	—	—	315 215	872 894	957 045
Algeria	1 112 000	1 204 100	1 338 400	* 1 300 000	* 1 300 000
Burkina Faso	—	1 320	1 800	2 803	2 400
Egypt (a)	3 524 000	3 003 000	3 378 000	* 2 500 000	* 2 000 000
Malawi	1 000	1 594	1 753	—	—
Mali	41 000	45 000	110 000	57 600	65 000
Morocco	32 800 000	37 600 000	35 300 000	40 700 000	38 122 000
Senegal					
Phosphate rock	1 385 000	1 782 000	2 295 975	2 230 504	2 402 469
Aluminium phosphate (b)	* 1 000 000	917 200	643 900	1 427 500	* 1 400 000
South Africa	2 079 294	2 058 274	1 825 719	581 392	2 132 135
Tanzania	1 351	—	—	28 376	24 493
Togo	732 503	930 857	703 573	1 300 000	1 450 000
Tunisia	4 422 100	2 802 000	4 108 800	3 194 100	3 726 400
Zimbabwe	* 24 000	* 20 000	14 649	9 192	15 850
Cuba	—	—	—	1 600	1 400
Mexico	2 307 180	741 678	831 737	304 136	456 335
USA	27 900 000	25 800 000	23 300 000	23 500 000	* 22 000 000
Brazil (c)	6 033 000	5 740 000	4 700 000	5 500 000	* 5 500 000
Chile					
Guano	4 238	4 154	3 405	2 091	2 229
Colombia	63 483	52 945	81 903	56 846	37 866
Peru	8 450 379	10 308 276	11 091 502	8 594 180	10 776 136
Venezuela	68 062	13 890	* 70 000	* 70 000	* 70 000
China	123 132 000	96 326 000	93 324 000	* 88 000 000	* 86 000 000
Christmas Island (a)(d)(e)	644 000	643 000	486 000	387 000	525 000
India (f)	1 515 645	1 284 580	1 400 186	1 455 627	* 1 440 000
Iran (g)	52 600	86 579	119 227	96 160	* 97 000
Iraq	* 40 000	* 377 120	* 300 000	* 300 000	* —
Israel	2 637 440	3 028 800	2 649 800	2 505 200	1 957 200
Jordan	8 687 581	8 022 393	9 223 346	8 937 752	10 015 243
Kazakhstan	1 207 900	* 1 300 000	* 1 500 000	* 1 300 000	* 1 500 000
Laos					
Guano	435 000	—	635	230	—
Pakistan (a)	61 677	68 541	96 208	87 724	120 216
Philippines					
Phosphate rock	159	1 236	* 1 500	* 1 500	* —
Guano	* 700	1 500	* 1 500	* 1 500	* 1 500
Saudi Arabia	5 800 000	5 444 000	5 716 000	8 000 000	8 400 000
Sri Lanka	42 435	46 530	47 438	52 103	68 217
Syria	* 10 000	* 100 000	* 100 000	* 130 000	* 350 000
Thailand	8 000	—	—	—	* —
Uzbekistan	* 700 000	617 900	588 600	646 000	681 000
Vietnam	4 588 000	4 332 216	4 489 600	2 022 160	1 994 660
Australia (a)	942 373	850 987	720 615	936 043	* 900 741
Nauru (d)	126 000	61 042	81 500	119 498	274 423
World total	257 000 000	230 000 000	226 000 000	222 000 000	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	2017	2018	2019	2020	2021
Finland					
Platinum	1 418	1 576	953	1 276	1 447
Palladium	1 021	1 157	699	858	1 036
Poland					
Platinum	* 11	8	* 8	* 8	* 8
Palladium	* 7	* 7	* 7	* 7	* 7
Russia					
Platinum	22 100	23 800	22 100	23 500	* 21 000
Palladium	86 300	85 300	86 600	92 300	* 85 000
Other platinum metals (a)	2 400	2 100	2 100	1 800	1 600
Serbia					
Platinum	2	5	* 10	* 20	* 20
Palladium	38	55	* 100	* 100	* 100
Ethiopia					
Platinum (b)	* 4	* 4	* 2	* 2	* 2
South Africa					
Platinum	131 247	137 053	132 989	111 993	141 626
Palladium	80 134	80 629	80 684	66 264	84 336
Other platinum metals	48 895	52 964	54 395	46 835	59 344
Zimbabwe					
Platinum	14 257	14 703	13 857	15 004	14 732
Palladium	11 822	12 094	11 639	12 890	12 619
Other platinum metals	3 005	3 076	2 800	3 231	3 195
Canada					
Platinum	* 9 800	* 11 000	* 10 300	* 10 700	* 7 600
Palladium	* 17 100	* 19 200	* 17 900	* 18 600	* 13 300
Other platinum metals	* 1 100	* 1 300	* 1 200	* 1 200	* 900
USA					
Platinum	3 980	4 160	4 150	* 4 500	* 4 500
Palladium	13 600	14 300	14 300	* 14 800	* 14 800
Other platinum metals	* 100	* 100	* 100	* 100	* 100
Colombia	567	270	178	414	618
China					
Platinum	2 500	2 500	* 2 500	* 2 500	* 2 500
Palladium	1 400	1 300	* 1 300	* 1 300	* 1 300
Australia	765	541	483	522	470
World total	454 000	469 000	461 000	431 000	472 000

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) 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.
- (3) 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) Sales from mine production and stocks
(b) Years ending 7 July of that stated

Production of potash

tonnes (K₂O content)

Country	2017	2018	2019	2020	2021
Belarus	7 101 799	7 346 096	7 348 293	7 562 153	* 7 630 000
Germany					
Potassic salts	2 963 561	2 754 085	2 615 284	2 874 026	2 793 326
Russia					
Chloride	7 320 000	7 015 000	6 771 000	6 893 000	7 503 000
Spain					
Chloride	557 469	603 812	519 644	351 918	375 779
United Kingdom					
Chloride	216 000	210 000	—	—	—
Polyhalite	500 000	400 000	632 000	709 000	789 000
Canada					
Chloride	12 624 000	13 944 000	12 851 000	13 783 530	14 244 472
USA					
Potassic salts	480 000	520 000	510 000	460 000	* 480 000
Brazil					
Chloride	306 000	201 200	200 000	* 200 000	* 200 000
Chile					
Chloride	1 197 105	988 512	681 697	951 125	878 507
China	* 5 510 000	* 5 450 000	* 5 450 000	* 6 000 000	* 6 000 000
Israel					
Chloride	2 479 000	2 344 600	2 057 078	2 375 450	2 406 300
Jordan	1 415 200	1 486 000	1 516 500	1 598 200	1 563 400
Laos	469 172	554 103	462 738	713 718	818 654
World total	43 100 000	43 800 000	41 600 000	44 500 000	45 700 000

Production of rare earth oxides

tonnes (metric)

Country	2017	2018	2019	2020	2021
Russia	2 500	2 596	2 620	2 663	2 276
Burundi	30	480	150	250	150
Madagascar	* —	* 2 000	* 2 800	* 3 200	* 3 500
USA	—	10 800	16 800	22 800	* 25 800
China (a)	* 140 000	* 180 000	* 180 000	* 180 000	* 348 000
India (b)	2 724	4 215	* 4 200	* 4 200	* 4 200
Malaysia	196	1 012	72	14	29
Myanmar	* 20 000	* 34 000	* 29 000	* 36 000	* 35 000
Vietnam	* 200	* 920	* 1 300	* 700	* 400
Australia (c)	16 003	17 754	19 737	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	2017	2018	2019	2020	2021
Poland	11	9	8	10	9
Russia	* 2	* 2	* 2	* 2	* 2
USA	8	8	8	9	* 9
Chile	* 27	* 27	* 30	* 30	* 29
China	* 3	* 3	* 3	* 3	* 3
Kazakhstan	* 1	* 1	* 1	* 1	* 1

Production of salt

tonnes (metric)

Country	2017	2018	2019	2020	2021
Albania					
Sea salt	* 25 500	* 31 500	* 30 000	* 30 000	* 30 000
Armenia	32 551	22 583	24 975	28 168	32 667
Austria					
Rock salt	251	350	—	34	50
Salt in brine	1 113 728	1 105 740	1 135 790	1 178 489	1 065 786
Azerbaijan	4 985	4 208	4 526	4 045	4 294
Belarus	2 628 985	2 904 097	2 517 590	1 198 290	* 2 000 000
Bosnia & Herzegovina	1 029 302	1 063 457	1 069 210	947 838	966 358
Bulgaria	3 400 000	* 3 400 000	* 3 400 000	* 3 400 000	* 3 400 000
Croatia	52 938	50 825	47 793	54 381	55 128
Denmark	* 580 000	* 580 000	* 580 000	* 580 000	* 580 000
France	4 663 569	4 532 085	4 364 736	* 4 000 000	* 4 000 000
Germany					
Rock salt	6 793 883	7 185 794	7 374 654	5 202 641	8 405 272
Brine salt	2 679 189	2 609 664	* 2 330 000	2 316 705	* 2 300 000
Salt in brine	8 961 916	8 711 720	9 153 686	8 585 169	* 8 600 000
Greece (a)	166 527	163 474	167 170	156 213	* 160 000
Italy					
Rock salt & brine salt	2 283 406	1 514 829	1 538 072	1 192 956	1 500 458
Montenegro					
Sea salt	* 10 000	* 10 000	* 10 000	* 10 000	* 10 000
Netherlands	6 935 000	6 744 000	5 914 000	5 701 000	6 121 000
Norway (b)	* —	* —	* —	5 300	13 000
Poland					
Rock salt	984 000	853 210	912 000	505 000	1 004 000
Brine salt	2 989 000	2 928 781	2 929 000	2 711 000	2 723 000
Other salt	446 000	497 354	361 000	342 000	327 000
Portugal					
Rock salt	7 800	6 201	4 709	4 217	4 471
Sea salt	114 531	94 624	107 506	92 887	90 307
Romania	2 290 060	2 333 555	1 984 965	1 151 740	1 294 889
Russia	* 770 000	6 710 000	7 091 000	5 529 600	* 6 000 000
Serbia	* 9 000	* 9 000	* 9 000	* 9 000	* 9 000
Slovenia	2 335	2 018	1 437	805	1 671
Spain					
Rock salt	2 869 661	3 199 559	3 084 140	2 499 402	2 612 622
Sea salt	1 168 121	1 194 812	1 134 195	1 057 339	1 269 480
Other salt	97 844	117 872	112 179	119 298	122 662
Switzerland	448 509	530 414	477 000	325 000	* 450 000
Turkey	6 673 242	6 298 705	6 961 015	7 698 018	7 843 502
Ukraine	1 815 684	2 191 619	2 092 795	* 2 000 000	* 2 000 000
United Kingdom	2 361 707	3 430 266	2 377 765	2 327 965	2 687 679

