



AUSTRALIAN MINERAL INDUSTRY QUARTERLY

In this issue:

Summary statistics up to quarter ended 30 September 1988

Production — aluminium, black coal, brown coal, copper, gold, diamonds, iron & steel, lead, manganese, nickel, petroleum, silver, tin, titanium, tungsten, uranium, zinc, zircon

Exports — aluminium, black coal, copper, diamonds, gold, iron & steel, lead, nickel, petroleum, salt, tin, titanium (rutile & ilmenite), tungsten, uranium, zinc, zircon

Imports — aluminium, asbestos, clay, diamonds, gold, ingot steel & ferroalloys, nickel, petroleum, phosphate rock, potassium fertiliser, sulphur

Detailed statistics

Production — up to quarter ended 30 June 1988 (most major items up to 30 September 1988)

aluminium, antimony, barite, cadmium, clay, coal, cobalt, copper, diamonds, diatomite, dolomite, felspar, gems other than diamonds, gold, gypsum, iron, kyanite etc., lead, limestone, magnesite, manganese, monazite, nickel, peat, petroleum, phosphate, salt, silver, sulphur, talc etc., tin, titanium, tungsten, uranium, zinc, zirconium

Overseas trade — up to quarter ended 30 September 1988

aluminium, antimony, asbestos, barite, bismuth, cadmium, clay, coal, cobalt, copper, crystals, diamonds, diatomite, fluor spar, gems other than diamonds, gold, gypsum, iron, kyanite etc., lead, limestone, magnesite, manganese, mercury, mica, monazite, nickel, peat, petroleum, phosphate, platinum-group metals, potassium fertiliser, salt, silver, sulphur, talc etc., tantalum & niobium, tin, titanium, tungsten, uranium, zinc, zirconium

Prices, ore, and concentrate prices, quarter ended 30 September 1988

The *Australian Mineral Industry Quarterly* is prepared jointly by the Bureau of Mineral Resources, Geology & Geophysics (BMR) and the Australian Bureau of Statistics (ABS). It is produced in BMR's Resource Assessment Division, Canberra (First Assistant Director (Acting): R.D. Lowden). Enquiries on mineral-commodity resources should be directed to I. McLeod, Acting Assistant Director, Mineral Commodities Branch, BMR, telephone (062) 499553. Enquiries on detailed mineral statistics should be directed to I. Haine, Manager, Mineral Statistics Group, BMR, telephone (062) 499556. Enquiries re subscriptions should be directed to: Assistant Director, Sales & Distribution, Australian Government Publishing Service, (062) 954411. Subscription orders should be addressed to: Mail Order Sales, AGPS, GPO Box 84, Canberra 2601.

Abbreviations

ABS	Australian Bureau of Statistics	f.o.b.	free on board
BMR	Bureau of Mineral Resources, Geology & Geophysics	f.o.r.	free on rail
ABARE	Australian Bureau of Agricultural & Resource Economics	f.o.t.	free on truck
DPIE	Department of Primary Industries & Energy	cons.	concentrates
LME	London Metal Exchange	(e)	estimated
USBM	United States Bureau of Mines	n.a.	not available
WMS	<i>World Metal Statistics</i> , published by the World Bureau of Metal Statistics	n.e.c.	not elsewhere classified
		n.e.i.	not elsewhere included
		n.e.s.	not elsewhere specified
		n.p.	not available for separate publication, but included in totals where applicable
c.&f.	cost and freight	n.y.a.	not yet available
c.i.f.	cost, insurance, and freight	—	nil
f.a.s.	free alongside ship	.	less than half the unit shown
f.i.d.	free into container depot	ppm	parts per million
f.i.s.	free in store		

Units and conversion factors

	<i>Metric unit</i>	<i>Symbol</i>	<i>Other unit/symbol</i>	<i>Multiply other unit by:</i>	<i>Multiply metric unit by:</i>
<i>Length</i>	metre	m	foot	0.3048	3.28084
	kilometre	km	mile	1.609344	0.621371
	gram	g	troy (fine) ounce (oz)	31.1035	0.0321507
	gram	g	carat	5.0	0.2
<i>Mass</i>	kilogram	kg	pound (lb)	0.453592	2.20462
	tonne	t	long ton (2240 lbs)	1.01605	0.984207
	tonne	t	short ton (2000 lbs)	0.907185	1.10231
	megatonne (10 ⁶ t)	Mt			
	metric-ton unit (10 kg)	mtu	long-ton unit (ltu) (22.4 lbs)	1.01605	0.984207
	metric-ton unit	mtu	short-ton unit (stu) (20 lbs)	0.907185	1.10231
<i>Volume</i>	cubic metre	m ³	cubic foot	0.0283168	35.3147
	cubic metre	m ³	barrel (bbl) (34.973 Imp. gals)	0.158987	6.28981
	litre	L	gallon (Imperial)	4.54609	0.2199692
	litre	L	gallon (US)	3.785412	0.264172
	kilolitre (10 ³ L)	kL	barrel (bbl) (34.973 Imp. gals)	0.158987	6.28981
	megalitre (10 ⁶ L)	ML			
	gigalitre (10 ⁹ L)	GL			

AUSTRALIAN MINERAL INDUSTRY QUARTERLY

BUREAU OF MINERAL RESOURCES, GEOLOGY & GEOPHYSICS
and AUSTRALIAN BUREAU OF STATISTICS

Volume 41 Number 1

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Detailed statistics

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Aluminium, antimony, barite, cadmium, clay, coal, cobalt, copper, diamonds, diatomite, dolomite, feldspar, gems other than diamonds, gold, gypsum, iron, kyanite etc., lead, limestone, magnesite, manganese, monazite, nickel, peat, petroleum, phosphate, salt, silver, sulphur, talc etc., tin, titanium, tungsten, uranium, zinc, zirconium	4
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Overseas trade — up to quarter ended 30 September 1988

Aluminium, antimony, asbestos, barite, bismuth, cadmium, clay, coal, cobalt, copper, cryolite, diamonds, diatomite, fluorspar, gems other than diamonds, gold, gypsum, iron, kyanite etc., lead, limestone, magnesite, manganese, mercury, mica, monazite, nickel, peat, petroleum, phosphate, platinum-group metals, potassium fertiliser, salt, silver, sulphur, talc etc., tantalum & niobium, tin, titanium, tungsten, uranium, zinc, zirconium	4
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MINERAL INDUSTRY STATISTICS

These statistics are based largely on data provided to BMR by the State mines departments (and their equivalents), and the ABS.

Compilation of quantity data on a consistent basis has involved some rearrangement of official statistics published by the State mines departments and their equivalents for certain States. In addition, while actual output of the mineral product has generally been used, this information is not available in some cases and it has been necessary to use despatches or sales data in deriving Australian totals.

Quantities of minerals produced are reported in terms of the product in which they leave each minesite. This includes various stages of ore-dressing, processing, and elementary smelting where these operations are carried out in an associated plant at, or near, the mine. It may include working, screening, concentrating by physical means, sun-drying, calcining, upgrading by leaching in stockpiles, and milling. Consequently, the output is recorded as ore where no treatment is undertaken at the mine, or as a concentrate where ore-dressing operations are carried out.

In addition to the basic gross weight data, particulars of metal content (as determined by assay) are also shown for each metal that is a 'pay metal' component of any mine product.

The annual aggregates have been compiled on a calendar-year basis in accordance with international publications, in contrast with the fiscal-year basis (year ending 30 June) generally favoured for Australian official statistical publications.

Quarterly data are not available for construction materials and certain other non-metallic minerals; annual data for these are published in the *Australian Mineral Industry Annual Review*. Fiscal-year data are also published by ABS in *Mineral Production, Australia* (catalogue No. 8405.0).

BMR thanks the State mines departments (and their equivalents) and the State Offices of ABS for supplying information used in preparing these tables.

NOTE

Some figures for previous quarters have been revised and therefore differ from corresponding figures in previous issues.

Summary Statistics

MINE PRODUCTION OF PRINCIPAL MINERALS

	Unit of quantity	1987				1988		
		1986	1987	September	December	March	June	September
Bauxite	'000 t	32 384	34 102	8 809	9 000	8 815	8 456	8 937
Coal								
black, raw(a)	'000 t	170 067	178 399	39 495	50 045	41 096	37 709	45 599
brown	'000 t	37 604	44 877	11 516	11 743	11 042	10 259	10 143
Copper(b)	t	248 368	232 695	67 401	51 497	49 729	52 679	56 106
Diamonds	carat	29 232 453	30 331 701	6 812 859	7 269 275	8 056 180	7 875 914	8 886 800
Gold(b)	kg	75 079	110 696	26 552	34 502	31 569	35 438	39 500(c)
Iron ore and concentrate(c)	'000 t	94 015	101 748	26 629	26 225	23 989	25 345	24 665
Lead(b)	t	447 673	489 150	149 931	114 770	107 398	110 279	124 487
Manganese ore and concentrate	t	1 648 921	1 853 279	471 212	522 640	472 275	482 984	566 999
Nickel(b)	t	76 739	74 554	18 288	18 918	16 363	15 183	14 123
Petroleum								
Crude oil and condensate	ML	29 764	31 874	8 086	7 741	7 852	7 581	7 760
LPG	ML	3 929	3 883	1 050	930	901	1 042	1 066
Natural gas(d)	10 ⁶ m ³	14 869	15 173	4 512	3 576	3 373	3 977	4 545
Silver(b)	kg	1 022 761	1 119 300	352 826	255 254	259 138	276 128	310 000(c)
Tin(b)	t	8 515	7 691	1 939	1 626	1 854	1 519	1 879
Titanium								
Ilmenite concentrate	t	1 237 694	1 498 087	338 754	320 766	381 599	401 441	370 000(c)
Leucocene concentrate	t	14 143	11 290	3 154	2 997	2 941	3 267	3 000(c)
Rutile concentrate	t	215 774	246 263	66 255	52 804	53 564	61 738	60 000(c)
Tungsten(W)(b)	t	1 600	1 151	295	311	207	377	350
Uranium(U ₃ O ₈)	t	4 899	4 457	1 070	1 322	1 212	589	1 073
Zinc(b)	t	711 958	778 386	207 779	179 316	175 420	185 024	188 489
Zircon concentrate	t	451 824	456 590	122 871	104 513	117 245	131 321	121 000(c)

(a) December quarter 1987 comprises four 4-weekly periods for Queensland, New South Wales, and Tasmania; September quarter 1987 and March, June, and September quarters 1988 comprise three 4-weekly periods for Queensland, New South Wales, and Tasmania; 1987 year comprises fourteen 4-weekly accounting periods for Queensland, New South Wales, and Tasmania. (b) Total metallic content of minerals produced. (c) Excludes iron oxide not intended for metal extraction. (d) Includes ethane.

SMELTER AND REFINERY PRODUCTION OF PRINCIPAL METALS(a)

	Unit of quantity	1987				1988		
		1986	1987	September	December	March	June	September
Alumina	'000 t	9 423	10 109	2 570	2 586	2 564	2 610	2 621
Aluminium	t	881 910	1 003 947	264 783	266 999	265 291	277 047	297 292
Blister copper(b)	t	169 622	172 873	46 548	44 954	43 748	44 870	45 003
Copper	t	163 958	178 925	50 268	43 959	47 662	44 170	45 184
Gold, newly won								
Australian origin	kg	68 723	97 453	25 415	28 498	28 691	29 330	40 967
Overseas origin	kg	13 463	18 819	4 260	4 099	357	3 204	1 883
Lead(c)	t	156 239	201 660	59 807	55 764	19 249	48 306	47 412
Lead bullion(b)	t	188 403	197 171	54 165	51 364	45 826	49 415	51 807
Pig iron	'000 t	5 889	5 569	1 495	1 246	1 332	1 382	1 490
Raw steel(d)	'000 t	6 703	6 125	1 661	1 444	1 470	1 515	1 684
Silver	kg	336 194	361 615	83 260(f)	86 651(f)	51 471(f)	83 046(f)	81 199(f)
Tin	t	1 399	563	161	96	105	139	88
Zinc	t	303 115	310 189	82 853	76 702	67 874	77 221	80 150

(a) Primary production; excludes secondary production. (b) Metallic content. (c) Includes lead content of lead alloys from primary sources. (d) Includes recovery from scrap. (f) Excludes some small producers.

OVERSEAS TRADE IN PRINCIPAL MINERAL PRIMARY PRODUCTS

	Unit of Quantity	1986		1987		1987		1988		1988		1988		1988	
		1986		1987		September		December		March		June		September	
		Quantity	Value f.o.b. (\$'000)	Quantity	Value f.o.b. (\$'000)	Quantity	Value f.o.b. (\$'000)	Quantity	Value f.o.b. (\$'000)	Quantity	Value f.o.b. (\$'000)	Quantity	Value f.o.b. (\$'000)	Quantity	Value f.o.b. (\$'000)
		Quantity	Value f.o.b. (\$'000)	Quantity	Value f.o.b. (\$'000)	Quantity	Value f.o.b. (\$'000)	Quantity	Value f.o.b. (\$'000)	Quantity	Value f.o.b. (\$'000)	Quantity	Value f.o.b. (\$'000)	Quantity	Value f.o.b. (\$'000)
EXPORTS															
Alumina	'000 t	7 687	1 427 168	8 301	1 544 665	2 129	396 837	2 020	387 437	2 220	450 501	2 172	466 833	1 841	410 649
Aluminium (ingot metal)	t	579 528	975 088	711 087	1 422 765	189 756	384 156	185 152	435 911	175 320	415 547	196 923	525 472	213 245	619 817
Coal, black	'000 t	92 784	5 366 749	100 881	5 030 877	23 871	1 127 921	27 360	1 293 032	26 588	1 240 548	24 242	1 093 622	23 539	1 094 162
Copper (a)	t	140 133	247 567	127 521	277 263	37 387	77 980	31 309	84 098	39 505	140 811	41 311	123 523	28 826	84 623
Diamonds (b)(c)	carat	3 376 323	38 561	170 771	18 682	93 731	3 940	35 843	7 114	73 509	5 619	213 400	11 684	873 602	20 174
Gold (a)	kg	58 685	972 143	86 394	1 693 379	20 808	405 618	27 255	549 397	34 348	711 379	37 024	784 382	39 355	683 424
Ilmenite concentrate (d)	t	1 034 209	48 454	1 045 497	61 003	261 342	15 094	229 759	14 473	278 135	16 614	244 805	15 746	289 356	17 608
Iron ore and pellets	'000 t	79 678	1 939 009	78 594	1 691 391	22 345	460 308	22 344	476 564	22 459	456 776	23 258	438 796	26 130	476 492
Iron, ingot steel, ferroalloys	'000 t	607	164 938	773	165 604	164	32 508	289	58 196	106	27 462	134	31 606	116	27 005
Lead (a)	t	412 213	361 122	387 743	511 826	104 360	160 318	92 022	147 609	95 494	119 429	114 614	122 950	129 185	132 384
Nickel (f)	—	n.a.	438 446	n.a.	382 596	n.a.	97 909	n.a.	110 583	n.a.	32 057(g)	n.a.	62 753(g)	n.a.	118 419(g)
Petroleum															
Crude oil and condensate	ML	4 296	655 322	6 081	966 900	1 311	218 163	2 005	306 621	1 389	204 806	1 661	220 339	1 522	180 472
Enriched crude and other refinery feedstock	ML	106	12 052	130	20 975	—	1	35	4 822	44	5 684	10	755	61	7 972
LPG	'000 t	1 495	297 909	1 360	247 932	401	76 390	281	53 574	292	55 020	332	60 079	346	50 206
Rutile concentrate	t	229 665	116 412	256 781	149 890	93 367	56 050	64 882	36 304	34 892	21 116	84 218	47 510	72 434	41 954
Salt	'000 t	5 213	102 470	2 745(h)	56 446(h)	1 115	23 098	1 629	32 943	1 526	30 746	1 258	24 513	1 739	32 747
Silver (a)	kg	957 648	53 450	910 903	59 169	249 911	13 702	256 583	17 741	208 908	6 177	202 953	3 336	244 024	1 114
Tin (a)	t	7 512	58 351	7 163	60 000	2 037	16 342	1 359	11 331	2 292	19 297	1 035	8 194	1 964	15 170
Tungsten concentrate	t	2 526	13 482	2 055	10 475	396	2 145	469	2 821	432	2 779	743	4 401	503	2 652
Uranium (U ₃ O ₈)	t	4 166	372 604	3 812	342 145	417	38 226	2 033	181 268	905	83 355	1 197	108 527	1 057	85 851
Zinc (a)	t	661 823	488 720	663 192	526 389	183 351	139 705	173 372	139 183	162 727	127 450	198 363	179 126	145 147	155 467
Zircon concentrate	t	445 690	74 495	465 003	108 416	125 435	30 622	121 554	31 778	97 158	33 623	122 607	46 456	129 694	51 462
Other (j)		629 411		965 131		236 876		255 461		338 009		387 450		351 957	
Total value		14 853 923		16 314 009		4 013 909		4 638 261		4 544 805		4 768 053		4 661 781	
IMPORTS															
Aluminium	t	754	3 137	1 150	4 170	221	818	815	2 644	329	1 338	996	3 796	659	2 502
Asbestos, all types	t	9 245	7 158	3 536	1 852	652	283	466	203	534	283	420	216	476	249
Clay (excl. activated)	t	54 221	10 365	52 682	13 666	11 031	4 057	9 193	1 844	15 106	2 680	15 171	3 155	15 599	3 058
Diamonds (c)	carat	2 362 014	63 961	2 953 606	77 767	537 760	19 515	1 294 070	25 655	1 556 253	27 496	589 822	19 856	574 275	22 873
Gold	kg	7 184	91 431	7 420	104 534	1 681	21 757	1 164	22 514	768	15 994	1 370	25 099	1 333	23 462
Ingot steel, ferroalloys	t	62 344	39 404	155 017	69 183	57 473	22 938	82 645	30 945	53 707	21 906	38 086	18 976	30 538	17 821
Nickel, matte and metal	t	2 952	8 627	1 296	8 200	247	1 728	174	1 373	131	1 545	87	1 432	54	927
Petroleum															
Crude oil and condensate	ML	4 026	514 877	5 042	812 637	1 093	177 578	2 248	368 155	1 741	264 506	1 751	230 543	1 706	201 334
Enriched crude and other refinery feedstock	ML	3 334	452 714	2 910	437 953	587	92 928	629	84 124	360	49 327	315	37 284	102	11 884
Phosphate rock	'000 t	1 690	96 990	1 666	101 387	400	25 023	477	28 968	428	25 088	503	29 353	567	34 582
Potassium fertiliser	'000 t	199 395	26 516	274 506	25 979	63 387	6 694	86 287	7 276	44 808	5 178	80 785	7 664	76 241	9 379
Sulphur	t	398 101	70 559	379 560	55 544	75 473	10 523	104 557	13 334	131 617	16 820	161 051	18 099	166 514	17 445
Other (j)		151 187		197 573		55 493		40 174		74 705		70 625		60 818	
Total value		1 536 926		1 910 325		439 335		627 209		506 866		466 098		406 334	

