

PLATINUM

Global platinum demand is expected to fall from 6.68 million ounces in 2007 to 6.52 million ounces in 2008. Gross autocatalyst demand will rise marginally and demand will grow in many industrial sectors. Net jewellery demand will fall, partially due to rising recycling rates. Investment demand fluctuated wildly during the first three quarters of the year but annual demand is forecast to be lower than in 2007.

AUTOCATALYST

Gross autocatalyst demand is forecast to be 4.23 million ounces in 2008, an increase of only 85,000 oz from the previous year. A heavy fall in vehicle output in North America will depress platinum demand there by 305,000 oz. However, this will not offset the healthy rise in platinum use in the European diesel sector. Production growth in markets such as Brazil, China, India and Russia will also support total platinum use.

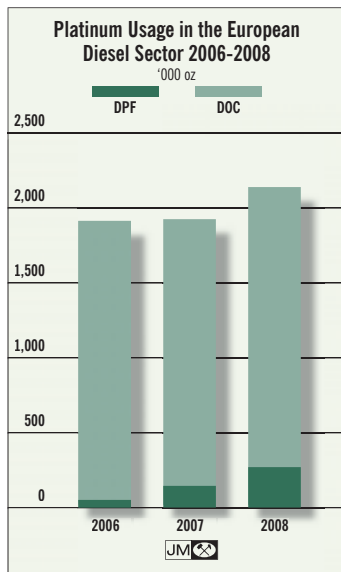
While most platinum demand in the European diesel sector is due to the use of diesel oxidation catalysts (DOCs), increasing fitment of diesel particulate filters (DPFs) will drive most of the growth in this sector.

Europe

European autocatalyst demand for platinum is forecast to rise 16.2 per cent to 2.40 million ounces in 2008. Western European vehicle production is forecast to fall 2.4 per cent to 15.8 million units but 330,000 more cars and trucks will be manufactured in Eastern Europe than in 2007. Total European production is

thus expected to remain flat.

Very little platinum will be used in European gasoline-fuelled cars this year as substitution by palladium in this subsector has continued to spread. The light duty diesel sector in Europe therefore remains key to platinum demand. While diesel fuel prices have risen, gasoline prices have soared too, maintaining the economic benefits for many consumers of operating a diesel car. More than half of all light duty vehicles sold in Europe now have diesel engines and



40-50 per cent of these will be fitted with a platinum-containing diesel particulate filter (DPF) this year, in most cases in addition to a diesel oxidation catalyst. The introduction of Euro 5 emissions rules in 2009 and 2010 will drive the use of DPFs higher.

However, palladium is eroding the dominance of platinum in this sector. More platinum/palladium oxidation catalysts will be fitted to diesel

vehicles offsetting some of the growth in platinum demand which would otherwise have occurred.

In the heavy duty diesel sector, platinum demand will be flat, despite the introduction of Euro V legislation in October 2008 for new models. Most truck manufacturers have opted to use engine management and selective catalytic reduction (SCR) technology to meet these emissions rules. Only a small proportion of new vehicles is being fitted with diesel particulate filters or oxidation catalysts containing platinum.

Japan

Auto makers will purchase 590,000 oz of platinum for use on vehicles made in Japan in 2008, a drop of 10,000 oz. This is despite a likely 2.0 per cent rise in annual light duty vehicle output to 11.4 million units.

Japanese car makers have historically used higher platinum loadings than other manufacturers. The increase in the platinum price over recent years has driven a move to using more palladium in gasoline catalysts – something that has become increasingly feasible as fuel quality improves around the globe. Thrifting will also have an effect and the average platinum loading of a vehicle will fall marginally this year as a result of both trends.

North America

Platinum purchases by the North American automotive sector are expected to fall by 305,000 oz to 540,000 oz in 2008. The North American automotive sector was expected to perform poorly this year. However, it has proved to be even weaker than initially forecast: annual production of light duty vehicles in Canada and

Platinum Demand: Autocatalyst '000 oz		
	2007	2008
Europe	2,065	2,400
Japan	600	590
North America	845	540
China	175	200
Rest of the World	460	500
Total	4,145	4,230

the USA is forecast to fall 15 per cent to only 11.0 million units with a corresponding negative impact on demand. North American auto makers have also reduced their strategic stocks of platinum this year, cutting demand further than would otherwise be the case.

Sales of all passenger vehicles are falling but sales of trucks and sports utility vehicles (SUVs) are suffering most. A weakening economy, low availability of credit and high fuel prices are all driving consumers towards smaller vehicles, and this is being reflected in the type of vehicles produced in North America. The combination of a smaller average vehicle size and lower production will depress platinum demand in 2008.

