



U.S. Bureau of Mines



MINERAL INDUSTRY SURVEYS

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Platinum, Quarterly

PLATINUM-GROUP METALS IN THE THIRD QUARTER 1989

Automotive production declined in the third quarter of 1989, reducing domestic demand for the emissions catalyst metals platinum, palladium, and rhodium, according to the Bureau of Mines, U.S. Department of the Interior.

Import and export data for platinum-group metals (PGM) for the first and second quarters are included in this issue. Note that the format of the trade tables was changed to consolidate unwrought and semimanufactured categories and to take into account the new Harmonized trade codes.

A large shipment of palladium (over 1,500 kilograms) was exported from the United States to the U.S.S.R. during March 1989. Usually, palladium metal flows from the U.S.S.R., where it is mined and refined, to dealers in the United States, and finally to U.S. consumers. Several possible explanations for the shipment were discussed in Metals Week, Aug. 7, 1989, p. 8.

In July, the European Community voted to require that all member nations comply with automobile exhaust emissions limits, comparable to those in the United States, by

January 1, 1993, for cars with engine displacements less than 1.4 liters. Until now, most catalytic converters fitted on European cars were for cars with engine displacements greater than 1.4-liters. According to Johnson Matthey PLC, about 7,600 kilograms of platinum were consumed by the automobile industry in Europe in 1988. This quantity is expected to more than double by 1993. In Europe, about 13 million new cars are sold each year, compared to about 11 million vehicles in the United States. As a result of forthcoming emissions legislation in Europe, companies that manufacture automobile catalysts are gearing up for increased production in the Federal Republic of Germany, Belgium, and France.

In the United States, the Administration's proposed Clean Air Bill calls for decreasing the hydrocarbons limit for automobiles from the current 0.41 gram per mile to 0.24 gram per mile. The standard would be an average as opposed to a maximum level. Until a final bill is passed and signed into law, it is difficult to say what impact, if any, the legislation will have on PGM demand.

The Bureau of Mines is testing a system called MINES-DATA, to provide Mineral Industry Surveys on Platinum-Group Metals electronically. The Bureau expects that users with microcomputers and communications equipment in the United States and abroad can obtain platinum-group metals data up to 4 weeks sooner than was previously possible. Quarterly data usually will be available approximately 40 work days after the end of the period covered. Quarterly data which are given in this report were available on MINES-DATA on December 21. See page 2 for details on how to use MINES-DATA.

How To Use MINES-DATA

MINES-DATA is an electronic data dissemination system that allows users to download Bureau of Mines' Mineral Industry Surveys on platinum-group metals using personal computers. Other commodities will be added later. **MINES-DATA** is in the early stages of implementation and improvements are expected. The user needs a computer, a modem, communications software, a telephone line, and a disk for storing the downloaded files. A hard disk is recommended to assure sufficient storage capacity. There is no cost to use the system except for the cost of the telephone call.

There are three types of files on the system--text (ASCII) files that have the extension ".TXT", Lotus files that have the extension ".WKS", and executable files that have the extension ".EXE". Text files contain no formatting codes, Lotus files contain arithmetic formulas and formatting codes, and executable files contain all the text and Lotus files for the Mineral Industry Survey for a given month or quarter in a data compressed format to facilitate faster data transfer.

Before calling, users should set their modems to call at either 1200 baud or 2400 baud, 8 data bits, no parity, and one stop bit (1200,N,8,1) or (2400,N,8,1). The telephone number is: 202-634-4637. First time users must register, provide a password, and answer questions such as whether their computer supports graphics or color screens. Turning on turbo-keys means that a user does not need to use the return or enter key after selecting a command. Users have an option to provide a default protocol. The recommended protocol is Ymodem. However, Xmodem is acceptable if the user's communications software does not support Ymodem. Both Ymodem and Xmodem are error checking protocols that employ algorithms to detect errors in data transmission. After the user answers the questions, the system stores the answers in a user profile. A user may change the information stored in his profile at any time by selecting "U" or utilities from the main menu.