(a) Quantities refer to the total metallic content of all ores, concentrates, intermediate products, or refined metal, the value of metallics contained in host mine and smelter products (e.g. silver in lead concentrate or lead bullion) is not separately available and is included in the value of the mineral product or metal in which it is exported. (b) Comprises unsorted and sorted gem and industrial diamonds. (c) Excludes data for unsorted gem and industrial diamonds from May 1986. (d) Excludes leucocene and beneficiated ilmenite. (e) Comprises nickel ore, concentrate, matte, oxide, sinter & other intermediate products, unwrought metal & alloys, powders & flakes. (f) Excludes nickel matte, unwrought metal, powders & flakes from 1 January 1988, and oxide, sinter & other intermediate products from 1 January to 31 May 1988. The value of excluded items is included in 'Other'. (g) Excludes common salt in bulk from 1 January to 30 June 1987. (h) Includes confidential commodities, which are not separately available.

Detailed Statistics

		1986	1987	September	December	1988	March	June	September
ALUMINIUM									
PRODUCTION									
Mine production									
Minerals produced									
Bauxite	'000 t	32 384	34 102	8 809	9 000	8 815	8 456	8 937	
Alumina (Al ₂ O ₃ content)	'000 t	12 182	13 117	3 351(a)	3 443(a)	3 366(a)	3 283(a)	3 402(a)	
Production: States (Al ₂ O ₃ content)									
Victoria	'000 t	3	3	n.a.	n.a.	n.a.	n.a.	n.a.	
Queensland	'000 t	4 200	4 327	1 123	1 148	1 104	1 238	1 114	
Western Australia	'000 t	5 443	6 152	1 525	1 531	1 503	1 390	1 537	
Northern Territory	'000 t	2 537	2 635	704	763	760	655	750	
Total contained alumina	'000 t	12 182	13 117	3 351(a)	3 443(a)	3 366(a)	3 283(a)	3 402(a)	
Refinery and smelter production									
Alumina	'000 t	9 423	10 109	2 570	2 586	2 564	2 610	2 621	
Aluminium	t	881 910	1 003 947	264 783	266 999	265 291	277 047	297 292	
IMPORTS									
Bauxite	t	3 800	10 107	5 262	2	3 035	7 723	5 359	
Value	\$'000	622	1 143	487	2	279	902	396	
Alumina(b)	t	4 966	5 639	1 398	1 770	2 814	2 654	2 462	
Value	\$'000	4 389	8 153	3 081	1 841	3 026	2 616	2 543	
Aluminium and aluminium-base alloys									
Unworked shapes	t	754	1 150	221	815	329	996	659	
Value	\$'000	3 137	4 170	818	2 644	1 338	3 796	2 502	
Plates, sheets, strips, and circles	t	1 934	2 785	520	1 272	1 146	819	784	
Value	\$'000	10 994	16 144	3 211	7 235	6 269	4 525	4 607	
Pipes and tubes	t	1 083	1 111	242	251	248	288	365	
Value	\$'000	4 662	5 402	1 220	1 557	1 816	1 772	2 273	
Bars, rods, and angles	t	2 769	3 430	989	1 113	1 452	1 255	1 254	
Value	\$'000	11 522	14 777	4 279	4 878	5 831	6 012	6 460	
Foil	t	6 750	7 922	1 985	2 508	1 197	1 275	1 611	
Value	\$'000	30 050	35 373	9 135	10 504	6 388	7 760	8 306	
Powders and flakes	t	209	258	43	93	30	71	58	
Value	\$'000	680	1 066	132	450	146	436	357	
Wire	t	371	345	73	119	74	93	163	
Value	\$'000	2 313	2 078	388	781	487	491	858	
Scrap (including re-melt)	t	1 931	1 587	438	456	401	540	531	
Value	\$'000	2 812	1 843	473	600	515	644	718	
EXPORTS(c)									
Alumina(b)(d)	'000 t	7 687	8 301	2 129	2 020	2 220	2 172	1 841	
Value	\$'000	1 427 168	1 544 665	396 837	387 437	450 501	466 833	410 649	
Aluminium and aluminium-base alloys									
Unworked shapes	t	579 528	711 087	189 756	185 152	175 320	196 923	213 245	
China, excl. Taiwan Province	t	65 353	17 220	1 084	1 943	2 538	407	-	
Japan	t	291 114	436 947	119 939	119 350	111 790	130 051	136 177	
Korea, Rep.	t	70 386	86 088	29 078	20 048	19 937	26 658	33 207	
China, Taiwan Province	t	58 567	80 581	17 502	19 609	20 274	15 108	14 499	
Other	t	94 108	90 251	22 153	24 202	20 781	24 699	29 362	
Value	\$'000	975 088	1 422 765	384 156	435 911	415 547	525 472	619 817	
Plates, sheets, strips, and circles	t	45 885	48 056	11 888	11 663	7 978	12 490	14 677	
Value	\$'000	127 351	140 740	34 826	34 852	24 856	41 044	48 818	
Pipes and tubes	t	122	50	1	16	4	11	13	
Value	\$'000	540	247	5	78	63	94	112	
Bars, rods and angles	t	539	3 597	761	1 308	412	857	1 076	
Value	\$'000	2 225	10 834	2 489	3 782	1 222	3 078	4 188	
Foil	t	1 389	2 799	969	769	833	762	903	
Value	\$'000	5 058	10 725	3 493	3 259	3 057	3 210	4 266	
Powders and flakes	t	42	62	3	40	172	101	226	
Value	\$'000	137	163	10	108	539	308	718	

		1987		1988			
1986		1987	September	December	March	June	September

ALUMINIUM

EXPORTS (continued)

Wire	t	20	17	4	6	2	10	29
Value	\$'000	66	183	62	30	33	57	80
Scrap (including re-melt)	t	45 700	42 595	10 685	12 588	8 631	12 300	12 774
Value	\$'000	49 569	57 424	16 014	18 931	13 003	22 794	22 835

(a) Excludes Victoria. (b) Includes aluminium hydroxide. (c) Details of bauxite exports not available for publication. (d) Destinations not available for publication.

ANTIMONY

PRODUCTION

Mine production

Minerals produced								
Antimony concentrate	t	909	1 048	222	294	248	323	n.y.a.
Antimony content of minerals produced								
Antimony concentrate	t	621	678	142	193	163	207	n.y.a.
Antimony-gold concentrate	t	8	—	—	—	—	—	n.y.a.
Lead concentrate	t	485	540	131	120	107	92	n.y.a.
Lead-zinc concentrate	t	17	13	3	3	3	3	n.y.a.
New South Wales	t	1 129	1 231	276	316	273	302	n.y.a.
Victoria	t	2	—	—	—	—	—	n.y.a.
Total contained antimony	t	1 131	1 231	276	316	273	302	n.y.a.

IMPORTS

Antimony metal	t	211	130	5	13	7	114	49
Value	\$'000	609	343	22	50	25	358	141

EXPORTS(a)

Antimony ore and concentrate	t	1 549	1 427	261	470	453	584	214
Value	\$'000	2 464	2 341	236	880	721	1 097	805

(a) Exports of antimonial lead alloy are included under refined lead.

ASBESTOS

Imports

Chrysotile	t	8 925	3 473	652	456	498	420	354
Canada	t	5 788	3 347	574	420	490	420	318
Others	t	3 138	126	78	36	8	—	36
Value	\$'000	6 900	1 792	283	196	257	216	195
Other types	t	319	63	..	10	36	—	123
Value	\$'000	257	59	..	7	26	—	54

BARITE

Mine production	t	5 819	10 363	3 716	1 785	3 128	2 177	n.y.a.
Imports (including witherite)	t	2 306	1 181	265	428	246	282	1 114
Value	\$'000	367	201	44	69	57	46	135
Exports (including witherite)	t	1 240	381	39	40	34	323	22
Value	\$'000	431	279	17	91	8	112	13

		1987			1988			
		1986	1987	September	December	March	June	September
BISMUTH(a)								
Imports								
Bismuth metal	t	9	16	—	9	..	2	2
Value	\$'000	104	187	—	123	..	49	27

(a) Details of mine production are not available for publication.

CADMIUM

PRODUCTION

Mine production

Cadmium content of minerals

produced

Lead concentrate	t	171	157	54	37	31	30	n.y.a.
Lead-zinc concentrate	t	43	34	6	9	8	8	n.y.a.
Zinc concentrate	t	1 774	2 097	560	456	416	396	n.y.a.
Zinc-lead concentrate	t	91	108	30	28	30	28	n.y.a.

New South Wales	t	1 062	1 245	362	297	282	266	n.y.a.
Queensland	t	786	794	240	176	170	163	240
Tasmania	t	231	212	48	57	33	33	n.y.a.
Northern Territory	t	—	145	n.a.	n.a.	n.a.	n.a.	n.a.
Total contained cadmium	t	2 079	2 396	650	530	485	452	n.y.a.

Refinery production

Cadmium	t	909	950	261	251	207	213	205
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EXPORTS

Cadmium and cadmium alloys

Worked shapes and sections	t	20	—	—	—	n.a.	n.a.	n.a.
Value	\$'000	72	—	—	—	106	92	374
Unwrought, powders, waste, scrap	t	662	2 343	206	210	141	524	552
Value	\$'000	1 949	4 876	769	844	1 088	5 920	2 843

CLAY

Mine production

Brick clay and shale	'000 t	6 918	6 105	2 047	1 911	1 758	2 178	n.y.a.
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Imports

Bentonite and bentonitic clay	t	24 942	8 653	471	553	13 520	648	923
Value	\$'000	2 643	1 811	224	186	2 017	268	301
Ball clay	t	324	371	97	128	n.a.	n.a.	n.a.
Value	\$'000	122	135	37	47	n.a.	n.a.	n.a.
Chamotte	t	2 421	1 880	289	258	280	280	353
Value	\$'000	332	276	55	49	40	57	184
Clay and earth, activated	t	4 436	4 933	1 333	1 254	2 939	2 785	2 519
Value	\$'000	1 609	2 010	574	489	1 114	1 033	904
China clay, incl. kaolin	t	4 461	12 270	6 034	225	368	5 718	5 563
Value	\$'000	2 770	5 867	2 756	119	203	1 485	1 283
Fireclay	t	298	15 487	3 075	7 150	235	7 882	7 734
Value	\$'000	99	1 803	392	790	34	1 061	793
Clay, n.e.i.	t	21 776	14 021	1 064	877	703(b)	642(b)	1 025(b)
Value	\$'000	4 400	3 773	593	653	386(b)	285(b)	498(b)

Exports

Clay (except activated)	t	17 445	31 358	12 778	5 698	5 803	11 296	12 541
Value	\$'000	1 980	4 743	2 361	1 084	1 063	2 047	1 971

(a) Excludes Western Australia. (b) Includes ball clay.

		1987		1988			
		1986	1987	September	December	March	June September

COAL

PRODUCTION

Mine production

Black coal, raw(a)							
Underground	'000 t	54 205	55 519	12 509	15 053	11 843	11 160 13 116
Open-cut	'000 t	115 862	122 880	26 986	34 991	29 251	26 549 32 484
New South Wales							
Queensland	'000 t	80 310	83 605	17 279	23 005	18 939	17 243 20 324
South Australia	'000 t	82 967	88 030	20 381	25 425	20 490	18 786 23 331
Western Australia	'000 t	2 389	2 461	660	544	641	645 745
Tasmania	'000 t	3 826	3 710	1 041	879	870	913 1 039
Total	'000 t	576	594	134	192	156	122 160
Total	'000 t	170 067	178 399	39 495	50 045	41 096	37 709 45 599
Brown coal (lignite)							
Victoria	'000 t	37 604	44 877	11 516	11 743	11 042	10 259 10 143
Coal products	'000 t	37 604	44 877	11 516	11 743	11 042	10 259 10 143
Metallurgical coke	'000 t	3 523	3 376	896	936	955	941 978
Brown coal briquettes	'000 t	833	814	198	232	204	175 204

IMPORTS

Black coal	t	1 654	1 562	11	971	1 200	145 25 081
Value	\$'000	734	662	7	470	98	89 1 487
Coke (including petroleum coke)	t	404 425	353 871	78 350	88 871	150 713	150 859 156 643
Value	\$'000	67 624	54 908	12 162	13 007	17 126	20 755 19 881

EXPORTS

Black coal							
Japan	'000 t	92 784	100 881	23 871	27 360	26 588	24 242 23 539
Other	'000 t	42 718	46 562	11 424	12 035	12 982	12 017 12 126
Value	'000	50 066	54 319	12 447	15 325	13 606	12 225 11 413
Value	'000	5 366 749	5 030 877	1 127 921	1 293 032	1 240 548	1 093 622 1 094 162
Brown coal (lignite)	t	52 528	54 645	22 630	31 621	20 989	45 4 239
Value	'000	3 236	3 335	1 276	1 992	1 264	8 283
Char	t	55 555	n.a.	n.a.	n.a.	n.a.	n.a. n.a.
Value	'000	8 908	7 434	2 025	1 471	2 403	2 265 2 564
Coke	t	196 822	462 913	116 126	203 284	283 988	212 105 269 764
Value	'000	20 849	39 400	8 665	16 894	24 323	16 649 23 938

(a) December quarter 1987 comprises four 4-weekly periods for Queensland, New South Wales, and Tasmania; September quarter 1987 and March, June and September quarters 1988 comprise three 4-weekly periods for Queensland, New South Wales, and Tasmania; 1987 year comprises fourteen 4-weekly accounting periods for Queensland, New South Wales, and Tasmania.

COBALT

Mine production

Cobalt content of minerals produced							
Nickel ore	t	2 389	2 274	467	580	490	568 483
Nickel concentrate	t	484	368	n.a.	n.a.	n.a.	n.a. n.a.
Zinc concentrate	t	41	73	21	20	18	17 n.y.a.
Total contained cobalt	t	2 914	2 715	488	600(a)	508(a)	585(a) n.y.a.
Imports							
Cobalt oxide and hydroxide	t	33	46	16	11	18	27 32
Value	\$'000	855	910	321	214	351	505 584
Cobalt and cobalt-base metal alloys							
Value	'000	22	15	4	4	9(b)	7(b) 5(b)
Powders and flakes	t	769	379	113	101	317(b)	235(b) 180(b)
Value	'000	7	11	2	5	n.a.	n.a. n.a.
Value	'000	348	436	66	153	n.a.	n.a. n.a.

