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# PLATINUM QUARTERLY

## Q2 2015

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8th September 2015

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### FOREWORD

Today we publish the fourth in our *Platinum Quarterly* series analysing the supply and demand fundamentals of the global platinum market. We do so at a time when the headlines regarding precious metals, and the wider commodities sector, make for difficult reading.

It is also a time when the need for objective and independent insight is more crucial than ever, particularly for platinum investors who are currently weighing up a range of complex, and often conflicting, market issues. One such issue is the extent to which lower growth in China may reduce platinum demand. Despite current concerns we remain confident that the rate of urbanisation, long-term growth in disposable income and the effectiveness of jewellery promotion will continue to drive platinum jewellery sales and sales growth. However, while Chinese jewellery demand is a key component of global platinum demand growth, it is just one of a diverse and expanding set of demand segments.

Our targeted efforts to develop the investment market for platinum around the world gained added momentum with the recent arrival of our new director of market development. Additionally, in August, we published a report by Venmyn Deloitte, an independent research consultancy, examining the likely effects on supply of significantly reduced mining capital expenditure. We intend to publish additional research in the coming months, including objective analysis of the role and number of diesel cars on the road, as the essential lower CO<sub>2</sub> emissions benefits of diesel cars are maintained in the future powertrain mix.

Alongside this, we continue to support the efforts of others in the market including the Platinum Guild International (PGI) which has made great strides in stimulating platinum jewellery demand, particularly in India where platinum jewellery sales continue to climb. We are also encouraged by the news from South Africa regarding the promotion of platinum as a Central Bank reserve asset; this is an intelligent and analytically reinforced use for platinum that we support fully. We recently summarised our thoughts regarding platinum as a reserve asset in a short note that can be found on our website. While we are extremely supportive of such a move, we are mindful we are at an early stage in the discussion.

Focussing on today's *Platinum Quarterly* analysis from our research partners SFA (Oxford), we observe that the global platinum market continued to be in deficit in Q2 2015. The deficit was smaller than the deficit in Q1 2015 as the marked increase in investment demand was offset by increased South African mining supply and lower jewellery demand.

South African refined production in Q2 2015 rose to 1,080 koz as operational and safety performance improved, compared to the below par production of 890 koz in Q1 2015.

Platinum jewellery demand for Q2 2015 is estimated at 665 koz, an 11% decline in Q2 on Q1. Demand in China in Q2 2015 eased as expected without the benefit of Chinese New Year related sales and in conjunction with lower gold related footfall through stores.

The welcome increase in investment demand reflected higher bar and coin sales and the turnaround in ETF demand, from three quarters of net sales (-50 koz in Q1 2015) to net purchases of 45 koz.

The forecast full year 2015 global platinum market deficit has been revised to 445 koz from the 190 koz forecast in the Q1 2015 *Platinum Quarterly* owing to the sharp rise in investment demand in the second and third quarters.

Total supply in 2015 is forecast to increase by 9% to 7,910 koz, with higher South African production reflecting the recovery from the 2014 strikes.

Total 2015 demand is forecast to reach 8,355 koz, a 4% annual growth. This is primarily due to projected investment demand, which has been upwardly revised to 310 koz for the year. The continued growth in automotive, industrial and investment demand is set to offset a decline in jewellery demand in 2015 when compared to 2014. Autocatalyst demand in 2015 is forecast to grow by 5% to 3,445 koz for the year.

We hope you find this quarter's *Platinum Quarterly* supportive to your efforts to assess and better understand the platinum market, and ultimately make better informed investment decisions. As always, we welcome your thoughts regarding additional insights and research that the WPIC can initiate in the coming months.