After answering the introductory questions from the main menu the user may want to read bulletins by selecting the letter "B", and then selecting the number corresponding to the bulletin desired. After reading the bulletins,

the user may select the letter "F" from the main menu to see the files submenu. The user should select the letter "L" to list the commodities that are available on the system. The user then types the name of the commodity that they want to see, e.g. "PLATINUM-GROUP", and a listing of the files corresponding to that commodity is presented. If a user wants to download all of the files for the Third Quarter Platinum-Group Metals Mineral Industry Survey, the user types the filename "PG3Q89.EXE", followed by a return or enter key. The user should consult his communications software instructions for downloading procedures. A brief description of some of these instructions is contained in bulletin #3. The communications program notifies the user after a successful download. The user selects the letter "Q" to quit and the letter "G" for goodbye to sign off the system.

After logging off the system, the user has the option to print the text files or import the Lotus files into a spreadsheet capable of handling Lotus files, and printing them from the spreadsheet. To print text (.TXT) files, a user must set his printer to compressed print in order to avoid word wrap of tables exceeding 80 columns in width. If the user has downloaded an ".EXE" file, e.g. filename "PG3Q89.EXE," typing the filename without the .EXE extension will extract and decompress the text and Lotus files. The user then may use the DOS "PRINT" command to print the individual text files.

Questions on how to use **MINES-DATA** should be directed to the systems operator answering service in the Branch of Nonferrous Metals, 202-634-9632, available 24 hours-per-day. Written questions, comments or suggestions for improving this system also would be appreciated and may be sent to:

Bureau of Mines
Branch of Nonferrous Metals
Systems Operator (SYSOP), MS 5208
2401 E St. NW
Washington, DC 20241

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

Period	Platinum	Palladium	Iridium	Osmium	Rhodium	Ruthenium	Total
1988:							
Nontoll-refined:							
First quarter--	210	826	(3/)	---	26	---	1,063
Second quarter--	314	1,575	3	(3/)	45	(3/)	1,937
Third quarter--	309	1,040	1	(3/)	10	(3/)	1,360
Fourth quarter--	344	675	3	(3/)	29	1	1,052
Total 4/-----	1,178	3,793	6	---	104	2	5,084
Toll-refined:							
First quarter--	6,190	4,716	43	6	667	46	11,668
Second quarter--	5,474	5,406	37	1	568	252	11,737
Third quarter--	6,046	5,207	70	8	536	86	11,953
Fourth quarter--	5,229	4,683	102	---	525	111	10,649
Total 4/-----	22,884	20,923	252	19	1,826	499	46,403
1989:							
Nontoll-refined:							
First quarter--	279	638	2	---	17	1	937
Second quarter--	243	776	2	---	13	10	1,044
Third quarter--	282	662	---	---	13	7	964
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

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/ Less than 1/2 unit.

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

Platinum & Palladium Production Toll-Refined Plus Nontoll-Refined

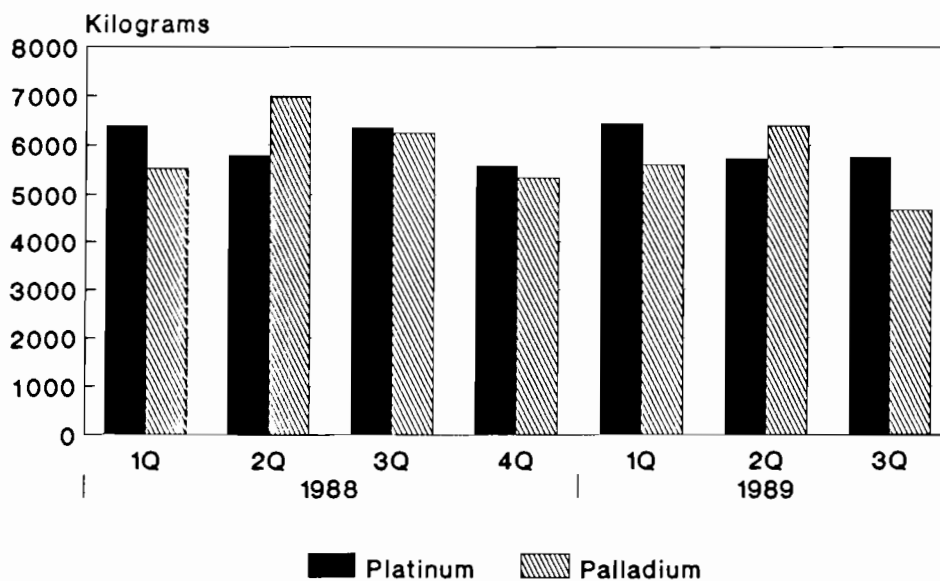


Table 2. - Stocks of platinum-group metals held by refiners, importers,
and dealers in the United States 1/
(Kilograms)