(a) Excludes cobalt content of nickel concentrate. (b) Includes powders and flakes.

		1987		1988			
		1986	1987	September	December	March	June September
COPPER							
PRODUCTION							
Mine production							
Minerals produced							
Copper ore (a)	t	11 139	23 193	8 799	883	31	31 1 590
Copper concentrate	t	408	742	289	31	3	3 54
Copper concentrate	t	876 423	834 392	243 004	187 885	181 571	191 478 210 176
Copper content	t	231 329	217 368	62 811	48 092	46 480	48 682 52 802
Gold content	kg	636	507	147	148	130	198 n.y.a.
Silver content	kg	39 135	38 461	10 763	9 153	8 537	10 497 n.y.a.
Lead content	t	3 586	2 425	422	467	313	820 325
Zinc content	t	6 483	4 551	911	992	587	1 234 279
Copper content of minerals produced							
Bismuth concentrate	t	284	—	—	—	—	—
Copper ore(a)	t	408	742	289	31	3	3 n.y.a.
Copper concentrate	t	231 329	217 368	62 811	48 092	46 480	48 682 52 802
Copper-tin concentrate	t	132	—	—	—	—	—
Gold ore and concentrate	t	1 333	62	—	51	53	522 n.y.a.
Lead ore and concentrate (b)	t	3 908	5 469	1 849	1 299	1 064	1 131 1 440
Lead-copper concentrate	t	4 326	3 351	974	694	755	751 n.y.a.
Lead-zinc concentrate	t	126	100	18	25	24	24 n.y.a.
Nickel concentrate	t	3 592	2 910	740	640	580	560 n.a.
Silver concentrate	t	250	108	24	2	187	78 n.y.a.
Zinc concentrate	t	2 680	2 585	696	663	583	928 629
New South Wales	t	32 548	31 014	7 653	7 597	8 649	8 491 n.y.a.
Queensland	t	175 959	171 710	51 365	36 418	34 375	35 293 47 410
Western Australia	t	3 592	2 910	740	640	580	560 n.a.
Tasmania	t	28 761	27 061	7 643	6 842	6 125	5 105 n.y.a.
South Australia	t	4 893	—	—	—	—	1 686 n.y.a.
Northern Territory	t	2 815	—	—	—	—	1 544 2 228
Total contained copper	t	248 368	232 695	67 401	51 497	49 729	52 679 56 106
Smelter and refinery production							
Blister	t	169 622	172 873	46 548	44 954	43 748	44 870 45 003
Refined	t	163 958	178 925	50 268	43 199	47 662	44 170 45 184
IMPORTS							
Copper							
Blister copper	t	210	—	—	—	—	2
Value	\$'000	266	—	—	—	—	14
Refinery shapes	t	55	570	—	—	3	65 5
Value	\$'000	351	1 450	2	—	1	177 20
Bars, rods, angles, and tees	t	105	471	38	189	20	9 75
Value	\$'000	695	1 566	195	609	146	66 451
Plates, sheets, and strips	t	176	157	83	42	123	63 76
Value	\$'000	619	792	232	237	699	518 280
Pipes and tubes	t	1 450	859	275	203	253	216 440
Value	\$'000	5 688	3 743	1 182	850	1 134	1 138 1 921
Wire	t	14	78	73	4	34	7 3
Value	\$'000	107	288	221	43	158	51 44
Powders and flakes	t	74	73	17	22	37	53 49
Value	\$'000	291	386	98	131	364	434 397
Scrap	t	518	1 003	214	390	926(c)	657(c) 581(c)
Value	\$'000	512	1 327	225	431	1 767(c)	1 078(c) 868(c)
Copper-base alloys							
Pigs, ingots, and blocks	t	10	933	—	—	9	2 39
Value	\$'000	44	2 053	2	1	69	23 92
Rolled, drawn, and extruded shapes	t	3 448	4 294	982	1 159	894	1 246 1 909
Value	\$'000	12 576	15 095	3 553	4 435	3 837	3 500 4 025
Wire	t	310	494	159	159	150	230 113
Value	\$'000	2 054	2 671	796	744	902	809 790
Scrap	t	729	1 292	271	535	n.a.(d)	n.a.(d) n.a.(d)
Value	\$'000	796	1 413	268	552	n.a.(d)	n.a.(d) n.a.(d)

		1987				1988		
		1986	1987	September	December	March	June	September
COPPER (continued)								
EXPORTS								
Copper								
Copper concentrate	t	233 263	149 156	49 422	42 068	30 871	62 678	49 758
Japan	t	174 343	144 483	47 841	41 015	29 864	56 860	42 636
Other	t	58 920	4 673	1 581	1 053	1 007	5 818	7 122
Value	\$'000	99 423	68 568	21 277	23 623	34 141	49 766	42 380
Copper matte	t	—	—	—	—	556	314	188
Value	\$'000	—	—	—	—	610	286	160
Copper-lead dross	t	2 634	692	20	672	—	293	20
Value	\$'000	2 278	984	22	962	—	450	20
Copper slags and residues	t	2 039	2 620	821	755	466	474	574
Value	\$'000	3 024	3 590	604	1 084	1 047	1 757	1 876
Blister copper	t	—	3 502	—	3 502	1 001	—	—
Value	\$'000	—	11 360	—	11 360	3 560	—	1
Refinery shapes	t	66 820	81 580	23 613	16 148	27 986	24 202	13 965
EEC, excluding UK	t	12 573	20 501	6 023	3 549	5 391	4 635	3 165
Japan	t	24 732	28 402	9 902	6 062	9 316	10 455	4 507
UK	t	29 129	29 074	6 298	6 176	10 875	8 228	6 093
Other	t	386	3 603	1 390	361	2 404	884	200
Value	\$'000	141 732	191 670	55 938	46 747	101 217	70 741	39 856
Bars and rods	t	4 546	1 912	523	251	491	1 717	2 109
Value	\$'000	10 296	4 803	1 386	678	1 597	5 727	7 035
Angles, shapes, and sections	t	234	193	54	78	20	64	70
Value	\$'000	785	722	199	302	102	331	364
Plates, sheets, and strips	t	1 717	2 259	770	485	215	419	466
Value	\$'000	6 003	7 660	2 587	1 836	1 055	2 038	2 175
Tubes and pipes	t	2 087	4 780	1 565	1 346	1 151	1 191	1 190
Value	\$'000	7 232	16 076	5 675	4 707	4 311	5 320	6 064
Wire	t	434	495	167	150	173	115	163
Value	\$'000	1 196	1 605	533	551	781	505	663
Powders and flakes	t	457	348	43	106	61	112	92
Value	\$'000	1 109	1 091	140	322	236	523	329
Scrap	t	20	176	47	1	44	—	36
Value	\$'000	4	199	38	25	7	—	1 164
Copper-base alloys								
Refinery shapes	t	1 525	1 812	366	272	276	172	n.y.a.
Value	\$'000	2 973	3 496	742	672	822	550	n.y.a.
Bars and rods	t	1 472	1 615	433	576	504	499	167
Value	\$'000	3 761	4 121	1 028	1 460	1 421	1 612	573
Angles, shapes, and sections	t	661	773	211	252	265	330	496
Value	\$'000	2 111	2 658	724	881	912	1 327	1 847
Plates, sheets, and strips	t	677	450	78	114	73	39	167
Value	\$'000	2 300	1 652	304	429	256	198	800
Tubes and pipes	t	46	29	6	5	27	32	35
Value	\$'000	186	143	31	35	152	197	234
Wire	t	—	25	7	—	1	2	40
Value	\$'000	2	95	19	—	16	11	77
Scrap	t	155	263	—	207	69	—	77
Value	\$'000	209	237	—	198	191	—	33
Copper and copper-base alloys								
Foil	t	1	1	—	—	1	25	11
Value	\$'000	3	8	2	4	6	127	59
Copper content of primary materials exported in other than refined form(f)								
	t	72 856	45 593	13 731	15 055	11 458	16 997	14 769
CRYOLITE, NATURAL								
Imports (including chiolite)	t	33	104	20	32	2	16	1
Value	\$'000	21	111	25	24	3	15	2

(a) Includes cupreous ore for fertiliser. (b) Includes lead-silver ore. (c) Includes copper-base alloys scrap. (d) Included in copper scrap. (f) Copper content of all base-metal ores and concentrates, slags and residues, and intermediate products exported

		1987			1988			
		1986	1987	September	December	March	June	September
DIAMONDS								
PRODUCTION								
Mine production								
Western Australia	carat	29 232 453	30 331 701	6 812 859	7 269 275	8 056 180	7 875 914	8 886 800
IMPORTS								
Unsorted	carat	—	90 554	—	7 558	307 714	3 372	2 636
Value	\$'000	—	1 092	—	262	4 904	1 820	1 223
Sorted								
Gem								
Rough	carat	9 123	8 018	1 445	5 507	356	162	1 119
Value	\$'000	2 106	1 976	275	1 414	198	48	311
Cut and polished	carat	102 998	105 669	29 783	32 501	36 013	24 882	30 188
Value	\$'000	53 278	63 694	16 916	19 769	18 427	15 545	18 999
Industrial	carat	813 747	1 958 484	310 149	1 003 348	1 015 322	298 807	357 363
Value	\$'000	4 210	7 716	1 517	3 228	3 180	1 776	1 683
Dust and powder	carat	1 436 146	790 881	196 383	245 156	196 848	182 599	182 969
Value	\$'000	4 367	3 170	808	982	787	666	657
EXPORTS(a)								
Sorted								
Gem								
Rough	carat	116 770	375	334	34	—	35	558 896
Value	\$'000	2 250	63	34	23	—	111	4 087
Cut and polished	carat	588 332	24 959	11 538	3 954	4 164	54 585	7 345
Value	\$'000	19 157	18 027	3 626	6 956	4 238	9 898	10 130
Industrial (b)	carat	1 813 194	145 437	81 859	31 855	69 345	158 780	307 361
Value	\$'000	10 263	592	279	135	1 381	1 676	5 957
(a) Details of unsorted diamonds are not available. (b) Excludes dust, powder, and unsorted diamonds.								
DIATOMITE								
Mine production	t	9 048	10 263	2 514	1 927	2 542	2 463	n.y.a.
Imports	t	10 637	12 004	2 491	3 756	1 757	1 591	1 531
Value	\$'000	4 231	4 639	979	1 435	682	612	517
DOLOMITE								
Mine production	t	719 864	787 969	214 957	231 423	169 698	204 235	n.y.a.
FELSPAR								
Mine production	t	10 006	11 499	2 598	3 599	283	2 308	n.y.a.
FLUORSPAR								
Imports	t	23 640	13 374	95	294	10 781	11 553	6 872
Value	\$'000	2 604	1 425	15	55	1 008	955	730

DIATOMITE

Mine production	t	9 048	10 263	2 514	1 927	2 542	2 463	n.y.a.
Imports	t	10 637	12 004	2 491	3 756	1 757	1 591	1 531
Value	\$'000	4 231	4 639	979	1 435	682	612	517

DOLOMITE

Mine production	t	719 864	787 969	214 957	231 423	169 698	204 235	n.y.a.
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FELSPAR

Mine production	t	10 006	11 499	2 598	3 599	283	2 308	n.y.a.
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FLUORSPAR

Imports	t	23 640	13 374	95	294	10 781	11 553	6 872
Value	\$'000	2 604	1 425	15	55	1 008	955	730

			1987		1988				
			1986	1987	September	December	March	June	September
GEMS, other than diamonds									
PRODUCTION									
Opals	\$'000	56 790	82 681	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
New South Wales	\$'000	15 880	30 559	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Queensland	\$'000	2 110	2 102	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
South Australia	\$'000	38 800	50 020	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Sapphires	\$'000	13 022	18 790	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
New South Wales	\$'000	7 022	11 238	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Queensland	\$'000	6 000	7 552	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Other gems	\$'000	498	609	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
New South Wales	\$'000	2	60	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Queensland	\$'000	375	221	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
South Australia	\$'000	67	133	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Western Australia	\$'000	84	196	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
EXPORTS									
Opals									
Rough	\$'000	6 034	10 979	5 675	2 071	1 251	1 820	1 933	
Cut and polished	\$'000	18 108	35 009	6 681	12 389	11 690	15 116	20 229	
Sapphires									
Rough	\$'000	11 190	16 962	4 637	5 361	4 707	6 372	4 378	
Cut and polished	\$'000	1 668	2 984	1 188	577	1 473	1 020	511	
Other gemstones	\$'000	3 561	6 776	2 675	1 446	2 468	1 872	2 148	
GOLD									
PRODUCTION									
Mine production									
Minerals produced									
Gold bullion	kg	105 172	159 489	n.a.	n.a.	n.a.	n.a.	n.y.a.	
Gold content	kg	70 400	107 126	25 613	33 579	30 697	34 493	n.y.a.	
Silver content	kg	17 713	23 649	5 598	6 874	7 802	8 150	n.y.a.	
Gold content of minerals produced									
Antimony-gold concentrate	kg	5	11	—	11	8	21	n.y.a.	
Bismuth concentrate	kg	44	—	—	—	—	—	n.y.a.	
Copper concentrate	kg	636	507	147	148	130	198	n.y.a.	
Gold ore and concentrate	kg	727	639	241	157	120	223	n.y.a.	
Gold bullion	kg	70 400	107 126	25 613	33 579	30 697	34 493	n.y.a.	
Lead ore and concentrate	kg	365	407	125	106	86	77	n.y.a.	
Lead-copper concentrate	kg	1 527	1 193	272	386	356	314	n.y.a.	
Lead-zinc concentrate	kg	7	6	1	1	1	1	n.y.a.	
Nickel concentrate	kg	992	247	n.a.	n.a.	n.a.	n.a.	n.y.a.	
Silver concentrate	kg	—	114	42	—	80	31	n.a.	
Zinc concentrate	kg	377	445	111	114	91	80	n.y.a.	
New South Wales	kg	961	4 201	1 224	1 378	1 195	1 326	n.y.a.	
Victoria	kg	1 148	1 206	322	428	383	338	n.y.a.	
Queensland	kg	11 123	15 495	3 504	4 867	5 145	5 625	6 807	
South Australia	kg	2	1	—	—	—	5	n.y.a.	
Western Australia	kg	53 876	78 438	18 765	24 742	22 061	24 806	27 630	
Tasmania	kg	2 674	2 225	525	649	591	464	n.y.a.	
Northern Territory	kg	5 296	9 129	2 212	2 438	2 194	2 874	3 313	
Total contained gold	kg	75 079	110 696	26 552	34 502	31 569	35 438	39 500(e)	
Refinery production									
Newly-won gold									
Australian origin	kg	68 723	97 453	25 415	28 498	28 691	29 330	40 967	
Overseas origin	kg	13 463	18 819	4 260	4 099	357	3 204	1 883	
Scrap									
Australian origin	kg	1 863	2 724	529	1 139	2 408	2 150	2 387	
Overseas origin	kg	48	10	9	—	104	—	—	
Total refinery production	kg	84 097	119 006	30 213	33 736	31 560	34 684	45 237	

		1987				1988	
		1986	1987	September	December	March	June September

GOLD (continued)

IMPORTS							
Refined forms (excl. specie, leaf, and foil)	kg	2	342	39	—	n.a. (a)	n.a. (a) n.a. (a)
Value	\$'000	27	6 899	659	—	n.a. (a)	n.a. (a) n.a. (a)
Unrefined bullion (gold content)	kg	7 182	7 078	1 642	1 164	768(b)	1 370(b) 1 333(b)
Fiji	kg	1 896	925	249	615	693(b)	1 132(b)
Papua New Guinea	kg	5 123	5 665	1 190	541	46(b)	238(b) 92(b)
Other	kg	237	488	203	8	29(b)	— 1 241(b)
Value	\$'000	91 404	97 635	21 098	22 514	15 994(b)	25 099(b) 23 462(b)

EXPORTS

Refined forms (excl. specie, leaf, and foil)	kg	55 889	84 991	20 440	26 825	33 655	36 354	37 689
Hong Kong	kg	5 866	27 928	4 229	10 891	20 494	12 993	18 657
Japan	kg	40 068	37 027	10 826	8 688	7 837	13 790	8 709
Singapore	kg	3 053	3 174	728	1 076	2 115	5 750	8 126
UK	kg	4 351	14 362	4 639	5 300	2 738	2 318	133
Other	kg	2 521	2 500	18	870	471	1 503	2 064
Value	\$'000	972 106	1 693 357	405 598	549 397	711 370	748 382	681 160
Gold content of primary materials exported in other than refined form(c)	kg	2 796	1 403	368	430	693	700	1 666

(a) Included in unrefined bullion. (b) Includes refined forms. (c) Gold content of all base-metal ores and concentrates, slags and residues, and intermediate products exported.

