

# PLATINUM

- A recovery in industrial consumption and strong offtake by investors will lift gross platinum demand by 5% to 8.42 million ounces in 2013.
- Sales of platinum to auto makers are expected to moderate slightly, to 3.13 million ounces, reflecting weakness in the European diesel car market.
- Industrial demand will rise by 12% to 1.79 million ounces on the back of strong purchasing by the chemical sector and a recovery in glass and electrical offtake.
- Purchases by jewellery makers will ease slightly, to 2.74 million ounces, but sales to investors are forecast to reach an all-time high of 765,000 oz.

## AUTOCATALYST

Demand for platinum in autocatalysts is forecast to decline by 2% to 3.13 million ounces in 2013, reflecting weakness in the world's two largest markets for diesel cars, Europe and India, and some additional thrifting by those auto makers still using platinum in gasoline catalysts. However, consumption of platinum in heavy duty applications will rise, with more trucks meeting strict Euro VI limits.

## Europe

Gross platinum consumption in the European auto market is set to fall by 55,000 oz to 1.29 million ounces in 2013, with further declines in demand from the light duty sector only partially offset by strong growth in the heavy duty diesel segment.

European light vehicle sales look set to fall to the lowest level in two decades, and the impact on platinum demand has been compounded by continuing erosion of the market share taken by diesel cars: new registrations in the traditionally strong diesel markets of France, Germany and Italy contracted sharply in the January to August period. Production of light duty diesel vehicles is expected to fall by around 4% this year, but platinum usage will decline at a slightly higher rate, due to some additional substitution with palladium.

In contrast, demand for platinum from the heavy duty sector is set to grow by over 50% this year, ahead of tighter Euro VI emissions legislation which will apply to all heavy duty trucks sold from January 2014. This legislative change has affected the market in two ways. It has generated some pre-buying ahead of the deadline, because of the lower purchase price of Euro V trucks, which often use little or no pgm in their aftertreatment systems. This has brought forward some truck sales into 2013, although it is unlikely to prevent a decline in overall European heavy duty sales this year. At the same time, the improved fuel economy of Euro VI engines has provided fleet operators with an incentive to purchase the new style trucks ahead of

the January 2014 deadline. Only a minority of vehicles sold this year will meet the new limits, but the impact on pgm demand will be significant: we estimate that average platinum loadings on European heavy duty trucks will rise by over 60% in 2013.

## Japan

The government's quantitative easing programme, known as "Abenomics", has been unsuccessful in persuading Japanese consumers to purchase additional vehicles or Japanese auto makers to increase local production. Following a recovery in light duty vehicle output last year, in the wake of 2011's earthquake-hit dip, auto production is forecast to slip back below 9 million units in 2013. This reflects weak passenger car sales in the domestic market combined with lower shipments to some major export destinations, particularly Europe. As a result, we expect platinum consumption to slip 3% to 580,000 oz in 2013.

Japan is by far the world's largest user of platinum in three way catalysts: strategic considerations have led Japanese car manufacturers to retain platinum in their gasoline catalyst mix. However, in the absence of any tightening of local emissions limits, auto makers have been able to thrift overall pgm loadings, and in particular those of platinum. As a result, platinum demand in the light duty gasoline sector is forecast to decline by around 10% this year.

	Platinum Demand: Autocatalyst					
	'000 oz					
	Gross		Recycling		Net	
	2012	2013	2012	2013	2012	2013
Europe	1,345	1,290	(370)	(455)	975	835
Japan	600	580	(80)	(90)	520	490
North America	400	375	(580)	(620)	(180)	(245)
China	105	120	(15)	(20)	90	100
Rest of the World	740	760	(85)	(90)	655	670
<b>Total</b>	<b>3,190</b>	<b>3,125</b>	<b>(1,130)</b>	<b>(1,275)</b>	<b>2,060</b>	<b>1,850</b>

In contrast, consumption of platinum in the diesel sector is expected to rise slightly, due to a modest increase in the production of diesel cars, and shifts in market share in the truck sector in favour of smaller vehicles. In Japan, the heaviest vehicles tend to use non-pgm selective catalytic reduction (SCR) technology to control NOx emissions, but lighter trucks are usually fitted with lean NOx traps.

