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# PLATINUM QUARTERLY

## Q1 2015

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18th May 2015

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### FOREWORD

Following the release of our full year 2014 Platinum Quarterly in Johannesburg in March, we have continued to meet with a wide range of investors in South Africa, the UK and the USA to better understand their views of platinum as well as gauge their appetite for platinum insights and WPIC publications.

It is clear that investors want to understand and interrogate the supply and demand fundamentals which drive the platinum market. Our objective, analytical approach to building an independent data series is already making a real difference to the consideration of platinum as an investment asset. Investors are keen for us to correct common misconceptions, as well as to identify new or emergent trends. This approach enables them to make a more objective assessment of the platinum investment opportunity, as well as relevant risk factors.

Over time, and as the quarterly data series grows, we look forward to being in a position to provide the market with a sound basis for understanding seasonality, as well as identifying and commenting on long-term thematic trends.

Today's publication provides a detailed assessment of platinum supply, demand and above ground stocks for the first quarter of 2015, on a standalone basis, and forecast for 2015 overall, updated to account for insights gained during the first quarter.

During the first three months of the year, analysis by our independent research partners SFA (Oxford), shows that demand exceeded supply, resulting in a market deficit of 160 koz.

Total platinum supply was lower than in the final quarter of 2014 as growth in mining supply from Southern Africa was offset by declines in other regions and the impact of lower average platinum prices reduced overall recycling volumes.

Total platinum demand in the first quarter of 2015 increased when compared to the previous quarter as growth in automotive and jewellery demand far exceeded the declines in industrial applications and investment. Autocatalyst demand grew due to a combination of greater vehicle sales volumes and the roll-out of Euro 6-compliant catalysts. Jewellery demand benefitted from trade restocking, particularly in China following the Chinese New Year, and continued growth in the nascent Indian market.

SFA forecasts that, in 2015, the global platinum market will again be in deficit as demand exceeds supply by 190 koz.

Total supply in 2015 is expected to increase as South African production recovers from the unprecedented 5 month strike in 2014, and overall recycling collection increases. The autocatalyst, jewellery and industrial segments are all expected to drive demand growth. Investment demand during the remainder of 2015 is expected to reverse the decline experienced in the first three months of the year.

The growth in autocatalyst demand in 2015 is driven by higher platinum loadings per car to comply with Euro 6 emissions limits. The implementation of these more restrictive limits, implemented in 2014 and 2015, was scheduled back in 2007 as part of ongoing EU regulations programmes to improve air quality. The UK Supreme Court ruling this month highlighted that diesel vehicles contribute to nitrogen oxide (NO<sub>x</sub>) levels in urban areas, some of which currently exceed EU concentration limits. Euro 6 NO<sub>x</sub> emissions are 55% lower than Euro 5 levels, and more stringent drive cycle testing associated with Euro 6c limits, for implementation in 2017, will further reduce these emissions.

It is our view that emissions reductions already planned as well as other measures to address urban NO<sub>x</sub> concentrations are likely to result in increased use of platinum in autocatalysis and some small reduction in the portion of CO<sub>2</sub> efficient diesel vehicles in the future EU vehicle population. SFA does not expect any impact on platinum demand in 2015 associated with commentators' suggestions of tightening of emissions limits.

This is a topic worthy of further investigation and analysis. In our research agenda we intend to prioritise a contribution to greater independent analysis in this area.

Our leadership team is now in place at the WPIC. Consequently, we are able to dedicate management time to identify areas where actionable insights should be presented to a wider global audience and where targeted market development can support growth in platinum investment. We would like to hear from you what additional insight and research would help in your assessment of the platinum investment opportunity.