Production of salt

tonnes (metric)

Country	2017	2018	2019	2020	2021
Algeria					
Brine salt & sea salt	* 160 000	* 160 000	* 160 000	* 160 000	* 160 000
Angola	* 101 000	* 110 000	* 109 000	* 164 400	* 160 000
Botswana	369 613	367 988	383 779	418 379	484 628
Djibouti	* 830 000	* 2 500 000	* 3 800 000	* 3 100 000	* 3 100 000
Egypt (c)	532 000	* 525 000	* 493 000	* 500 000	* 500 000
Eritrea	* 310 000	* 310 000	* 310 000	* 320 000	* 320 000
Ethiopia (d)	438 192	754	754	* 800	* 900
Ghana	* 250 000	* 330 000	* 300 000	* 330 000	* 330 000
Guinea	* 15 000	* 15 000	* 15 000	* 15 000	* 15 000
Kenya (e)	43 245	28 841	13 728	4 703	7 099
Libya	* 40 000	* 50 000	* 50 000	* 50 000	* 50 000
Madagascar	* 110 000	* 110 000	* 110 000	* 110 000	* 120 000
Mauritania	* 700	* 700	* 700	* 700	* 700
Mauritius (a)	500	500	500	* 500	* 500
Morocco	659 263	691 637	854 390	* 850 000	* 850 000
Mozambique (a)	* 170 000	* 170 000	* 170 000	* 170 000	* 170 000
Namibia	808 952	833 193	1 108 364	795 896	882 238
Senegal	265 000	245 700	286 103	290 873	306 347
South Africa	503 935	476 107	510 499	538 355	543 955
Sudan	235 000	267 000	256 000	237 000	121 000
Tanzania	100 017	36 392	99 510	83 974	112 995
Tunisia	1 403 537	2 116 972	1 966 528	1 666 075	1 889 614
Bahamas (f)	349 710	854 223	653 355	708 642	418 980
Bonaire (a)	* 400 000	* 400 000	* 400 000	* 400 000	* 400 000
Canada					
Rock salt	10 378 614	9 675 013	10 986 492	11 416 072	10 543 760
Other salt (g)	1 045 010	1 016 444	955 790	970 009	1 974 511
Cuba	246 300	192 700	210 400	226 000	204 600
Dominican Republic	* 13 000	* 25 000	—	—	—
El Salvador (a)	* 100 000	* 100 000	* 100 000	* 100 000	* 100 000
Guatemala (a)	* 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	9 570 779	9 392 052	8 845 239	9 084 859	7 644 755
Nicaragua (a)	* 30 000	* 30 000	* 30 000	* 30 000	* 30 000
Panama (a)	18 862	17 490	27 721	25 259	23 878
USA					
Rock salt (h)	16 500 000	17 999 000	17 220 000	16 810 000	* 16 400 000
Salt in brine (h)	15 600 000	17 121 000	16 380 000	15 990 000	* 15 600 000
Evaporated salt (h)	7 460 000	8 341 000	7 980 000	7 790 000	* 7 600 000
Argentina	1 461 065	1 406 020	1 412 348	1 256 963	* 1 300 000
Bolivia	3 358	5 373	* 5 100	* 5 000	* 20 000
Brazil					
Rock salt	* 1 500 000	* 1 500 000	* 1 500 000	* 1 500 000	* 1 500 000
Sea salt	* 6 000 000	* 6 000 000	* 6 000 000	* 6 000 000	* 6 000 000
Chile	7 440 741	10 012 105	10 476 823	9 574 159	8 565 307
Colombia					
Rock salt	336 373	339 503	347 183	266 499	342 496
Sea salt	165 126	51 720	—	—	—
Ecuador	* 75 000	* 75 000	* 75 000	* 75 000	* 75 000
Peru	1 481 398	1 509 564	1 266 347	1 030 598	1 175 828
Venezuela (f)	327 438	* 300 000	* 300 000	* 300 000	* 300 000
Afghanistan (i)	75 579	47 944	114 245	10 627	3 300
Bangladesh (c)	1 495 512	1 513 022	1 564 037	1 582 623	1 640 703
Cambodia (a)(j)	33 058	* 20 000	* 30 000	* 104 000	* 75 000
China	66 541 700	63 636 100	62 708 000	* 63 000 000	* 64 000 000
India					
Rock salt (j)	20	17	130	486	* 320
Sea salt (j)	23 854 600	25 127 300	24 152 400	21 352 200	* 21 000 000
Other salt (j)	5 094 800	4 906 300	3 905 800	5 211 700	* 5 200 000
Indonesia	1 100 000	2 700 000	* 2 300 000	* 1 000 000	* 1 000 000
Iran (i)	3 024 621	2 768 733	2 656 887	3 677 501	* 3 700 000
Iraq	* 237 350	* 271 500	* 475 000	* 300 000	* 300 000
Israel (a)	514 100	376 800	301 100	275 160	262 347

Production of salt

tonnes (metric)

Country	2017	2018	2019	2020	2021
Japan (k)	926 000	929 000	903 000	874 000	855 000
Jordan	48 985	48 901	* 50 000	* 50 000	* 50 000
Kazakhstan	803 794	885 715	1 094 659	1 237 455	1 231 996
Korea (Rep. of)	308 844	282 590	308 844	323 470	280 876
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	6 697	—	10 079	3 951	6 846
Lebanon (a)	* 15 000	* 15 000	* 15 000	* 15 000	* 15 000
Mongolia	860	997	533	2 624	1 349
Myanmar	158 499	189 146	213 000	229 000	162 000
Oman	18 000	11 500	15 000	11 700	10 700
Pakistan					
Rock salt (c)	3 534 075	3 653 746	3 799 106	3 368 978	3 365 665
Sea salt (c)(e)	209 076	234 598	213 198	114 754	226 540
Philippines (a)	* 993 000	* 993 000	* 993 000	* 993 000	* 993 000
Saudi Arabia					
Rock salt & brine salt	2 520 000	2 646 000	2 778 000	2 220 000	2 331 000
Sri Lanka	116 912	68 834	57 291	60 076	63 254
Syria	* 2 500	* 2 500	* 2 500	* 2 500	* 2 500
Taiwan	77 054	78 539	76 255	77 854	77 297
Tajikistan	35 516	15 670	35 496	37 023	* 37 000
Thailand					
Rock salt	1 497 223	1 487 364	1 580 390	1 439 877	1 563 970
Turkmenistan	* 230 000	* 230 000	* 230 000	* 230 000	* 230 000
Uzbekistan	* 60 000	300 653	281 827	292 720	409 765
Vietnam (a)	648 500	996 513	945 000	1 134 590	1 287 190
Yemen, Republic of	* 75 000	* 100 000	* 100 000	* 75 000	* 75 000
Australia (c)	11 280 859	13 582 811	12 489 275	11 960 778	* 13 083 595
New Zealand	60 000	50 000	75 000	60 000	76 000
World total	278 100 000	295 200 000	290 200 000	276 000 000	281 900 000

Note(s)

- (1) This table does not include production of refined salt.
- (2) Salt is known to be produced in many countries for which statistics are not available.

- (a) Sea salt
- (b) Sales
- (c) Years ended 30 June of that stated
- (d) Years ended 7 July of that stated
- (e) Lake salt
- (f) Exports
- (g) Including salt in brine
- (h) Sold or used by producers
- (i) 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	2017	2018	2019	2020	2021
Armenia	* 20	* 20	* 20	* 20	* 20
Belgium	* 200	* 200	* 200	* 200	* 200
Finland	100	109	115	84	100
Germany (a)	* 790	* 300	* 300	* 300	* 200
Poland	74	66	76	74	66
Russia	194	176	184	190	* 194
Serbia	19	29	17	* 19	* 19
Sweden	20	90	19	19	* 20
Canada	49	85	57	102	* 100
Mexico	112	107	127	106	135
USA	116	152	144	66	112
Chile	* 100	* 110	* 90	* 100	* 100
Peru	45	45	40	53	* 40
China	930	1 150	1 358	* 1 400	* 1 400
Japan	729	768	740	740	750
Kazakhstan	* 40	* 5	* —	* —	* 12
Philippines	* 70	* 70	* 70	* 70	* 70
Uzbekistan	* 20	—	—	—	—

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	2017	2018	2019	2020	2021
France					
Andalusite (a)	* 68 000	* 65 000	* 68 000	* 65 000	* 65 000
Madagascar	4 200	* 0	* 1	* —	* —
South Africa					
Andalusite	* 200 000	* 200 000	* 190 000	* 180 000	* 190 000
USA					
Kyanite (b)	91 300	89 200	91 300	67 100	* 81 000
India					
Kyanite (c)	7 818	4 889	3 497	4 925	* 4 480
Sillimanite (c)	81 638	69 033	13 236	11 110	* 11 900
Nepal					
Kyanite (d)	2	0	1	0	* 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 Production of

