



U.S. Department of the Interior • Bureau of Mines

MINERAL INDUSTRY SURVEYS

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Platinum, Quarterly

PLATINUM-GROUP METALS IN THE FIRST QUARTER 1990

Refined production of platinum increased while refined production of palladium decreased in the first quarter of 1990, according to the Bureau of Mines, U.S. Department of the Interior.

The average dealer price for rhodium continued to climb to over \$2,000 per troy ounce in the first quarter. Johnson Matthey's Rustenburg refinery in Bophuthatswana, South Africa, reported that it had overcome its rhodium refining problems that had contributed to increasing rhodium prices beginning in December 1989.

The Stillwater Mining Company (SMC) finalized an agreement to build a \$6.6 million PGM smelter near the town of Columbus, MT, located about 40 miles north of their mine site. Construction of the smelter is expected to be completed by June 1, 1990. Delays in the permitting process had slowed construction plans and the selection of the smelter site. The new smelter is expected to reduce processing and transportation costs for SMC.

The New York Mercantile Exchange (NYMEX) approved Soviet-brand platinum and palladium for delivery on NYMEX futures contracts. The Commodities Futures Trading Commission must

still approve the Soviet's request. If approved, Soviet-brand platinum and palladium will not require an assay certificate when leaving a NYMEX depository and being used for delivery on a NYMEX contract. Platinum and palladium moving from a refiner to a NYMEX depository does not normally require an assay if it is considered a recognized approved NYMEX "brand".

In the Republic of South Africa, Lonrho PLC agreed to merge its Western Platinum subsidiary with the Karee mine, owned by Impala Platinum Holdings Ltd. The merger is designed to allow Karee to generate profits by the end of 1990 rather than by 1993.

New Publication: Special Publication 92--The Stillwater Complex: Geology and Guide. 396 pp. Available for \$40.00 prepaid from:

Montana Bureau of Mines and Geology
Montana Tech
Main Hall
Butte, MT 59701

Table 1. - Platinum-group metals 1/ refined in the United States 2/
(Kilograms)

Period	Platinum	Palladium	Iridium	Osmium	Rhodium	Ruthenium	Total
1989:							
Nontoll-refined:							
First quarter--	279	638	2	---	17	1	937
Second quarter--	253	780	5	---	13	12	1,060
Third quarter--	282	662	---	---	13	7	964
Fourth quarter--	290	818	---	---	45	15	1,169
Total 3/-----	1,196	2,959	8	---	94	37	4,293
=====							
Toll-refined:							
First quarter--	6,164	4,973	128	1	443	45	11,754
Second quarter--	5,492	5,621	39	---	415	84	11,651
Third quarter--	5,481	4,022	8	---	396	135	10,043
Fourth quarter--	7,392	8,362	44	---	586	108	16,493
Total 3/-----	24,058	20,037	219	1	1,565	373	46,253
=====							
1990:							
Nontoll-refined:							
First quarter--	398	720	1	---	37	6	1,162

Toll-refined:							
First quarter--	9,169	5,922	32	---	699	108	15,930

1/Typically, about 99.8% of the platinum and 99% of the palladium are secondary metal; the other metals are entirely secondary.

2/Data may not add to totals shown because of independent rounding.

3/Includes data for companies reporting annually; quarterly figures not adjusted.