Paul Wilson, CEO

# PLATINUM QUARTERLY Q1 2015

## Supply, demand and above ground stocks summary (Table 1)

Platinum Supply-demand Balance (koz)	2013	2014	2015f	2015f/2014 Growth %	Q4 2014	Q1 2015
<b>SUPPLY</b>						
<b>Refined Production</b>	<b>6,070</b>	<b>4,880</b>	<b>5,765</b>	<b>18%</b>	<b>1,420</b>	<b>1,415</b>
South Africa	4,355	3,115	4,060	30%	980	995
Zimbabwe	405	405	405	0%	95	110
North America	355	400	385	-4%	115	95
Russia	740	740	705	-5%	175	165
Other	215	220	210	-5%	55	50
<b>Increase (-)/Decrease (+) in Producer Inventory</b>	<b>-215</b>	<b>+350</b>	<b>+90</b>	<b>-74%</b>	<b>-40</b>	<b>-30</b>
<b>Total Mining Supply</b>	<b>5,855</b>	<b>5,230</b>	<b>5,855</b>	<b>12%</b>	<b>1,380</b>	<b>1,385</b>
<b>Recycling</b>	<b>1,985</b>	<b>2,040</b>	<b>2,110</b>	<b>3%</b>	<b>480</b>	<b>450</b>
Autocatalyst	1,120	1,255	1,380	10%	305	315
Jewellery	855	775	725	-6%	175	135
Industrial	10	10	5	-50%	0	0
<b>Total Supply</b>	<b>7,840</b>	<b>7,270</b>	<b>7,965</b>	<b>10%</b>	<b>1,860</b>	<b>1,835</b>
<b>DEMAND</b>						
<b>Automotive</b>	<b>3,125</b>	<b>3,250</b>	<b>3,375</b>	<b>4%</b>	<b>825</b>	<b>865</b>
Autocatalyst	2,990	3,105	3,215	4%	785	825
Non-road	135	145	160	10%	40	40
<b>Jewellery</b>	<b>2,945</b>	<b>2,990</b>	<b>3,085</b>	<b>3%</b>	<b>685</b>	<b>750</b>
<b>Industrial</b>	<b>1,510</b>	<b>1,565</b>	<b>1,645</b>	<b>5%</b>	<b>415</b>	<b>400</b>
Chemical	585	585	610	4%	145	155
Petroleum	75	105	150	43%	25	35
Electrical	190	190	195	3%	50	45
Glass	155	165	145	-12%	50	35
Medical & Biomedical	235	240	250	4%	70	60
Other	270	280	295	5%	75	70
<b>Investment</b>	<b>930</b>	<b>135</b>	<b>50</b>	<b>-63%</b>	<b>-5</b>	<b>-20</b>
Change in Bars, Coins	-10	35			35	35
Change in ETF Holdings	905	215			-30	-50
Change in Stocks Held by Exchanges	35	-115			-10	-5
<b>Total Demand</b>	<b>8,510</b>	<b>7,940</b>	<b>8,155</b>	<b>3%</b>	<b>1,920</b>	<b>1,995</b>
<b>Balance</b>	<b>-670</b>	<b>-670</b>	<b>-190</b>	<b>-72%</b>	<b>-60</b>	<b>-160</b>
<b>Above Ground Stocks</b>	<b>4,140*</b>	<b>3,470</b>	<b>2,610</b>	<b>-7%</b>	<b>2,800</b>	<b>2,640</b>

Source: SFA (Oxford). \*As of 31st December 2012.

Notes: 1 The 2015 Q1 and 2014 full-year estimates are based on the latest available information, with the exception of Lonmin's H1 15 results announced on 11th May. The estimates are subject to revision in our subsequent quarterly reports in the event that additional information is identified.

2 The WPIC did not publish quarterly estimates for the first two quarters of 2014. However, estimates for Q3 2014 are included in the table on page 10 (supply, demand and above ground stocks) and page 11 (regional breakdown of gross demand by category), for additional insight.

3 The 2015 forecast is based on historical data and trends as well as modelling, with varying degrees of accuracy depending upon the supply or demand category. Investment demand is expected to be the least predictable segment in 2015 and the forecast assumes some platinum price appreciation.



**2015 FIRST QUARTER PLATINUM MARKET REVIEW**

In the first quarter of 2015 the platinum market deficit was 160 koz. The deficit was higher than the 60 koz deficit in Q4'14, owing to a combination of factors. These include: growth in producer working inventories, a solid quarter of jewellery demand as fabricators in China restocked following the Chinese New Year, and a decline in jewellery recycling due to a relatively low platinum price and flat retail sales in China.

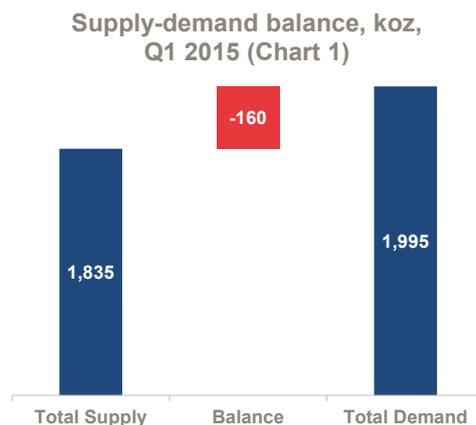
Refined production was little changed from the previous quarter as improvements in output in South Africa and Zimbabwe were offset by declines in other regions. The increase in producers' working inventory kept total mine supply at a similar level to Q4'14, but a decrease in recycled material resulted in an overall reduction of total platinum supply of 25 koz compared to the previous quarter. Increases in automotive (40 koz) and jewellery (65 koz) demand more than offset small declines in industrial usage and investment demand, and lifted total demand by 75 koz quarter-on-quarter.

**Supply**

Refined production in Q1'15 is estimated at 1,415 koz, with total mining supply at 1,385 koz after producers' working inventory climbed by 30 koz. This reflects expected seasonality in working inventory, largely due to the timing of statutory holidays and producer financial year-ends, which tends to increase in the first and third quarters of the year and decrease in the second and fourth quarters. First-quarter production was higher in South Africa (+15 koz) and Zimbabwe (+15 koz) relative to Q4'14, but was slightly lower in North America (-20 koz) and Russia (-10 koz), after inventory processing in both countries in the second half of 2014 had lifted output.

In the first quarter, platinum supply from spent autocatalyst recycling grew by 3% from a weak Q4'14 to 315 koz. In the US, bad weather and the lower platinum price, along with a weak steel price for autocatalyst canisters, reduced collection rates and recycling volumes in Q1'15. Collection rates are expected to recover in the coming quarters, with processors and refiners once again incentivised to boost collection to keep their unit costs down. In Europe, while collection rates were negatively impacted by greater exports reducing the pool of older vehicles available for scrapping, overall recycling decreased from Q4. From a currency perspective Euro weakness mitigated the impact of low US dollar prices on European collectors.