Mine production of silver

kilograms (metal content)

Country	2017	2018	2019	2020	2021
Armenia	* 18 500	* 15 000	* 20 000	* 19 500	* 19 500
Azerbaijan	8 076	8 943	8 160	7 600	8 986
Bulgaria	53 053	41 315	35 145	39 100	* 40 000
Cyprus	99	180	97	(a) 486	—
Finland	13 654	12 849	40 461	54 833	45 338
Georgia	* 21 000	20 042	4 052	11 172	12 674
Germany	600	500	400	400	400
Greece	34 200	34 900	43 800	50 300	47 900
Ireland, Republic of	1 340	1 160	1 578	920	1 340
North Macedonia	12 775	12 694	11 707	11 488	15 000
Poland	1 490 000	1 471 000	1 455 000	1 423 000	1 522 000
Portugal	40 186	90 800	95 300	96 000	97 900
Romania	* 18 000	* 18 000	* 18 000	* 18 000	* 18 000
Russia (b)	1 373 000	1 400 100	1 407 000	1 380 000	1 213 000
Serbia (b)	12 300	9 000	* 14 500	* 12 000	* 12 000
Slovakia	410	345	295	269	328
Spain	98 600	87 780	77 501	92 751	81 208
Sweden	467 500	443 624	419 926	400 939	428 585
Turkey	151 490	197 320	242 000	98 270	162 670
United Kingdom	—	—	* 130	* 100	* 400
Algeria	* 20	* 100	* 100	—	12
Botswana	—	—	—	—	67 563
Burkina Faso	* 7 000	* 8 000	* 7 700	10 012	* 9 900
Congo, Democratic Republic	3 400	* 3 400	* 3 400	* 3 400	* 3 400
Eritrea	(c) 1 192	31 000	44 836	65 284	68 624
Ethiopia (d)	* 1 000	* 340	* 400	* 400	* 400
Ghana	4 000	4 000	* 4 000	* 1 000	* 1 000
Ivory Coast	493	137	—	—	—
Mali	* 2 100	* 2 600	* 2 700	* 2 800	* 3 000
Morocco	239 416	190 500	216 600	189 200	208 200
Namibia	7 451	3 602	6 221	6 982	5 330
Niger	100	64	31	12	87
Senegal	700	940	900	1 100	6 800
South Africa	62 536	46 467	55 903	38 118	37 147
Sudan	* 2 000	* 2 000	* 2 000	* 1 000	* 1 000
Tanzania	10 911	12 041	12 607	13 187	9 324
Zambia	—	93	7 212	* 9 000	* 9 000
Zimbabwe	1 480	1 542	* 1 500	* 1 500	* 1 500
Canada	389 568	404 000	410 000	295 051	325 026
Dominican Republic	151 756	166 499	108 685	87 889	79 687
Guatemala	336 944	—	—	—	—
Honduras	21 784	31 181	34 060	34 260	36 700
Mexico	5 815 034	7 243 245	7 485 602	7 424 554	6 097 500
Nicaragua	15 419	11 263	17 362	20 186	23 078
Panama	—	—	35 217	49 627	78 419
USA	1 030 000	934 000	981 000	1 030 000	* 1 000 000
Argentina	997 961	1 023 768	1 070 700	767 100	824 200
Bolivia	1 222 371	1 191 024	1 152 628	929 909	1 289 456
Brazil	41 900	49 600	* 68 400	* 68 400	80 900
Chile	1 318 582	1 370 237	1 309 321	1 575 794	1 383 041
Colombia	12 076	16 691	14 479	19 948	26 963
Ecuador	68	192	2 892	1 792	2 273
Peru	4 417 987	4 160 162	3 860 306	2 723 879	3 309 647
China	3 620 400	3 421 355	3 443 128	3 405 800	3 511 554
India (e)	557 691	679 376	672 380	746 377	* 680 000
Indonesia	331 644	335 491	484 900	338 100	335 900
Iran	* 50 000	* 50 000	* 50 000	* 50 000	* 50 000
Japan	3 408	3 596	3 467	4 192	3 339
Kazakhstan	1 060 662	969 347	1 022 068	1 035 181	1 004 789
Korea (Rep. of)	8 863	7 090	5 245	5 739	10 001
Korea, Dem. P.R. of	* 50 000	* 50 000	* 50 000	* 50 000	* 50 000
Kyrgyzstan	14 200	13 600	14 500	11 700	13 500
Laos	42 840	37 464	34 443	28 672	23 000
Malaysia	1 404	1 542	686	422	672

Mine production of silver

kilograms (metal content)

Country	2017	2018	2019	2020	2021
Mongolia	72 440	69 100	69 432	77 800	72 947
Philippines	31 748	29 782	31 267	24 024	30 856
Saudi Arabia	5 069	5 322	5 588	6 493	6 818
Tajikistan	6 600	9 500	10 800	3 300	11 000
Uzbekistan	183 500	183 500	189 700	196 000	* 211 500
Australia	1 120 175	1 254 480	1 325 089	1 337 344	1 330 229
Fiji	350	358	692	479	622
New Zealand	8 022	6 332	4 060	1 393	3 055
Papua New Guinea	69 330	104 004	157 927	130 000	90 200
World total	27 168 000	28 005 000	28 387 000	26 542 000	26 156 000

Note(s)

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

Production of natural sodium carbonate

tonnes (metric)

Country	2017	2018	2019	2020	2021
Turkey	3 274 416	3 400 000	3 500 000	* 4 000 000	* 4 500 000
Botswana	226 667	297 237	269 119	238 476	261 838
Ethiopia (a)	6 785	5 357	1 406	* 1 500	* 1 500
Kenya	303 580	294 856	282 049	254 579	283 621
USA	12 000 000	11 900 000	11 700 000	9 990 000	11 300 000

Note(s)

- (a) Years ended 7 July of that stated

Production of strontium minerals

tonnes (metric)

Country	2017	2018	2019	2020	2021
Spain	99 663	90 506	162 327	121 920	281 535
Mexico	40 699	35 489	39 215	59 079	21 351
Argentina (a)	5 000	* 700	* 700	* 700	* 700
China	53 700	* 50 000	* 50 000	* 80 000	* 80 000
Iran (b)	94 610	94 200	129 040	198 779	* 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	2017	2018	2019	2020	2021
Austria					
Recovered (a)	* 44 000	* 44 000	* 44 000	* 44 000	* 44 000
Belarus					
Recovered (a)	64 184	72 718	65 043	64 336	* 64 000
Belgium					
Recovered (a)(b)	* 400 000	* 400 000	* 400 000	* 400 000	* 400 000
Bosnia & Herzegovina					
Recovered	4 887	3 702	* 3 700	* 3 700	* 3 700
Bulgaria					
Recovered (b)	490 272	463 393	414 503	* 420 000	* 420 000
Recovered (a)	* 60 000	* 60 000	* 60 000	* 60 000	* 60 000
Croatia					
Recovered (a)	24 168	23 406	12 640	8 618	8 659
Czech Republic					
Recovered (a)	* 29 000	* 30 000	* 22 000	* 25 000	* 23 000
Denmark					
Recovered (a)	4 004	4 194	3 554	4 140	4 090
Finland					
Pyrites	291 000	271 000	233 000	194 000	182 000
Recovered (b)	345 762	343 377	327 300	358 700	338 400
Recovered (a)	* 130 000	* 130 000	* 130 000	* 120 000	* 120 000
France					
Recovered (a)	* 370 000	* 370 000	* 370 000	* 370 000	* 370 000
Recovered (c)	* 78 000	54 592	* 55 000	* 55 000	* 55 000
Germany					
Recovered (a)	537 882	419 597	460 012	353 293	382 049
Recovered (c)	328 247	254 400	280 660	213 398	235 769
Greece					
Recovered (a)	326 100	395 000	505 500	627 800	500 000
Hungary					
Recovered (a)	* 54 000	* 54 000	* 54 000	* 54 000	* 54 000
Italy					
Recovered (d)	511 000	550 000	550 000	* 550 000	* 550 000
Lithuania					
Recovered (a)	93 969	93 958	86 041	71 247	72 988
Netherlands					
Recovered (b)	* 86 000	* 96 000	* 86 000	* 90 000	* 90 000
Recovered (a)	* 520 000	* 520 000	510 000	* 510 000	* 500 000
Norway					
Recovered (b)	63 974	69 998	72 900	73 187	70 948
Recovered (a)	* 22 000	* 22 000	* 22 000	* 22 000	* 22 000
Poland					
Frasch	663 000	617 370	568 240	422 380	449 100
Recovered (b)	* 280 000	* 280 000	* 280 000	* 280 000	* 280 000
Recovered (a)	23 000	23 770	25 200	24 740	24 240
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)	* 6 600 000	* 6 700 000	* 6 700 000	* 6 100 000	* 6 400 000
Recovered (c)	* 954 000	* 954 000	* 954 000	* 954 000	* 954 000
Sulfur ore	96 316	83 707	57 427	* 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)	* 85 300	* 85 300	* 85 300	* 85 300	* 85 300
Sweden					
Recovered (b)	190 014	200 122	178 401	165 500	172 700
Recovered (a)	91 018	86 967	50 021	39 085	38 248
Turkey					
Pyrites	31 482	9 142	173 731	46 408	39 681
Recovered (a)(c)	* 70 700	* 78 900	* 82 700	* 88 700	* 95 300
Sulfur ore	5 285	900	—	—	—
United Kingdom					
Recovered (a)	133 000	129 000	130 000	106 000	107 000