The heavy duty diesel market has also weakened with sales of large trucks falling heavily. Even though a growing number of these are being fitted with catalytic aftertreatment to meet emissions rules, platinum demand from this sector will decrease this year.

China

Chinese light duty vehicle production is expected to climb from 8.1 million units in 2007 to 9.1 million units in 2008, despite a slowdown in sales during the Beijing Olympics and increases in fuel prices. New emissions legislation also came into effect in 2008 in the form of Euro 3 rules in most of the country and Euro 4 in Beijing, Shanghai and Guangzhou. This will increase the average pgm content of a vehicle produced in China. Gross platinum demand should rise by 14.3 per cent to 200,000 oz in 2008.

Rest of the World

Autocatalyst platinum demand in the Rest of the World region will climb 8.7 per cent to 500,000 oz in 2008. Production of diesel cars (for the European market) in countries like Korea will drive much of this growth. Some light duty diesel production has also been transferred from the USA to Mexico, further boosting demand in this region.

Autocatalyst Recovery

970,000 oz of platinum should be recovered from spent autocatalysts in 2008, an increase of 7.2 per cent from 2007. High pgm prices in the first half of

2008 encouraged collection of these catalysts from scrapped vehicles and the percentage of end-of-life autocatalysts which are recycled has risen. In the mature North American market, 625,000 oz of platinum should be recovered this year. In Europe, the amount of platinum reclaimed is expected to rise strongly to 245,000 oz, reflecting the increasing number of end-of-life catalysed diesel vehicles being scrapped.

Platinum Demand: Autocatalyst Recovery		
	'000 oz	
	2007	2008
Europe	(215)	(245)
Japan	(35)	(35)
North America	(590)	(625)
China	(5)	(5)
Rest of the World	(60)	(60)
Total	(905)	(970)

JEWELLERY

Net global demand for new platinum from the jewellery industry is set to fall by 23.3 per cent in 2008 to 1.12 million ounces. High metal prices had a negative impact on all markets in the first half of the year, with the affordability of platinum jewellery being adversely affected. Retail sales are likely to recover to some extent in the second half of the year but nervousness remains in the trade over fluctuating metal prices. However, as importantly, the level of recycling of old jewellery increased in the key markets of China and Japan as the price rose. This is covered in more detail in the jewellery recycling article on page 24.

Europe

European jewellery demand for platinum is forecast to fall by 5,000 oz to 205,000 oz in 2008.

The UK market exhibited increased signs of price sensitivity in 2008, with the total weight of hallmarked pieces falling during the first half of the year. The volatile metal price has been a problem for retailers who have been unable to change their prices quickly enough in response. They have also reduced inventories in order to minimise their working capital and exposure to the metal price, with the effect of cutting demand for new metal. The bridal and luxury sectors have remained fairly strong and are likely to benefit from the fall in the platinum price as affordability improves.

Elsewhere, the Swiss watch industry was untroubled by the high price. In fact, watch manufacturing volumes

were higher in the first eight months of 2008 than in the whole of the previous year. Platinum watches are a true luxury item and a rising material price only reinforces the cachet of these products, adding to demand and offsetting much of the weakness in the rest of the European platinum jewellery market.

Japan

Japanese platinum jewellery retail sales are set to fall by ten per cent in 2008. The rapid rise in the metal price in the first quarter made platinum jewellery unaffordable for some consumers at the lower end of the market, particularly as the economy remains weak.

Conversely, the fall in the platinum price in the third quarter of 2008 is likely to lead eventually to higher consumer purchases. However, retailers in Japan typically amend their prices only once or twice per year, so retail prices could remain high for the remainder of 2008.

Manufacturing demand for platinum has also been affected by the large amounts of old, second-hand jewellery which have been returned by consumers for recycling. A collection and recycling infrastructure has been established in recent years and this now appears to be a permanent feature of the Japanese market. The flow of this scrap material peaked in the first half of 2008. We estimate that, during this period, more consumer platinum jewellery was returned to the market as scrap than was used in manufacturing. Although there are still large quantities of platinum jewellery in consumers' hands, lower prices mean that flows of this material back to the market have started to decrease. For 2008 as a whole, there will therefore be some demand for new metal from manufacturers.

Manufacturing volumes, including the use of scrap, are still significant. However, with retail sales soft and recycling having grown, net demand for platinum from the Japanese jewellery industry (which peaked at 1.48 million ounces in 1996) is forecast to drop heavily to only 40,000 oz in 2008 from 180,000 oz last year.