Paul Wilson, CEO

# PLATINUM QUARTERLY Q2 2015

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

| SUPPLY  | 2013          | 2014         | 2015f        | 2015f/2014<br>Growth % | Q1 2015        | Q2 2015        |
|---|---------------|--------------|--------------|------------------------|----------------|----------------|
| <b>Refined Production</b>                       | <b>6,070</b>  | <b>4,880</b> | <b>5,730</b> | <b>17%</b>             | <b>1,315</b>   | <b>1,535</b>   |
| South Africa                                    | 4,355         | 3,115        | 4,040        | 30%                    | 890            | 1,080          |
| Zimbabwe  | 405           | 405          | 390          | -4%                    | 95             | 115            |
| North America                                   | 355           | 400          | 385          | -4%                    | 100            | 100            |
| Russia  | 740           | 740          | 705          | -5%                    | 180            | 190            |
| Other   | 215           | 220          | 210          | -5%                    | 50             | 50             |
| Increase (-)/Decrease (+) in Producer Inventory | -215          | +350         | +115         | -67%                   | +45            | -15            |
| <b>Total Mining Supply</b>                      | <b>5,855</b>  | <b>5,230</b> | <b>5,845</b> | <b>12%</b>             | <b>1,360</b>   | <b>1,520</b>   |
| <b>Recycling</b>                                | <b>1,985</b>  | <b>2,005</b> | <b>2,065</b> | <b>3%</b>              | <b>435</b>     | <b>465</b>     |
| Autocatalyst                                    | 1,120         | 1,255        | 1,380        | 10%                    | 315            | 300            |
| Jewellery                                       | 855           | 740          | 680          | -8%                    | 120            | 165            |
| Industrial                                      | 10            | 10           | 5            | -50%                   | 0              | 0              |
| <b>Total Supply</b>                             | <b>7,840</b>  | <b>7,235</b> | <b>7,910</b> | <b>9%</b>              | <b>1,795</b>   | <b>1,985</b>   |
| <b>DEMAND</b>                                   |               | <b>2014</b>  | <b>2015f</b> |                        | <b>Q1 2015</b> | <b>Q2 2015</b> |
| <b>Automotive</b>                               | <b>3,165</b>  | <b>3,295</b> | <b>3,445</b> | <b>5%</b>              | <b>880</b>     | <b>875</b>     |
| Autocatalyst                                    | 3,030         | 3,150        | 3,295        | 5%                     | 845            | 835            |
| Non-road  | 135           | 145          | 150          | 3%                     | 35             | 40             |
| <b>Jewellery</b>                                | <b>2,945</b>  | <b>2,990</b> | <b>2,940</b> | <b>-2%</b>             | <b>750</b>     | <b>665</b>     |
| <b>Industrial</b>                               | <b>1,545</b>  | <b>1,585</b> | <b>1,660</b> | <b>5%</b>              | <b>415</b>     | <b>400</b>     |
| Chemical  | 605           | 580          | 600          | 3%                     | 160            | 150            |
| Petroleum                                       | 75            | 105          | 170          | 62%                    | 40             | 40             |
| Electrical                                      | 190           | 190          | 185          | -3%                    | 45             | 45             |
| Glass   | 155           | 165          | 145          | -12%                   | 35             | 20             |
| Medical & Biomedical                            | 235           | 240          | 250          | 4%                     | 60             | 70             |
| Other   | 285           | 305          | 310          | 2%                     | 75             | 75             |
| <b>Investment</b>                               | <b>930</b>    | <b>150</b>   | <b>310</b>   | <b>107%</b>            | <b>-20</b>     | <b>100</b>     |
| Change in Bars, Coins                           | -10           | 50           |              |                        | 35             | 60             |
| Change in ETF Holdings                          | 905           | 215          |              |                        | -50            | 45             |
| Change in Stocks Held by Exchanges              | 35            | -115         |              |                        | -5             | -5             |
| <b>Total Demand</b>                             | <b>8,585</b>  | <b>8,020</b> | <b>8,355</b> | <b>4%</b>              | <b>2,025</b>   | <b>2,040</b>   |
| <b>Balance</b>                                  | <b>-745</b>   | <b>-785</b>  | <b>-445</b>  | <b>-43%</b>            | <b>-230</b>    | <b>-55</b>     |
| <b>Above Ground Stocks</b>                      | <b>4,140*</b> | <b>3,395</b> | <b>2,610</b> | <b>-17%</b>            | <b>2,380</b>   | <b>2,325</b>   |

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

Notes: 1 All estimates are based on the latest available information. They 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 both Q3 and Q4 2014 are included in the table on page 10 (supply, demand and above ground stocks).

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.