Production of sulfur and pyrites

tonnes (sulfur content)

Country	2017	2018	2019	2020	2021
Algeria					
Recovered (a)	* 10 000	* 10 000	* 10 000	* 10 000	* 10 000
Egypt					
Recovered (a)	* 80 000	80 208	78 787	* 78 000	* 80 000
Libya					
Recovered (a)	133 300	—	* —	* —	* —
Morocco					
Recovered	* 60 000	* 60 000	* 60 000	* 60 000	* 60 000
Namibia					
Recovered	72 283	78 612	72 923	81 500	65 500
South Africa					
Recovered (b)(a)	280 830	239 405	919 624	575 491	32 044
Zambia					
Recovered (b)	679 500	947 800	960 200	917 300	* 1 000 000
Canada					
Recovered (b)	524 000	505 000	520 000	554 746	* 555 000
Recovered (a)	4 802 900	4 828 000	6 418 000	4 349 262	4 329 112
Cuba					
Recovered	3 047	3 154	3 234	3 176	2 846
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)	551 218	442 657	364 967	315 935	176 321
Trinidad & Tobago					
Recovered (a)	* 10 000	* 10 000	* 10 000	* 10 000	* 10 000
USA					
Recovered (b)	560 000	672 000	596 000	581 000	* 600 000
Recovered (a)	9 070 000	9 000 000	8 110 000	7 310 000	* 7 500 000
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)	1 524 437	1 476 456	1 263 119	1 476 154	1 400 388
Colombia					
Recovered (a)	6 980	* 7 000	* 7 000	* 7 000	* 7 000
Sulfur ore	64 856	—	—	* —	* —
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)	* 360 000	* 250 000	* 155 000	* 100 000	* 100 000
Bahrain					
Recovered (a)	* 110 000	* 100 000	* 120 000	* 120 000	* 120 000
China					
Pyrites	* 5 850 000	* 5 900 000	* 5 900 000	* 5 610 000	* 5 300 000
Recovered	* 11 590 000	* 11 600 000	* 11 600 000	* 11 390 000	* 11 000 000
India					
Recovered (b)(f)	* 1 200 000	* 1 200 000	* 1 200 000	* 1 200 000	* 1 200 000
Recovered (a)(f)	825 173	890 400	900 942	737 337	* 723 350
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)	* 2 260 000	* 2 140 000	* 1 540 000	* 1 400 000	* 1 640 000
Iraq					
Recovered (a)	* 6 450 000	* 6 583 000	* 6 792 000	* 5 858 000	* 5 823 000
Israel					
Recovered (a)	* 71 000	75 934	70 973	45 184	43 664
Japan					
Recovered (b)	1 583 867	1 710 961	1 629 656	1 728 654	1 575 032
Recovered (a)	1 788 620	1 697 355	1 629 365	1 411 860	1 420 094

Production of sulfur and pyrites

tonnes (sulfur content)

Country	2017	2018	2019	2020	2021
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)	2 947 300	* 2 620 000	* 2 625 000	* 2 484 000	* 2 490 000
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	2 000 000	1 999 000	2 000 000	2 000 000
Kuwait					
Recovered (a)	* 870 000	* 880 000	* 860 000	* 780 000	* 785 000
Oman					
Recovered (a)	* 48 000	* 49 000	* 48 000	* 48 000	* 48 000
Pakistan					
Sulfur ore (g)	23 740	22 040	20 715	19 948	19 398
Philippines					
Recovered (b)	* 169 000	* 169 000	* 169 000	* 169 000	* 169 000
Recovered (a)	* 45 000	* 2 500	* 2 000	* 2 000	* 2 000
Qatar					
Recovered (a)	* 1 545 000	* 1 571 700	* 1 509 700	* 1 512 900	* 1 539 700
Saudi Arabia					
Recovered (a)	* 3 700 000	* 3 900 000	* 3 700 000	* 3 500 000	* 3 400 000
Singapore					
Recovered (a)	* 300 000	* 300 000	* 300 000	* 300 000	* 300 000
Syria					
Recovered (a)	* 1 500	* 1 500	* 1 500	* 1 500	* 1 500
Taiwan					
Recovered	173 963	169 698	195 358	167 336	192 227
Thailand					
Recovered (b)	* 19 000	* —	* —	* —	* ...
Recovered (a)	* 215 000	* 205 000	* 205 000	168 526	147 669
Turkmenistan					
Recovered (a)	* 380 000	* 365 000	* 363 000	* 299 000	* 348 000
United Arab Emirates					
Recovered (a)	* 2 467 000	* 2 474 000	* 2 523 000	* 2 318 000	* 2 300 000
Uzbekistan					
Recovered (b)	* 131 000	* 131 000	* 131 000	* 131 000	* 131 000
Recovered (a)	* 81 000	* 84 000	* 87 000	* 81 000	* 78 000
Australia					
Recovered (b)	* 810 000	* 810 000	* 810 000	* 810 000	* 810 000
Recovered (a)	* 90 000	* 90 000	* 90 000	* 90 000	* 90 000
New Zealand					
Recovered (a)	* 35 000	* 35 000	* 35 000	* 35 000	* 35 000
World total					
Pyrites	6 300 000	6 300 000	6 400 000	5 900 000	5 600 000
Frasch	700 000	600 000	600 000	400 000	400 000
Recovered	77 900 000	77 700 000	77 900 000	71 800 000	71 100 000
Sulfur	200 000	100 000	100 000	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	2017	2018	2019	2020	2021
Austria	123 558	127 866	124 184	123 000	157 493
Finland	354 819	374 398	329 891	278 331	296 833
France	* 370 000	* 350 000	* 350 000	* 320 000	* 320 000
Italy	* 165 000	* 170 000	* 170 000	* 165 000	* 170 000
North Macedonia	400	319	—	—	—
Portugal	13 600	10 144	12 901	9 751	8 277
Russia	20 000	12 500	48 000	104 000	* 100 000
Slovakia	13 988	43 000	70 000	91 670	99 920
Spain	11 500	15 500	13 100	2 920	—
Turkey					
Talc	3 882	18 105	3 742	14 178	33 118
Pyrophyllite	470 600	266 111	88 335	129 290	187 232
United Kingdom	3 218	1 640	3 131	1 386	1 397
Egypt (a)	* 15 000	* 25 000	* 22 000	* 20 000	* 20 000
Nigeria	* 700	1 427	3 414	* 3 500	65 061
South Africa					
Talc	3 728	3 897	979	—	—
Pyrophyllite	55 048	98 245	134 451	92 318	270 944
Sudan	* 4 000	* 4 000	1 500	* 1 500	4 500
Canada (b)	217 000	289 000	255 000	153 293	* 160 000
Guatemala	1 982	2 187	10	3 151	2 111
Mexico	7 129	8 448	7 202	29 122	* 29 000
USA	610 000	648 000	578 000	* 490 000	* 490 000
Argentina	8 335	11 728	* 11 700	* 11 000	* 11 000
Brazil (c)	850 000	660 000	650 000	650 000	650 000
Colombia (c)	2 374	2 062	1 708	717	45
Peru					
Talc	19 363	20 634	18 935	17 418	23 039
Pyrophyllite	22 760	26 675	25 039	20 519	27 316
Uruguay	100	422	50	520	570
Bhutan	1 293	2 042	1 375	972	678
China	1 276 000	* 1 400 000	* 1 400 000	* 1 300 000	* 1 400 000
India					
Pyrophyllite (d)	38 760	* 39 000	* 39 000	* 39 000	* 39 000
Steatite (d)	1 613 607	* 1 600 000	* 1 600 000	* 1 600 000	* 1 600 000
Iran (e)	82 095	48 750	45 100	59 155	45 000
Japan	* 25 000	* 10 000	* 10 000	* 10 000	* 10 000
Japan					
Pyrophyllite	* 350 000	* 160 000	* 160 000	* 160 000	* 160 000
Korea (Rep. of)					
Talc	2 834	1 887	2 626	1 600	2 091
Pyrophyllite	431 458	345 550	338 834	314 346	353 013
Nepal (f)	4 204	8 557	7 813	2 719	* 3 000
Pakistan (a)	152 279	141 504	167 148	* 160 000	* 160 000
Saudi Arabia					
Pyrophyllite	44 000	46 000	48 000	* 48 000	* 48 000
Taiwan	—	17	6	—	43
Thailand					
Talc	7 436	7 756	8 064	6 624	5 920
Pyrophyllite	54 000	50 920	6 500	31 522	26 030
Australia	* 119 000	* 153 000	* 167 000	* 131 000	* 105 000
World total	7 600 000	7 200 000	6 900 000	6 600 000	7 100 000