North America

Platinum demand for North American jewellery manufacture will drop to an estimated 195,000 oz, a decrease of 11.4 per cent. Credit worries, a slow

domestic economy and high metal prices will all have a negative effect on this market.

The US domestic economy has struggled in 2008: credit has been harder to obtain, house prices have fallen and consumer spending has weakened. Customer interest in buying jewellery – whether made from platinum or other materials

such as gold – has diminished. In early 2008, this came at the same time as the rapid increase in the price of platinum which required higher levels of working capital to be held by manufacturers and retailers. Although the price has since fallen, these trends have affected the platinum jewellery market negatively: stock levels have decreased and retail sales have been weak, particularly at the lower end of the market. Sales in the bridal sector will dip due to some switching from platinum to other materials in wedding bands. However, sales at the high-value and luxury end of the market have remained fairly strong, supporting North American platinum jewellery demand.

China

Chinese jewellery manufacturers are expected to purchase 610,000 oz of new platinum metal in 2008, a fall of 21.8 per cent from the previous year. High prices have again driven the use of large amounts of recycled metal in this industry but they have also impacted upon manufacturing volumes.

January 2008 saw positive demand from the Chinese jewellery industry with sales on the Shanghai Gold Exchange, or SGE, (where the majority of new platinum is purchased) at much higher levels than in January 2007. However, as the platinum price rose, purchases slowed dramatically as manufacturers and retailers started to minimise their platinum stocks. Sales to consumers – outside of the bridal sector – also suffered in the first half of the year as the high price meant that some consumers simply could not afford to buy platinum jewellery. Recycling volumes increased too in this period with more consumers choosing to exchange old pieces in order to purchase new jewellery.

Platinum Demand: Jewellery		
	'000 oz	
	2007	2008
Europe	210	205
Japan	180	40
North America	220	195
China	780	610
Rest of the World	70	70
Total	1,460	1,120



The high platinum price has encouraged increased use of the cheaper white gold for gem-set jewellery and there is some evidence of a trend to reduce the average weight of a piece of platinum jewellery.

When the price dropped in July and August, purchasing volumes climbed on the SGE as the industry replenished its inventory. The lower international price of platinum has fed through relatively quickly into retail prices, making platinum more affordable to consumers. We therefore expect demand to improve in the second half of the year. However, the industry remains nervous about the future direction of the price and a sustained period of price stability would overcome this and help boost demand further.

INDUSTRIAL

Industrial platinum demand is expected to reach 2.00 million ounces in 2008, an increase of 190,000 oz from the 2007 total of 1.81 million ounces. Demand from the chemical, glass and petroleum refining industries should be strong but platinum sales to the electrical sector are likely to fall.

Platinum demand from the glass sector is set to rise sharply to 490,000 oz in 2008. Glass fibre production is being relocated from Europe and North America to China which now has over forty per cent of global manufacturing capacity. Demand for bushings therefore continues to rise in China, offsetting weaker, or even negative, demand elsewhere.

Demand for LCD glass is expected to rise by 25-30 per cent in 2008 with over half of new televisions now having flat screen displays. Glass manufacturers have installed new production capacity and platinum demand for this application is increasing, particularly in South-East Asia.

Platinum Demand: Industrial '000 oz		
	2007	2008
Chemical	410	425
Electrical	320	315
Glass	390	490
Petroleum	210	270
Other	475	495
Total	1,805	1,995

Chemical sector demand for platinum is set to grow by 3.7 per cent to 425,000 oz. Platinum consumption by the silicones industry seems likely to peak in 2008 as the rate of thrifting is nearing the point where it will balance growth in silicone production. Elsewhere, China is trying to decrease its dependence on imports of

commodity chemicals such as paraxylene by building additional manufacturing capacity. Double digit percentage growth in production is expected this year adding extra platinum demand.

In the electrical sector, platinum purchases will fall marginally to 315,000 oz in 2008. Economic growth has slowed in North America and in Europe but global production of hard disks is still set to grow by over 20 per cent in 2008. However, manufacturers have been able to control the cost of these disks by using thinner platinum layers. This thrifting will more than offset growth in other parts of the electronics industry.

INVESTMENT

Net investment demand for platinum is forecast to drop from 170,000 oz to 145,000 oz in 2008. Demand from investors through Exchange Traded Funds (ETFs) is set to shrink. However, net sales of coins and large bars are likely to rise.