### North America

Thrifting and substitution are expected to weigh heavily on North American platinum consumption this year, despite higher vehicle output in both the light and heavy duty sectors. The only market segment showing any growth in platinum demand is non-road, due to the progressive introduction of Tier 4 limits on these engines. Overall, we expect gross platinum demand to decline by 6%, or 25,000 oz, to 375,000 oz.

In the gasoline sector, the few manufacturers still using platinum continue to switch gradually to palladium-based catalysts as new models are introduced. We expect purchases for three way gasoline catalysts to drop below 100,000 oz this year. Indeed, demand for platinum in the gasoline sector is now exceeded by consumption in light duty diesel vehicles, even though the latter account for less than 5% of total light duty vehicle production in North America. In 2013 we expect platinum usage on diesel cars to remain flat, with modest thrifting offsetting growth in vehicle output to over 600,000 units – the highest level ever recorded in this region.

Production of heavy duty vehicles has been hit by a fall in exports of large trucks, but will be supported by strong demand for medium duty trucks from the local construction industry. This change in vehicle mix has caused a downward shift in average engine size, reducing total platinum requirements from the heavy duty sector.

### China

Platinum sees little use in the gasoline vehicles which dominate the Chinese auto market, but demand should nevertheless record a healthy increase in 2013, due to higher consumption in the heavy duty and motorcycle sectors. China IV emissions standards have begun to apply to heavy duty vehicles starting in July this year, and will contribute to a modest increase in platinum usage, although most of the heaviest engines will use non-pgm SCR technology to meet the new limits. Further growth in motorcycle output will also lift platinum offtake, which overall is expected to reach 120,000 oz in 2013.

### Rest of the World

Although total platinum consumption is expected to rise 3% to 760,000 oz in 2013, this has been a year of contrasting fortunes in the Rest of World region. In India, car sales have been depressed by increasing economic uncertainty and weakening consumer confidence, with the result that light vehicle production is expected to fall by 10% in 2013. The diesel sector has been hit particularly hard, due to the government's policy of reducing the subsidy on diesel fuel over time, which has made consumers wary of future fuel price rises. Output of light duty diesel vehicles will contract by as much as 15% this year, and platinum usage will drop accordingly.

Mexican light vehicle production is booming, but in 2013 the growth has come exclusively from the gasoline sector, where little platinum is employed. Diesel vehicle output is likely to fall, reducing platinum consumption.

In contrast, offtake by Thai auto makers is forecast to rise by more than 30% this year. Vehicle output is rising at double digit rates, while the introduction of Euro 4 equivalent legislation from January 2013 has resulted in a significant increase in platinum loadings on diesel cars. Thailand is a large market, likely to produce in excess of 1.3 million diesel vehicles this year, so the impact on platinum demand will be significant.

Korea should also see strong increases in light duty diesel output in 2013, and platinum consumption will rise accordingly. However, gains in the light duty sector will be partly offset by lower usage of platinum on heavy duty vehicles, due to a decrease in the number of vehicles eligible for retrofitting under a government scheme.

### JEWELLERY

**Sales of platinum to Chinese jewellery makers will ease slightly this year after a very strong performance in 2012, but this will be partly offset by higher demand in Europe, North America and India. Worldwide, gross jewellery demand is expected to total 2.74 million ounces, down 1%.**

### China

Gross platinum demand in the Chinese jewellery sector is expected to moderate to 1.85 million ounces, 5% lower than in 2012, but still strong by historical standards. A significantly lower gold price for much of the first nine months of 2013, particularly during the second quarter, resulted in a sharp increase in retail footfall from consumers primarily interested in purchasing

reduced-price gold items. The influx of consumers into retail outlets had a positive spill-over effect on sales of platinum jewellery.

In the past, consumer demand for platinum jewellery has been negatively affected by price volatility. However, since January 2012, the monthly average platinum price in local currency has fluctuated within a relatively narrow +/- 10% range, reassuring consumers that platinum jewellery will retain its value in future. This has tended to support demand.