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	2017	2018	2019	2020	2021
Russia					
Nb content	648	669	659	617	650
Ta content	45	44	32	60	42
Spain					
Ta content	—	—	15	13	15
Burundi					
Columbite-tantalite	74	22	22	21	* 21
Nb content	41	12	12	12	* 12
Ta content	14	4	4	4	* 4
Congo, Democratic Republic					
Columbite-tantalite	1 996	2 267	1 256	1 712	2 422
Nb content	838	952	528	719	1017
Ta content	699	793	440	599	848
Ethiopia (a)					
Nb content	* 22	* 26	* 7	* 7	* 12
Ta content	* 48	* 37	* 25	* 10	* 19
Mozambique					
Tantalite	127	146	132	209	175
Ta content	76	88	79	125	105
Nigeria					
Tantalite	19	0	1	* 1	44
Ta content	11	0	1	* 1	26
Columbite	1 222	1 814	1 721	* 1 700	1 378
Nb content	681	1010	959	* 947	768
Ta content	231	343	325	* 321	260
Rwanda					
Columbite-tantalite (b)(c)	1 327	1 861	1 519	1 201	1 118
Nb content	739	1037	846	669	623
Ta content	251	352	287	227	211
Uganda					
Columbite-tantalite	11	7	7	173	* 170
Nb content	6	4	4	99	* 97
Ta content	2	1	1	26	* 26
Zimbabwe					
Tantalite	27	14	7	4	—
Nb content	15	8	4	2	—
Ta content	5	3	1	1	—
Canada					
Pyrochlore	* 12 900	* 14 100	* 12 600	* 11 900	* 13 900
Nb content	6 981	* 7 600	* 6 800	* 6 400	* 7 500
Bolivia					
Tantalite	9	59	* 40	* 40	* 2
Ta content	5	35	* 24	* 24	* 1
Brazil					
Pyrochlore	153 169	158 489	228 885	154 049	198 777
Nb content	80 459	95 717	123 560	82 003	108 826
Columbite-tantalite	12 455	12 348	10 276	9 963	10 523
Nb content	6 228	6 174	5 138	4 982	5 262
China					
Columbite-tantalite	* 300	* 360	* 304	* 296	* 304
Nb content	* 167	* 201	* 169	* 165	* 169
Ta content	* 57	* 68	* 58	* 56	* 58
Malaysia					
Struverite	61	274	12	9	—
Ta content	7	33	1	1	1
Australia					
Tantalite	74	117	247	153	108
Ta content	44	70	148	92	65

Production of tantalum and niobium minerals

tonnes (metric)

Country	2017	2018	2019	2020	2021
World total					
Nb content	67 700	79 300	97 000	67 500	87 300
Ta content	1 400	1 700	1 300	1 500	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.
- (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	2017	2018	2019	2020	2021
Bulgaria	5	4	3	* 3	* 3
Russia	44	46	50	55	* 56
Sweden	35	45	41	42	41
Canada	17	* 17	* 15	23	* 25
China	291	357	461	330	* 349
Japan	38	58	50	70	75

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	2017	2018	2019	2020	2021
Portugal	81	111	108	104	60
Russia	1 011	1 530	2 471	2 539	2 908
Spain	23	81	101	115	220
United Kingdom	255	* 230	—	—	—
Burundi	123	126	143	121	127
Congo, Democratic Republic	9 725	8 950	10 991	14 673	15 963
Namibia	—	—	4	284	470
Nigeria	8 626	7 852	7 020	5 848	6 900
Rwanda (a)(b)	2 592	3 190	2 688	1 728	2 173
Tanzania	68	6	18	35	158
Uganda	66	53	15	—	—
Bolivia	18 385	17 251	17 147	14 709	19 628
Brazil	18 000	17 600	14 900	16 900	15 517
Colombia	—	—	22	10	—
Peru (c)	17 790	18 601	19 853	20 647	26 995
China	95 549	94 838	85 840	94 463	* 80 000
India (d)	13	6	5	3	* 15
Indonesia	78 070	82 809	86 947	65 127	34 466
Korea (Rep. of)	8	10	17	1	1
Laos	975	432	526	601	891
Malaysia	3 894	3 868	3 611	2 963	3 013
Mongolia (e)	* 16	* 26	* 20	40	* 10
Myanmar	* 68 000	* 55 000	* 50 000	* 36 000	* 32 000
Thailand	341	47	46	194	216
Vietnam	5 200	5 745	6 369	6 798	* 6 000
Australia	7 402	6 871	7 738	8 118	8 772
World total	336 000	325 000	317 000	292 000	257 000

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	2017	2018	2019	2020	2021
Belgium	9 652	9 329	9 296	8 980	9 998
Poland	3 380	3 817	4 099	3 915	4 617
Russia	800	* 1 100	* 1 400	* 1 600	* 1 800
Rwanda	—	—	800	* 900	* 1 300
Bolivia (a)	16 648	15 611	15 111	10 414	16 258
Brazil	16 500	* 16 500	* 16 000	* 16 000	* 10 000
Peru	17 906	18 255	19 555	19 585	25 947
China	178 400	177 407	182 772	202 910	200 488
India (b)	14	7	—	—	—
Indonesia	78 070	83 015	76 389	58 790	* 72 400
Japan	1 624	1 647	1 551	1 507	1 878
Malaysia	27 172	27 085	25 752	22 325	16 619
Taiwan	* 2 800	* 2 800	* 3 800	* 3 700	* 4 000
Thailand	10 601	10 880	9 597	11 307	12 069
Vietnam	* 5 500	* 5 500	* 5 500	* 5 500	* 5 500
Australia	21	83	131	150	55
World total	369 000	373 000	372 000	368 000	383 000

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	2017	2018	2019	2020	2021
Norway					
Ilmenite	* 630 000	* 630 000	* 630 000	522 221	671 833
Ukraine					
Ilmenite	* 500 000	745 417	818 543	773 093	* 780 000
Rutile	* 90 000	106 858	* 115 500	* 110 500	* 97 500
Gambia					
Ilmenite	3 975	1 077	9 325	6 454	14 126
Kenya					
Ilmenite	491 000	463 000	352 000	334 900	345 000
Rutile	87 167	98 132	85 796	72 836	69 844
Madagascar					
Ilmenite	430 479	381 924	448 185	499 768	* 690 000
Rutile	8 100	5 070	5 947	* 6 000	* 6 000
Mozambique					
Ilmenite	998 200	958 500	892 900	756 000	1 119 400
Rutile	9 133	8 154	8 278	5 957	8 914
Senegal					
Ilmenite	492 441	506 938	491 602	505 000	723 600
Leucoxene (a)	9 975	9 605	10 130	9 500	16 400
Sierra Leone					
Ilmenite	57 040	49 510	63 350	50 963	53 802
Rutile	165 470	108 320	136 790	116 569	131 311
South Africa					
Ilmenite (b)	* 550 000	765 000	1 100 000	1 020 000	* 1 000 000
Rutile	95 000	103 000	110 000	86 000	* 90 000

Production of titanium minerals

tonnes (metric)

Country	2017	2018	2019	2020	2021
Canada					
Ilmenite (b)(c)	* 2 300 000	* 2 000 000	* 2 100 000	* 1 900 000	* 1 700 000
USA	100 000	100 000	100 000	* 100 000	* 100 000
Brazil					
Ilmenite (d)	50 000	66 000	70 000	* 70 000	* 70 000
China					
Ilmenite	3 830 000	4 200 000	* 4 200 000	* 4 200 000	* 4 200 000
India					
Ilmenite (e)	284 667	265 931	* 265 000	* 265 000	* 265 000
Rutile (e)	11 829	11 045	* 11 000	* 11 000	* 11 000
Kazakhstan	* 9 400	* 10 000	* 10 000	* 8 000	* 10 000
Korea (Rep. of)					
Ilmenite	223 039	213 184	295 987	287 895	322 581
Malaysia					
Ilmenite	6 363	14 158	2 334	2 548	4 598
Rutile	5 266	5 070	5 947	5 136	11 513
Sri Lanka					
Ilmenite	53 734	60 847	43 789	18 016	49 068
Rutile	2 174	2 174	1 959	1 311	1 881
Thailand					
Ilmenite	8	41	5 095	153	66
Vietnam					
Ilmenite	225 300	235 126	216 700	230 400	244 360
Australia					
Ilmenite (f)	693 763	569 472	596 288	634 165	* 503 781
Rutile (f)	227 462	209 762	154 507	156 389	* 150 848
Leucoxene (f)	57 148	69 183	46 743	79 058	* 70 133
World total					
Ilmenite (wt of concs)	11 900 000	12 200 000	12 700 000	12 200 000	12 900 000
Rutile (wt of concs)	700 000	700 000	600 000	600 000	600 000
All forms (TiO ₂ content)	6 300 000	6 500 000	6 700 000	6 400 000	6 800 000

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

Mine production of tungsten

tonnes (metal content)

Country	2017	2018	2019	2020	2021
Austria	975	936	892	896	919
Portugal (a)	669	715	518	535	502
Russia	2 174	2 661	2 825	2 692	* 2 700
Spain	564	856	414	238	643
United Kingdom	1 370	* 1 240	—	—	—
Burundi	157	118	164	182	* 185
Congo, Democratic Republic	150	230	246	137	127
Nigeria	12	66	13	* 13	* 20
Rwanda (b)(c)	929	1 039	1 303	956	1 281
Uganda	47	144	110	9	* 10
Zimbabwe	* 1 000	—	—	—	—
Mexico	—	45	15	32	* 40
Bolivia	776	1 043	813	1 030	1 194
Brazil	411	* 400	* 400	* 400	* 400
China	67 472	64 938	75 452	* 76 000	* 76 000
Korea, Dem. P.R. of	* 300	* 1 370	* 1 100	* 1 192	* 500
Kyrgyzstan	* 100	* 100	* 100	* 100	* 100
Mongolia	* 660	* 543	* 463	* 42	* 40
Myanmar (d)	272	303	220	118	71
Thailand	(a) 52	(a) 81	(a) 45	(e) 70	(e) 72
Uzbekistan	* 300	4	2	2	2
Vietnam	5 178	4 350	4 816	8 066	15 858
Australia (b)	* 5	* 5	* 5	* 5	* 5
World total	83 600	81 200	89 900	92 700	100 700

Note(s)

- (1) In addition to the countries listed, the USA is known to produce tungsten.
(2) The figures in this table include artisanal mining, where data are available.