2008 is the first full year of trading of the two ETFs which accounted for demand of 195,000 oz in 2007. Investors were attracted in large numbers in the first two months of 2008 by a rising price, with 165,000 oz of platinum bought. As the price fell in the third quarter, net redemptions exceeded 200,000 oz. Over the entire year, we expect to see net platinum demand of 130,000 oz.

Platinum Demand: Investment '000 oz		
	2007	2008
Europe	195	130
Japan	(60)	(10)
North America	30	20
China	0	0
Rest of the World	5	5
Total	170	145

In the coin market, the US Mint was forced to suspend sales of its platinum coins at various times in 2008 due to rapid fluctuations in the metal price. As a result, demand from the sale of coins is expected to fall 10,000 oz to 25,000 oz in 2008.

In Japan, we forecast net disinvestment of 10,000 oz this year. Many investors who bought platinum in the 1980s viewed the high prices of early 2008 as an opportunity to sell. With new legislation making such sales by private investors more difficult from March onwards, there was a large net return of platinum to the market in the first quarter. However, as the price fell towards \$1,000 in September, buying interest from the general public increased, with net flows of material in the two halves of 2008 set to almost balance.

JEWELLERY RECYCLING

Falling headline figures for net platinum and palladium jewellery demand over recent years have obscured some of the trends in this sector. High platinum prices have had a negative impact on platinum jewellery sales, while palladium has retained its price advantage over other materials and jewellery demand is rising.

However, rising pgm prices have also meant that recycling of unsold retail stock and old pieces from consumers has become ever more important in this industry, reducing net demand for metal.

PLATINUM RECYCLING

The recycling of platinum jewellery is greatest in China and Japan where the total weights of metal bought by consumers in recent decades are highest. However, there are significant differences in how recycling functions in these two countries.

In China, retail margins are lower than they are in most other countries and platinum jewellery often acts not just as a decorative item but also as a store of value. Consumers are therefore aware of the value of the precious metal and a market has built up where retailers will exchange old platinum jewellery for new pieces.

This material typically returns to the manufacturers for remelting and reworking into new jewellery, offsetting demand for new metal. Importantly, since jewellery is only returned in part exchange for a new piece of higher price, it is not possible for more metal to be recycled than is used in manufacturing.

High prices have driven this recycling activity and have also encouraged retailers and manufacturers to minimise their stocks, often by recycling and

re-manufacturing them. As prices fall, the level of recycling in China is therefore likely to fall too.

In Japan, the situation is somewhat different: in the last few years a network of jewellery collectors and pawn shops has become established which will buy old jewellery for cash from consumers. Much of this is in the form of neckchains or rings bought in the 1970s and 1980s.

Some of this scrap material is reused in jewellery production within Japan but a volume of scrap is also exported for refining and much is refined within Japan and then exported or used in other industries.

The rising Yen price for platinum over the last few years has raised the profile of the recycling industry and increased the weight of metal recovered dramatically. It is likely that more metal was recycled in the first half of 2008 than was used in domestic jewellery manufacturing, i.e. net Japanese jewellery demand was temporarily negative.

However, as in China, the steep drop in the platinum price restricted the flow of jewellery scrap in the third quarter of 2008. Assuming that the price remains depressed for the remainder of 2008, net demand for the year should be positive.

Consumer behaviour is quite different in Europe and North America. Although the jewellery trade in these regions has reduced inventories due to high metal prices, very little second-hand jewellery is returned for resale or recycling. As a result, changes in jewellery demand here closely reflect trends in manufacturing volumes.

PALLADIUM RECYCLING

By contrast, most global palladium jewellery demand is for the

manufacture and sale of jewellery items in China. While it is possible for consumers to trade in second-hand palladium jewellery, many shops do not offer this service or only allow exchange for new palladium pieces as the retail price is significantly higher than the raw material price. The market is also much younger than the platinum jewellery market and there are fewer palladium pieces to be returned. The purchase and reprocessing of old palladium jewellery is therefore not an important trend.

However, manufacturers are still receiving some quantities of Pd950, an earlier, lower-purity material, to rework into Pd990 (a 99 per cent palladium alloy). This Pd950 did not sell particularly well to consumers and shops have therefore sought to minimise their inventory costs by returning jewellery made from this alloy and recycling it into Pd990, reducing the amount of metal that manufacturers have had to buy in order to manufacture new product. However, it is likely that most of this Pd950 stock has now been reprocessed.

Material flows from this source have therefore started to decrease and Chinese manufacturers have been forced to purchase more of their palladium requirements as new metal, driving demand higher.

Net platinum jewellery demand will be depressed by over 500,000 oz of recycling during 2008.