Platinum & Palladium Production Toll-Refined Plus Nontoll-Refined

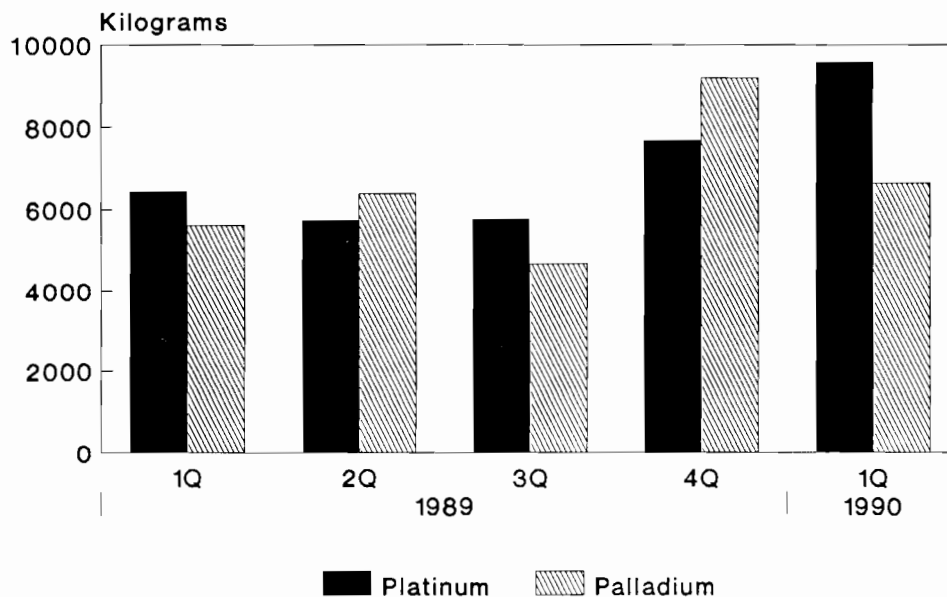


Table 2.--Platinum-group metals refined in the United States 1/
(Kilograms)

	Platinum	Palladium	Iridium	Osmium	Rhodium	Ruthenium	Total
PRIMARY METAL							
Nontoll-refined:							
1985-----	16	108	---	---	---	---	124
1986-----	19	116	---	---	---	---	135
1987-----	32	158	---	---	---	---	191
1988-----	46	248	2	---	(2/)	---	297
1989-----	47	289	2	---	---	2	339
Toll-refined:							
1985-----	34	---	---	---	---	68	103
1986-----	---	---	---	---	---	---	---
1987-----	---	---	---	---	---	---	---
1988-----	---	---	---	---	---	---	---
1989-----	---	---	---	---	---	---	---
SECONDARY METAL							
Nontoll-refined:							
1985-----	1,629	6,263	8	---	97	46	8,043
1986-----	2,204	8,627	9	---	134	41	11,016
1987-----	1,180	3,743	4	19	123	49	5,117
1988-----	1,133	3,545	4	---	104	2	4,787
1989-----	1,149	2,670	6	---	94	35	3,954
Toll-refined:							
1985-----	15,259	15,270	218	(2/)	1,130	415	32,293
1986-----	20,977	12,388	111	44	1,792	613	35,924
1987-----	22,580	19,169	102	25	1,895	1,164	44,935
1988-----	22,884	20,923	252	19	1,826	499	46,403
1989-----	24,058	20,037	219	1	1,565	373	46,253
=====							
1988 TOTALS							
Total primary-----	46	248	2	---	(2/)	---	297
Total secondary---	24,017	24,468	256	19	1,930	501	51,191

Total refined metal-----	24,062	24,717	258	19	1,930	501	51,488
=====							
1989 TOTALS							
Total primary-----	47	289	2	---	---	2	339
Total secondary---	25,207	22,707	225	1	1,659	408	50,207

Total refined metal-----	25,254	22,996	227	1	1,659	410	50,546

1/Data may not add to totals shown because of independent rounding.

2/Less than 1/2 unit.

Table 3. - Stocks of platinum-group metals held by refiners, importers,
and dealers in the United States 1/
(Kilograms)

Period	Platinum	Palladium	Iridium	Osmium	Rhodium	Ruthenium	Total 2/
1989:							
Mar. 31-----	13,497	13,908	449	8	1,031	699	29,592
June 30-----	12,434	12,318	424	9	1,092	853	27,130
Sept. 30-----	13,396	12,657	475	36	1,118	899	28,581
Dec. 31 r/-----	14,027	12,568	521	36	993	913	29,058
Yearend 3/-----	14,791	15,182	522	36	1,096	916	32,543
=====							
1990:							
Mar. 31-----	13,146	10,339	521	40	974	936	25,956

r/Revised.