Jewellery recycling fell 23% to 135 koz in Q1'15, impacted by the lower than anticipated retail sales in China, where jewellery pieces are often traded-in as part payment for new larger items.



Source: SFA (Oxford)

**Demand**

Autocatalyst demand rose by 5% (40 koz) quarter-on-quarter to 825 koz, with Europe contributing to the increase from a combination of greater sales volumes and the roll-out of Euro 6-compliant catalysts, which have a higher platinum loading than those under the preceding Euro 5 legislation.

Platinum jewellery demand for the first quarter is estimated at 750 koz. While consumers have been less inclined to buy when prices are flat or falling, as occurred in Q4'14 and Q1'15, the trade is using the relatively weak price environment as an opportunity to stock up.

In China, platinum jewellery sales growth has softened owing to the slowdown in GDP growth, reduced purchasing of gold jewellery and the downtrend in precious metal prices. January and February 2015 saw

lower footfall in stores, but manufacturers reported more activity in March, with stronger bridal sales resulting from wedding fairs and trade shows. March also saw significant flows of platinum metal into Shenzhen, one of the leading jewellery manufacturing regions in China, in addition to increased activity on the Shanghai Gold Exchange.

The bridal category (~30% of the Chinese jewellery market) remains strong and is relatively price insensitive, but consumers in the non-bridal market prefer to buy in a rising price environment, so sales in this category have suffered in the first quarter. Chinese New Year, traditionally a very buoyant time for jewellery sales, was affected to some extent by tensions between Hong Kong and the mainland, which resulted in lower footfall from mainland residents in Hong Kong shops. While the expansion of retail outlets throughout China continues, it will take time for this to feed through to sales.

India continues to be a strong growth market for platinum jewellery, with retail sales up in Q1'15 in line with the annual growth trend despite March normally being a relatively quiet sales month in India. The *Evara* bridal programme launched in December 2014 is starting to generate sales.

Japan saw flat sales in Q1'15. The non-bridal sector is growing in importance, with platinum jewellery outperforming, and there is a shift upwards in alloy purity as Pt950 gains share over Pt850, which supports demand for platinum.

US jewellery sales were flat in Q1'15, as severe weather limited shopping in many parts of the country in the early part of the quarter. Retailers have been cautious over inventory levels, but manufacturers are reporting rising orders.

First-quarter platinum requirements for industrial end-uses decreased by an estimated 15 koz quarter-on-quarter to 400 koz, owing primarily to a fall in glass demand. Despite some new plants and expansions opening in Western Europe and the RoW during the early part of this year, consumption by the glass industry declined in Q1'15, as fabricators purchased the required metal in late 2014. Higher demand from the petroleum and chemical sectors in Q1'15 was also more than offset by lower usage in electrical applications, medical and biomedical devices and other end-uses.

Exchange Traded Fund (ETF) sales exceeded purchases in all the major investment regions in Q1'15 and reduced ETF holdings by 50 koz compared to the 30 koz reduction in Q4'14. US ETF holdings declined by 16 koz, a similar amount to Q4'14. In Europe, Swiss funds reduced by 18 koz and UK holdings dipped by 4 koz as sales in March slightly outweighed purchases in the first two months of the year. South African ETFs registered a reduction of 23 koz as net sales in February were not quite offset by a return to net purchases in March. Although Japanese investors typically prefer investing in bars to ETFs, the first quarter saw the Japanese ETF gain 11 koz.

Bar and coin purchases amounted to 35 koz in Q1'15, a similar level to the previous quarter, with Japanese investors continuing to take advantage of the relatively low price in local currency terms to add to their bar holdings. Coin buying remained at a relatively low level as, the US Mint has not yet made available the 2015 American Eagle platinum bullion coin; although the Perth Mint reported increased interest in the Platypus platinum investment coin in the first quarter

NYMEX exchange stocks declined by 5 koz in the first quarter as net long positioning on NYMEX dipped over the quarter.

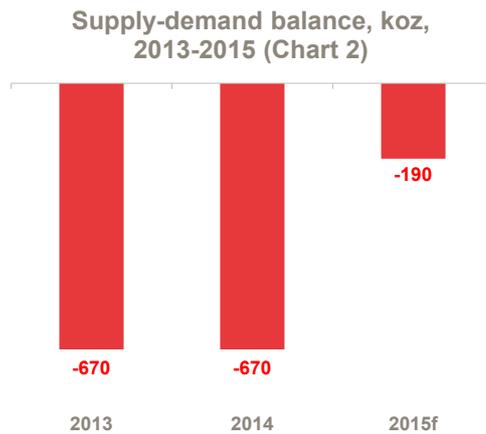
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## 2015 FULL-YEAR FORECAST

The global platinum market is forecast to have a deficit of 190 koz in 2015. While this has narrowed from the 235 koz deficit forecast in the *Q4 2014 Platinum Quarterly* report, the total supply forecast is unchanged, as higher projected mining supply is offset by a reduction in secondary supply from autocatalyst recycling. The reduction in the demand forecast is primarily due to a downward revision to industrial demand in China based on lower economic growth forecasts.