GYPSUM

PRODUCTION

Mine production	t	1 671 001	1 580 331	285 824	363 986	399 231	457 982	n.y.a.
New South Wales	t	47 280	34 497	7 573	4 800	10 086	5 490	n.y.a.
Victoria	t	173 399	180 412	25 009	27 869	103 268	44 515	n.y.a.
South Australia	t	1 135 841	1 229 377	234 812	315 567	269 219	379 997	n.y.a.
Western Australia	t	314 481	136 045	18 430	15 750	16 658	27 980	n.y.a.

EXPORTS

Gypsum	t	428 584	200 230	26 732	40 531	20 985	38 857	41 199
Indonesia	t	148 737	16 414	320	241	198	485	281
New Zealand	t	118 144	122 674	25 651	39 149	20 197	37 600	39 979
Singapore	t	42 114	2 696	451	828	467	467	657
Other	t	119 589	58 446	310	313	123	305	282
Value	\$'000	8 595	3 816	604	691	415	687	663

IRON

PRODUCTION

Mine production								
Minerals produced								
Iron ore and concentrate(a)	'000 t	94 015	101 748	26 629	26 225	23 989	25 345	24 665
Iron content	'000 t	60 082	64 798	17 144	16 797	15 264	16 127	n.y.a.
Production: States, iron content								
South Australia	'000 t	1 283	1 293	326	249	331	354	363
Western Australia	'000 t	57 294	62 234	16 447	16 169	14 519	15 370	14 858
Tasmania	'000 t	1 505	1 271	371	379	414	403	n.y.a.
Total contained iron	'000 t	60 082	64 798	17 144	16 797	15 264	16 127	n.y.a.
Iron and steel								
Iron ore pellets	'000 t	3 338	3 309	n.a.	n.a.	n.a.	n.a.	n.a.
Pig iron	'000 t	5 889	5 569	1 495	1 246	1 332	1 382	1 490
Raw steel(b)	'000 t	6 703	6 125	1 661	1 444	1 470	1 515	1 684
Blooms and slabs	'000 t	4 236	2 889	706	628	649	690	646
Flatplate	'000 t	311	287	81	77	74	74	86

		1986	1987	September	December	1988	March	June	September
IRON (continued)									
IMPORTS									
Iron ore	t	59 174	42 156	42 132	2	42 851	469	194 035	
Value	\$'000	1 246	1 351	1 345	4	1 364	448	2 089	
Ingots, blooms and slabs	t	24 729	122 794	48 196	74 569	47 104	30 269	24 226	
Value	\$'000	6 327	34 367	13 807	20 408	12 887	8 860	8 558	
Ferroalloys									
Ferromanganese(c)	t	16 387	11 734	4 360	3 419	2 852	1 569	2 295	
Value	\$'000	13 296	10 035	3 374	3 357	2 702	2 047	3 179	
Ferromanganese, incl. powders	t	6 734	3 925	389	1 174	1 054	2 164	1 442	
Value	\$'000	5 639	3 533	475	1 037	980	1 840	1 457	
Ferromolybdenum(c)	t	108	271	79	39	108	88	66	
Value	\$'000	907	2 406	629	425	887	737	572	
Ferronickel(c)	t	945	1 085	361	360	381	..	..	
Value	\$'000	1 296	1 975	642	838	1 057	1	1	
Ferrosilicon(c)	t	11 469	12 897	3 517	2 285	1 736	3 256	1 761	
Value	\$'000	6 873	8 894	2 410	1 745	1 496	2 399	1 642	
Ferrosilicomanganese(c)	t	392	656	253	132	127	135	172	
Value	\$'000	558	913	327	201	196	140	230	
Other	t	1 480	1 655	318	667	345	605	576	
Value	\$'000	4 509	7 058	1 274	2 934	1 702	2 953	2 181	
Tinplate(d)	t	887	464	464	..	857	247	n.y.a.	
Value	\$'000	850	511	510	..	883	247	n.y.a.	
EXPORTS									
Iron ore and pellets									
Pellets, sinters and briquettes	'000 t	1 679	2 027	543	677	547	462	379	
Japan	'000 t	1 679	1 346	229	397	n.a.	n.a.	n.a.	
Other	'000 t	—	681	314	280	n.a.	n.a.	n.a.	
Value	\$'000	59 284	61 056	14 033	20 230	16 832	13 365	14 451	
Fines	'000 t	44 949	41 327	12 265	10 973	12 577	12 604	15 350	
Japan	'000 t	26 851	23 610	7 823	6 757	n.a.	n.a.	8 888	
Other	'000 t	18 098	17 717	4 442	4 216	n.a.	n.a.	6 462	
Value	\$'000	965 266	778 955	222 900	205 423	221 243	201 402	242 048	
Lump and run of mine	'000 t	33 050	35 240	9 538	10 693	9 336	10 193	10 301	
Japan	'000 t	18 245	16 948	4 754	5 264	4 316	4 265	5 087	
Other	'000 t	14 805	18 292	4 784	5 429	5 020	5 928	5 214	
Value	\$'000	914 460	851 380	223 376	250 911	218 702	224 030	219 992	
Total all products	'000 t	79 678	78 594	22 345	22 344	22 459	23 258	26 130	
Iron content	'000 t	50 026	49 473	14 045	14 098	14 106	14 623	16 380	
Value	\$'000	1 939 009	1 691 391	460 308	476 564	456 776	438 796	476 492	
Pig iron	t	26 221	164 939	57 501	70 716	—	24 770	19	
Value	\$'000	3 500	15 477	5 344	7 113	—	2 225	7	
Ingots, blooms, and slabs	t	495 738	522 596	80 645	191 126	90 232	77 052	101 775	
Value	\$'000	125 064	117 706	18 164	40 131	19 928	16 599	19 830	
Ferroalloys									
Ferromanganese	t	43 863	47 499	16 964	12 107	4 733	14 917	5 002	
Value	\$'000	15 969	15 351	5 118	4 602	1 938	4 536	2 260	
Other	t	41 549	37 471	8 861	15 001	11 499	17 051	9 533	
Value	\$'000	20 405	17 070	3 882	6 351	5 596	8 246	4 907	
Scrap(f)	t	557 811	873 736	260 860	238 499	261 842	311 670	353 401	
Value	\$'000	63 454	104 003	25 931	35 303	37 102	45 709	31 673	
Tinplate, excl. waste	t	92 624	46 812	6 323	11 408	9 537	6 617	9 613	
Value	\$'000	60 947	34 905	4 728	7 155	7 324	5 414	7 343	

(a) Used for iron and steel making. (b) Includes recovery from scrap. (c) From 1 January 1988 includes powder; previously included in other ferroalloys. (d) Includes tinplate. (f) Includes tinplate waste.

KYANITE, etc.

PRODUCTION	t	901	1 156	23(a)	15(a)	—	27(a)	n.y.a.
IMPORTS								
Andalusite, mullite, Dinas earth, kyanite, and sillimanite	t	3 912	6 286	626	792	969	1 266	2 361
Value	\$'000	763	1 282	149	190	209	257	483

(a) Excludes Western Australia.

		1987		1988				
		1986	1987	September	December	March	June	September
LEAD								
PRODUCTION								
Mine production								
Minerals produced								
Lead ore(a)	t	21 052	8 680	859	340	960	957	n.y.a.
Lead content	t	1 342	650	71	143	207	235	n.y.a.
Copper content	t	—	2	—	—	—	4	n.y.a.
Silver content	kg	531	397	2	116	135	185	n.y.a.
Zinc content	t	—	42	—	42	73	69	n.y.a.
Lead concentrate	t	705 119	777 376	238 864	183 377	164 745	162 059	198 345
Lead content	t	377 773	421 938	131 711	98 807	90 387	88 374	108 662
Silver content	kg	659 238	753 308	241 200	177 529	153 488	174 456	n.y.a.
Antimony content	t	485	540	131	120	107	92	n.y.a.
Cadmium content	t	171	157	54	37	31	30	n.y.a.
Copper content	t	3 908	5 467	1 849	1 299	1 064	1 127	1 440
Gold content	kg	365	407	125	106	86	77	n.y.a.
Zinc content	t	49 597	52 224	15 877	11 746	10 625	10 117	12 863
Sulphur content	t	56 328	74 082	21 227	20 301	17 615	16 030	n.y.a.
Lead-copper concentrate	t	38 378	30 545	9 104	8 131	7 594	7 934	n.y.a.
Lead content	t	11 644	10 180	3 086	2 667	2 808	2 682	n.y.a.
Copper content	t	4 326	3 351	974	694	755	751	n.y.a.
Silver content	kg	64 815	74 941	22 032	20 189	15 975	14 873	n.y.a.
Gold content	kg	1 527	1 193	272	386	356	314	n.y.a.
Zinc content	t	4 692	3 588	1 071	927	648	806	n.y.a.
Sulphur content	t	10 283	7 755	2 311	2 065	1 929	2 015	n.y.a.
Lead content of minerals produced								
Copper concentrate	t	3 586	2 425	422	467	313	820	325
Lead ore(a)	t	1 342	650	71	143	207	235	n.y.a.
Lead concentrate	t	377 773	421 938	131 711	98 807	90 387	88 374	108 662
Lead-copper concentrate	t	11 644	10 180	3 086	2 667	2 808	2 682	n.y.a.
Lead-zinc concentrate	t	5 377	4 087	894	1 112	1 025	961	n.y.a.
Silver concentrate	t	671	639	220	—	450	217	n.y.a.
Zinc concentrate	t	35 710	35 445	9 566	8 287	9 368	14 398	15 500
Zinc-lead concentrate	t	11 570	13 786	3 961	3 287	2 840	2 592	n.y.a.
New South Wales	t	210 696	229 758	68 309	57 609	51 393	47 703	n.y.a.
Queensland	t	192 841	213 035	70 847	45 167	42 326	43 769	61 716
South Australia	t	4	3	—	—	—	—	n.y.a.
Tasmania	t	37 754	35 969	8 792	9 338	10 637	15 177	n.y.a.
Northern Territory	t	6 378	10 385	1 983	2 656	3 042	3 630	5 329
Total contained lead	t	447 673	489 150	149 931	114 770	107 398	110 279	124 487
Smelter and refinery production								
Refined(b)	t	156 239	201 660	59 807	55 764	19 249	48 306	47 412
Bullion(c)	t	188 403	197 171	54 165	51 364	45 826	49 415	51 807
EXPORTS								
Lead concentrate(e)	t	217 787	125 863	30 293	23 314	40 073	35 030	54 281
Belgium-Luxembourg	t	47 937	28 838	10 087	—	10 857	8 704	19 874
Japan	t	57 685	47 812	15 203	2 800	29 216	15 555	18 696
USA	t	29 921	13 667	—	—	—	—	—
Other	t	82 244	35 546	5 003	20 514	—	10 771	15 711
Value	\$'000	94 998	78 884	18 277	22 874	22 250	15 216	28 665
Lead bullion(c)	t	186 358	179 714	54 719	47 932	48 898	45 440	46 004
Japan	t	16 206	3 685	—	—	—	—	—
UK	t	150 193	147 148	48 374	39 236	45 506	38 680	37 815
Other	t	19 959	28 881	6 345	8 696	3 392	6 760	8 189
Value	\$'000	192 736	311 232	110 238	96 159	76 225	59 314	57 798
Refined lead, unworked (incl. antimonial lead)								
China, Taiwan Province only	t	110 832	132 927	31 411	28 204	21 494	51 711	55 362
India	t	9 109	10 491	2 006	3 281	2 275	2 738	3 739
Indonesia	t	43 218	39 317	9 318	11 491	3 914	11 986	5 799
Iran	t	12 457	11 114	2 775	2 517	3 457	1 898	2 357
Japan	t	—	11 331	—	—	—	100	—
Thailand	t	12 824	9 300	2 557	3 733	2 219	4 883	6 544
UK	t	5 591	6 145	948	1 285	2 542	1 607	2 072
Other	t	4 244	5 999	1 512	1 000	1 000	11 101	1 199
	t	23 389	39 230	12 295	4 897	3 671	17 398	33 652

		1987		1988		
1986	1987	September	December	March	June	September

LEAD

EXPORTS (continued)

Value	\$'000	66 550	115 117	29 840	26 133	20 419	47 666	45 453
Rolled and extruded shapes	t	383	507	143	120	173	43	145
Value	\$'000	415	673	190	195	192	74	127
Scrap	t	26 070	36 456	11 605	9 505	5 757	10 444	9 175
Value	\$'000	4 373	9 536	3 168	2 986	1 737	2 923	3 015
Slags and residues	t	34 559	21 243	5 480	6 229	501	614	92
Value	\$'000	6 839	6 593	1 963	2 444	536	754	468
Lead content of primary materials exported (other than bullion or refined lead)(d)	t	116 461	76 516	18 661	16 260	25 482	17 818	28 178
Lead content of lead bullion exported	t	184 920	178 300	54 288	47 558	48 518	45 085	45 645

(a) Includes lead-silver ore and material derived from dumps. (b) Includes lead content of lead alloys from primary sources. (c) Includes a substantial precious-metal content, mainly silver. (d) Lead content of all base-metal ores and concentrates, slags and residues, and other intermediate products exported.

LIMESTONE

PRODUCTION

Mine production(a)(b)	'000 t	10 747	10 803	2 719	2 591	2 628	2 682	n.y.a.
New South Wales	'000 t	3 420	3 429	837	848	814	805	n.y.a.
Victoria	'000 t	2 776	2 463	689	533	623	632	n.y.a.
Queensland	'000 t	1 687	2 160	554	551	492	565	480
South Australia	'000 t	2 012	1 942	404	479	561	432	467
Western Australia	'000 t	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Tasmania	'000 t	852	809	236	180	138	249	n.y.a.
Cement, Portland	'000 t	5 928	5 869	1 481	1 590	1 416	1 622	1 768

IMPORTS

Limestone and calcareous stone	t	995 695	859 050	153 811	266 860	296 762	157 438	290 760
Value	\$'000	10 794	10 065	1 758	3 166	3 739	1 965	3 118
Calcium carbide	t	13 050	10 850	3 274	2 232	2 481	3 201	4 225
Value	\$'000	5 389	4 643	1 361	967	1 065	1 266	1 592
Cement, Portland grey	t	n.a.	n.a.	n.a.	n.a.	913	1 017	22 933
Value	\$'000	n.a.	n.a.	n.a.	n.a.	87	146	1 225
Cement, Portland white	t	5 825	7 722	1 602	2 530	1 935	1 704	2 737
Value	\$'000	828	1 295	303	416	314	295	406
Cement, Portland, other	t	386	19	5	7	4	..	..
Value	\$'000	75	11	3	4	6	1	1

EXPORTS

Cement, constructional	t	n.a.	n.a.	9 125	9 898	8 673	9 738	4 523
Value	\$'000	2 991	3 723	956	1 017	1 023	946	734

(a) Includes shell and coral. (b) Excludes Western Australia.

MAGNESITE

PRODUCTION

Mine production	t	41 441	53 941	9 843	12 596	13 179	14 594	n.y.a.
New South Wales	t	39 167	50 191	9 373	11 433	13 020	13 648	n.y.a.
Queensland	t	910	1 408	470	195	159	116	289
South Australia	t	1 364	2 342	—	968	—	830	n.y.a.

IMPORTS

Magnesite, calcined, deadburned	t	9 933	17 021	6 405	4 379	56	59	73
Value	\$'000	4 702	7 251	2 238	1 916	136	114	139

		1987		1988			
1986		1987	September	December	March	June	September

MAGNESITE

IMPORTS (continued)

Magnesium oxide								
Electrically fused	t	522	819	109	97	137	2 162	244
Value	\$'000	596	914	201	114	134	312	285
Other	t	236	3 193	14	7	75	3 219	3 321
Value	\$'000	122	1 668	28	6	89	1 733	1 383

EXPORTS

Magnesite and magnesium oxide	t	2 652	4 095	1 548	916	141	100	2 650
Value	\$'000	1 019	1 510	653	350	80	55	1 140

MANGANESE(a)

PRODUCTION

Mine production

Minerals produced								
Manganese ore and concentrate	t	1 648 921	1 853 279	471 212	522 640	472 275	482 984	560 999
Manganese content of minerals produced								
Manganese ore and concentrate	t	786 263	881 630	223 241	248 279	224 179	229 912	266 970
Zinc concentrate	t	3 472	4 620	1 497	797	1 014	720	n.y.a.
Total contained manganese	t	789 735	886 520	224 738	249 076	225 193	230 632	n.y.a.