Period	Platinum	Palladium	Iridium	Osmium	Rhodium	Ruthenium	Total 2/
1988:							
Mar. 31-----	16,217	17,442	468	(3/)	839	623	35,590
June 30-----	16,040	18,084	480	2	928	946	36,481
Sept. 30-----	14,228	18,022	523	4	924	591	34,291
Dec. 31-----	18,249	15,510	428	8	1,070	615	35,881
Yearend 4/----	18,438	14,837	432	8	1,165	634	35,515
=====							
1989:							
Mar. 31-----	13,497	13,908	449	8	1,031	699	29,592
June 30-----	r/12,434	r/12,318	r/424	9	1,092	r/853	r/27,130
Sept. 30-----	13,396	12,657	475	36	1,110	899	28,581

r/Revised.

1/Includes metals in depositories of the New York Mercantile Exchange; on September 30, 1989 this comprised 5,078 kilograms of platinum and 2,566 kilograms of palladium.

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

3/Less than 1/2 unit.

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

Table 3. - Platinum-group metals sold to consuming industries in the United States 1/
(Kilograms)

Period and industry	Platinum	Palladium	Iridium	Osmium	Rhodium	Ruthenium	Total
1988:							
Automotive 2/--	19,346	5,101	(3/)	---	2,084	---	26,532
Chemical-----	3,184	3,669	117	---	109	604	7,683
Dental and medical-----	581	6,622	2	21	2	3	7,231
Electrical-----	3,494	13,049	190	---	123	1,067	17,923
Glass-----	681	11	(3/)	---	85	1	779
Jewelry and decorative---	385	196	20	---	177	14	792
Petroleum-----	1,072	1,438	75	---	1	---	2,587
Miscellaneous--	2,383	4,156	89	2	710	132	7,471
Year-----	31,125	34,242	495	23	3,292	1,821	70,998
=====							
1989:							
First quarter:							
Automotive 2/--	5,179	1,337	---	---	552	7,068	14,136
Chemical-----	546	766	6	---	38	10	1,365
Dental and medical-----	181	2,121	7	17	---	3	2,329
Electrical-----	1,142	4,088	18	(3/)	20	575	5,843
Glass-----	571	171	---	---	101	(3/)	843
Jewelry and decorative---	136	518	2	---	41	(3/)	696
Petroleum-----	996	629	---	---	---	---	1,624
Miscellaneous--	835	991	17	---	177	26	2,046
Total-----	9,585	10,620	49	17	928	614	21,814
=====							
Second quarter:							
Automotive 2/--	5,319	1,369	---	---	560	---	7,248
Chemical-----	727	517	13	---	63	25	1,345
Dental and medical-----	117	2,116	---	13	---	5	2,251
Electrical-----	1,045	4,195	66	---	19	540	5,865
Glass-----	352	163	---	---	41	---	556
Jewelry and decorative---	r/97	r/528	1	---	40	2	r/669
Petroleum-----	882	230	---	---	---	---	1,112
Miscellaneous--	582	899	16	---	53	---	1,550
Total-----	r/9,120	r/10,017	96	13	776	572	r/20,595

Table 3. - Platinum-group metals sold to consuming industries in the United States (continued)
(Kilograms)

Period and industry	Platinum	Palladium	Iridium	Osmium	Rhodium	Ruthenium	Total
Third quarter:							
Automotive 2/--	3,919	995	---	---	435	---	5,350
Chemical-----	621	442	60	---	40	5	1,169
Dental and							
medical-----	182	2,159	4	11	---	6	2,362
Electrical-----	775	3,741	7	---	33	460	5,017
Glass-----	87	163	---	---	30	---	281
Jewelry and							
decorative---	91	519	2	---	40	1	652
Petroleum-----	688	526	---	---	27	---	1,241
Miscellaneous--	729	1,136	34	---	43	25	1,966
Total-----	7,092	9,681	107	11	648	497	18,038

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.

3/Less than 1/2 unit.

