

Platinum

Autocatalyst

The use of platinum in autocatalysts will continue to rise in 2002. Sales of metal to auto makers, however, are forecast to remain virtually unchanged at 2.52 million oz as US auto manufacturers reduce their pgm inventories. European autocatalyst demand for platinum will rise strongly as the growth in diesel car sales continues.

Europe

Sales of platinum to auto makers in Europe are forecast to rise to 1.25 million oz in 2002, an impressive increase of 17 per cent on 2001. The strength of demand has been built on growing sales of diesel powered cars, which utilise platinum-based autocatalysts; the move away from palladium-rich catalysts to those based on platinum on some gasoline models; and tightening emissions standards.

Data to the end of September suggest that the western European car market will contract by 3 per cent in 2002. Diesel car sales, however, continue to rise and take market share from gasoline vehicles. The number of diesels sold is forecast to increase by up to 7 per cent to reach 5.68 million cars this year, accounting for almost 40 per cent of total passenger vehicle sales in western Europe. Strong growth in European diesel car sales is forecast to continue in 2003 and this should support a further increase in platinum demand.

Sales of gasoline powered cars have been more susceptible to the lack of vigour in the economies of continental Europe. Gasoline vehicle sales and production across western Europe are both expected to drop by up to 9 per cent in 2002. The impact on platinum demand, however, will

partly be compensated for by the move away from palladium in some autocatalysts. Several auto manufacturers implemented programmes in 2000 and 2001 to minimise their use of palladium after its price soared. The effects of these strategies have been apparent in increased platinum demand in 2002.

Platinum demand is also benefiting from the increasingly stringent European emissions legislation. All light vehicles manufactured in Europe are now certified to Euro Stage III standards and new models are increasingly certified to Euro Stage IV standards. Although these will not apply formally until 2005, some countries already offer financial incentives (such as reduced sales tax) for Euro IV compliant vehicles. The Euro IV regulations cut permissible emission levels for most pollutants by at least 50 per cent for both gasoline and diesel powered cars, and may necessitate higher catalyst pgm loadings.

Japan

Due in part to the adoption of higher emission standards by Japanese auto makers, 2002 will be the fourth year in succession in which Japanese autocatalyst platinum demand rises by a double-digit figure. Demand this year is expected to total 410,000 oz, a 19 per cent increase from 2001.

Japanese governmental bodies have proposed new emission standards for passenger cars but these have not yet been written into legislation. However, in anticipation of tighter regulations in future, auto companies have increased pgm catalyst loadings on new models to enable emission reductions. This is an important vehicle selling point in Japan.

As elsewhere, a greater proportion of

Platinum Demand: Autocatalyst
'000 oz

	2001	2002
Europe	1,065	1,250
Japan	345	410
North America	795	480
Rest of the World	325	380
Total	2,530	2,520
Autocatalyst recovery	(530)	(570)



Japanese gasoline cars will be fitted with platinum-rich rather than palladium-based catalyst systems in 2002. This shift is in response to the recent high price of palladium and will boost platinum demand. Production of light vehicles in Japan is expected to be up marginally compared to 2001, with strong exports offsetting a fall in domestic sales.

North America

GDP growth in the USA was disappointing in the second and third quarters of 2002 but car sales have held up remarkably well. This is primarily due to the zero per cent interest credit deals and other financial incentives offered to consumers by the big three US manufacturers. On the production side, auto makers and their dealers entered 2002 with low inventory levels and this spurred a strong increase in manufacturing rates in the first half of the year.

Current estimates for full year sales of light vehicles in the USA (including imports) are for a 3.4 per cent drop to just over 16.5 million cars and light-duty trucks; however, the rebuilding of inventories is expected to see domestic production climb 9 per cent to 12.2 million units.

As light vehicle production rises this

European Demand for Platinum in Autocatalysts 1998-2002

'000 oz



year, the total use of platinum in autocatalysts will also increase. Purchases of metal, however, are forecast to slump 40 per cent to 480,000 oz. Some US auto companies have been making very large reductions in their pgm inventories this year after building stocks between 1998 and 2001. While the main focus has been on running down palladium inventories, platinum holdings have also been eroded.

As in Europe, use of platinum in autocatalysts in the USA has benefited from the move away from palladium-rich systems by some manufacturers. The recent decline in the palladium price, however, has reduced the justification for switching from palladium in favour of platinum. Consequently, the move towards greater use of platinum in autocatalysts is expected to slow.

Rest of the World

Autocatalyst demand for platinum in the Rest of the World is forecast to expand to 380,000 oz, a jump of 17 per cent from 2001. Rapidly expanding car output in Asia will account for much of the growth.

Chinese light vehicle production will surpass the 2 million mark this year, a rise of over 20 per cent. All Chinese cars must comply with Euro Stage I equivalent emission limits and there are incentives for those that meet Euro II standards.

In South Korea, where LEV regulations will come into force in 2003, production will exceed 3 million light vehicles, and strong increases in output will also be seen in India and Malaysia. This rapid growth in Asian production will far outweigh a weakening of sales and production in South America.