IMPORTS(b)

Battery-grade ore	t	1 471	1 518	369	689	514	364	379
Value	\$'000	1 664	1 428	339	649	508	291	309
Other grades of ore	t	232	57	40	14	4	40	1 065
Value	\$'000	72	20	11	4	2	10	828
Unalloyed powders and flakes	t	649	923	220	237	n.a.	n.a.	n.a.
Value	\$'000	1 709	2 572	604	580	n.a.	n.a.	n.a.

(a) Details of exports of manganese ore are not available for publication. (b) Imports of ferromanganese are included under Iron.

MERCURY

Imports	kg	66 310	52 100	9 227	11 431	27 352	12 567	17 164
China, excl. Taiwan Province	kg	34 941	30 725	4 470	6 444	12 992	7 695	14 698
USA	kg	16 808	16 235	4 483	4 478	6 641	4 485	2 268
Others	kg	14 561	5 140	274	398	7 719	387	198
Value	\$'000	767	525	107	132	342	174	211

MICA

Imports	t	670	686	241	152	180	68	278
Value	\$'000	254	412	169	72	74	53	113

MONAZITE

PRODUCTION

Mine production

Monazite concentrate	t	14 822	12 813	3 148	2 615	3 423	2 708	n.y.a.
Monazite content	t	13 783	11 958	2 924	2 436	3 181	2 511	n.y.a.
Production: States, monazite content								
New South Wales	t	68	774	182	—	225	365	n.y.a.
Queensland	t	—	179	84	93	171	149	112
Western Australia	t	13 715	11 005	2 658	2 343	2 785	1 997	n.y.a.
Total contained monazite	t	13 783	11 958	2 924	2 436	3 181	2 511	n.y.a.

		1987				1988		
		1986	1987	September	December	March	June	September
MONAZITE (continued)								
EXPORTS								
Monazite concentrate	t	14 100	10 491	3 316	1 254	2 045	3 770	4 019
France	t	12 725	10 491	3 316	1 254	2 045	3 770	3 839
Other	t	1 375	—	—	—	—	—	180
Value	\$'000	9 182	7 720	2 497	928	1 583	2 852	3 276

NICKEL

PRODUCTION

Mine production

Nickel ore	t	2 116 543	2 138 437	471 471	579 500	485 477	502 745	409 439
Nickel content	t	29 798	27 624	5 988	7 418	6 263	5 983	5 323
Cobalt content	t	2 389	2 274	467	580	490	568	483
Nickel concentrate	t	402 398	416 152	110 100	100 700	93 100	88 300	79 600
Nickel content	t	46 941	46 930	12 300	11 500	10 100	9 200	8 800
Cobalt content	t	484	368	n.a.	n.a.	n.a.	n.a.	n.a.
Copper content	t	3 592	2 910	740	640	580	560	n.a.
Gold content	kg	992	247	n.a.	n.a.	n.a.	n.a.	n.a.
Palladium content	kg	428	451	n.a.	n.a.	n.a.	n.a.	n.a.
Platinum content	kg	115	84	n.a.	n.a.	n.a.	n.a.	n.a.
Silver content	kg	305	813	n.a.	n.a.	n.a.	n.a.	n.a.
Production: States, nickel content								
Queensland	t	27 510	26 965	5 988	7 418	6 263	5 983	5 323
Western Australia	t	49 229	47 589	12 300	11 500	10 100	9 200	8 800
Total contained nickel	t	76 739	74 554	18 288	18 918	16 363	15 183	14 123

IMPORTS

Ore and concentrate	t	41 082	43	2	41	—	1	—
Value	\$'000	742	452	4	448	—	7	—
Matte, sinter and intermediate products	t	1 869	84	—	..	—	—	..
Value	\$'000	1 545	162	—	3	—	—	1
Ferronickel	t	945	1 085	361	360	381	..	..
Value	\$'000	1 296	1 975	642	838	1 057	1	1
Nickel metal, unwrought	t	1 082	1 211	247	174	131	87	54
Value	\$'000	7 082	8 037	1 728	1 370	1 545	1 432	926
Nickel metal, semi-fabricated	t	35	75	17	24	21	51	9
Value	\$'000	742	1 205	182	314	459	930	232
Nickel alloys, unwrought	t	41	51	18	18	133	88	32
Value	\$'000	323	374	79	80	1 217	1 114	257
Nickel alloys, semi-fabricated(a)	t	702	578	110	165	139	260	994
Value	\$'000	10 036	10 261	1 723	2 791	2 428	2 025	3 808
Nickel and nickel alloy scrap	t	211	353	117	37	89	—	94
Value	\$'000	343	673	201	75	255	—	451
Chemicals and salts(b)	t	93	999	70	26	58	56	37
Value	\$'000	168	943	128	76	119	139	196

EXPORTS(c)

Matte, sinter, and intermediate products(d)	\$'000	317 710	241 006	55 650	70 761	n.a.	25 227(f)(g)	63 067(f)
Metal and alloys, unwrought	\$'000	120 736	141 310	42 257	39 822	32 057	37 526	55 326
Nickel and nickel alloys, worked	\$'000	1548	6 825	3 569	1 399	1 846	1 007	5 985
Nickel waste and scrap	\$'000	330	313	87	36	36	256	319

(a) Includes nickel foil (not available separately). (b) Excludes nickel oxide. (c) Quantities, and countries of destination, are not available for publication. (d) Includes nickel-cobalt sulphide. (f) Excludes nickel matte. (g) Excludes nickel oxide, sinter, & other intermediate products from 1 April to 31 May.

		1987				1988		
		1986	1987	September	December	March	June	September
PEAT								
Mine production	t	7 265	9 042	1 581(a)	2 486(a)	3 147(a)	1 615(a)	n.y.a.
Imports	t	12 319	12 862	3 528	3 081	3 667	3 685	4 966
Value	\$'000	2 206	2 785	989	678	809	864	911

(a) Excludes Western Australia.

PETROLEUM

PRODUCTION

Field production								
Crude oil and condensate	ML	29 764	31 874	8 086	7 741	7 852	7 581	7 760
Liquefied petroleum gas (LPG), naturally occurring	ML	3 929	3 883	1 050	930	901	1 042	1 066
Natural gas(a)	10 ⁶ m ³	14 869	15 173	4 512	3 576	3 373	3 977	4 545
Refinery operations								
Input of feedstock	ML	32 270	33 830	8 477	8 682	8 996	8 804	9 116
Products								
LPG	ML	771	770	197	210	214	183	200
Aviation gasoline	ML	171	228	57	48	43	63	42
Automotive gasoline	ML	15 268	15 523	4 070	3 800	4 127	3 999	4 051
Aviation turbine fuel	ML	2 716	2 923	707	868	793	755	789
Lighting and power kerosine	ML	95	61	18	6	17	28	21
Heating oil	ML	197	205	69	16	20	73	65
Automotive diesel oil	ML	7 958	8 785	2 200	2 407	2 414	2 379	2 444
Industrial and marine diesel fuel	ML	261	248	48	99	52	29	47
Fuel oil (excluding refinery fuel)	ML	2 093	2 231	511	549	504	512	585
Lubricating oil base stock	ML	534	616	167	151	156	146	160
Bitumen	ML	542	505	93	144	138	138	117
Other marketable products	ML	909	1 115	320	258	265	289	281

IMPORTS

Crude oil	ML	4 026	5 042	1 093	2 248	1 741	1 751	1 706
Value	\$'000	514 877	812 637	177 578	368 155	264 506	230 543	201 334
Enriched crude and other refinery feedstock	ML	3 334	2 910	587	629	360	315	102
Value	\$'000	452 714	437 953	92 928	84 124	49 327	37 284	11 884
Gasoline, solvents, and other petroleum spirits	ML	1 031	969	105	217	291	446	265
Value	\$'000	209 534	192 467	19 335	43 888	48 126	79 255	42 594
Kerosine and aviation turbine fuel	ML	202	186	44	49	33	45	36
Value	\$'000	37 401	37 162	8 639	10 314	7 020	8 594	6 047
Automotive distillate, industrial and marine diesel fuels, and heavy distillates, n.e.i.	ML	983	732	249	179	119	209	200
Value	\$'000	162 974	136 435	46 964	34 971	21 131	40 469	30 147
Fuel oil	ML	1 204	942	201	252	217	305	205
Value	\$'000	141 030	118 543	26 467	30 720	21 395	27 566	18 744
Lubricating oil	ML	23	46	11	16	498	474	312
Value	\$'000	14 916	23 325	5 444	6 878	60 132	61 036	49 876

EXPORTS

Crude oil and condensate	ML	4 296	6 081	1 311	2 005	1 389	1 661	1 522
Value	\$'000	655 322	966 990	218 163	306 621	204 806	220 339	180 472
Enriched crude and other refinery feedstock	ML	106	130	..	35	44	10	61
Value	\$'000	12 052	20 975	1	4 822	5 684	755	7 972

		1987			1988		
		1986	1987	September	December	March	June September

PETROLEUM

EXPORTS (continued)

Gasoline, solvents, and other petroleum spirits	ML	319	560	104	211	98	65 80
Value	\$'000	84 636	128 339	24 385	45 856	22 265	13 866 14 208
Kerosine and aviation turbine fuel	ML	946	976	215	278	350	252 261
Value	\$'000	256 759	253 587	57 894	73 423	87 392	62 605 61 692
Automotive distillate, industrial and marine diesel fuels, and heavy distillates, n.e.i.	ML	759	809	183	237	348	244 221
Value	\$'000	162 122	174 967	42 391	52 470	68 453	46 095 38 241
Fuel oil	ML	1 483	1 369	443	339	400	325 372
Value	\$'000	232 946	228 678	75 253	56 625	60 913	46 875 46 520
Lubricating oils	ML	175	220	38	46	91	51 92
Value	\$'000	102 333	115 628	21 769	22 156	43 768	26 300 42 347
LPG	t	1 494 819	1 359 970	401 075	281 222	291 723	331 594 346 099
Value	\$'000	297 909	247 932	76 390	53 574	55 020	60 079 50 206

(a) Includes ethane.

PHOSPHATE

PRODUCTION

Mine production							
Phosphate rock	t	33 659	11 294	2 329	2 517	500	4 916 2 317
Queensland	t	25 313	6 628	2 329	488	500	2 005 2 317
South Australia	t	8 346	4 666	—	2 029	—	2 911 —
Production of superphosphate(a)	'000 t	2 277	2 561	344	775	997	978 679

IMPORTS

Phosphate rock	'000 t	1 690	1 666	400	477	428	50 ¹ 567
Christmas Island	'000 t	431	358	106	79	56	— —
Nauru	'000 t	1 042	1 044	249	296	222	253 363
Other	'000 t	217	264	45	102	150	250 204
Value	\$'000	96 990	101 387	25 023	28 968	25 088	29 353 34 582

(a) Includes double and triple superphosphate and ammonium phosphate expressed in terms of single superphosphate, i.e. 22% P₂O₅ equivalent.

PLATINUM-GROUP METALS AND ALLOYS (a)

IMPORTS

Unwrought	kg	394	521	407	30	343	1 421 89
Value	\$'000	10 250	9 305	7 913	455	8 457	7 313 1 225
Semi-fabricated	kg	573	5 330	125	579	71	331 1 123
Value	\$'000	8 378	17 946	4 226	800	1 082	7 287 940

EXPORTS

Ore and concentrate	kg	3 840	46	10	24	—	— —
Value	\$'000	35	678	3	659	—	— —
Unwrought	kg	394	280	97	99	65	32 20
Value	\$'000	1 529	2 794	749	746	527	210 377
Semi-fabricated	kg	654	260	62	132	191	110 154
Value	\$'000	2 614	1 978	745	1 067	614	1 000 2 043

(a) Details of production are not available.

POTASSIUM FERTILISER

Imports

Potassium chloride	t	191 673	263 952	60 605	85 814	34 506	80 132 72 070
Value	\$'000	23 901	22 472	5 257	7 097	2 909	7 434 8 234
Potassium sulphate	t	6 567	7 524	4 349	309	10 339	639 4 128
Value	\$'000	2 077	2 306	1 278	96	2 259	200 1 121
Other	t	1 155	3 029	432	164	23	15 42
Value	\$'000	538	1 201	159	83	10	30 23

		1987			1988			
		1986	1987	September	December	March	June	September
SALT								
PRODUCTION								
Mine production	'000 t	6 130	6 486	n.a.	n.a.	n.a.	n.a.	n.a.
Victoria	'000 t	102	150	n.a.	n.a.	n.a.	n.a.	n.a.
Queensland	'000 t	288	275	65	100	51	56	57
South Australia	'000 t	793	784	144	249	177	246	120
Western Australia	'000 t	4 948	5 277	n.a.	n.a.	1 282	1 454	n.a.
Northern Territory	'000 t	—	—	n.a.	n.a.	n.a.	n.a.	n.a.
IMPORTS								
Salt, all grades	t	6 895	7 971	2 093	2 454	1 614	1 680	1 948
Value	\$'000	785	1 111	337	326	308	290	303
EXPORTS								
Salt								
Bulk and bagged	'000 t	5 212	2 744	1 115	1 629	1 526	1 258	1 739
Value	\$'000	101 801	55 542	22 787	32 700	30 560	24 284	32 469
Table	t	1 313	1 716	640	424	392	493	623
Value	\$'000	669	903	312	242	186	228	278

(a) Excludes bulk salt from 1 Jan to 30 June.

SILVER

PRODUCTION

Mine production

Silver content of minerals produced

Copper concentrate	kg	39 135	38 461	10 763	9 153	8 537	10 497	n.y.a.
Gold bullion	kg	17 713	23 649	5 598	6 874	7 802	8 150	n.y.a.
Gold ore and concentrate	kg	190	146	2	100	105	78	n.y.a.
Lead ore(a)	kg	531	397	2	116	135	185	n.y.a.
Lead concentrate	kg	659 238	753 308	241 200	177 529	153 488	174 456	n.y.a.
Lead-copper concentrate	kg	64 815	74 941	22 032	20 189	15 975	14 873	n.y.a.
Lead-zinc concentrate	kg	11 088	9 906	2 188	2 511	2 347	2 453	n.y.a.
Nickel concentrate	kg	305	813	n.a.	n.a.	n.a.	n.a.	n.a.
Silver concentrate	kg	62 687	51 024	24 400	—	30 890	15 623	n.y.a.
Zinc concentrate	kg	127 981	123 823	33 500	28 185	30 783	41 703	n.y.a.
Zinc-lead concentrate	kg	39 078	42 832	13 141	17 397	9 076	8 110	14 135
New South Wales	kg	402 200	414 862	126 972	99 639	110 153	112 800	n.y.a.
Queensland	kg	492 098	552 250	187 950	115 870	108 932	111 520	155 154
Victoria	kg	171	178	39	51	41	53	n.y.a.
South Australia	kg	2	2	—	—	—	—	n.y.a.
Western Australia	kg	9 069	11 353	2 539	2 752	3 413	3 342	n.y.a.
Tasmania	kg	100 592	112 949	30 794	29 775	29 048	39 314	n.y.a.
Northern Territory	kg	18 602	27 706	4 532	7 167	7 551	9 099	13 726
Total contained silver	kg	1 022 761	1 119 300	352 826	255 254	259 138	276 128	310 000(e)
Refinery production								
Silver	kg	336 194	361 615	83 260(c)	86 651(c)	51 471(c)	83 046(c)	81 199(c)
IMPORTS								
Silver								
Silver and alloys	kg	955	15	7	3	n.a.	n.a.	n.a.
Value	\$'000	291	34	22	8	628	290	1 084

		1987		1988			
		1986	1987	September	December	March	June September
SILVER (continued)							
EXPORTS							
Silver, refined							
Mint bullion	kg	187 736	176 032	38 838	47 872	12 082	10 988 4 298
Value	\$'000	52 736	58 654	13 702	17 231	4 178	3 336 1 065
Refined, other	kg	4 020	1 468	—	1 452	6 319	— 2
Value	\$'000	714	515	—	510	2 000	— 49
Silver content of primary materials exported (other than refined silver or lead bullion)(b)	kg	330 580	297 007	71 310	89 558	69 405	85 115 86 625
Silver content of lead bullion exported	kg	435 312	436 396	139 763	117 701	121 102	106 850 153 099

(a) Includes lead-silver ore. (b) Silver content of all base-metal ores and concentrates, slags and residues, and other intermediate products exported. (c) Excludes some small producers.