Platinum & Palladium Consumption Sales to Industry

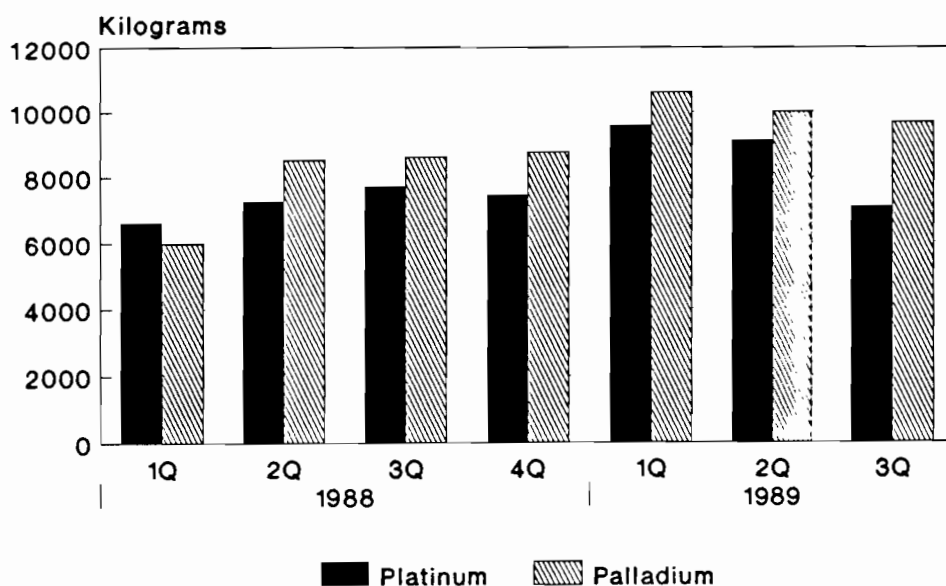


Table 4. - Monthly average producer and dealer prices of platinum-group metals 1/
(Dollars per troy ounce)

	Platinum		Palladium		Rhodium		Iridium		Ruthenium	Osmium
	Pro- ducer	Dealer	Pro- ducer	Dealer	Pro- ducer	Dealer	Pro- ducer	Dealer	Dealer	Dealer
1988:										
January-----	600	492	150	124	1,275	1,187	420	333	67	602
February-----	600	452	150	119	1,275	1,238	420	326	65	610
March-----	600	491	150	121	1,275	1,235	420	310	62	603
April-----	600	492	150	124	1,275	1,230	420	315	62	509
May-----	600	545	150	122	1,275	1,231	420	310	60	580
June-----	600	576	150	127	1,275	1,266	420	309	61	590
July-----	600	543	150	124	1,275	1,185	420	304	65	625
August-----	600	529	150	124	1,275	1,214	420	302	45	625
September-----	600	506	150	119	1,275	1,218	420	305	67	625
October-----	600	522	150	120	1,275	1,191	420	286	63	580
November-----	600	566	150	125	1,275	1,232	420	287	60	580
December-----	600	557	150	131	1,275	1,190	420	287	60	580
Average-----	600	523	150	123	1,275	1,218	420	306	61	592
1989:										
January-----	600	528	150	135	1,275	1,247	420	295	64	580
February-----	600	530	150	141	1,275	1,254	420	293	62	580
March-----	600	534	150	145	1,275	1,271	(2/)	295	62	580
April-----	600	538	150	166	1,275	1,274	(2/)	300	62	570
May-----	600	515	150	152	1,275	1,280	(2/)	303	62	550
June-----	600	494	150	152	1,275	1,275	(2/)	305	61	550
July-----	600	500	150	150	1,275	1,269	(2/)	305	61	550
August-----	600	483	150	134	1,275	1,247	(2/)	305	61	550
September-----	600	476	150	137	1,275	1,265	(2/)	305	62	550
Average-----	600	511	150	146	1,275	1,265	NA	301	62	562

NA Not available.