Total supply in 2015 is expected to increase by 10% to 7,965 koz, with South African production recovering strongly (+30%, 945 koz) from the strike-hit 2014 level, and overall recycling up by 3%. Autocatalyst recycling continues to grow robustly this year (+10%, +125 koz), more than offsetting the decline in jewellery recycling (-6%, -50 koz), which is expected to result from lower prices and flat jewellery sales in China.

Total demand is forecast to climb by 3% to 8,155 koz in 2015. Automotive demand is forecast to increase by 4% to 3,375 koz, with both on-road and off-road applications seeing greater use of platinum. Global jewellery demand is projected to rise by 3% (95 koz) to 3,085 koz, driven by robust growth in India and the US. The Chinese market, which accounts for almost two-thirds of global jewellery demand, is expected to increase by 1% to 1,985 koz in 2015, and although the bridal market (~30% of total) remains strong, purchasing in the non-bridal segment has been weaker than last year as Chinese consumers prefer to buy in a rising price environment.

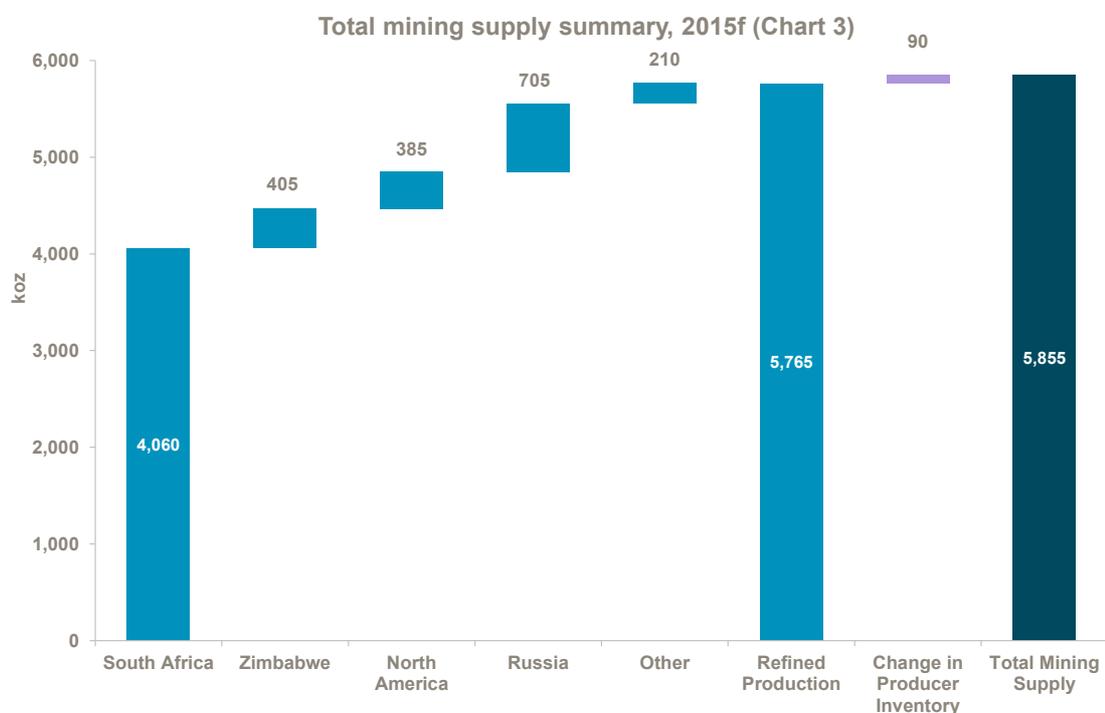


Source: SFA (Oxford)

### Mine supply

Global refined production is predicted to grow by 18% year-on-year to 5,765 koz which, along with some reduction in producers' working inventories, raises forecast total mining supply for 2015 by 12% year-on-year to 5,855 koz.

The forecast for South African production has been revised up by 55 koz to 4,060 koz, based on changes to producer targets and to include the restart of the Smokey Hills mine. Output from Zimbabwe is now estimated to be flat year-on-year at 405 koz, and the outlook for North American producers is unchanged at 385 koz, down by 4% from 2014. Russian producer guidance has been increased slightly, but yield for the year is estimated to fall by 5% to 705 koz.



Source: SFA (Oxford)

## Recycling

Globally, platinum recycling is forecast to reach 2,110 koz in 2015, representing annual growth of 3%, which is a similar pace to 2014. Jewellery recycling is expected to fall by 6% to an estimated 725 koz as lower prices are currently discouraging the return of pieces. However, autocatalyst recycling is estimated to increase by 10% to 1,380 koz, easing modestly from the 12% growth rate seen last year. The majority of the growth will come from Europe where increased numbers of platinum-loaded diesel catalysts are returning to the market. Recycling should also be lifted by the return of material not collected in H2'14 when the price fell significantly.

## Total demand

Total demand in 2015 is expected to increase by 3% to 8,155 koz as growth in autocatalyst, jewellery and industrial demand exceed the decline in investment demand. The 2015 forecast demand has been revised down by 45 koz as higher forecasts for autocatalyst and glass demand were outweighed by a reduction in the anticipated increase in chemical consumption, mostly owing to lower projected growth in China.