1/Includes metals in depositories of the New York Mercantile Exchange; on April 6,1990, this comprised 4,770 kilograms of platinum and 1,322 kilograms of palladium.

2/Data may not add to totals shown because of independent rounding.

3/Includes data from companies reporting annually; quarterly figures not adjusted.

Table 4. - Platinum-group metals sold to consuming industries in the United States 1/
(Kilograms)

Period and industry	Platinum	Palladium	Iridium	Osmium	Rhodium	Ruthenium	Total
1989:							
Automotive 2/----	18,774	4,886	---	---	1,982	---	25,643
Chemical-----	2,424	1,923	95	---	189	26	4,657
Dental and medical-----	632	8,424	105	57	1	15	9,233
Electrical-----	3,894	17,352	112	---	272	1,778	23,408
Glass-----	1,130	181	---	---	177	1	1,489
Jewelry and decorative----	418	179	7	---	205	6	814
Petroleum-----	2,859	2,543	---	---	27	---	5,429
Miscellaneous----	3,566	3,786	81	---	273	61	7,766
Year-----	33,698	39,273	400	57	3,126	1,886	78,439
1990:							
First quarter:							
Automotive 2/--	3,894	1,026	---	---	410	---	5,331
Chemical-----	265	422	6	---	44	2	738
Dental and medical-----	82	1,401	24	11	---	2	1,521
Electrical-----	961	4,049	32	---	177	152	5,371
Glass-----	104	173	---	---	5	---	282
Jewelry and decorative---	107	52	4	---	50	1	213
Petroleum-----	272	746	---	---	---	---	1,018
Miscellaneous--	1,113	712	33	---	1	10	1,869
Total-----	6,797	8,582	98	11	687	168	16,343

1/Data may not add to totals shown because of independent rounding.

2/Platinum, palladium, and rhodium sales to the automotive industry are estimated based on U.S. light truck sales and U.S. automobile production.

Platinum & Palladium Consumption Sales to Industry

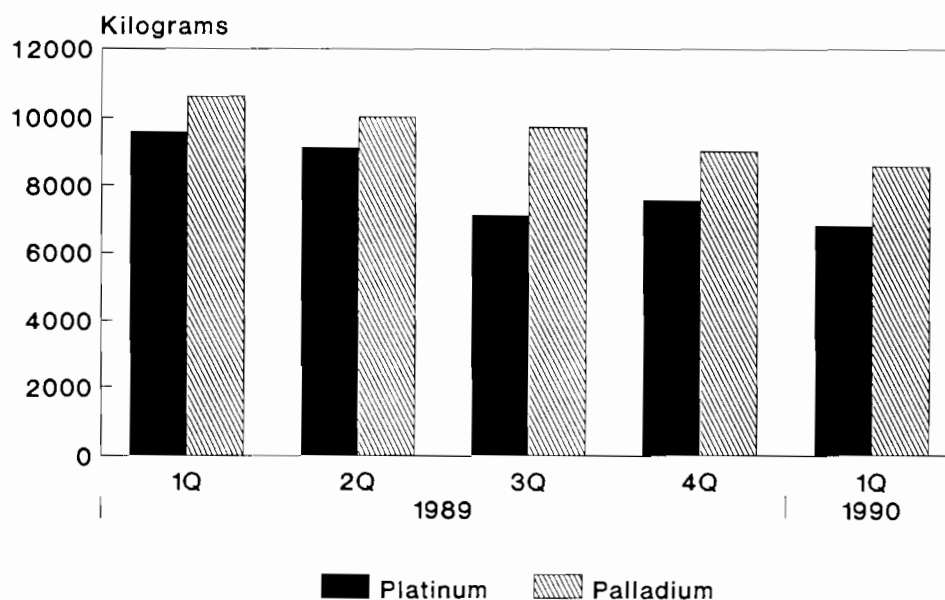


Table 5. - Platinum-group metals sold to consuming industries in the United States 1/
(Kilograms)