**2015 SECOND QUARTER PLATINUM MARKET REVIEW**

The platinum market had a deficit of 55 koz in the second quarter (Chart 1). This was smaller than the revised 230 koz deficit in the first quarter (Chart 2) owing to improved mine supply, a recovery in jewellery recycling from a weak first quarter and lower jewellery demand. In the first quarter mine supply and recycling were slightly lower than estimated in the Q1'15 *Platinum Quarterly* and automotive and industrial demand were slightly higher.

In Q2'15 total supply increased by 11% quarter-on-quarter to 1,985 koz as both secondary supply and total mine supply increased from the first quarter. Total mining supply improved by 160 koz to 1,520 koz in Q2 quarter-on-quarter due to improved output from South Africa, Zimbabwe and Russia. A recovery in jewellery recycling more than offset slightly lower secondary supply from scrapped autocatalysts. Total demand rose 15 koz quarter-on-quarter as lower jewellery, industrial and automotive demand was more than offset by the return of growth in investor holdings of Exchange Traded Funds (ETFs).

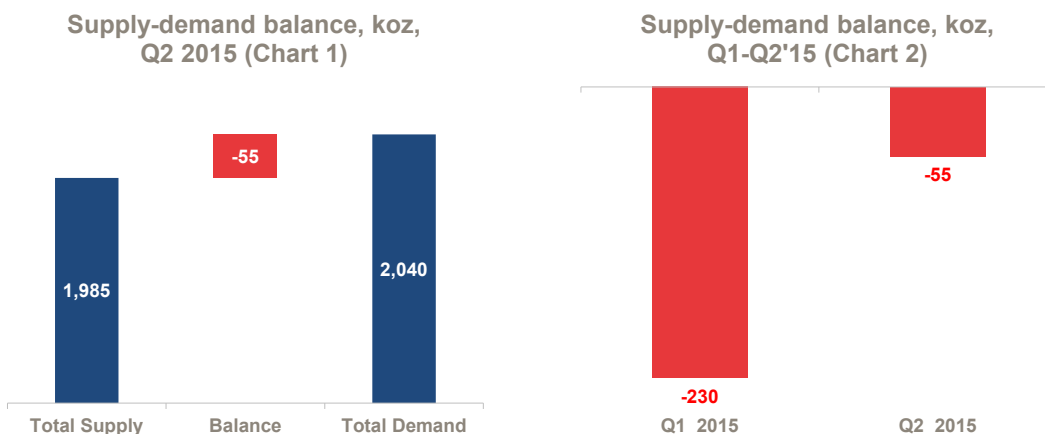
**Supply**

Refined production for Q2'15 is estimated at 1,535 koz, an increase of 220 koz (+17%) on a revised Q1'15. Q1 output was below expectations, primarily following deterioration in safety performance at a number of operations, although the reduction in refined supply was offset to some extent by an increase in producer inventory sales. Q2 production increased in response to improved mine operational and safety performance and beneficial pipeline movements. Total mining supply increased by an estimated 160 koz (+12%) to 1,520 koz in Q2'15. The bulk of the increase came from South African mines but Zimbabwe and Russia also lifted output.

Platinum from recycled scrapped autocatalysts was 300 koz in second quarter, down 5% compared to Q1'15. The reduction in autocatalyst collection rates as a result of low metal prices observed in the US in Q1 and Q2 was also observed in Europe and other regions in the second quarter.

The low scrap metal price for steel has led to a reduction in end of life vehicles reaching scrap yards. In addition the decline in PGM prices has led to collectors holding back some catalysts hoping that prices recover. Cash flow and working capital considerations usually result in this material being processed within three months of being held back due to a material price fall. However, if PGM prices recover this material could quickly flow through to refiners.

Jewellery recycling recovered to 165 koz in the second quarter following a very weak first quarter in both Japan and China.



Source: SFA (Oxford)

**Demand**

Automotive demand for platinum in exhaust aftertreatment has remained robust, at 875 koz for Q2'15, essentially level with Q1'15. Demand remains strong from the main markets of Western Europe and the US.