## Autocatalyst demand

Automotive demand is forecast to increase by 4% (+125 koz) to 3,375 koz, with both on-road and off-road applications seeing greater use of platinum.

Platinum used in on-road autocatalysts in Western Europe is expected to be up by 45 koz this year, with higher platinum loadings combined with an increase in vehicle production set to drive demand. Euro 6 legislation for diesel and gasoline powertrains in Western Europe first came into effect for new models of light vehicles in September 2014, and by September 2015 will apply to all new vehicles sold. The greatest autocatalyst upside is likely to be seen from diesel particulate filters (DPFs) and in NO<sub>x</sub> after treatment, to comply with the cuts in particulates and NO<sub>x</sub> emissions which are the main feature of Euro 6.

Platinum demand in North America was up by 30 koz year-on-year in 2014 and is expected to rise by 35 koz in 2015, driven by the growth in vehicle production and the strength of the light truck segment, which has higher platinum loadings than the smaller car segments. Vehicle manufacturing in the US grew by 5.1% in 2014, to the highest level since 2005, and is estimated to increase by 3.5% in 2015 (*LMC Automotive*) and the market share of light trucks increased to 55% in Q1.

Platinum demand is expected to fall by 10 koz in Japan this year, owing to a declining automotive market outlook, while India and the RoW are likely to see demand rise by around 20 koz and 35 koz respectively.

Changes in demand by category, 2015f vs. 2014 (Chart 4)



Source: SFA (Oxford)

### Non-road engine catalyst demand

Platinum catalyst demand for non-road engines is projected to increase by 10% (15 koz) to 160 koz in 2015. Stage IV regulations came into force in Europe in 2014 and final Tier 4 standards will become applicable in the US this year. The number of engines required to comply with the latest emissions legislation is expected to grow by 1% in both regions in 2015, driving the acceleration in platinum demand.

### Jewellery demand

The full-year fabricator demand forecast for 2015 remains at 3,085 koz, up 3% from 2,990 koz in 2014. Retailers currently expect sales to rise by just over 2% for 2015, led by growth of 23% in India, 7% in the US and 1% in Japan, but to be stable at 0% in China.

Retailers in China are relatively cautious for 2015, but leading retailers are continuing to open stores, with the focus on Tier 2 and lower cities. Older, unsold stock in stores in Tier 1 and 2 cities is being moved to lower tier cities which reduces the retailer feed of metal into recycling. Bridal demand is expected to be strong in these markets, driven by rapid urbanisation.

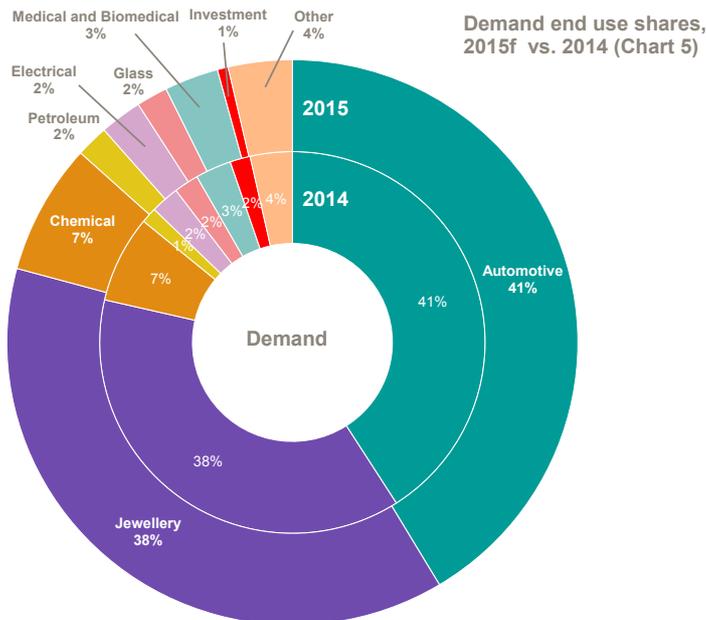
India is likely to remain the driver of growth, with retail sales of platinum jewellery estimated to rise by 23% this year, compared to 28% in 2014. There is also some potential upside to the forecast. Bridal rings have been the largest product category, but mens' jewellery – such as bracelets and chains – is a fast-growing segment, with the advantage for platinum demand of higher weights per piece than most bridal jewellery. Platinum Guild International's (PGI) marketing efforts are helping to raise jewellery demand in India, with the launch of the *Evara* bridal programme at the end of 2014 showing promising early results and boosting expectations for the rest of the year.

In Japan, consumers and retailers remain somewhat cautious owing to the weakening yen, but there are positive signs as consumers are now accustomed to the higher sales tax and sales growth is being seen in the middle and lower price points. The platinum environment appears to be strong, outperforming gold and other jewellery.

Platinum jewellery consumption in the US is running ahead of the projected rate of total jewellery demand. This is being driven by the launch of more platinum jewellery at lower price points, a strong diamond

engagement ring market, greater promotion of platinum by speciality jewellers and the continued approximate parity between the platinum and gold prices.

Demand end-use shares for 2015f versus 2014 are shown in Chart 5.