Autocatalyst Recovery

An estimated 570,000 oz of platinum will be recovered from recycled autocatalysts in 2002, a gain of 40,000 oz from 2001. A significant proportion of the increase will come from greater collection and processing of spent catalysts in Europe.

High pgm prices in 2000 and early 2001 stimulated awareness of the potential profitability of autocatalyst recovery, and improved collection rates. The European End of Life Vehicle (ELV) recycling directive, which will apply from 2005, is also focusing attention on recycling. In addition, an increasing proportion of the cars currently being scrapped are fitted with catalysts – it was only in 1993 that all new gasoline cars in Europe were equipped with catalytic converters.

Recovery has also increased in the USA, although to a lesser extent as collection rates were already high relative to Europe. The firm platinum price, which averaged just under \$524 over the first nine months of 2002, supported the profitability of recovery and recycling businesses, despite the fall in the price of palladium.

Jewellery

Total sales of platinum to jewellery makers are forecast to grow by 9 per cent to reach 2.78 million oz in 2002, led by another year of strong sales in China. Chinese demand is expected to reach 1.47

million oz, up 13 per cent year-on-year, as jewellery consumers continue to view platinum very favourably. In contrast, the weak economy in Japan has dampened jewellery sales. Demand for platinum from fabricators, however, will rise as less old stock is recycled. European demand is expected to be flat, while US demand should rise modestly.

Europe

European demand for platinum in jewellery is forecast to be stable at 170,000 oz in 2002, unchanged from the previous year. The main platinum jewellery markets and manufacturing centres, however, have experienced markedly different fortunes.

The UK will retain its position as the largest European jewellery market for platinum in 2002. Demand for platinum bridal jewellery, which accounts for about 90 per cent of the UK's total platinum jewellery market, is set to grow strongly again. The weight of platinum articles hallmarked by UK assay offices during the first three quarters of the year jumped by 45 per cent to 46,715 oz, including a substantial increase in imported items. At this rate of growth the full-year figure for hallmarked items will rise to over 62,000 oz, of which around 70 per cent will be fabricated in the UK.

The German jewellery market has had a disappointing year to date. The persisting weakness of the economy has dampened consumer spending on luxury goods

Platinum Demand: Jewellery

'000 oz

	2001	2002
Europe	170	170
Japan	710	735
North America	280	310
Rest of the World	1,390	1,565
Total	2,550	2,780



across the board. The German platinum jewellery market is not as reliant on bridal products as is the case in the UK, and the fashion sector of the market has proved vulnerable to substitution by cheaper white metals such as titanium and steel. German fabricators have been able to increase exports of platinum products to the UK but this rise has not been sufficient to offset the downturn in the domestic market.

In Italy, where the platinum jewellery industry is heavily focused on export markets, there has been a modest increase in fabricator demand. Italian manufacturers have been able to increase sales to Japan, China and the USA but domestic sales have been largely static. The Swiss watch industry is now reflecting the economic weakness felt in key markets in the second half of 2001, the time lag being characteristic of an industry with relatively long manufacturing lead times. Swiss platinum demand is expected to fall this year as sales of watches and other luxury platinum jewellery items weaken.

Japan

Purchases of platinum by the Japanese jewellery industry are expected to rise slightly to 735,000 oz in 2002. Demand will increase, despite the third consecutive year of weakening retail sales of platinum jewellery, because less metal will flow out of inventories compared to 2001. Nevertheless, in the current poor economic climate all companies in the Japanese jewellery manufacturing and retail chain continue to reduce their metal and product stocks as far as possible.

Total retail sales of jewellery in Japan fell below 2001 volumes during the first seven months of 2002, with sales of platinum items on a piece basis down 17 per cent year-on-year. Sales of wedding rings have been least affected, down 2 per cent to the end of July, whereas sales of platinum engagement rings, other women's rings, and most platinum fashion jewellery have dropped substantially. White gold has made further inroads into



platinum's market share at the lower price points but has also taken considerable market share from yellow gold. This illustrates the continuing consumer preference for white metal jewellery, and platinum retains a 25 per cent share of Japan's total jewellery market.

North America

North American jewellery demand for platinum is forecast to improve this year on the back of moderate growth in retail sales. Demand has also benefited to a limited degree from restocking in the first quarter of the year following better than expected sales over the 2001 Christmas season. In total, platinum consumption should recover by 30,000 oz to 310,000 oz. Retailers and consumers, however, lack confidence in the economy. This caution is constraining orders from fabricators, who want to keep inventories to a minimum, and is dampening retail sales.

Firm platinum prices have held back any further penetration of the fashion sector, where manufacturers are using white gold to obtain higher margins while satisfying consumer demand for inexpensive white jewellery. Nevertheless, major retail chains have shown themselves to be keen to stock and promote a broader range of platinum products when key price points can be met.

Rest of the World

The Chinese jewellery market has continued to grow rapidly in 2002 and platinum demand from this industry is forecast to climb 13 per cent to 1.47 million oz.