- (a) Wolframite and scheelite
(b) Years ended 30 June of that stated
(c) Exports
(d) Including tungsten content of tin-tungsten concentrates
(e) Scheelite

Mine production of uranium

tonnes (metal content)

Country	2017	2018	2019	2020	2021
Czech Republic	59	34	33	29	27
Germany	34	—	24	8	—
Russia	2 917	2 904	2 911	2 846	2 635
Ukraine	707	790	801	744	455
Namibia	4 529	5 882	5 622	4 204	5 754
Niger	3 485	2 910	2 863	2 991	2 282
South Africa	358	196	163	124	153
Canada	12 433	7 320	6 871	4 085	4 616
USA	940	582	58	6	8
Brazil	—	—	—	15	29
China	* 1 692	* 1 885	* 1 885	* 1 885	* 1 885
India	* 421	* 423	* 308	* 400	* 615
Iran	* 40	* 71	* 71	* 71	* 71
Kazakhstan	23 321	21 705	22 808	19 477	21 819
Pakistan	* 45	* 45	* 45	* 45	* 45
Uzbekistan	* 3 400	* 3 450	* 3 500	* 3 500	* 3 500
Australia	5 713	6 562	6 553	6 168	3 457
World total	60 100	54 800	54 600	46 600	47 300
World total (U ₃ O ₈ equivalent)	70 900	64 700	64 300	55 000	55 900

Note(s)

(1) Excluding uranium production from decommissioning operations.

Mine production of vanadium

tonnes (metal content)

Country	2017	2018	2019	2020	2021
Russia	18 636	17 052	18 380	19 533	20 058
South Africa	14 222	14 904	14 858	14 421	15 424
USA	—	—	460	17	—
Brazil	5 206	5 505	5 923	6 622	5 779
China	45 400	* 40 000	* 54 000	* 70 000	* 73 000
India (a)	* 400	442	* 400	* 400	* 400
Kazakhstan	* 1 000	* 1 000	* 1 000	* 1 000	* 1 000
World total	85 000	79 000	95 000	112 000	116 000

Note(s)

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

(a) Years ending 31 March following that stated

Production of vermiculite

tonnes (metric)

Country	2017	2018	2019	2020	2021
Bulgaria	* 10 000	* 10 000	* 10 000	* 10 000	* 10 000
Russia	9 262	25 904	29 266	* 29 000	* 30 000
Turkey	1 618	18 183	1 370	19 230	3 300
Kenya	* 400	* 400	* 400	* 400	* 400
South Africa	166 084	141 346	158 013	118 223	217 109
Uganda	4 119	10 413	9 674	14 170	* 14 000
Zimbabwe (a)	23 302	33 161	25 934	27 250	* 30 000
Mexico	464	244	148	104	* 100
USA (a)	* 100 000	* 100 000	* 100 000	* 100 000	* 100 000
Brazil	55 000	50 000	50 000	* 50 000	* 50 000
China	* 15 000	* 15 000	* 15 000	* 15 000	* 15 000
India (b)	6 054	2 992	2 774	1 260	* 1 000

Note(s)

(a) Sold or used by producers

(b) Years ended 31 March following that stated

Production of wollastonite

tonnes (metric)

Country	2017	2018	2019	2020	2021
Finland	* 10 000	* 10 000	* 11 000	* 11 000	* 11 000
Spain	19 135	12 235	7 165	17 412	17 246
Mexico	98 449	145 814	159 498	131 518	102 711
USA	* 50 000	* 60 000	* 50 000	* 40 000	* 50 000
China	* 840 000	* 890 000	* 890 000	* 890 000	* 900 000
India (a)	153 049	184 063	124 657	103 902	* 104 000
Australia (b)	1 749	2 007	—	2 426	4 495

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	2017	2018	2019	2020	2021
Armenia	5 784	6 497	6 743	7 758	6 373
Bosnia & Herzegovina	10 235	10 603	6 440	4 849	5 309
Bulgaria	10 886	11 367	14 570	14 700	21 600
Finland	66 284	85 335	68 153	57 962	54 353
Georgia	—	—	—	2 243	2 059
Greece	17 300	21 456	22 298	28 037	22 598
Ireland, Republic of	130 580	131 742	122 500	127 008	112 249
Kosovo	4 468	3 619	3 089	3 909	4 513
Montenegro	8 800	10 668	9 518	10 133	9 357
North Macedonia	27 846	29 715	31 041	31 748	30 074
Poland	44 959	41 886	37 645	39 500	40 388
Portugal	71 357	144 983	161 569	176 849	187 703
Romania	* 800	* 600	* 1 300	* 100	* 2 500
Russia	255 200	288 000	275 400	* 260 700	* 280 000
Serbia	11 900	11 800	6 900	6 500	6 400
Slovakia	166	151	119	96	25
Spain	70 451	106 352	90 980	90 368	90 481
Sweden	251 244	237 715	247 657	234 811	236 416
Turkey	155 900	184 468	146 800	136 300	171 200
Algeria	* 500	* 500	1 000	1 600	500
Burkina Faso	92 731	99 162	95 611	73 543	74 295
Congo	* 4 300	* 500	* 4 800	* 1 100	* 2 600
Congo, Democratic Republic	12 377	1 129	6 134	15 305	16 079
Eritrea	95 400	125 000	121 260	121 930	129 641
Morocco	51 701	43 567	43 600	38 000	49 500
Namibia	132 854	118 435	114 735	62 333	83 362
Nigeria	* 22 000	* 27 000	* 23 000	* 26 900	* 32 200
South Africa	30 778	28 129	125 157	160 816	193 785
Zambia	—	—	44	* 1 500	—
Canada	346 776	304 964	323 019	371 491	310 158
Cuba	* 2 900	* 42 000	* 57 800	* 57 700	* 45 000
Dominican Republic	3 920	4 038	5 527	2 361	4 896
Guatemala	6 100	—	—	—	—
Honduras	20 436	28 421	29 223	* 27 000	32 000
Mexico	671 444	662 355	859 194	1 008 252	742 900
USA	773 800	824 000	753 000	718 000	* 740 000
Argentina	23 392	22 050	16 407	8 569	6 187
Bolivia	527 206	519 630	527 521	358 411	499 257
Brazil	156 500	169 800	163 400	174 500	159 900
Chile	29 008	26 810	5 620	28 662	27 915
Peru	1 473 073	1 474 383	1 404 382	1 334 570	1 532 043
China	3 868 500	3 721 100	3 685 800	4 058 000	4 737 000
India (a)	772 600	728 402	723 412	756 998	* 735 000
Indonesia	* 13 900	* 20 100	* 26 200	* 17 420	* 15 151
Iran	140 000	* 145 000	* 150 000	* 150 000	* 150 000
Kazakhstan	345 000	346 000	321 900	335 400	326 900
Korea (Rep. of)	3 321	3 656	4 106	4 252	4 371
Korea, Dem. P.R. of	35 671	* 35 000	* 30 000	* 28 000	* 28 000
Laos	* 5 700	* 3 100	* 1 300	* 1 200	* 5 400
Mongolia	82 700	43 950	41 550	38 150	35 100
Myanmar (a)	12 560	11 700	* 39 000	6 755	9 800
Pakistan (b)	19 457	26 979	37 365	17 527	17 700
Saudi Arabia	21 677	18 000	18 900	50 819	53 360
Tajikistan	92 764	82 329	78 148	48 416	70 573
Thailand	1 182	—	—	—	—
Uzbekistan	37 000	31 000	37 000	41 000	42 000
Vietnam	* 12 000	* 12 000	* 12 000	* 12 000	* 12 000
Australia	852 164	1 146 781	1 337 321	1 314 910	1 322 974
World total	11 900 000	12 200 000	12 400 000	12 700 000	13 500 000

See notes on the following page

Mine production of zinc

Note(s)

(a) Years ended 31 March following that stated

(b) Years ended 30 June of that stated

Production of slab zinc

tonnes (metric)

Country	2017	2018	2019	2020	2021
Belgium (a)	249 000	275 000	271 200	270 000	267 086
Bulgaria	73 715	75 150	73 512	74 500	* 74 500
Finland	284 992	295 029	290 844	297 257	292 648
France	166 000	155 000	142 000	166 000	165 000
Germany	174 000	180 000	182 000	175 000	160 000
Italy	128 800	131 600	132 900	126 100	179 800
Netherlands	248 000	268 000	* 240 000	* 250 000	* 260 000
Norway	172 086	190 570	195 374	191 576	180 323
Poland	162 247	159 739	159 436	160 300	164 700
Russia	256 700	254 600	206 700	211 800	* 200 000
Spain	507 000	511 000	507 900	504 100	505 000
Algeria	1 472	2 045	543	—	—
Namibia	83 768	67 122	64 985	16 206	—
Canada	598 438	620 202	653 194	678 558	640 718
Mexico	327 003	336 378	388 588	363 383	357 038
USA	132 000	116 000	115 000	180 000	* 220 000
Brazil	245 200	251 000	241 900	247 000	* 240 000
Peru	312 339	333 677	356 925	318 619	* 320 000
China	6 143 900	5 607 103	6 236 423	6 424 876	6 561 000
India (a)	791 461	696 283	688 282	715 445	* 704 650
Iran	140 000	130 000	144 000	135 000	* 140 000
Japan	523 919	521 110	526 717	501 146	517 221
Kazakhstan	331 018	317 965	318 399	311 322	300 886
Korea (Rep. of)	961 904	1 008 957	973 000	994 047	960 000
Korea, Dem. P.R. of	* 15 000	* 15 000	* 15 000	* 15 000	* 15 000
Thailand	30 018	—	—	—	—
Uzbekistan	70 000	70 458	67 844	72 993	90 020
Vietnam	10 900	10 000	* 10 000	10 000	10 000
Australia	462 095	489 967	435 977	447 250	466 041
World total	13 600 000	13 100 000	13 600 000	13 900 000	14 000 000

Note(s)

(a) Years ended 31 March following that stated

Production of zirconium minerals

tonnes (metric)