Vehicle sales have been strong so far in 2015 and the growth in forecast sales (LMC Automotive) for Western Europe is higher for 2015 (+7% year-on-year) than for 2014 (+5% year-on-year). In most other major regions growth rates this year are lower than in 2014. Germany overall remains the largest market and saw H1 2015 sales up by 81,000 units (+5%) year-on-year, while the slightly smaller UK market was

up 90,000 units (+7%) year-on-year. sales in the much smaller markets of Italy and Spain were up 112,000 units (+15%) and 100,000 units (+22%) year-on-year respectively.

Platinum jewellery demand in the second quarter is estimated at 665 koz, an 11% decline quarter-on-quarter. Consumer demand decreased in several regions during the quarter despite the lower platinum price.

Jewellery demand in China eased in Q2 partly due to the lack of a similar boost that Q1 received from New Year sales and partly due to lower footfall through stores, although platinum jewellery sales held up better than gold. Independent stores appear to have been harder hit than the major retailers. The lower footfall was associated with reduced demand for gold jewellery and the ongoing clampdown on the use of gold for unofficial gifting.

Leading jewellery retailers are continuing to expand their chains. Chow Tai Fook has announced it will expand its retail jewellery outlets by 150 to 160 stores (~8%) in its current financial year. Platinum trading on the Shanghai Gold Exchange in Q2 increased 17% quarter-on-quarter with June seeing the largest turnover this year and indicating that fabricators have continued to take advantage of the falling price to acquire inventory. However, on a year-on-year basis turnover was down 14% in the first half of the year. This decline is more in line with the propensity of Chinese consumers to increase purchasing in a rising price environment.

In India retail sales in the second quarter continued in line with the annual growth trend. Platinum Guild International's (PGI) *Evara* bridal jewellery programme is gaining traction and sales should improve further once the wedding season gets under way in the autumn.

Retail jewellery sales in Japan were the same in Q2'15 and Q1'15 although sales in the first half of 2015 were lower than in the first half of 2014 which benefitted from an increase in sales tax in April 2014. The tax brought some purchases forward from H2 into H1 of 2014.

In the US second quarter retail jewellery sales were sluggish but platinum jewellery was the bright spot outperforming other jewellery as lower prices attracted more buyers.

Platinum requirements for industrial end-uses declined by an estimated 4% (15 koz) quarter-on-quarter to 400 koz in Q2'15, with lower demand from the glass and chemical sectors. Demand for new plants and expansions from Chinese glass fabricators was lower in the quarter due to the timing of new plant construction, whilst chemical sector consumption decreased in North America, Western Europe and Japan for the same reason.

The second quarter saw a resumption of investor interest in Exchange Traded Funds (ETFs) with net purchases of 45 koz after three quarters of net sales. The majority of the gains were in the two South African funds which increased their holdings by a combined 60 koz. In Europe ETF holdings saw a larger decline in Q2'15 than in Q1'15, falling by 30 koz, as a reduction in UK funds' holdings of 38 koz was only partially offset by a return to net purchases of Swiss funds of 8 koz. In the US investors moved from being net sellers in Q1'15 to modest net purchasers in Q2'15, increasing their ETF holdings by 9 koz. Interest continued in the Japanese ETF which gained 8 koz after adding 11 koz in Q1'15.

Bar and coin purchases totalled 60 koz in Q2'15 as bar purchases increased from the previous quarter, while coin buying remained subdued. Japanese investors increased their bar purchases as they continued to take advantage of the declining price in US\$ terms.