SULPHUR

PRODUCTION

Mine production

Sulphur content of minerals produced							
Lead concentrate	t	56 328	74 082	21 227	20 301	17 615	16 030 n.y.a.
Lead-copper concentrate	t	10 283	7 755	2 311	2 065	1 929	2 015 n.y.a.
Lead-zinc concentrate	t	6 353	5 057	918	1 273	1 195	1 185 n.y.a.
Pyrite concentrate	t	—	28 887	8 435	6 966	7 867	7 476 n.y.a.
Zinc concentrate	t	354 379	390 864	108 650	94 752	91 353	83 734 n.y.a.
Zinc-lead concentrate	t	25 669	29 599	8 108	7 642	8 407	6 998 12 429
New South Wales	t	232 671	292 416	83 409	74 844	68 616	62 596 n.y.a.
Queensland	t	150 633	152 675	43 299	34 560	35 876	31 861 47 096
Tasmania	t	69 708	91 153	22 941	23 595	23 874	22 981 n.y.a.
Total contained sulphur	t	453 012	536 244	149 649	132 999	128 366	117 438 n.y.a.
Sulphuric acid production	'000 t	1 645	1 752	346	475	471	524 434

IMPORTS

Sulphur	t	398 101	379 560	75 473	104 557	131 617	161 051 166 514
Canada	t	397 276	374 109	74 994	100 100	124 869	160 865 154 945
Other	t	725	5 451	479	4 457	6 748	186 11 569
Value	\$'000	70 559	55 544	10 523	13 334	16 820	18 099 17 445

TALC, etc.(a)

PRODUCTION

Mine production	t	188 055	212 901	34 892	50 112	27 230	59 671 n.y.a.
New South Wales	t	8 626	6 156	1 021	1 904	745	1 282 n.y.a.
South Australia	t	18 061	17 471	4 694	4 041	1 554	10 172 2 705
Western Australia	t	161 368	189 274	29 177	44 167	24 931	48 217 55 095

IMPORTS

Talc	t	151	266	105	48	119	40 177
Value	\$'000	85	189	76	45	62	39 67

EXPORTS

Talc	t	183 357	129 633	26 066	38 632	46 590	53 926 28 580
Japan	t	120 312	84 701	17 323	22 604	39 265	28 673 23 104
Netherlands	t	15 252	5 001	5 001	—	1 200	5 253 —
USA	t	14 003	15 472	9	6 010	5 507	12 503 20
Other	t	33 790	24 459	3 733	10 018	618	7 497 5 456
Value	\$'000	15 028	10 963	2 289	2 951	3 717	4 390 2 088

(a) Includes steatite, chlorite, and pyrophyllite.

		1987				1988		
		1986	1987	September	December	March	June	September
TANTALUM AND NIOBIUM (COLUMBIUM)(a)								
Exports								
Tantalite-columbite concentrate	t	198	440	66	198	48	84	300
Value	\$'000	4 655	5 193	889	1 752	1 694	2 785	n.y.a.

(a) Details of mine production are not available.

TIN(a)

PRODUCTION

Mine production

Minerals produced								
Copper-tin concentrate	t	586	—	—	—	—	—	—
Copper content	t	132	—	—	—	—	—	—
Tin content	t	7	—	—	—	—	—	—
Tin concentrate	t	17 261	14 944	3 661	3 194	3 579	3 224	n.y.a.
Tin content	t	8 508	7 691	1 939	1 626	1 854	1 519	1 879
Production: States, tin content								
New South Wales	t	1 040	1	—	—	3	—	n.y.a.
Queensland	t	641	651	192	80	67	49	45
Western Australia	t	520	454	77	74	74	79	52
Tasmania	t	6 262	6 561	1 670	1 472	1 710	1 391	n.y.a.
Northern Territory	t	32	24	n.a.	n.a.	n.a.	n.a.	n.a.
Total contained tin	t	8 515	7 691	1 939	1 626	1 854	1 519	1 879
Smelter and refinery production								
Tin	t	1 399	563	161	96	105	139	88

IMPORTS

Refined tin	t	186	177	5	—	10	25	109
Value	\$'000	1 754	1 740	46	—	98	215	978
Tin articles n.e.s.(b)								
Value	\$'000	5 473	11 870	2 852	2 594	3 334	3 484	4 242

EXPORTS

Tin concentrate	t	14 588	13 794	4 101	2 508	4 549	2 017	3 872
Value	\$'000	56 848	58 621	16 110	11 271	19 201	7 914	14 397
Tin, unworked								
Refined	t	122	135	21	6	9	27	91
Value	\$'000	1 236	1 350	204	60	96	227	773
Alloys	t	70	137	1	1	2	—	1
Value	\$'000	674	200	8	7	23	—	5
Tin slags and residues	t	154	34	34	—	—	25	—
Value	\$'000	267	28	28	—	—	53	—
Tin content of primary materials exported in other than refined or alloyed form(c)	t	7 390	7 028	2 016	1 353	2 283	1 008	1 873

(a) Production and overseas trade details for tinplate are given under Iron. (b) Mainly tin anodes. (c) Tin content of all base-metal ores and concentrates, slags and residues, and other intermediate products exported.

TITANIUM

PRODUCTION

Mine production

Minerals produced								
Ilmenite concentrate	t	1 237 694	1 498 087	338 754	320 766	381 599	401 441	370 000(e)
Leucoxene concentrate	t	14 143	11 290	3 154	2 997	2 941	3 267	3 000(e)
Rutile concentrate	t	215 774	246 263	66 255	52 804	53 564	61 738	60 000(e)

		1987		1988		
1986	1987	September	December	March	June	September

TITANIUM

PRODUCTION (continued)

Production: States, titanium dioxide content								
Ilmenite concentrate								
New South Wales	t	9 200	7 982	1 714	1 767	1 743	2 142	n.y.a.
Queensland(a)	t	—	122 014	29 432	30 354	29 219	33 817	34 737
Western Australia	t	587 662	681 964	151 187	138 229	176 374	184 659	n.y.a.
Total	t	596 862	811 960	182 333	170 350	207 336	220 618	n.y.a.
Leucosene concentrate								
Western Australia	t	12 733	10 212	2 842	2 702	2 651	2 941	n.y.a.
Rutile concentrate								
New South Wales	t	40 800	56 425	14 646	12 717	12 161	13 214	n.y.a.
Queensland	t	99 166	97 055	24 826	21 054	22 372	23 051	23 512
Western Australia	t	66 608	81 444	23 949	16 757	16 706	22 812	n.y.a.
Total	t	206 574	234 924	63 421	50 528	51 239	59 077	n.y.a.

IMPORTS

Titanium dioxide								
Anatase	t	55	143	35	37	7	82	82
Value	\$'000	91	267	63	72	29	138	185
Rutile	t	946	926	202	226	..	19	..
Value	\$'000	1 981	2 037	459	438	1	48	..
Titanium white pigment	t	212	98	62	20	163	346	..
Value	\$'000	691	413	236	98	691	1 099	5

EXPORTS(b)

Ilmenite concentrate								
France	t	1 034 209	1 045 497	261 342	229 759	278 135	244 805	289 356
Japan	t	35 523	20 862	20 862	—	17 113	—	10 009
Spain	t	152 355	161 865	42 175	13 053	30 096	42 251	9 840
UK	t	79 271	105 186	20 005	20 000	26 254	26 250	—
USA	t	165 466	197 771	32 909	66 597	20 104	47 457	47 454
Other	t	452 837	383 865	118 625	70 230	154 106	81 221	168 453
Value	\$'000	148 757	175 948	26 766	59 879	30 462	47 626	53 600
Leucosene concentrate								
Japan	t	48 454	61 003	15 094	14 473	16 614	15 746	17 608
Value	\$'000	13 474	10 685	1 665	280	379	6 277	2 760
Rutile concentrate								
Japan	t	5 152	4 479	690	118	161	2 435	1 329
Netherlands	t	229 665	256 781	93 367	64 882	34 892	84 218	72 434
UK	t	25 853	14 123	1 821	4 160	3 323	6 668	6 988
USA	t	24 570	45 684	10 022	21 706	4 014	5 463	7 201
Other	t	69 026	67 005	26 750	16 254	—	10 014	20 003
Value	\$'000	78 614	86 372	36 361	14 015	19 100	44 913	25 502
Total	t	31 602	43 597	18 413	8 747	8 455	17 160	12 740
Value	\$'000	116 412	149 890	56 050	36 304	21 116	47 510	41 954

(a) Includes upgraded ilmenite from March quarter 1987. (b) Exports of beneficiated ilmenite are not available for publication.

TUNGSTEN

PRODUCTION

Mine production

Minerals produced								
Scheelite concentrate	t	1 899	1 958	499	527	345	629	592
Tungsten (W) content	t	1 142	1 149	295	311	207	377	350
Wolframite concentrate	t	835	3	—	—	—	—	—
Tungsten (W) content	t	458	2	—	—	—	—	—
Production: States, tungsten (W) content								
New South Wales	t	3	2	—	—	—	—	—
Queensland	t	496	—	—	—	—	—	—
Tasmania	t	1 101	1 149	295	311	207	377	350
Total contained tungsten (W)	t	1 600	1 151	295	311	207	377	350

		1987		1988			
		1986	1987	September	December	March	June September
TUNGSTEN (continued)							
EXPORTS							
Scheelite concentrate	t	1 683	1 909	396	469	432	743 500
Value	\$'000	9 689	10 083	2 145	2 821	2 779	4 401 2 639
Wolframite concentrate	t	843	146	—	—	—	— 3
Value	\$'000	3 793	392	—	—	—	— 13
Tungsten (W) content of concentrates exported	t	1 393	1 131	222	261	242	415 267
URANIUM							
PRODUCTION							
Mine production							
Uranium oxide (U ₃ O ₈)	t	4 899	4 457	1 070	1 322	1 212	589 1 073
Uranium content	t	4 154	3 780	908	1 121	1 028	499 910
EXPORTS							
Uranium oxide (U ₃ O ₈)	t	4 166	3 812	417	2 033	905	1 197 1 057
Value	\$'000	372 604	342 145	38 226	181 268	83 355	108 527 85 851
ZINC							
PRODUCTION							
Mine production							
Minerals produced							
Zinc concentrate	t	1 249 855	1 362 919	360 224	310 258	303 879	328 140 364 195
Zinc content	t	614 089	677 934	179 562	154 900	151 654	158 217 175 347
Lead content	t	35 710	35 445	9 566	8 287	9 368	14 398 15 500
Silver content	kg	127 981	123 823	33 500	28 185	30 783	41 703 n.y.a.
Gold content	kg	377	445	111	114	91	80 n.y.a.
Cadmium content	t	1 774	2 097	560	456	416	396 n.y.a.
Cobalt content	t	41	73	21	20	18	17 n.y.a.
Copper content	t	2 680	2 585	696	663	583	928 629
Manganese content	t	3 472	4 620	1 497	797	1 014	720 n.y.a.
Sulphur content	t	354 379	390 864	108 650	94 752	91 353	83 734 n.y.a.
Zinc content of minerals produced							
Copper concentrate	t	6 483	4 551	911	992	587	1 234 279
Lead ore(a)	t	—	42	—	42	73	69 n.y.a.
Lead concentrate	t	49 597	52 224	15 877	11 746	10 625	10 117 12 863
Lead-copper concentrate	t	4 692	3 588	1 071	927	648	806 n.y.a.
Lead-zinc concentrate	t	7 742	6 015	1 046	1 541	1 386	1 424 n.y.a.
Silver concentrate	t	110	—	—	—	—	— n.y.a.
Zinc ore	t	—	—	—	—	—	— n.y.a.
Zinc concentrate	t	614 089	677 934	179 562	154 900	151 654	158 217 175 347
Zinc-lead concentrate	t	29 245	34 032	9 312	9 168	10 447	9 457 15 012
New South Wales							
Queensland	t	321 716	401 673	111 068	93 651	87 134	84 632 n.y.a.
South Australia	t	252 734	253 004	73 297	56 892	58 144	53 946 78 042
Tasmania	t	25 084	17 490	n.a.	n.a.	n.a.	3 700 n.y.a.
Northern Territory	t	95 267	86 142	19 619	23 378	25 609	36 585 n.y.a.
Total contained zinc	t	18 157	20 077	3 795	5 395	4 533	6 161 7 471
Smelter and refinery production	t	711 958	778 386	207 779	179 316	175 420	185 024 188 489
Zinc	t	303 115	310 189	82 853	76 702	67 874	77 221 80 150

		1987		1988			
		1986	1987	September	December	March	June September
ZINC (continued)							
EXPORTS							
Zinc concentrate	t	875 233	876 854	270 908	223 590	243 513	288 225 202 165
Belgium-Luxembourg	t	92 215	102 643	32 912	31 756	35 780	9 828 17 492
Germany FR	t	136 161	117 430	28 873	33 283	22 201	27 776 7 432
Japan	t	492 846	376 708	102 280	90 096	101 263	155 230 103 709
Korea, Rep.	t	65 165	184 676	81 458	38 357	47 020	66 405 43 620
UK	t	36 565	40 432	15 665	7 168	22 486	9 344 13 552
Other	t	52 281	54 965	9 720	22 930	14 763	19 642 16 360
Value	\$'000	210 446	221 325	68 728	55 986	65 239	92 379 72 923
Refinery-type shapes	t	217 422	240 689	54 718	66 385	47 125	59 597 48 671
China, excl. Taiwan Province	t	6 179	9 033	297	3 869	139	3 875 199
China, Taiwan Province only	t	34 529	37 118	9 941	8 252	6 135	9 196 7 248
India	t	10 183	18 967	4 170	11 540	1 341	1 572 501
Indonesia	t	44 567	40 058	7 549	13 606	9 391	14 049 9 460
New Zealand	t	11 767	10 768	2 418	2 026	3 828	3 673 2 894
USA	t	33 003	43 874	9 585	8 620	7 994	3 671 6 834
Other	t	77 194	80 871	20 758	18 472	18 297	23 561 21 535
Value	\$'000	270 836	300 083	69 183	82 108	61 339	85 995 81 625
Semi-fabricated products	t	80	99	13	64	807	267 123
Value	\$'000	117	184	25	114	1 175	320 188
Dust, powders, and flakes	t	410	516	206	112	99	99 150
Value	\$'000	644	827	388	188	189	181 211
Waste and scrap	t	1 226	1 716	516	709	755	1 438 934
Value	\$'000	760	1 203	379	509	601	994 817
Slags and residues	t	9 831	6 998	2 431	1 631	1 092	1 008 1 285
Value	\$'000	6 793	4 154	1 406	902	682	571 707
Zinc content of primary materials exported (other than refined zinc)(b)	t	443 991	421 986	128 427	106 875	115 503	138 667 96 326

(a) Includes lead-silver ore. (b) Zinc content of all base-metal ores and concentrates, slags and residues, and other intermediate products exported.

ZIRCONIUM

PRODUCTION

Mine production							
Minerals produced							
Zircon concentrate	t	451 824	456 590	122 871	104 513	117 245	131 321 121 000(e)
Zirconium dioxide content	t	285 491	317 709	85 760	73 041	82 633	92 957 n.y.a.
Production: States, zirconium dioxide content							
New South Wales	t	47 755	52 242	12 885	11 202	14 699	17 791 n.y.a.
Queensland	t	56 218	55 073	14 074	11 389	12 778	13 912 13 587
Western Australia	t	181 518	210 394	58 801	50 450	55 156	61 254 n.y.a.
Total	t	285 491	317 709	85 760	73 041	82 633	92 957 n.y.a.

EXPORTS

Zircon concentrate	t	445 690	465 003	125 435	121 554	97 158	122 607 129 694
France	t	30 097	32 071	12 574	7 312	—	5 000 9 000
Italy	t	67 061	56 417	15 663	14 454	14 187	27 514 21 439
Japan	t	160 022	170 552	39 503	34 966	33 573	41 140 29 576
Netherlands	t	33 982	29 915	2 642	13 313	13 638	16 755 24 403
Spain	t	14 006	25 527	9 829	6 542	10 025	425 3 192
UK	t	22 542	22 966	8 040	3 363	3 680	88 4 443
USA	t	34 857	58 586	8 166	18 060	8 054	12 145 21 014
Other	t	83 123	68 969	29 018	23 544	14 001	19 540 16 627
Value	\$'000	74 495	108 416	30 622	31 778	33 623	46 456 51 462

Metal, Ore, and Concentrate Prices

compiled by D.R. McGee & D.A. Burge

BMR's Mineral Commodities Branch collects and monitors prices of metals, ores, and concentrates as part of its mineral industry studies.