Source: SFA (Oxford)

**Industrial demand**

Industrial demand for platinum is forecast to grow by an estimated 5% year-on-year (80 koz) to 1,645 koz this year, largely owing to growth in the petroleum (45 koz) and chemical (25 koz) industries. Greater consumption by the medical and biomedical (10 koz), electrical (5 koz) and other end-uses (10 koz) is likely to outweigh a decline in usage by the glass sector (-20 koz).

On a regional basis, North America’s requirements are projected to increase by 50 koz, driven by the petroleum and chemical sectors. China’s consumption is set to climb by 20 koz, owing to a rebound in its petroleum industry. Growth anticipated in the RoW and Japan is likely to be negated by weaker demand in Western Europe, caused by the on-going reduction in its high cost oil-refining capacity.

**Chemical**

Platinum demand from the chemical sector is estimated to rise by 4% (25 koz) to 610 koz in 2015, supported mostly by growth in North America and the RoW. Propane dehydrogenation (PDH) capacity is set to increase in both China and North America this year, with a number of new plants planned to come on-stream. Paraxylene capacity growth is expected to slow in developing markets, namely China and the RoW. Despite this, demand for the RoW should strengthen as higher consumption by nitric acid producers is likely to outweigh lower paraxylene sector requirements. Consumption in Western Europe should also improve slightly, while in Japan it is forecast to remain flat.

China’s demand forecast has been downgraded for 2015, and its net requirements are now forecast to decrease marginally, despite the planned expansion of PDH capacity. As well as lower consumption by the paraxylene sector, demand for silicone production is also projected to decline from last year. Reduced consumption by China’s chemical industry is likely to offset growth in Western Europe.

**Petroleum**

The petroleum industry’s platinum requirements are predicted to increase by 45 koz to 150 koz this year, supported by higher demand in China and North America. Oil-refining capacity is set to expand in China, North America and the RoW in 2015, although it is expected to fall in the mature markets of Western Europe and Japan, with the decline likely to be more rapid in the former. North America’s gas-to-liquids

(GTL) capacity growth is now projected to be lower than forecast in the previous report, following large-scale project cancellations, whilst the RoW's GTL capacity is set to remain flat this year, after growth last year. Lower GTL consumption will probably negate higher demand for refining in the RoW as well.

Consumption growth in China and North America is likely to be partially offset by the lower requirements for Japan and Western Europe's refining sectors, where closures and capacity reductions are anticipated during 2015. Mature refineries, especially those in Western Europe, are under increasing pressure from growing competition in developing markets such as China and the RoW. Some facility closures and capacity reductions have already been announced during the early part of this year.

### **Electrical**

Platinum usage in electrical applications is forecast to climb by 3% year-on-year to 195 koz in 2015, mainly owing to greater demand for the production of hard disk drives (HDDs) and a slight increase from other electrical applications. Annual HDD shipments are projected to rise again this year, with the consumer electronics and external (branded) sectors set to account for the majority of the growth. Platinum imports for HDD manufacture are likely to be fairly equal between China and the RoW, as deliveries to the RoW increase and China's imports remain stable.

### **Glass**

Demand for platinum in glass fabrication is predicted to decline by 12% (20 koz) to 145 koz this year, with lower consumption anticipated in each of the main regions, excluding Japan. Despite overcapacity in China, new plants are still under construction in the country, though fewer are expected to be commissioned in 2015 compared to last year. The number of new plants in the RoW is also set to decrease this year, lowering the region's platinum demand. In North America and Western Europe, plant closures are likely to reduce new metal requirements, whilst the fall in Western Europe's demand will also be exacerbated by manufacturers purchasing metal in late 2014 for plants that opened in Q1'15.

### **Other**

Platinum consumption by other industrial end-uses in all regions is estimated to increase by 5% year-on-year to 295 koz in 2015. The fuel cell sector is set to account for the majority of the expansion in North America, Western Europe and Japan, whilst higher oxygen sensor demand is expected to drive growth in China and the RoW, supported by rising vehicle production in these areas.

### **Investment demand**

Higher investment is forecast to add a total of 50 koz to consumption in 2015. The platinum price is expected to appreciate from current levels, which should encourage investors to increase their ETF holdings but result in some offsetting sales of bars in Japan.

### **ABOVE GROUND STOCKS**

Above ground stocks are forecast to reduce to 2,610 koz by the end of 2015, 7% lower than the level at the end of 2014.

The WPIC definition of above ground stocks as used in this report is: the year-end estimate of the cumulative platinum holdings not associated with exchange-traded funds, metal held by exchanges or working inventories of mining producers, refiners, fabricators or end-users. This will increase or decrease by the estimated surplus or deficit each year.

The estimated market shortfall in 2014 has been revised down slightly to 670 koz, which lifted the forecast for the above ground stocks balance to 2,800 koz at the end of the year. Total demand in 2014 is now estimated as being slightly higher than reported in the Q4'14 report, but both primary and secondary supply have also been revised up, leading to a slightly lower deficit for the year.

For 2015, the projected deficit has narrowed to 190 koz from 235 koz in the previous report, which will leave the estimated above ground stocks balance at 2,610 koz by the end of the year. An upward revision to primary supply was offset by a slowdown in recycling, with the net change being accounted for by a likely contraction in Chinese industrial demand this year based on reductions to economic growth forecasts.