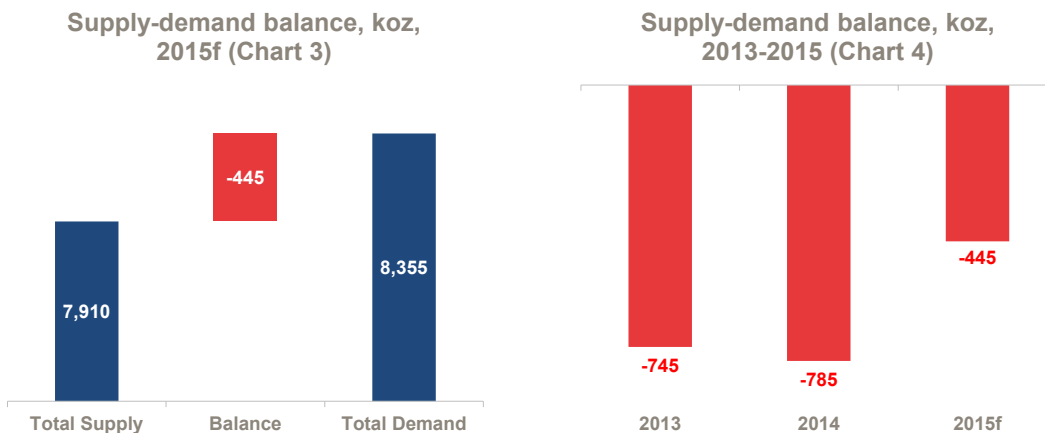
NYMEX exchange stocks declined by 5 koz in Q2'15, a similar amount to the first quarter, as net long positioning on NYMEX was reduced during the quarter.

## 2015 FULL-YEAR FORECAST

The global platinum market is forecast to have a supply-demand deficit of 445 koz in 2015. This is a significantly wider deficit than forecast in the Q1 2015 *Platinum Quarterly* report. The largest adjustment has been to projected investment demand which has been upwardly revised by 260 koz to 310 koz for the year because Japanese bar purchases have accelerated as the price has fallen and ETF buying, which turned positive in the second quarter, has been substantial in South Africa in the third quarter. Global jewellery demand for this year has been revised down by 145 koz due to a less favourable outlook in China, but this has been largely offset by a reduction to supply and improvements in other demand areas.

Total supply is expected to increase by 9% to 7,910 koz this year with South African production recovering by 30% (925 koz) from the strike affected 2014 to just over 4 moz and overall recycling increasing by 3%. Secondary supply from autocatalyst recycling is expected to expand by 10%, (125 koz) more than offsetting the decline in jewellery recycling of 8% (60 koz) caused by lower prices and declining jewellery sales in China.

Total demand is forecast to reach 8,355 koz in 2015, representing 4% annual growth. Automotive demand is forecast to grow by 5% to 3,445 koz with growth in both on- and off-road applications. Global jewellery demand is expected to slip 2% to 2,940 koz as growth in Western Europe, North America and India is more than offset by the forecast decline in Chinese purchases. Although platinum jewellery sales have held up far better than those of gold it is unknown to what extent the reduced rate of growth in China's economy will impact the sentiment of jewellery consumers.