The prices below were those applying at the end of the quarter covered.

Preceding the main list of prices are two tables showing the monthly average, maximum, and minimum prices of the eight major metals whose prices are subject to daily change. To supplement these tables and lists in the *Quarterly*, BMR also issues a monthly sheet, *Bulletin of Metal, Ore, & Concentrate Prices*. Daily prices information for 129 series is also available on-line through BMR's MINPRI database.

All European prices in the following tables and lists, and US prices for copper, lead, palladium, platinum, and zinc, have been obtained from the London *Metal Bulletin*. Other US metal prices are selected from *Metals Week* and *American Metal Market*. European and US prices for ores and concentrates are obtained from the London *Metal Bulletin*, *Metals Week*, *American Metal Market*, and *Industrial Minerals*. Australian prices are obtained from various sources.

The London Metal Exchange (LME) daily prices and LME contract quality specifications are the basis for many transactions involving spot, forward, and contract sales of base metals and base-metal ores and concentrates; the prices may be adjusted where there are variations in product quality, freight differentials, exchange rates, quantity sold, etc.

Leading metal producers also quote prices for their metal products. The prices differ among producers and the range is generally quoted in technical journals. Prices for nickel, platinum, and zinc are generally established in this way, but in recent years there has been increasing use of LME prices as a point of reference for producer pricing.

Australian metal prices are generally based on overseas market prices such as the LME or major producer price, although the pricing formulas vary. For example, copper, lead, and silver metal prices quoted by major Australian producers are related to the LME price and to variations in currency exchange rates, whereas the Australian price for gold, as quoted by the Perth Mint, is the Australian equivalent of the Hong Kong market opening quote. The

Australian tin price is loosely tied to the Kuala Lumpur Tin Market price.

Ore and concentrate prices in Australia, Europe, and USA are generally subject to negotiation between producer and buyer and vary according to grade, impurities, and in many cases the size of the parcel. Some metallic ores and concentrates are produced in Australia by vertically integrated producers. Generally, such products have few or, in some cases, no other domestic consumers, in which case a domestic market may not exist or, at best, may be limited to a small number of transactions, and it is often difficult or impossible to obtain a representative market quotation.

Some larger Australian producers of ores and concentrates will buy small parcels of ore. The basis for determining the price paid varies between buyers but is generally related to the market price of the contained pay metal(s) less treatment charges and penalties for impurities. Current treatment charges for copper ore are given at the end of this Prices section. Details of charges for other ores and concentrates may be obtained from individual buyers.

Some Australian prices are used as reference points for world prices, even where no Australian domestic price is quoted. For example, there are no Australian quotations for ilmenite, monazite, rutile, and zircon (Australian prices are listed as 'nominal', being subject to negotiation between individual buyer and seller); however, the London *Metal Bulletin* provides spot quotations for mineral-sand concentrates on an 'f.o.b., f.i.d. Australia' basis.

No world price is recognised for certain bulk mineral products such as iron ore, coal, and bauxite. Sales are generally by contract and prices are subject to negotiation between suppliers and individual customers. In some cases, the producers are vertically integrated, and their transfer prices are generally not available or are unrepresentative of the market.

For the industrial minerals exact prices are not readily available. Variation in product quality, even between products from the same mine or quarry, makes it difficult to determine a representative market price. Generally a price range is quoted, depending mainly on grade and quality.

AVERAGE METAL PRICES, JULY-SEPTEMBER 1988

	Aluminium	Copper	Gold	Lead	Nickel	Silver	Tin	Zinc
Australia		(\$/t)	(\$/troy oz.)	(\$/t)	(\$/kg)(a)	(\$/kg)	(\$/t)	(\$/t)
July		2935.24	550.51	883.33	18.24	291.90	11 225.63	1 747.00
August		2736.52	537.43	813.04	17.65	275.65	11 392.59	1 562.00
September		3034.55	524.38	800.00	14.97	265.33	11 685.23	1 731.91
Quarter		2899.09	537.24	831.06	16.94	277.57	11 444.43	1 677.50
UK	(LME, £/t)	(LME, £/t)	(US\$/troy oz.)	(LME, £/t)	(LME, US\$/t)	(pence/troy oz.)		(LME, £/t)
July	1516.29	1298.14	437.45	363.17	14 625.00	416.27		725.67
August	1593.64	1296.82	431.06	354.48	14 220.45	394.94		771.48
September	1419.00	1446.30	413.44	362.11	11 910.00	378.37		(h)
Quarter	1509.54	1347.84	427.16	359.87	13 569.15	396.22		749.10
USA	(US\$/lb)	(US\$/lb)	(US\$/troy oz.)	(US\$/lb)	(US\$/lb)(b)	(US\$/troy oz.)	(US\$/lb)	(US\$/lb)
July	124.64	104.66	438.13	36.00	6.63	714.65	336.15	64.50
August	125.67	100.61	431.28	36.00	6.45	671.23	343.77	64.64
September	117.34	116.07	412.79	36.00	5.40	636.48	345.89	67.50
Quarter	122.57	107.05	427.29	36.00	6.15	673.43	342.00	65.58
	(US\$/lb)(c)				(US\$/lb)(d)	(M\$/kg)(f)	(US\$/t)(g)	
July	84.00				6.61	18.73	1292.86	
August	84.00				6.41	19.37	1230.68	
September	84.00				5.40	19.72	1343.18	
Quarter	84.00				6.14	19.29	1288.85	

(a) Australian currency equivalent of LME cash midday price. (b) LME cash midday (settlement) price changed to US\$/t 1 February 1988. (c) US Producer. (d) European Free Market. (f) Kuala Lumpur Tin Market. (g) European Producer. (h) Changed to US\$/tonne 1 September 1988.

MAXIMUM AND MINIMUM METAL PRICES, 1 JULY TO 30 SEPTEMBER 1988

	Aluminium	Copper	Gold	Lead	Nickel	Silver	Tin	Zinc
Australia		(\$/t)	(\$/troy oz.)	(\$/t)	(\$/kg)(a)	(\$/kg)	(\$/t)	(\$/t)
		3200.00	570.00	900.00	19.91	317.00	11 808.00	1747.00
		2700.00	507.00	800.00	13.92	258.00	11 065.00	1562.00
UK	(LME, £/t)	(LME, £/t)	(US\$/troy oz.)	(LME, £/t)	(LME, US\$/t)	(pence/troy oz.)		(LME, £/t)
	1766.00	1520.00	445.00	385.00	15600.00	457.75		820.00(h)
	1235.00	1218.50	389.05	337.50	10950.00	365.75		690.00(h)
USA	(US\$/lb)	(US\$/lb)	(US\$/troy oz.)	(US\$/lb)	(US\$/lb)(b)	(US\$/troy oz.)	(US\$/lb)	(US\$/lb)
	129.50	126.00	446.85	38.00	7.08	799.00	352.00	69.00
	100.00	94.00	395.30	34.00	4.97	611.00	332.00	63.00
	(US\$/lb)(c)				(US\$/lb)(d)	(M\$/kg)(f)	(US\$/t)(g)	
	86.00				7.10	20.10	1350.00	
	82.00				4.75	18.39	1200.00	

(a) Australian currency equivalent of LME cash midday price. (b) LME cash midday (settlement) price changed to US\$/t 1 February 1988. (c) US Producer. (d) European Free Market. (f) Kuala Lumpur Tin Market. (g) European Producer. (h) Changed to US\$/tonne on 1 September 1988.

METAL PRICES AS AT END OF SEPTEMBER 1988

The prices shown are for the last trading day of the quarter; where prices are not set daily, the date of latest change is shown. Some prices are nominal, being subject to negotiation between producer and purchaser. Australia & New Zealand Banking Group Ltd exchange (telegraphic transfer buying) rate: \$A1.00 = US\$0.7841, £0.4668.

Aluminium

Australia	—
Europe	£1285.00/t LME cash, midday, ingots or T-bars, min. 99.5%, 25 tonne warrants, standard-grade US\$2215/t LME cash, midday, min. 99.7%, high-grade 100.00-104.00 US cents/lb (29.9.88) <i>Metals Week</i> , US Market 82-86 US cents/lb (13.10.87) Producer's list, 99.7%, f.o.b., buyer
USA	

Antimony

Australia	No sales
Europe	US\$2180-2210/t (30.9.88) European Free Market, 99.6%, warehouse 105.00-110.00 US cents/lb (25.8.88) <i>Metals Week</i> , New York Dealer, 99.5-99.6% metal, c.i.f. port
USA	

Bismuth

Australia	\$16.45-17.01/kg Australian currency equivalent of European Free Market price \$16.87-17.29/kg Australian currency equivalent of <i>Metals Week</i> , New York Dealer price US\$5.85-6.05/lb (28.9.88) European Free Market, min. 99.99%, 1-tonne lots in warehouse US\$6.00-6.15/lb (29.9.88) <i>Metals Week</i> , New York Dealer, min. 99.9%
Europe	
USA	

Cadmium

Australia	\$20.00/kg (13.9.88) EZ Industries, min. 99.95%, 1-tonne lots, delivered buyer's works, capital city US\$6.60-7.00/lb (30.9.88) European Free Market, min. 99.95%, sticks, in warehouse US\$6.20-6.30/lb (29.9.88) <i>Metals Week</i> , New York dealer, min. 99.95%
Europe	
USA	

Cobalt

Australia	\$15.30/kg (1.2.88) Ceramic oxide, 70% Co, delivered Melbourne US\$7.05-7.30/lb (28.9.88) European Free Market, 99.6%, in warehouse US\$7.00-7.20/lb (29.9.88) <i>Metals Week</i> , spot, cathode, min. 99.5%, 2-ton lots, f.o.b. US ports
Europe	
USA	

Copper

Australia	\$3200.00/t (29.9.88) Mount Isa Mines cathode, f.o.t. Townsville refinery £1520.00/t LME cash, midday, high-grade, 25 t warrants 121.25-126.00 US cents/lb (30.9.88) US Producer, cathodes, delivered
Europe	
USA	

Gold

Australia	\$509.40/troy oz, \$16.38/g Perth Mint selling price, min. 400-oz bars
Europe	US\$396.15/troy oz LME, morning quote, London spot, 999 fineness
USA	US\$396.70/troy oz Handy & Harman seller's price, min. 99.95%, 400-oz bar

Lead

Australia	\$800.00/t (9.8.88) BHAS 99.97%-99.99% free on transport, Port Pirie
Europe	£368.00/t LME, cash, midday, standard-grade, min. 99.97%, 25 t warrants 34.00-38.00 US cents/lb (14.6.88) New York, US producer
USA	

Mercury

Australia	Nominal
Europe	US\$310.00-325.00/flask (28.9.88) European Free Market, min. 99.99%, per 76 lb flask, c.i.f.
USA	US\$325.00-345.00/flask (22.9.88) <i>Metals Week</i> , New York dealer, 20-plus flasks, 99.99%

Nickel

Australia	\$14.69/kg Australian currency equivalent of LME cash midday (settlement) price US\$4.75-5.35/lb (30.9.88) European Free Market, melting-grade, in warehouse US\$11500.00/t (30.9.88) LME cash, midday. Cut cathodes/pellets/briquettes, 99.8%, 6-tonne lots US\$5.22/lb US currency equivalent of LME cash midday (settlement) price
Europe	
USA	

Palladium

Europe	US\$119.00/troy oz (30.9.88) Johnson Matthey, base, unfabricated, min. 99.9%, f.o.b. refinery US\$150.00/troy oz (28.8.86) Impala Producer, min. 99.9%, c.i.f. international airport US\$117.00-119.00/troy oz (29.9.88) <i>Metals Week</i> , New York Dealer
USA	

Pig iron

Europe	£140.00/t (29.12.85) BSC Paris, foundry, phosphorus 0.05-0.08%, ex-basing points, over 15 t.
USA	n.a. American Metal Market, No. 2 Foundry, f.o.b. Birmingham

Platinum

Australia	Nominal
Europe	US\$497.00/troy oz (30.9.88) Johnson Matthey, base, unfabricated, 99.95%, f.o.b. refinery US\$600.00/troy oz (28.8.86) Impala Producer, 99.95%, c.i.f. international airport US\$485.00-495.00/troy oz (29.9.88) <i>Metals Week</i> , New York Dealer
USA	

Selenium

<i>Australia</i>	Nominal
<i>Europe</i>	US\$9.50-9.70/lb (9.9.88)
	European Free Market, min. 99.5% in warehouse
<i>USA</i>	US\$9.85-10.10/lb (15.9.88)
	<i>Metals Week</i> , New York Dealer, commercial grade, min. 99.5%

Silver

<i>Australia</i>	\$262.00/kg (30.9.88)
	BHAS, min. lots 23 kg, free on transport, Port Pirie
<i>Europe</i>	365.75 pence/troy oz
	London spot
<i>USA</i>	611.00 US cents/troy oz (30.9.88)
	Handy & Harman, commercial bar form, min. 99.9%

Steel

<i>Australia</i>	\$623.00/t (27.5.88)
	Billets, commercial finish, 162 x 162 mm; f.o.r./f.o.t., steelworks of origin or f.o.t. designated terminals
<i>Europe</i>	£200.00/t (4.1.88)
	BSC Paris. Billets, grade 11, rimmed, 0.09-0.15% carbon, ex-basing points
<i>USA</i>	n.a. from 5.3.87
	Billets, carbon, re-rolling, f.o.b. Midwestern mills, <i>American Metal Market</i>

Tin

<i>Australia</i>	\$11 635.00/t (30.9.88)
	Amalgam (Aust.) Pty Ltd spot, 1 tonne lots and above, ex-works, Sydney
<i>Europe</i>	LME, cash, midday
	Trading terminated 13.3.86
<i>USA</i>	340.50-342.00 cents/lb (30.9.88)
	<i>Metals Week</i> , New York Dealer
<i>Kuala Lumpur</i>	MS19.50/kg (30.9.88)
	Ex-smelter, Kuala Lumpur Tin Market

Tungsten

<i>Europe</i>	£13.00-13.50/kg (18.8.86)
	UK Producer, metal powder, 99.5%, delivered
<i>USA</i>	US\$9.53-9.53/lb , (27.4.88)
	Hydrogen red, metal powder, 99.9%, <i>American Metal Market</i>

Zinc

<i>Australia</i>	\$1740.00/t (2.9.88)
	EZ Industries, Prime Western, 98.5%
<i>Europe</i>	US\$1342.00/t (30.9.88)
	LME, cash, midday, registered brands, min. 98%, 25 t contracts. Changed to US\$ on 1.9.88
	US\$1350.00/t (23.6.88)
	European Producer, high-grade, c.i.f. Europe, 98%
<i>USA</i>	66.00-69.00 US cents/lb (31.8.88)
	US Producer, high-grade, delivered

ORE AND CONCENTRATE PRICES AS AT END OF SEPTEMBER 1988

Prices shown are for the last trading day of the quarter; where prices are not set daily, the date of latest change is shown. Some prices are nominal, being subject to negotiation between producer and purchaser. Prices quoted will vary according to grade and possible impurities, and in many cases with the size of the parcel.

Antimony

<i>Australia</i>	Nominal
<i>Europe</i>	US\$24.00-25.00/mtu
	Lump sulphide ore, 60% Sb, c.i.f.

Beryl

<i>Australia</i>	Nominal
<i>Europe</i>	US\$75.00-80.00/stu
	Cobbed lump, minimum 10% BeO, c.i.f.
<i>USA</i>	US\$78.00-85.00/stu (1.5.86)
	10-12% Be, imported, c.i.f. US east coast ports

Chromite

<i>Australia</i>	Nominal
<i>Europe</i>	US\$150.00-180.00/t
	Turkish lumpy, minimum 48% Cr ₂ O ₃ , 3:1, f.o.b.
<i>USA</i>	\$180.00/t (14.7.88)
	Turkish ore, 48% Cr ₂ O ₃ , 3:1, f.o.b.