Country	2017	2018	2019	2020	2021
Russia (a)	7 200	7 400	6 300	6 000	* 5 500
Ukraine	* 25 000	21 614	* 22 000	* 22 000	* 22 000
Gambia	—	1 145	2 684	—	—
Kenya	65 324	36 604	48 356	32 224	25 928
Madagascar	21 000	22 757	29 473	26 029	* 22 000
Mozambique	73 960	76 550	87 181	78 138	100 158
Nigeria	* 900	531	* 500	* 400	* 500
Senegal	61 562	64 278	58 432	59 000	64 000
Sierra Leone	3 000	11 400	8 500	6 600	4 100
South Africa	377 000	350 000	370 000	280 000	* 270 000
USA	50 000	100 000	20 000	20 000	* 20 000
Brazil (b)	* 21 000	* 20 000	* 20 000	* 20 000	* 20 000
China	* 33 500	* 33 500	* 33 500	* 50 000	* 50 000
India (c)	9 107	11 906	* 12 000	* 10 000	* 10 000
Indonesia (d)	* 29 000	* 54 000	* 73 000	* 64 000	* 58 000
Malaysia	1 595	509	449	157	1 518
Sri Lanka	8 569	785	917	419	400
Vietnam	* —	* 4 000	* 3 000	* 3 000	* 3 000
Australia (e)	583 339	414 672	499 335	434 339	* 448 022
World total	1 371 000	1 232 000	1 296 000	1 112 000	1 125 000

Note(s)

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

- (a) Baddeleyite concentrate
- (b) Including caldasite rock containing zircon and baddeleyite
- (c) Years ending 31 March following that stated
- (d) Conservative BGS estimates, based on exports
- (e) 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	2017	2018	2019	2020	2021
Austria					
Sand and gravel	30 926 736	31 736 640	30 761 767	30 655 318	32 069 197
Crushed rock (a)	25 963 256	27 684 134	27 674 453	27 471 201	* 30 000 000
Belgium					
Sand and gravel	* 19 000 000	* 15 500 000	* 15 500 000	* 15 500 000	* 15 500 000
Crushed rock	* 46 000 000	* 45 000 000	* 45 000 000	* 45 000 000	* 45 000 000
Bulgaria					
Sand and gravel (a)	9 860 186	8 610 204	8 189 735	8 500 308	8 810 739
Crushed rock (a)	16 444 761	21 468 893	22 769 369	24 611 097	* 25 000 000
Croatia					
Sand and gravel	3 766 684	3 646 945	4 105 831	4 585 010	5 268 779
Cyprus					
Crushed rock	7 034 430	7 978 133	8 422 664	7 905 100	9 401 246
Czech Republic					
Sand and gravel	19 848 000	20 473 000	19 982 000	20 335 000	21 334 000
Crushed rock	38 262 000	41 648 000	42 225 000	42 915 000	45 287 000
Denmark					
Sand and gravel	49 323 000	48 950 000	47 803 000	51 558 000	53 128 000
Crushed rock	283 000	537 000	233 000	175 000	465 000
Estonia					
Sand and gravel	6 733 400	6 467 500	7 746 800	9 544 800	7 790 490
Crushed rock	7 704 100	6 148 300	5 771 800	7 013 440	8 242 500
Finland					
Sand and gravel	28 200 000	24 500 000	23 800 000	* 23 000 000	* 20 000 000
Crushed rock	48 700 000	51 100 000	51 000 000	* 50 000 000	* 50 000 000
France					
Sand and gravel	123 865 000	126 365 000	126 717 000	* 126 700 000	* 126 700 000
Crushed rock	187 233 000	195 998 000	198 951 000	* 199 000 000	* 199 000 000
Germany					
Sand and gravel	257 000 000	259 000 000	259 000 000	262 000 000	274 000 000
Crushed rock	220 000 000	226 000 000	217 000 000	223 000 000	219 000 000
Greece					
Sand and gravel	38 339 770	34 439 069	* 34 000 000	* 34 000 000	* 34 000 000
Hungary					
Sand and gravel	37 984 379	46 866 306	49 419 275	36 217 375	43 363 062
Crushed rock	9 097 923	10 562 195	9 345 548	8 072 859	6 691 343
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	63 627 458	69 575 607	52 111 877	54 606 351	64 702 438
Crushed rock	57 663 627	34 169 132	24 870 935	43 995 003	36 924 610
Latvia					
Sand and gravel	11 417 545	13 017 775	11 801 045	11 536 388	10 018 695
Crushed rock	2 069 297	1 856 977	1 341 708	1 935 975	4 250 016
Lithuania					
Sand and gravel	9 805 230	9 992 563	11 675 361	12 539 223	12 640 698
Crushed rock	6 392 084	7 340 099	7 517 080	8 281 359	8 089 675
Malta					
Crushed rock	1 340 406	1 598 151	1 953 416	1 917 978	(b) 1 885 435
Montenegro					
Sand and gravel	173 670	159 528	156 612	380 976	210 876
Crushed rock	212 697	166 550	143 219	163 573	136 293
Netherlands					
Sand and gravel	43 600 000	64 800 000	68 600 000	* 69 000 000	* 69 000 000
Norway					
Sand and gravel	14 696 000	13 324 347	13 362 555	14 053 691	13 146 511
Crushed rock	75 845 000	80 300 804	84 412 381	79 020 476	77 470 569
Poland					
Sand and gravel	186 296 000	197 005 000	182 811 000	180 243 000	185 076 000
Crushed rock	67 617 000	80 161 000	81 562 000	76 286 654	77 774 012
Portugal					
Sand and gravel	6 526 376	8 370 573	10 187 542	10 784 029	7 377 376
Crushed rock	28 789 458	30 620 462	32 134 534	35 063 333	43 017 417
Romania					
Sand and gravel	* 55 000 000	* 88 000 000	* 67 500 000	* 60 000 000	* 60 000 000
Crushed rock	* 31 000 000	* 28 000 000	* 19 800 000	* 19 000 000	* 19 000 000

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

tonnes (metric)

Country	2017	2018	2019	2020	2021
Slovakia					
Sand and gravel	1 743 489	2 096 000	1 982 000	1 785 727	1 748 620
Crushed rock	13 518 792	12 790 000	11 551 000	10 823 895	11 506 270
Slovenia					
Sand and gravel	2 047 403	1 810 666	1 437 101	1 869 851	2 225 198
Crushed rock	8 642 881	10 282 002	9 550 639	8 983 918	11 351 196
Spain					
Sand and gravel	37 000 000	42 600 000	43 000 000	45 000 000	45 000 000
Crushed rock	68 000 000	70 000 000	79 000 000	82 000 000	84 000 000
Sweden					
Sand and gravel	11 774 505	12 187 744	10 617 896	9 290 761	* 9 000 000
Crushed rock	84 467 197	91 730 406	92 890 100	91 730 897	* 92 400 000
Switzerland					
Sand and gravel	* 35 640 000	* 35 160 000	* 35 140 000	* 34 550 000	* 35 000 000
Crushed rock	2 194 123	2 410 000	2 270 000	2 390 000	* 2 400 000
United Kingdom					
Sand and gravel	67 545 000	69 882 000	65 660 000	57 571 000	64 576 000
Crushed rock (c)	125 742 000	129 998 000	129 636 000	118 146 000	125 874 000
European total	2 382 000 000	2 500 000 000	2 440 000 000	2 431 000 000	2 486 000 000

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 table.
- (3) Where marine sands and gravels have been identified, these are included.
- (4) Information may be incomplete or absent due to reporting methods, confidentiality or lack of available information.
- (5) Production from many small operations are not officially compiled. The minimum number of employees for which establishments are required to report production varies between different countries and can also vary from year to year.
- (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	2017	2018	2019	2020	2021
Austria	* 17 000	* 18 000	* 19 000	19 630	39 019
Belgium	800 584	2 234 195	* 2 250 000	2 394 779	95 908
Bulgaria	2 259 551	2 334 741	2 297 773	1 999 876	1 989 255
Croatia	2 416 013	2 316 706	2 267 721	2 353 571	2 403 438
Cyprus	1 815 568	1 671 205	1 643 193	2 001 957	1 706 031
Czech Republic	3 236 047	3 514 288	3 722 188	3 556 702	3 673 025
Estonia	517 900	505 300	504 000	52 000	—
France	12 357 000	12 845 000	13 005 000	11 759 000	* 12 000 000
Germany	* 23 000 000	22 835 000	22 923 753	23 464 980	24 000 116
Greece	7 088 107	6 576 608	6 429 107	5 958 786	6 533 048
Hungary	* 400 000	* 400 000	* 400 000	* 400 000	* 400 000
Italy	18 164 817	13 354 776	14 855 163	12 928 011	14 079 222
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	1 461 477	1 429 400	1 407 000	1 389 000	1 361 000
Poland	12 996 500	14 221 000	14 178 000	14 361 461	13 996 134
Portugal	4 854 448	4 294 389	4 272 085	4 568 932	* 4 600 000
Romania	6 189 799	6 586 702	7 208 688	7 541 962	7 765 023
Serbia	* 1 300 000	* 1 300 000	* 1 300 000	* 1 300 000	* 1 300 000
Slovakia	* 1 800 000	* 1 900 000	* 2 000 000	* 2 000 000	* 2 100 000
Spain	17 304 352	18 266 325	17 226 700	15 731 000	16 500 000
Sweden	2 768 000	2 957 600	2 539 000	2 397 000	2 691 278
Turkey	70 812 559	70 343 788	56 966 272	71 767 003	80 127 408
United Kingdom	7 824 000	7 734 000	7 830 000	6 941 000	7 367 000
European total	202 000 000	200 000 000	187 000 000	197 000 000	207 000 000