Period and industry	Platinum	Palladium	Iridium	Osmium	Rhodium	Ruthenium	Total
1989:							
First quarter r/:							
Automotive 2/--	5,179	1,337	---	---	552	---	7,068
Chemical-----	546	766	6	---	35	5	1,358
Dental and							
medical-----	181	2,416	7	17	---	3	2,624
Electrical-----	1,142	4,275	18	(3/)	20	575	6,029
Glass-----	571	8	---	---	101	(3/)	680
Jewelry and							
decorative---	136	36	2	---	41	(3/)	214
Petroleum-----	996	792	---	---	---	---	1,788
Miscellaneous--	835	991	11	---	176	26	2,038
Total-----	9,585	10,620	43	17	924	610	21,800
=====							
Second quarter r/:							
Automotive 2/--	5,319	1,369	---	---	560	---	7,247
Chemical-----	727	517	13	---	60	20	1,337
Dental and							
medical-----	117	2,411	---	13	---	5	2,546
Electrical-----	1,045	4,382	66	---	19	540	6,052
Glass-----	352	---	---	---	41	---	393
Jewelry and							
decorative---	97	46	1	---	40	2	187
Petroleum-----	882	393	---	---	---	---	1,276
Miscellaneous--	582	899	9	---	53	---	1,543
Total-----	9,120	10,017	90	13	772	568	20,580
=====							
Third quarter r/:							
Automotive 2/--	3,935	1,036	---	---	414	---	5,384
Chemical-----	621	442	60	---	37	1	1,161
Dental and							
medical-----	182	2,455	4	11	---	6	2,657
Electrical-----	775	3,928	7	---	33	460	5,203
Glass-----	87	---	---	---	30	---	118
Jewelry and							
decorative---	91	37	2	---	40	1	170
Petroleum-----	688	689	---	---	27	---	1,404
Miscellaneous--	729	1,136	28	---	42	25	1,959
Total-----	7,107	9,722	100	11	624	494	18,058
=====							
Fourth quarter r/:							
Automotive 2/--	4,342	1,145	---	---	456	---	5,943
Chemical-----	597	552	16	---	45	---	1,210
Dental and							
medical-----	136	1,640	---	16	---	1	1,793
Electrical-----	908	4,115	20	---	175	202	5,420
Glass-----	124	173	---	---	5	---	303
Jewelry and							
decorative---	89	34	3	---	36	2	164
Petroleum-----	294	668	---	---	---	---	962
Miscellaneous--	1,066	685	33	---	4	10	1,797
Total-----	7,556	9,012	72	16	721	214	17,591

r/Revised.

1/Data may not add to totals shown because of independent rounding.

2/Platinum, palladium, and rhodium sales to the automotive industry are estimated based on U.S. light truck sales and U.S. automobile production.

Table 6. - Monthly average producer and dealer prices of platinum-group metals 1/
(Dollars per troy ounce)

	Platinum		Palladium		Rhodium		Iridium 2/	Ruthenium	Osmium
	Pro- ducer	Dealer	Pro- ducer	Dealer	Pro- ducer	Dealer	Dealer	Dealer	Dealer

1989:									
January-----	600	528	150	135	1,275	1,247	295	64	580
February-----	600	530	150	141	1,275	1,254	293	62	580
March-----	600	534	150	145	1,275	1,271	295	62	580
April-----	600	538	150	166	1,275	1,274	300	62	570
May-----	600	515	150	152	1,275	1,280	303	62	550
June-----	600	494	150	152	1,275	1,275	305	61	550
July-----	600	500	150	150	1,275	1,269	305	61	550
August-----	600	483	150	134	1,275	1,247	305	61	550
September-----	600	476	150	137	1,275	1,265	305	62	550
October-----	600	483	150	137	1,275	1,269	305	63	529
November-----	600	504	150	138	1,275	1,302	307	63	500
December-----	600	502	150	137	1,275	1,644	313	63	500