After spending much of last year at a discount, the local platinum price moved back above that of gold in early 2013, but this has not had a noticeable impact on sales of platinum jewellery in China. At the retail level, platinum has generally been sold at a modest premium to gold regardless of the metals' relative market prices. For the moment, platinum and gold jewellery continue to be closely priced, allowing the "upsale" of consumers to platinum.

Strong retail demand has translated into robust demand for platinum from jewellery manufacturers; platinum sales to the jewellery industry on the Shanghai Gold Exchange (SGE) during the January to August period were only 4% lower year-on-year than the record level of purchasing seen in 2012. However, the industry does face some headwind from a slow-down in economic growth and a deceleration in the pace of retail expansion in the jewellery sector.

### Other regions

Outside China, consumption of platinum in jewellery is forecast to rise by 7% to 890,000 oz in 2013. In Europe, demand will recover to 2007 levels, driven by the increased use of platinum in luxury watch cases, at the expense of yellow and rose gold. North America is also witnessing a recovery, although offtake here remains well below pre-crisis levels. In 2013, purchases of platinum by the North American jewellery trade are expected to rise by 11%, driven by rising exports and higher domestic

sales of platinum bridal rings in lower price categories. This is a result of the narrowing of the retail price premium over white gold during the past year: a platinum ring currently sells for only about 20% more than the equivalent product made of 18K white gold.

In Japan, a strong recovery in the stock market has boosted consumer confidence and contributed to a rise in spending on big-ticket platinum jewellery items. However, these gains will be offset by lower platinum consumption in the bridal market, due to a combination of a lower marriage rate and growing competition from imported jewellery.

We expect continued growth in the Indian platinum jewellery market, although at a lower rate than last year, with total purchases forecast to reach 130,000 oz in 2013. There is some uncertainty over immediate prospects for demand, which could be affected by new measures to restrict imports, mostly affecting gold, which were introduced by the government in mid-year and which are designed to reduce the country's current account deficit. The changes have caused significant uncertainty within the jewellery trade, with widespread confusion about the application of the new rules causing temporary shortages of gold. The disruption could have a knock-on impact on platinum, but it remains to be seen whether and to what extent demand will be affected.

### INDUSTRIAL

**Sales of platinum to industrial consumers will rebound in 2013, led by unusually strong offtake from the chemical sector, and a recovery of demand in glass and hard disk manufacture; this will be partly offset by lower purchases from the petroleum industry. Total industrial consumption is forecast to rise by 12% to 1.79 million ounces.**

This has been a good year for platinum demand in the chemical industry, with the construction of new plants in Asia and the Middle East expected to boost offtake. The largest contributor to this growth will be the purchase of platinum catalysts employed in the manufacture of polymer intermediates such as paraxylene and propylene.

In the electrical sector, sales of hard drives in consumer applications are expected to decline at a double digit rate in 2013, as laptop and desktop computers lose share to tablets and smart phones, which generally use solid state drives containing no platinum. However, this will be partly offset by a rise in shipments of large "enterprise" hard disk drives used for commercial data storage applications.

Platinum demand in the hard disk sector was depressed in

Platinum Demand: Jewellery '000 oz						
	Gross <sup>1</sup>		Recycling <sup>2</sup>		Net <sup>3</sup>	
	2012	2013	2012	2013	2012	2013
Europe	180	210	(5)	(5)	175	205
Japan	310	300	(285)	(265)	25	35
North America	185	205	0	0	185	205
China	1,950	1,850	(600)	(500)	1,350	1,350
Rest of the World	155	175	0	5	155	170
<b>Total</b>	<b>2,780</b>	<b>2,740</b>	<b>(890)</b>	<b>(775)</b>	<b>1,890</b>	<b>1,965</b>

#### NOTES TO TABLE

<sup>1</sup> Gross demand is equivalent to the sum of platinum jewellery manufacturing volumes and any increases in unfabricated metal stocks within the industry.