Manganese

<i>Australia</i>	Nominal
<i>Europe</i>	US\$1.70-1.80/mtu
	Metallurgical, 48-50% Mn, max. 0.1% P, c.i.f.
<i>USA</i>	US\$1.50-1.65/lbu (12.5.88)
	Min. 48% Mn, low impurities, c.i.f. US ports

Mineral sands

<i>Ilmenite</i>	Nominal
<i>Australia</i>	\$A75.00-90.00/t
<i>Europe</i>	Bulk concentrates, min. 54% TiO ₂ , f.o.b. Australia, <i>Industrial Minerals</i>

Leucocene

<i>Australia</i>	Nominal
<i>Europe</i>	\$A450.00-480.00/t
	West m Australian, bulk, min. 91% TiO ₂ , max. 1% ZrO ₂ , f.o.b., <i>Industrial Minerals</i>

Monazite

<i>Australia</i>	Nominal
<i>Europe</i>	\$A700.00-780.00/t
	Min. 55% REO, f.o.b., <i>Industrial Minerals</i>

Rutile

<i>Australia</i>	Nominal
<i>Europe</i>	\$A585.00-635.00/t
	Bulk, min. 95% TiO ₂ , f.o.b. Australia, <i>Industrial Minerals</i>
	\$A640.00-670.00/t
	Bagged, min. 95% TiO ₂ , f.o.b. Australia, <i>Industrial Minerals</i>
<i>USA</i>	US\$380.00-400.00/short ton
	US concentrate, bulk, f.o.b. east coast ports, <i>Industrial Minerals</i>

Zircon

<i>Australia</i>	Nominal
<i>Europe</i>	\$A310.00-370.00/t
	Standard (foundry-grade, min. 65% ZrO ₂ , bulk, f.o.b. Australia, <i>Industrial Minerals</i>
	\$A350.00-440.00/t
	Intermediate, 65.5-66% ZrO ₂ , 0.06-0.1% Fe ₂ O ₃ , bulk, f.o.b. Australia, <i>Industrial Minerals</i>
	\$A430.00-750.00/t
	Premium, min. 66% ZrO ₂ , max. 0.05% Fe ₂ O ₃ , bulk, f.o.b. Australia, <i>Industrial Minerals</i>
<i>USA</i>	US\$155.00/short ton (5.1.84)
	Ore, Australia, 65% ZrO ₂ , bulk, c.i.f. Atlantic ports, <i>Metals Week</i>
	US\$215.00-235.00/short ton
	US concentrates, bulk, f.o.b. east coast ports, <i>Industrial Minerals</i>

Molybdenum

<i>Australia</i> . . .	Nominal
<i>Europe</i> . . .	Nominal
	Mo in MoS ₂ concentrates, min. 85%, f.o.b., Climax
<i>USA</i>	US\$2.60-2.80/lb (10.3.88)
	Producer and dealer quotes for molybdenite as a by-product of copper

Niobium (columbium)

<i>Australia</i> . . .	Nominal
<i>Europe</i> . . .	US\$2.50-2.90/lb
	Columbite, minimum 65% combined Nb ₂ O ₅ + Ta ₂ O ₅ , 10:1, c.i.f., US\$/lb pentoxide content
<i>USA</i>	US\$2.00-2.50/lb (12.9.86)
	10:1, Nb ₂ O ₅ :Ta ₂ O ₅ . Dealer and producer quotation priced on basis of combined pentoxide content, c.i.f. US ports

Tantalum

<i>Australia</i> . . .	Nominal
<i>Europe</i> . . .	US\$43.00-45.00/lb
	Ore min. 25-40% basis 30% Ta ₂ O ₅ , c.i.f.
<i>USA</i>	US\$45.00-47.50/lb (29.9.88)
	Dealer quotation, about 60% combined Nb ₂ O ₅ , depending on grade and size of lot, c.i.f. US ports

Tin (cassiterite)

<i>Australia</i> . . .	\$75.00/mtu
	Concentrate, 70%, delivered Sydney
<i>Europe</i> . . .	Treatment charges/tonne (including deduction)
	£400-525, 65-75% Sn
	£300-600, 50-65% Sn
	£350-500, 30-50% Sn
	£400-530, 20-30% Sn

Tungsten concentrate

<i>Australia</i> . . .	\$66.32-79.07/mtu WO₃
	Australian currency equivalent of European price for wolframite, min. 65% WO ₃ , c.i.f.
<i>Europe</i> . . .	US\$52.00-62.00/mtu WO₃
	Wolframite, standard, min. 65% WO ₃ , c.i.f.
	Metal Bulletin
	US\$53.00-64.00/mtu WO₃ , scheelite, min. 70% WO ₃ , c.i.f., Metal Bulletin
<i>International Tungsten Indicator</i> . . .	US\$59.54/mtu WO₃ (September, 1988)
	Weighted average

Uranium oxide

<i>Europe</i> . . .	US\$13.75/lb (September, 1988)
	Nuexco exchange value, <i>American Metal Market</i>
<i>USA</i>	US\$13.75/lb (September, 1988)
	Nuexco exchange value, <i>American Metal Market</i>

Vanadium pentoxide

<i>Europe</i> . . .	US\$3.25/lb (14.7.88)
	highveld, fused, min. 98% V ₂ O ₅ , c.i.f.
<i>USA</i>	US\$3.35-3.65/lb (15.5.81)
	Fused V ₂ O ₅ , metallurgical-grade, f.o.b. mine or mill

Copper ore (Australia)

The price paid for ores is related to the market price for copper, less charges listed below. The charges are indicative only and will vary with the quality, grade, precious-metal content, and level of impurities. Details of the basis for price determinations may be obtained from the two smelters — The Electrolytic Refining & Smelting Company of Australia Pty Ltd (ERS), Port Kembla, NSW and Mount Isa Mines Ltd, Mount Isa, Qld. The following is a summary of the smelters' basic treatment charges.

ERS

<i>Metal deduction or copper content deduction</i>	Copper 1.3 units/t of ore
	Silver 30 g/t of material and 8% of the balance
	Gold 5 g/t of material and 2.5% of the balance
<i>Treatment charge</i>	\$100/t of material in its natural state
<i>Refining charges</i>	\$350/t of payable copper \$20/kg of payable silver \$350/kg of payable gold

Mount Isa

<i>Metal deduction or copper content deduction</i>	1.3 units of copper/dry t of ore
<i>Receiving, sampling, assaying, smelting charge</i>	\$11.30/(dry ore)
<i>Converting, refining, realising charge/unit of copper paid for</i> . . .	\$1.70
<i>Gold refining charge for gold paid for</i>	5 cents/g (a)
<i>Silver refining charge for silver paid for</i>	1.45 cents/g (b)

(a) From the gold content of each parcel of ore delivered, 2 g gold/t of ore will be deducted; payment for 97.5% of the excess is based on the Australian Gold Producers' Association monthly average price.

(b) From the silver content of each parcel of ore delivered, 60 g of silver/t of ore will be deducted; payment for excess is based on the average London Bullion Brokers' cash price for silver.

Other BMR and ABS publications on the mineral industry

BUREAU OF MINERAL RESOURCES

The *Australian Mineral Industry Annual Review* records the performance and development of the mineral industry, based on the calendar year (see rear cover). In order to issue available information as soon as possible, preliminary summaries for the major commodities are issued about two months after the close of the calendar year, containing preliminary or estimated trade statistics, and separate preprints of the major chapters in the *Review* are made available about the middle of the calendar year following the year covered.

BMR, in addition to its main mineral-industry statistical periodicals (*Australian Mineral Industry Annual Review* and *Australian Mineral Industry Quarterly*), issues the following mineral industry statistical information sheets:

- *Australian Mineral Industry: Quarterly Summary Statistics*
- *Bulletin of Metal, Ore & Concentrate Prices* (monthly)
- *Base Metal Statistics* (quarterly)
- *Mineral Sand Statistics* (quarterly)
- *Information Bulletin on Australia's Uranium Resources* (annually)
- *Information Bulletin on Australia's Identified Mineral Resources* (annually)

Current BMR publications on petroleum include:

- *Petroleum Exploration & Development Titles Map and Key* (six-monthly) and the following information sheets:
- *Australia's Identified Petroleum Resources* (six-monthly)
- *Australian Petroleum Exploration & Development Statistics* (quarterly)

Enquiries related to mineral industry statistical information sheets should be directed to: I. Haine, Manager, Mineral Statistics Group, Canberra (062) 499556. Enquiries related to the petroleum information sheets should be directed to: E. Petrie, Industry & Statistics Sub-section, Petroleum Branch, Canberra (062) 499217. Enquiries about other publications should be directed to: BMR Publication Sales, Canberra (062) 499519.

AUSTRALIAN BUREAU OF STATISTICS

ABS publications relating to the mineral industry include:

Catalogue No.

8412.0 *Private Mineral Exploration* (quarterly)

8405.0 *Mineral Production* (annually)

8402.0 *Mining Establishments (Details of Operations)* (annually)

8401.0 *Mining Establishments (Summary of Operations, Australia) (Preliminary)* (annually)

Enquiries about ABS publications should be made to:

S. Whennan

Statistical Officer (Mining)

Canberra (062) 49 9558, or

Australian Bureau of Statistics

PO Box 10

BELCONNEN ACT 2616

RESOURCE REPORTS

Published so far: 1 — *Australian uranium resources*; 2 — *Coal potential of Antarctica*; 3 — *Gold deposits of Western Australia: BMR datafile (MINDEP)*; 4 — *Gold deposits of Queensland: BMR datafile (MINDEP)*; 5 — *Geology & economics of platinum-group metals in Australia*. In press: 6 — *Gold deposits of New South Wales: BMR datafile (MINDEP)*.

AUSTRALIAN PETROLEUM ACCUMULATIONS REPORTS

A basin-by-basin series in which each report summarises the petroleum occurrences in a sedimentary basin and includes notes on the basin's setting, stratigraphy, structure, traps, reservoir rocks, and source rocks, together with petroleum characteristics, resources, and development. Reports published so far cover the *Amadeus, Bass, Adavale, and Gippsland* basins; in preparation: *Bonaparte Basin, Otway Basin*.

PALAEOGEOGRAPHIC ATLAS OF AUSTRALIA

Palaeogeographic maps of Australia for six Cambrian 'time slices' comprise a recently released folio of maps at 1:10 000 000 scale — the inaugural folio of the *Palaeogeographic Atlas of Australia*. The atlas will eventually cover all of Phanerozoic time, in 70 time slices. The data shown include hydrocarbon and mineral occurrences.

PETROLEUM EXPLORATION & DEVELOPMENT TITLES MAP & KEY

Published six-monthly. Shows the status of titles both onshore and offshore at 1 January and 1 July.

GEOLOGICAL, GEOPHYSICAL, AND GEOCHEMICAL MAPS

BMR has published a large number of 1:250 000-scale geological maps, with 'Explanatory Notes' booklets, covering quadrangles mainly in northern Australia. 1:100 000-scale geological maps and accompanying commentary booklets are also available for certain areas. Many smaller-scale geological maps covering various regions have also been published, often in conjunction with geological Bulletins. BMR also publishes stream-sediment geochemistry, radiometric, gravity (new series), total-magnetic field (TMF), TMF pixel, and hydrogeological maps at various scales. The results of most regional geophysical surveys are made available as preliminary maps and sections. A brochure illustrating the extent of coverage of Australia by surveys by BMR and the State mines departments and their equivalents can be obtained from: Information Section, Bureau of Mineral Resources, GPO Box 378, Canberra, ACT 2601, phone (062) 499620.

RECORDS

Preliminary results, results of limited interest, and some other reports are published in the *Record* series. Records are produced in limited numbers and are not available for sale or exchange. Those available for reference at Open File centres are listed in the *Quarterly List of Publications*. Photocopies of Records can be bought through the BMR Copy Service (see below). Some recent Records: *Mineral sands: will Australia retain its importance?* (Record 1988/26); *Preliminary post-cruise report: hydrocarbon gas geochemistry in sediments of the offshore Otway and Gippsland basins* (1988/32); *Late Palaeozoic and early Mesozoic rocks in the northeastern part of the central Eromanga Basin* (1988/33).

PRICES AND AVAILABILITY

BMR publications and maps are listed in *Publications of the Bureau of Mineral Resources, Geology & Geophysics (Part 1: Publications other than maps; Part II: Maps)*, available free of charge from BMR Publication Sales, GPO Box 378, Canberra, ACT 2601 (phone 062-499519). A *Quarterly List of Publications* showing current releases of all publications and other data is also available free of charge from BMR Publications Sales, together with detailed information on prices and postage. All publications can be bought at the Publications Sales counter, BMR building, cnr Constitution Avenue and Anzac Parade, Parkes, ACT. Further information on the availability of preliminary data may be obtained from the Information Section, phone 062-499620. Please note that orders for publications must be accompanied by payment in advance. Cheques, postal orders, etc., should be made payable to: Collector of Public Moneys (BMR). Payment from overseas should be made by bank draft or international money order in Australian currency.

Subscriptions for the *Australian Mineral Industry Annual Review*, the *Australian Mineral Industry Quarterly*, and the *BMR Journal of Australian Geology & Geophysics* are handled by the Australian Government Publishing Service. Cheques should be made payable to AGPS. Payments from overseas should be by bank draft in Australian currency. Enquiries re subscriptions should be directed to: Assistant Director, Sales & Distribution, AGPS — (062) 954411. Subscription orders should be addressed to: Mail Order Sales, Australian Government Publishing Service (AGPS), GPO Box 84, Canberra ACT 2902.

BMR COPY SERVICE

Photo-scale geological compilation sheets and the results of many geophysical surveys are released as dyelines and transparencies through the BMR Copy Service. Some other documents, including Records and preprints of the major chapters of the *Australian Mineral Industry Annual Review*, are also released through the Copy Service. Orders should be sent to: Copy Service, Bureau of Mineral Resources, GPO Box 378, Canberra, ACT 2601 or phone (062) 451374, fax (062) 472728 (lists of Copy Service releases are available from Information Section, BMR — address above).

Other BMR

AUSTRALIAN MINERAL INDUSTRY ANNUAL REVIEW

The *Australian Mineral Industry Annual Review* is a comprehensive record of the performance and development of the Australian mineral industry. The text is written and compiled by mineral industry specialists in BMR's Resource Assessment Division. The major part of the volume is a descriptive commentary on (currently) 64 mineral commodities (including fuels), from 'Abrasives' to 'Zirconium', supported by location maps, flow charts, graphs, and tables. Topics covered for each commodity include Production, Consumption, Treatment, Trade, Prices, New Developments, Exploration, Resources, and World Review. The latest edition, covering the calendar year 1987, was published in March 1989.

BULLETINS AND REPORTS (MONOGRAPHS)

The full results of many surveys and research projects are published as *Bulletins and Reports*. Two recent *Bulletins*: *Geology of the Proterozoic Davenport Province, Central Australia* (Bulletin 226); *Permian coals of Eastern Australia* (Bulletin 231). Two recent *Reports*: *Rig Seismic research cruise 4 & 5: northeastern Australia* (Report 281); *Rig Seismic research cruises 10 & 11: structure, stratigraphy, and tectonic development of the Great Australian Bight region* (Report 286).

BMR JOURNAL OF AUSTRALIAN GEOLOGY & GEOPHYSICS

The quarterly 'BMR Journal' is a major publication outlet for BMR's research results. It contains papers by BMR scientists and others working in cooperation with BMR. Some recent papers: *Hydrocarbon generation potential of the Otway Basin, Australia* (Volume 16, Number 3); *McArthur Basin, Northern Territory: mapping of deep troughs using gravity and magnetic anomalies*, 10(3); *Eastern Highlands of Australia: their uplift and erosion*, 10(3); *Aspects of landscape history and regolith in the Kalgoorlie region, Western Australia*, 10(4); *Early Proterozoic migmatitic basement in the Kalkadool-Lochhardt belt of the Mount Isa Inlier, northwestern Queensland*, 10(4).

BMR EARTH SCIENCE ATLAS OF AUSTRALIA

Seventeen maps of Australia and accompanying commentaries (+ vinyl cover) for this large format,

loose-leaf atlas are available so far, generally at a scale of 1:10 000 000:

- General Geology
- Solid Geology
- Major Structural Elements
- Sedimentary Sequences
- Plate Tectonics
- Surface Drainage & Continental Margin
- Earthquakes
- Free-Air Gravity
- Bouguer Gravity Anomaly
- Petroleum & Oil Shale
- Coal
- Cainozoic Cover & Weathering
- Phanerozoic Palaeogeography (3 sheets)
- Metamorphism
- Cainozoic Geology & Mineral Deposits
- Palaeomagnetism
- Land and Sea-Bottom Relief.

A transparent overlay showing the 1:250 000 scale Sheet area grid is also available.

BMR YEARBOOK

Contains a summary of progress of all projects in the financial year ended 30 June; lists all publications and data made available in that period. The latest yearbook, *BMR 87*, covers the 12 months to 30 June 1987. *BMR 88*, covering the 12 months to 30 June 1988, is in press.

BMR RESEARCH NEWSLETTER

A twice-yearly newsletter for the exploration industry, published in April and October, giving early information on the progress of BMR research and the availability of new data.

Continued on inside of rear cover



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