Average-----	600	507	150	144	1,275	1,300	303	62	549
=====									
1990:									
January-----	600	492	150	134	1,275	2,031	315	63	505
February-----	600	516	150	135	1,275	2,098	310	61	444
March-----	600	494	150	130	1,275	2,058	310	61	425

Average-----	600	501	150	133	1,275	2,062	312	62	458

1/Average prices calculated at the low end of the range and rounded to the nearest dollar.

2/Producer price discontinued March 22, 1989.

Source: Metals Week.

Table 7. - U.S. imports for consumption of platinum-group metals
(Kilograms and thousand dollars)

Period and country	Platinum	Palla- dium	Rhodium	Ruthen- ium	Iridium	Os- mium	Waste and scrap	Ores	Total	
									Quantity	Value
1989:										
First quarter	12,870	13,743	1,699	246	174	23	583	8	29,346	\$364,080
Second quarter	12,956	13,037	1,988	1,104	181	5	916	1	30,188	382,450
Third quarter	11,830	11,931	1,635	755	206	5	281	4	26,647	318,124
Fourth quarter:										
Belgium	205	1,324	115	---	---	---	---	---	1,644	8,606
Canada	74	244	---	---	---	---	79	1	398	4,076
France	---	16	---	---	---	---	---	---	16	69
Germany, Federal Republic of	747	4	5	1	1	---	---	---	758	11,926
Hong Kong	---	---	---	---	---	---	180	---	180	2,425
Japan	195	685	---	---	---	---	---	---	880	4,629
Mexico	---	---	---	---	---	---	16	---	16	85
Netherlands	---	53	---	---	---	---	---	---	53	324
South Africa, Republic of	8,248	3,987	546	752	117	25	---	---	13,675	176,789
Switzerland	281	85	226	---	---	---	17	---	609	13,956
Taiwan	---	221	---	---	---	---	---	---	221	802
U.S.S.R.	277	2,666	650	---	---	---	---	---	3,593	44,078
United Kingdom	1,459	2,951	208	24	10	---	1	---	4,653	44,985
Other	101	188	33	---	---	---	86	---	408	4,295
Total	11,587	12,424	1,783	777	128	25	379	1	27,104	317,045
Year-to-date	49,243	51,135	7,105	2,882	689	58	2,159	14	113,285	1,381,699

Source: Bureau of the Census and Bureau of Mines.

Table 8.--U.S. imports for consumption of platinum-group metals, by year and country
(Kilograms)

Year and country	Platinum	Palladium	Rhodium	Ruthenium	Iridium	Osmium	Waste and scrap	Ores	Total	
									Quantity	Value (thousands)
1989:										
Australia	5	---	---	---	---	---	3	---	8	\$160
Belgium	1,326	6,410	337	---	---	---	249	1	8,323	61,207
Canada	1,198	1,094	---	---	---	---	562	8	2,862	36,389
Dominican Republic	1	34	---	---	---	---	---	---	35	552
France	10	817	---	---	---	---	---	---	827	3,838
Germany, Federal Republic of	1,976	263	194	54	101	4	---	---	2,592	40,541
Hong Kong	---	1	---	1	---	---	551	---	553	8,402
Italy	---	---	19	---	---	---	24	---	44	1,189
Japan	286	2,241	1	---	1	---	2	---	2,531	9,649
Mexico	1	---	---	---	---	---	45	---	46	371
Netherlands	94	289	14	7	4	---	---	---	408	3,990
Norway	179	411	26	---	---	---	---	---	616	5,138
South Africa, Republic of	34,109	17,270	2,580	2,027	502	54	---	---	56,542	755,638
Switzerland	2,123	1,016	438	1	---	---	17	---	3,595	63,307
Taiwan	90	973	---	---	---	---	1	---	1,064	6,794
U.S.S.R.	792	11,327	2,169	---	---	---	21	---	14,309	159,658
United Kingdom	6,928	8,920	1,256	793	80	---	432	---	18,409	217,841
Other	120	68	71	---	---	---	252	3	514	7,029
Total	49,238	51,135	7,105	2,883	688	58	2,159	12	113,278	1,381,693