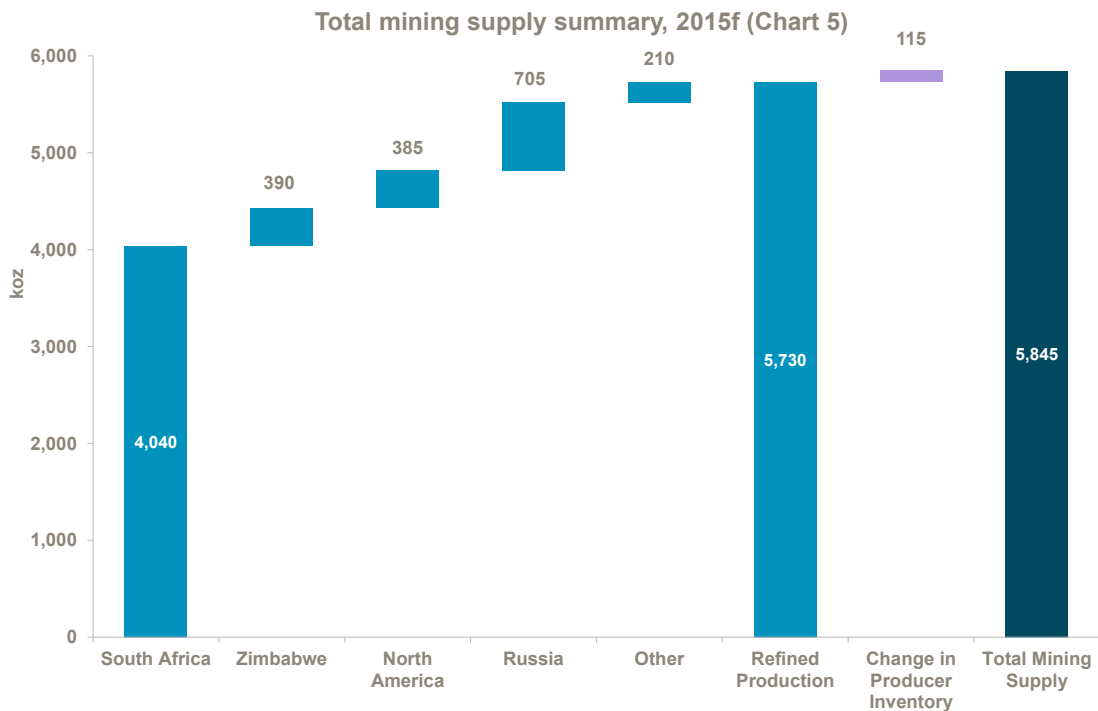


Source: SFA (Oxford)

### Mine supply

The refined production forecast for 2015 totals 5,730 koz (Chart 5), an increase of 850 koz on strike-hit 2014. South African production increases by 925 koz year-on-year to 4,040 koz, while guidance revisions, induced by low PGM prices, for operations in the rest of the world have reduced the production forecast by 75 koz to 1,690 koz. Total mining supply increases from 5,230 koz in 2014 to 5,845 koz in 2015, with supply from producer inventories decreasing by 235 koz year-on-year to 115 koz.

Estimated refined production for H1 2015 totalled 2,850 koz and the second half of the year is expected to see slightly higher output (+1%). South African production is expected to increase by 5% in the second half, but this will likely be offset by lower output in other regions as production targets have been reduced.



Source: SFA (Oxford)

**Recycling**

Globally supply from recycled platinum is projected to expand by 3% to 2,065 koz this year. Platinum recovered from spent autocatalyst is forecast to be 1,380 koz in 2015, a 10% increase on 2014. The trend in increasing recycled platinum is driven by both an increasing number of cars being scrapped and higher loadings in the recovered autocatalysts. The decline in metal prices that impacted collection rates in the first half of the year is expected to reverse, leading to improved collection rates and a return of withheld material from collectors. Jewellery recycling, which is expected to decline 8% to 680 koz, is being negatively impacted by reduced sales volumes in China and also lower prices reducing recycling in Japan.

**Total demand**

Total demand is expected to expand by 3% to 8,355 koz this year as growth in automotive, industrial and investment demand more than offset the decline in jewellery demand (Chart 6). The forecast has been increased by 200 koz from the previous *Platinum Quarterly* report in May as increases in projected investment, automotive and industrial demand more than offset the expected decrease in jewellery demand.