<sup>2</sup> Recycling represents the amount of old stock and old jewellery recycled whether the metal is re-used within the jewellery industry or sold back to the market.

<sup>3</sup> Net demand is the sum of these figures and therefore represents the industry's net requirement for new metal.

Platinum Demand: Industrial '000 oz			
	2011	2012	2013
Chemical	470	450	540
Electrical	230	165	205
Glass	515	160	235
Petroleum	210	205	155
Other	550	625	655
<b>Total</b>	<b>1,975</b>	<b>1,605</b>	<b>1,790</b>

2012, largely due to a drawdown of inventory of both platinum metal and finished disks, following disruption to Thai disk production caused by the catastrophic floods of 2011. This year, although the underlying disk market is weak, purchases of platinum are expected to return to more normal levels.

Sales of platinum to the glass industry should stage a recovery this year, although they remain well short of the 2010-2011 peak, which was caused by huge capacity additions by manufacturers of liquid crystal display (LCD) glass. Since then, purchases of platinum for new LCD plants have fallen substantially. Due to a move to thinner glass and an increase in production efficiencies, capacity utilisation in this sector hit an all-time low in early 2013. The Chinese display glass industry is still expected to invest aggressively this year and next as local manufacturers strive to capture market share in the domestic TV industry, but elsewhere we will see some capacity reductions and sales of platinum back to the market.

Demand from the fibre glass sector was depressed in 2011 and 2012 by the return of platinum to the market following the decommissioning of old marble melt facilities. This year, we expect net sales to this segment to increase by a factor of five. Several new projects are planned in China and the Rest of World region, as companies add capacity close to their geographical end markets.

Consumption of platinum in biomedical applications has stagnated in recent years, with the large US market under pressure due to concerns about inappropriate implantation of some cardiac devices. However, lower demand for platinum components in the cardiac rhythm management sector has been offset by growth in some other procedures such as neuromodulation and radio frequency ablation, both of which employ platinum electrodes.

Other applications are forecast to consume more platinum this year: higher global vehicle output will drive demand for platinum in oxygen sensors and premium spark plugs, while growth in new aircraft construction will boost the usage of platinum in turbine blades.

## INVESTMENT

**Net investment in the physically-backed exchange traded fund (ETF) market is on course to reach an all-time high, with inflows of over 660,000 oz in the first nine months of 2013. We forecast a 68% increase in total platinum investment demand, to 765,000 oz.**

Almost all of the net investment is due to rapid growth in a new South Africa based product, launched by Absa in April 2013, which accumulated 660,000 oz of platinum in just over five months, making it the largest single platinum fund on the market. It is the first rand-denominated platinum ETF; its terms stipulate that fund metal should be of South African origin, enabling it to be designated a 'domestic' investment by regulators. This makes it particularly attractive to local institutional investors, who are subject to limits on overseas investments. Its 1/100th ounce minimum investment denomination also makes it appealing to the smallest of domestic retail investors.

Investment behaviour in the other funds has tended to be offsetting. Notably, investors in the ETFS London fund have liquidated positions, while counterparts in the ETFS New York product have exhibited a propensity to invest, in both cases regardless of the prevailing price direction. Excluding the Absa product, net ETF inflows amounted to just 5,000 oz in the first nine months of the year.

Investors in the Japanese large bar market reacted to type during the first eight months of the year, taking profits in a rising market and buying into price dips. A sharply weaker yen has resulted in a significantly higher local platinum price in 2013, incentivising the liquidation of holdings. January 2013 saw the largest single monthly disinvestment since at least 2003, with more than 35,000 oz of platinum returned to the market.

Global demand for small platinum bars and coins is set to decline by nearly a third to 55,000 oz this year, as strong activity in the secondary market limits demand for 2013-issue platinum bullion coins.

Platinum Demand: Investment '000 oz			
	2011	2012	2013
Europe	155	135	(95)
Japan	250	100	(70)
North America	10	190	120
China	0	0	0
Rest of the World	45	30	810
<b>Total</b>	<b>460</b>	<b>455</b>	<b>765</b>