The first quarter's deficit reduced the above ground stocks balance to 2,640 koz. However, over the remaining quarters, supply is expected to more closely match demand, with growth in both, total mining supply, including a reduction in producer inventory, and recycling.

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<b>Increase (-)/Decrease (+) in Producer Inventory</b>	<b>-215</b>	<b>+350</b>	<b>+90</b>	<b>-74%</b>	<b>+65</b>	<b>-40</b>	<b>-30</b>
<b>Total Mining Supply</b>	<b>5,855</b>	<b>5,230</b>	<b>5,855</b>	<b>12%</b>	<b>1,385</b>	<b>1,380</b>	<b>1,385</b>
<b>Recycling</b>	<b>1,985</b>	<b>2,040</b>	<b>2,110</b>	<b>3%</b>	<b>575</b>	<b>480</b>	<b>450</b>
Autocatalyst	1,120	1,255	1,380	10%	365	305	315
Jewellery	855	775	725	-6%	205	175	135
Industrial	10	10	5	-50%	5	0	0
<b>Total Supply</b>	<b>7,840</b>	<b>7,270</b>	<b>7,965</b>	<b>10%</b>	<b>1,960</b>	<b>1,860</b>	<b>1,835</b>
<b>DEMAND</b>							
<b>Automotive</b>	<b>3,125</b>	<b>3,250</b>	<b>3,375</b>	<b>4%</b>	<b>765</b>	<b>825</b>	<b>865</b>
Autocatalyst	2,990	3,105	3,215	4%	730	785	825
Non-road	135	145	160	10%	35	40	40
<b>Jewellery</b>	<b>2,945</b>	<b>2,990</b>	<b>3,085</b>	<b>3%</b>	<b>745</b>	<b>685</b>	<b>750</b>
<b>Industrial</b>	<b>1,510</b>	<b>1,565</b>	<b>1,645</b>	<b>5%</b>	<b>370</b>	<b>415</b>	<b>400</b>
Chemical	585	585	610	4%	160	145	155
Petroleum	75	105	150	43%	25	25	35
Electrical	190	190	195	3%	50	50	45
Glass	155	165	145	-12%	20	50	35
Medical & Biomedical	235	240	250	4%	50	70	60
Other	270	280	295	5%	65	75	70
<b>Investment</b>	<b>930</b>	<b>135</b>	<b>50</b>	<b>-63%</b>	<b>-180</b>	<b>-5</b>	<b>-20</b>
Change in Bars, Coins	-10	35			10	35	35
Change in ETF Holdings	905	215			-95	-30	-50
Change in Stocks Held by Exchanges	35	-115			-95	-10	-5
<b>Total Demand</b>	<b>8,510</b>	<b>7,940</b>	<b>8,155</b>	<b>3%</b>	<b>1,700</b>	<b>1,920</b>	<b>1,995</b>
<b>Balance</b>	<b>-670</b>	<b>-670</b>	<b>-190</b>	<b>-72%</b>	<b>260</b>	<b>-60</b>	<b>-160</b>
<b>Above Ground Stocks</b>	<b>4,140*</b>	<b>3,470</b>	<b>2,800</b>	<b>-7%</b>	<b>2,860</b>	<b>2,800</b>	<b>2,640</b>

Source: SFA (Oxford). \*As of 31st December 2012.

# PLATINUM QUARTERLY Q1 2015

## Regional demand (Table 2)

PLATINUM GROSS DEMAND (koz)	2013	2014	2015f	2015f/2014 Growth %	Q4 2014	Q1 2015	H1 2014	H2 2014
<b>Automotive</b>	<b>3,125</b>	<b>3,250</b>	<b>3,375</b>	<b>4%</b>	<b>825</b>	<b>865</b>	<b>1,660</b>	<b>1,590</b>
North America	420	450						
Western Europe	1,335	1,430						
Japan	575	580						
China	125	115						
India	160	160						
Rest of the World	510	515						
<b>Jewellery</b>	<b>2,945</b>	<b>2,990</b>	<b>3,085</b>	<b>3%</b>	<b>685</b>	<b>750</b>	<b>1,560</b>	<b>1,430</b>
North America	200	230						
Western Europe	220	220						
Japan	335	335						
China	1,990	1,965						
India	140	175						
Rest of the World	60	65						
<b>Chemical</b>	<b>585</b>	<b>585</b>	<b>610</b>	<b>4%</b>	<b>145</b>	<b>155</b>	<b>280</b>	<b>305</b>
North America	80	80						
Western Europe	50	50						
Japan	30	30						
China	165	180						
Rest of the World	260	245						
<b>Petroleum</b>	<b>75</b>	<b>105</b>	<b>150</b>	<b>43%</b>	<b>25</b>	<b>35</b>	<b>55</b>	<b>50</b>
North America	40	25						
Western Europe	-45	-15						
Japan	-30	5						
China	80	-5						
Rest of the World	30	95						
<b>Electrical</b>	<b>190</b>	<b>190</b>	<b>195</b>	<b>3%</b>	<b>50</b>	<b>45</b>	<b>90</b>	<b>100</b>
North America	20	20						
Western Europe	15	15						
Japan	20	20						
China	75	70						
Rest of the World	60	65						
<b>Glass</b>	<b>155</b>	<b>165</b>	<b>145</b>	<b>-12%</b>	<b>50</b>	<b>35</b>	<b>95</b>	<b>70</b>
North America	5	10						
Western Europe	-10	15						
Japan	0	-10						
China	80	60						
Rest of the World	80	90						
<b>Medical and Biomedical</b>	<b>235</b>	<b>240</b>	<b>250</b>	<b>4%</b>	<b>70</b>	<b>60</b>	<b>120</b>	<b>120</b>
North America	90	95						
Western Europe	90	90						
Japan	20	20						
China	15	15						
Rest of the World	20	20						
<b>Other industrial</b>	<b>270</b>	<b>280</b>	<b>295</b>	<b>5%</b>	<b>75</b>	<b>70</b>	<b>140</b>	<b>140</b>
<b>Investment</b>	<b>930</b>	<b>135</b>	<b>50</b>	<b>-63%</b>	<b>-5</b>	<b>-20</b>	<b>320</b>	<b>-185</b>
<b>Total Demand</b>	<b>8,510</b>	<b>7,940</b>	<b>8,155</b>	<b>3%</b>	<b>1,920</b>	<b>1,995</b>	<b>4,320</b>	<b>3,620</b>