Sales during the first half of 2002 were exceedingly strong, following the 18 per cent rise in demand in 2001. Retailers reported excellent sales over the Chinese New Year in February and during the week-long Labour Day holiday in May. Early reports from the National Holiday week at the start of October were also very positive. Platinum rings set with small diamonds have become especially popular in both the bridal and fashion sectors. In the major metropolitan areas where platinum jewellery is now well established, product design and branding is becoming increasingly important.

The Chinese jewellery market is extremely competitive at both the fabrication and retail levels. Consumers can easily make price comparisons because jewellery is sold on the basis of weight and precious metal prices plus a margin, rather than being priced on a piece-by-piece basis. As platinum prices rose this year, retailers held back from passing on raw materials costs to their customers until declining margins became unsustainable, at which time retail prices increased. However, product prices this year remain below peak 2001 levels and have not dampened consumers' demand for platinum items.

Other platinum jewellery manufacturing centres in Asia continue to rely very heavily on exports to Japan, the USA and Europe. Any significant upturn in platinum demand for jewellery fabrication, therefore, will depend on a return to stronger economic growth in these highly competitive export markets.

Industrial

Demand for platinum in industrial applications is expected to be 1.55 million oz in 2002,

Platinum Demand: Industrial '000 oz

	2001	2002
Chemical	285	300
Electrical	385	385
Glass	290	260
Petroleum	130	135
Other	460	470
Total	1,550	1,550



unchanged from the previous year. Demand for process catalysts from the chemicals industry should rise moderately due to additions to paraxylene manufacturing capacity in the Middle East and Asia. Demand from the Chinese glass industry will fall following the heavy investment in the construction of new plants in 2001, while electrical demand is forecast to be flat.

Consumption of platinum in the chemical industry will total 300,000 oz this year, a 5 per cent increase over 2001. Demand for platinum catalysts for the manufacture of paraxylene is primarily related to the construction of new capacity as metal losses during operation are minor. Plants currently being built in the Middle East and Asia have lifted catalyst demand this year.

The silicones industry, a major consumer of platinum catalysts, has had a subdued 2002 to date, suffering from the weak economic activity in North America and Europe. Overall platinum catalyst demand is expected to be stable this year but there has been a shift in manufacturing capacity from the USA to Europe and Asia.

Demand for platinum gauzes from the nitric acid industry broadly reflects the level of nitrogen fertiliser sales. Sales of fertilisers in the first half of 2002 were affected by the high levels of inventories carried over from 2001 and prices were poor. Demand for platinum from the nitric acid industry is not expected to change significantly in Europe or North America this year but should

improve in the Rest of the World as new capacity comes on stream in Asia.

The use of platinum in electrical applications in 2002 is not expected to change from the 2001 total of 385,000 oz. Demand from the hard disk sector is expected to decrease marginally, depressed by weak personal computer sales and the continuing decline in the number of disks required per computer as storage capacity increases. However, these factors will be largely offset by the rising use of hard disks in non-computing applications. The nascent fuel cell industry will consume more platinum in 2002, in line with accelerating development programmes, but volumes remain small.

Demand for high temperature thermocouples that utilise platinum wire will decrease in 2002. Steel production in the USA and western Europe (where use of platinum-based thermocouples is highest) was down by 2 per cent and 3.4 per cent respectively as of the end of August. The semiconductor industry is showing signs of a recovery in sales, but overcapacity remains and orders for manufacturing equipment are expected to be as much as 20 per cent lower than in 2001.

Platinum use in glass production will fall back from last year's high of 290,000 oz to 260,000 oz in 2002. Substantial additions were made to glass manufacturing capacity in Asia in 2001, particularly in China, and the overall rate of capacity expansion will ease in 2002. Investment is continuing as demand for LCD glass in Asia as a whole and for fibreglass in China remains high.

In 2002 demand for platinum from most other industries is forecast to remain at or close to 2001 volumes. The petroleum refining industry will consume marginally more platinum in the form of catalysts this year but no major expansions of reforming capacity are currently under construction.

The consumption of platinum in dental alloys is also expected to be stable – dentists who switched from palladium-based formulations to high-gold alloys that

contain platinum have so far shown little inclination to move back to palladium, despite the fall in the price of the latter.

Investment

Net demand for platinum investment products is expected to be positive in 2002, with sales of both large bars in Japan and platinum coins in the USA running at similar levels to 2001. However, as demand is closely tied to the price of platinum, sales weakened as the price rallied from \$450 at the start of February to over \$560 at the end of September.

Demand for the US Mint's platinum American Eagle coins during the first eight months of 2002 was slightly higher than over the same period in 2001. However, not all of the 2001 proof coins were sold and remelting of these will restrict fresh metal demand to 45,000 oz in 2002.

The price of platinum was under \$480 during January and February this year and Japanese investors took advantage of the relative price weakness by purchasing significant quantities of 500 g and 1 kg bars. As the platinum price started to climb from March onwards the volume of purchases waned, although the strengthening of the yen against the dollar in July gave demand a short boost. Net Japanese investment demand for 2002 is forecast to be of the order of 45,000 oz.

Platinum Demand: Investment '000 oz

	2001	2002
Coins and bars		
Europe	0	0
Japan	5	5
North America	45	45
Rest of the World	0	0
	50	50
Large bars in Japan	40	40
Total	90	90