9 Source: Bureau of the Census.

Table 9.---U.S. exports of platinum-group metals
(kilograms and thousand dollars)

Period and country	Platinum	Palladium	Rhodium	Iridium, Osmium, Ruthenium	Waste and scrap	Total 1/	
						quantity	Value
1989:							
First quarter	2,440	4,020	327	75	2,849	9,711	\$102,896
Second quarter	1,403	2,664	197	147	2,438	6,846	79,474
Third quarter	2,289	3,210	226	59	4,196	9,981	107,817
Fourth quarter:							
Australia	14	20	---	2	---	36	407
Austria	---	58	---	---	---	58	276
Belgium	79	10	---	1	1,919	2,009	8,734
Brazil	---	3	---	---	---	3	159
Canada	721	78	20	16	167	1,002	14,350
France	---	7	---	1	8	16	124
Germany, Federal Republic of	95	192	246	133	1,266	1,932	21,561
Hong Kong	5	3	---	---	3	11	174
Italy	---	72	---	---	262	334	2,688
Japan	375	1,218	108	19	199	1,919	19,056
Korea, Republic of	52	10	22	---	---	84	1,616
Netherlands	---	583	---	---	---	583	3,351
Singapore	1	56	---	7	---	64	3,481
Sweden	---	---	---	21	63	84	816
Switzerland	98	88	10	---	---	196	2,111
Taiwan	297	91	---	6	---	394	4,667
United Kingdom	492	321	---	7	---	2,492	25,070
Other	55	300	---	11	7	373	2,678
Total	2,284	3,110	406	224	5,566	11,590	108,319
Year-to-date	8,416	13,004	1,156	505	15,049	38,128	398,506

1/Data may not add to total shown because of independent rounding.

Source: Bureau of the Census.

Table 10.--U.S. exports of platinum-group metals, by year and country
(Kilograms)

Year and country	Platinum	Palladium	Rhodium	Iridium, osmium, ruthenium	Waste and scrap	Total	
						Quantity	Value (thousands)
1989:							
Australia-----	73	42	---	19	---	134	\$1,477
Austria-----	2	116	---	---	---	118	624
Belgium-----	85	543	---	11	---	3,447	20,109
Brazil-----	143	22	35	1	2,808	3,201	5,803
Canada-----	1,902	644	197	17	---	3,203	45,814
China-----	150	907	36	28	---	1,121	7,919
France-----	128	62	---	1	100	291	3,829
Germany, Federal Republic of-----	140	499	250	143	2,703	3,735	41,639
Hong Kong-----	27	16	1	---	3	47	622
Italy-----	55	313	1	---	902	1,271	12,698
Japan-----	3,652	4,027	387	25	292	8,383	100,962
Korea, Republic of-----	348	40	70	1	1	460	8,364
Netherlands-----	---	1,497	---	---	---	1,497	9,941
Singapore-----	6	182	---	8	---	196	1,608
Sweden-----	---	22	---	79	144	245	2,057
Switzerland-----	615	216	16	---	125	972	13,629
Taiwan-----	359	393	3	8	---	763	6,579
U.S.S.R.-----	---	1,565	---	92	---	1,657	8,704
United Kingdom-----	645	1,647	159	24	7,514	9,989	103,237
Other-----	84	252	1	50	11	398	2,888
Total-----	8,414	13,005	1,156	507	15,046	38,128	398,503

Source: Bureau of the Census.