Source: SFA (Oxford)

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## GLOSSARY OF TERMS

### Above ground stocks

The year-end estimate of the cumulative platinum holdings not associated with: exchange-traded funds, metal held by exchanges or working inventories of: mining producers, refiners, fabricators or end-users. Typically, unpublished vaulted metal holdings from which a supply-demand shortfall can be readily supplied or to which a supply-demand surplus can readily flow.

### Bharat Stage III/IV standards

Bharat Stage III is equivalent to Euro 3 emissions legislation. Introduced in 2005 in 12 major cities across India and enforced nationwide from April 2010. Bharat Stage IV is equivalent to Euro 4 emissions legislation. Introduced in 2010 in 14 major cities across India and set to be enforced nationwide from April 2017.

### Diesel particulate filter (DPF) and catalysed diesel particulate filter (CDPF)

A DPF physically filters particulates (soot) from diesel exhaust. A CDPF adds a PGM catalyst coating to facilitate oxidation and removal of the soot. The terms are often used interchangeably.

### Emissions legislation

Tailpipe regulations covering emissions of particulate matter, hydrocarbons and oxides of nitrogen.

### ETF

Exchange-traded fund. A security that tracks an index, commodity or basket of assets. Platinum ETFs included in demand are backed by physical metal.

### Euro V/VI emission standards

EU emission standards for heavy-duty vehicles. Euro V legislation was introduced in 2009 and Euro VI in 2013/2014; will be widely adopted later in other regions.

### Euro 5/6 emission standards

EU emission standards for light-duty vehicles. Euro 5 legislation was introduced in 2009 and Euro 6 in 2014/2015; will be widely adopted later in other regions.

### GTL

Gas-to-liquids is a refinery process that converts natural gas to liquid hydrocarbons such as gasoline or diesel fuel.

### HDD

Hard disk drive.

### HDV

Heavy-duty vehicle.

### koz

Thousand ounces.

### LCD

Liquid-crystal display used for video display.

### LCV

Light commercial vehicle.

### Lean NO<sub>x</sub> traps (LNT)

Rhodium-based, catalyses the chemical reduction of NO<sub>x</sub> in diesel engine exhaust to harmless nitrogen.

### moz

Million ounces.

### Net demand

A measure of the theoretical requirement for new metal, i.e. net of recycling.

### Non-road engines

Non-road engines are diesel engines used, for example, in construction, agricultural and mining equipment, using engine and emissions technology similar to on-road heavy-duty diesel vehicles.

### OECD

Organisation for Economic Co-operation and Development, consisting of 34 developed countries.

### oz

A unit of weight commonly used for precious metals. 1 troy ounce = 1.1 ounces.

### Paraxylene

A chemical produced from petroleum naphtha extracted from crude oil using a platinum catalyst. This is used in the production of terephthalic acid which is used to manufacture polyester.

### PDH

Propane dehydrogenation, where propane is converted to propylene.

### PGMs

Platinum-group metals.

### Refined production

Processed platinum output from refineries.

### Secondary supply

Recycling output.

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### **Selective catalytic reduction (SCR)**

PGM-free, converts harmful NO<sub>x</sub> in diesel exhaust to harmless nitrogen, via a tank of urea solution. Used in heavy-duty diesel vehicles, increasingly competes with LNT in light-duty diesel vehicles.

### **SGE**

Shanghai Gold Exchange.

### **Stage 4 regulations**

European emission standards implemented in 2014 for non-road diesel engines.

### **Three-way catalyst**

Used in gasoline cars to remove hydrocarbons, carbon monoxide and NO<sub>x</sub>. Largely palladium-based now, some rhodium.

### **Tier 4 stage**

Emissions standards phased in between 2008 and 2015 in the US for non-road vehicles.

### **WPIC**

The World Platinum Investment Council.

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### **Ounce conversion**

1 million ounces = 31.1 tonnes

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