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 5. - 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	Total Value
1989:										
First quarter:										
Belgium	317	865	41	---	---	---	---	---	1,223	\$9,136
Canada	806	472	---	---	23	---	275	7	1,583	21,571
Germany, Federal Republic of	176	85	50	11	---	4	---	---	326	3,400
France	---	734	---	---	---	---	---	---	734	3,357
Hong Kong	---	---	---	---	---	---	94	---	94	1,261
Japan	2	461	---	---	---	---	---	---	463	1,707
Mexico	---	---	---	---	---	---	5	---	5	134
Netherlands	11	114	---	---	---	---	---	---	125	932
South Africa, Republic of	13,163	6,166	451	133	102	19	---	---	20,034	198,198
Switzerland	180	489	109	---	---	---	---	---	1,396	24,173
Taiwan	97	287	---	---	---	---	---	---	467	2,844
U.S.S.R.	2,269	2,776	289	---	---	---	---	---	3,162	36,098
United Kingdom	370	1,468	213	111	57	---	176	1	4,294	56,466
Other	---	66	---	---	---	---	33	---	470	2,021
Total	18,189	13,983	1,153	255	182	23	583	8	34,376	360,298
Second quarter:										
Belgium	295	2,045	141	---	---	---	242	---	2,723	22,408
Canada	229	188	---	---	---	---	139	---	556	7,431
Germany, Federal Republic of	182	147	43	9	15	---	---	---	396	4,698
France	---	67	---	---	---	---	---	---	67	391
Hong Kong	---	1	---	---	---	---	167	---	168	2,265
Japan	31	592	---	---	---	---	2	---	625	1,491
Mexico	---	---	---	---	---	---	7	---	7	54
Netherlands	83	8	9	7	---	---	---	---	107	1,841
South Africa, Republic of	8,797	2,975	630	638	159	5	---	---	13,204	199,347
Switzerland	605	212	27	---	---	---	---	---	844	13,110
Taiwan	---	346	106	---	---	---	1	---	453	1,708
U.S.S.R.	126	3,422	664	---	---	---	21	---	4,233	44,900
United Kingdom	2,561	2,878	349	450	3	---	188	---	6,429	77,929
Other	47	156	19	---	1	---	150	1	374	2,252
Total	12,956	13,037	1,988	1,104	178	5	917	1	30,186	379,825

Source: Bureau of the Census and Bureau of mines.

Table 6.--U.S. exports of platinum-group metals
(kilograms and thousand dollars)

Period and country	Platinum	Palladium	Rhodium	Iridium, Osmium, Ruthenium	Waste and scrap	Quantity	Value
1989:							
First quarter:							
Australia---	---	5	---	---	---	5	\$55
Austria---	1	---	---	---	---	1	15
Belgium---	140	17	35	---	---	178	1,117
Brazil---	502	7	72	3	123	219	5,443
Canada---	100	67	---	---	69	638	13,245
China---	7	175	---	---	---	275	2,788
France---	15	30	---	---	35	72	2,486
Germany, Federal Republic of---	3	62	---	7	124	208	2,952
Hong Kong---	55	4	---	---	79	196	2,319
Italy---	1,125	676	55	---	23	1,879	14,512
Korea, Republic of---	35	4	---	22	---	61	629
Netherlands---	---	269	---	---	---	269	2,199
Singapore---	2	7	---	---	---	30	284
Sweden---	313	31	2	16	14	21	243
Switzerland---	55	83	---	---	---	362	5,617
Taiwan---	---	1,565	---	20	---	138	7,633
U.S.S.R.---	12	464	116	3	---	1,585	7,988
United Kingdom---	74	64	---	9	2,383	2,978	28,896
Other---	---	---	---	---	2	149	699
Total -----	2,439	3,620	280	80	2,852	9,271	90,409
Second quarter:							
Australia---	39	13	---	10	---	62	629
Austria---	1	9	---	---	---	10	89
Belgium---	3	8	---	5	174	190	2,178
Brazil---	1	5	---	1	---	7	65
Canada---	199	96	50	1	106	452	7,070
China---	15	119	34	28	---	196	1,455
France---	116	8	---	(1/)	8	132	2,959
Germany, Federal Republic of---	10	150	4	5	440	609	7,974
Hong Kong---	7	4	1	1	---	13	504
Italy---	---	125	---	---	311	436	4,739
Japan---	759	966	94	3	71	1,893	22,491
Korea, Republic of---	4	4	14	---	1	94	1,256
Netherlands---	---	462	---	---	---	462	3,276
Singapore---	4	39	---	---	---	43	367
Sweden---	---	11	---	12	28	51	408
Switzerland---	111	61	---	---	26	198	2,499
Taiwan---	---	71	1	1	---	73	460
U.S.S.R.---	39	---	---	72	---	72	706
United Kingdom---	29	446	1	(1/)	1,274	1,760	21,611
Other---	---	66	---	8	2	105	829
Total -----	1,408	2,663	199	147	2,441	6,858	81,565

1/ Less than 1/2 unit.

Source: Bureau of the Census.