Production of finished cement

tonnes (metric)

Country	2017	2018	2019	2020	2021
Austria (a)	4 660 187	5 227 834	4 516 947	4 508 448	4 949 683
Belgium	6 491 000	6 643 000	6 773 000	6 717 000	* 6 700 000
Bulgaria (a)(b)	2 064 792	2 208 116	2 371 458	2 175 279	2 147 439
Croatia	2 718 147	2 828 285	2 918 863	3 101 874	3 244 819
Cyprus	1 319 351	1 357 991	1 537 017	1 496 494	1 439 679
Czech Republic	4 033 854	4 427 713	4 569 379	4 513 409	4 721 036
Denmark	2 359 131	2 372 246	2 440 600	2 497 680	2 509 227
Estonia (a)	502 900	526 900	411 300	253 600	365 900
Finland (a)	1 510 974	1 462 240	1 430 226	1 435 646	1 533 734
France	16 851 000	16 537 000	16 710 000	16 422 000	* 16 500 000
Germany	33 991 150	33 654 985	34 185 343	35 478 000	34 966 000
Greece	6 334 960	6 676 881	5 755 532	(a) 5 504 966	(a) 6 678 403
Hungary	* 1 000 000	* 1 000 000	* 1 000 000	* 1 000 000	* 1 000 000
Ireland, Republic of	* 2 100 000	* 2 100 000	* 1 700 000	* 1 800 000	* 1 800 000
Italy	25 328 555	18 644 359	19 481 760	19 818 320	21 444 788
Latvia	* 1 000 000	* 1 000 000	* 1 000 000	* 1 000 000	* 1 000 000
Lithuania	1 023 437	1 150 635	1 222 934	1 220 837	1 354 192
Luxembourg	* 1 000 000	* 1 000 000	* 1 000 000	* 1 000 000	* 1 000 000
Netherlands	* 2 070 000	* 2 236 000	* 2 303 000	* 2 142 000	* 2 100 000
North Macedonia	900 836	920 810	896 030	927 566	934 987
Norway	1 924 388	1 856 800	1 780 000	1 737 000	1 780 000
Poland	17 254 400	18 957 000	18 946 000	19 048 709	19 624 709
Portugal (a)	3 792 733	3 963 088	4 297 556	4 498 364	* 4 500 000
Romania	8 441 574	8 951 154	9 936 772	10 539 046	(a) 9 640 634
Serbia	1 907 689	2 092 501	2 151 000	2 364 000	2 610 000
Slovakia	3 781 889	3 912 674	4 030 506	4 071 834	4 164 903
Slovenia	* 700 000	* 700 000	* 700 000	* 700 000	* 700 000
Spain	15 548 943	16 214 663	16 998 100	16 177 000	17 000 000
Sweden	3 067 400	3 152 300	2 844 000	2 515 000	2 402 207
Switzerland (c)	4 272 316	4 289 000	4 210 000	4 150 000	* 4 150 000
Turkey	80 552 257	71 830 736	56 528 236	72 299 054	78 945 029
United Kingdom	9 359 000	9 198 000	9 079 000	8 046 000	9 008 000
European total	268 000 000	257 000 000	244 000 000	259 000 000	271 000 000

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, BP Statistical Review of World Energy; Austrian Federal Ministry of Science, Research and Economy, World Mining Data; Société de l'Industrie Minière, Annuaire Statistique Mondial des Minerais et Métaux; Publications of the Interstate Statistical Committee of the CIS; World Bureau of Metal Statistics, World 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); Eurostat; Federacciai; International Tin Association Ltd; Kimberley Process; South East Asia Iron and Steel Institute (SEASII); The European Steel Association (EUROFER); The Silver Institute; United Nations agencies; United States Energy Information Administration; United States Geological Survey; World Nuclear Association; World Steel Association.

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

ALRO S.A; Aluar; Alumina Ltd; Alvanco Aluminium Group; 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; Camimex; Canadian Clay Products Inc; Centamin Plc; Chaarat Gold Holding; CI Resources Ltd; Dominion Salt; Dundee Precious Metals Inc; Emirates Global Aluminium; Endeavour Mining; Endiama EP; Eramet Group; ETI Aluminium Inc; EVRAZ Plc; Fenix Metals Ltd; Ferbas; First Quantum Mineral Ltd; Freeport McMoran; Fortuna Silver Mines Inc; Galane Gold; Galaxy Resources; Gazprom; Glencore International AG; Grafitbergbau Kaisersberg GmbH; Gravita India Ltd; Grecian Magnesite SA; Heidelberg Cement AG; Highlands Pacific 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; 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 Alumbra; MMG Limited; Nevsun Resource Ltd; Newcrest Mining Ltd; 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;

Padaeng Industries; Paladin Energy Ltd; PanAust Ltd; PEMEX Petróleos Mexicanos; Peñoles; PhosAgro;

Polymetal International PLC; PT Antam Tbk; PT Indonesia Asahan Aluminium; PT Merdeka Copper Gold Tbk, Indonesia; Qatalum; Rainbow Rare Earths Limited; Resolute Mining; Rio Tinto Ltd; Robex Resources; Ronphos Corporation; RUSAL; RW Silicium GmbH; Salinen Austria AG; Serbia Zijin Bor Copper DOO; Sherritt International Corporation; Solway Investment Group Ltd; South32; Southern Copper Corporation; Syrah Resources Ltd; Tahoe Resources; Talum Group; Tasmania Mines Ltd; Teranga Gold Corporation;; TiZir Ltd; Trafigura; Treibacher Industrie AG; Trevali Mining Corporation; United States Antimony Corporation; Uralkali; Vale; Vargon Alloys AB; Verband der Kali - und Salzindustrie EV; Wolfram Bergbau und Hütten AG; Zavalievsky Graphite Ltd; Zijin Mining.

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

National Statistic and Information Authority, Afghanistan; National Agency of Natural Resource, Albania; Albanian Geological Survey, Albania; Institute of Statistics, Albania; Ministère de l'Énergie et des Mines, Algeria; Office National des Statistiques, Algeria; Acero Argentino, 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; Mineral Resources Tasmania, Australia; Department of Mines and Petroleum (Western 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; Bangladesh Bureau of Statistics; National Statistical Committee Belarus; Belgium; Federation de l'Industrie Cimentière Belge, Belgium; National Statistics Bureau, Bhutan; Ministerio de minería y metalurgia, Bolivia; Agency for Statistics of Bosnia and Herzegovina; Department of Mines, Botswana; Associacao Brasileira do Alumínio, Brazil; Ministry of Mines and Energy, Brazil; Energy Department, Prime Ministers Office, Brunei; Ministry of Energy, Brunei; Bulgarian Association of Metal Industries, Bulgaria; Ministry of Energy, Bulgaria; Burkina-emine SARL, Burkina Faso; Chambre des Mines du Burkina, Burkina Faso; Institut National de la Statistique et de la Démographie (INSD), Burkina Faso; West African Resources, Burkina Faso; SEMAFO, Burkina Faso; Central Statistical Organization, Burma; Institut de Statistiques et d'Études Économiques du Burundi;

Société Nationale des Hydrocarbures, Cameroon; Banque des États de l'Afrique Centrale, Cameroon; Natural Resources Canada; Canadian Association of Petroleum Producers, Canada; Statistics Canada; Banque des États de l'Afrique Centrale, Central African Republic; 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 Geologia y Minas, Costa Rica; Oxford Business Group, Cote D'Ivoire; Croatian Bureau of Statistics, Croatia; Ministry of Economy, Entrepreneurship and Crafts, Croatia; Oficina Nacional de Estadísticas e Informacion, Cuba; Ministry of Agriculture Natural Resources and Environment, Cyprus; Czech Cement Association, Czech Republic; Czech Geological Survey, Czech Republic; Steel Union, Czech Republic; Danish Energy Agency, Denmark; Statistics Denmark; Direccion General de Minería, Dominican Republic; Autoridade Nacional do Petróleo e Minerais, East Timor; National Petroleum Authority, East Timor; Central Agency for Public Mobilisation and Statistics, Egypt; Statistics Estonia; Central Bank of Eswatini; Fiji Bureau of Statistics; Statistics Office, Fiji; Reserve bank of Fiji; Geological Survey of Finland; Terrafame, Finland; Bureau de Recherches Géologiques et Minières, France; Federation Française de l'Acier, France; Infociments, France; 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; 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; 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; Japan Aluminium Association, Japan; Japan Oil Gas and Metals National Corporation, Japan; Ministry of Economy Trade and Industry, Japan; Metal Economics Research Institute, Japan; Sulphuric 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; Central Statistical Bureau of Latvia; Central Bank of Liberia; Central Bank of Libya; Statistics Lithuania; Statistical Portal Grand Duchy of Luxembourg; Madagascar Chamber of Mines; Banque Centrale de Madagascar; Mineral and Geoscience Department, Malaysia; Bank Negara Malaysia; Africa Fertilizer Org, Mali; Ministère des Mines, Mali; National Statistics Office, Malta; Central Statistics Office, Mauritius; Instituto Nacional de Estadística y Geografía, Mexico; Mexican Geological Survey, Mexico; Minera Autlan, Mexico; Statistical Office of Montenegro; High Commission for Planning of the Kingdom of Morocco, Morocco; Morocco Statistics; National Office of Hydrocarbons and Mines, Morocco; The OCP Group, 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;

Statistics Netherlands; NLOG, Netherlands; Direction de l'Industrie, des Mines et de l'Energie, New Caledonia; Institut Territorial de la Statistique et des Etudes Economiques, New Caledonia; Ministry of Business, Innovation & Employment, New Zealand; New Zealand Petroleum & Minerals; New Zealand's Aluminium Smelter; Banco Central de Nicaragua; 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;

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