**Automotive demand**

**-Autocatalyst**

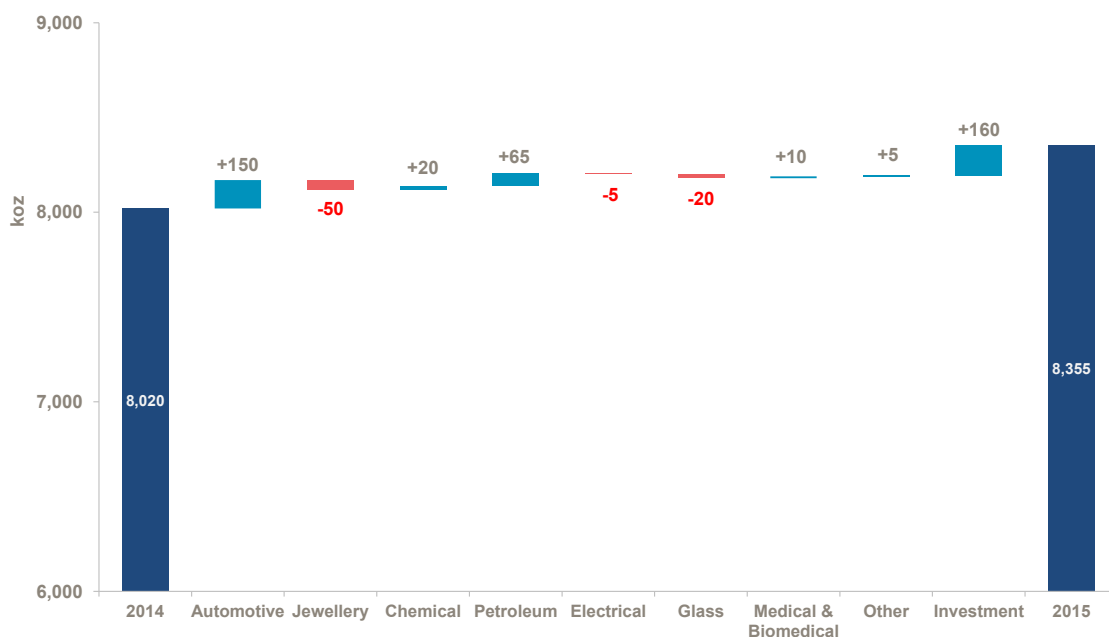
Autocatalyst demand is forecast to grow by 5% to 3,445 koz, for the year as vehicle production remains strong in platinum’s main markets. Western European (the largest light duty diesel market, where platinum autocatalyst use is highest) car sales were up by 8% (>500,000 units) in H1 2015, ahead of the global gasoline (palladium-dominated) market which was up just 1%. While diesel car sales, especially in France and to a lesser extent the UK, may have been affected by negative publicity, diesel’s share of the light duty vehicle market appears to be declining quite gradually and in terms of platinum demand is being offset by the overall growth in vehicle numbers. Western European light duty vehicle production is forecast to reach 13.57 m units for the full year 2015, up from 13.22 m units in 2014.

The ongoing gradual shift in popularity of diesel powertrains is greatest in France; French diesel shares have historically been among Europe’s highest, from a peak of 72% of light vehicles in 2012 this has fallen to 59% in 2015. France only represents about 12% of the 2015 Western European car market though, while diesel’s popularity in the largest market, Germany, is more stable, as it is in the UK. Diesel remains

an important part of most automakers' technology portfolio to reduce carbon dioxide emissions from vehicles, considered by most legislating authorities to be at least as important as other vehicle emissions.

In Western Europe, the leading market comprising almost half of light duty autocatalyst demand, the introduction of Euro 6 light duty emissions legislation across all models is almost complete (September 2015). This supports ongoing platinum demand with the fitting of platinum-rich diesel particulate filters (DPFs) across the board, and the use of platinum-containing and rhodium-containing lean NO<sub>x</sub> traps (LNTs) in a significant minority of diesel cars.

Changes in demand by category, 2015f vs. 2014 (Chart 6)



Source: SFA (Oxford)

**-Non-road engine catalyst**

Platinum demand for non-road vehicle autocatalysts is predicted to climb by 3% (5 koz) to 150 koz in 2015, owing to the implementation of Stage IV and final Tier 4 regulations in Europe and the US, respectively. Non-road production is also expected to grow in North America, increasing the number of engines required to comply with the latest emissions standards. However, non-road platinum demand estimates for 2015 are slightly lower than previously forecast following a downward revision to the production forecasts for North America and Western Europe.

**Jewellery demand**

Jewellery fabricator demand in 2015 is forecast to be 2,940 koz, a 2% decline from 2,990 koz in 2014. The forecast has been reduced by 145 koz from the Q1 2015 *Platinum Quarterly* report largely owing to a reduction in the forecast for Chinese demand.

Retail sales in China were weaker than anticipated in the first half of the year and retail sales for the year are now expected to decline by around 3% compared to 2014. As China represents approximately two thirds of global jewellery demand, this decline more than offsets the gains anticipated in other regions. Some of the decline was due to lower, gold related, footfall in stores although platinum jewellery fared better than gold. Marriage registrations have been lower in the first half of the year than in the same period in 2014 and if this trend continues then bridal jewellery (~30% of the market) could underperform expectations. Independent stores have seen more of a slowdown in sales than the leading retail chains which continue to open new outlets in Tier 2 and Tier 3 cities.

India is currently the fastest growing jewellery market, with retail sales of platinum jewellery projected to rise by at least 25% in 2015. PGI's *Evara* bridal programme has been well received and platinum jewellery demand has seen robust growth in the first half of the year which has led to an upward revision in the

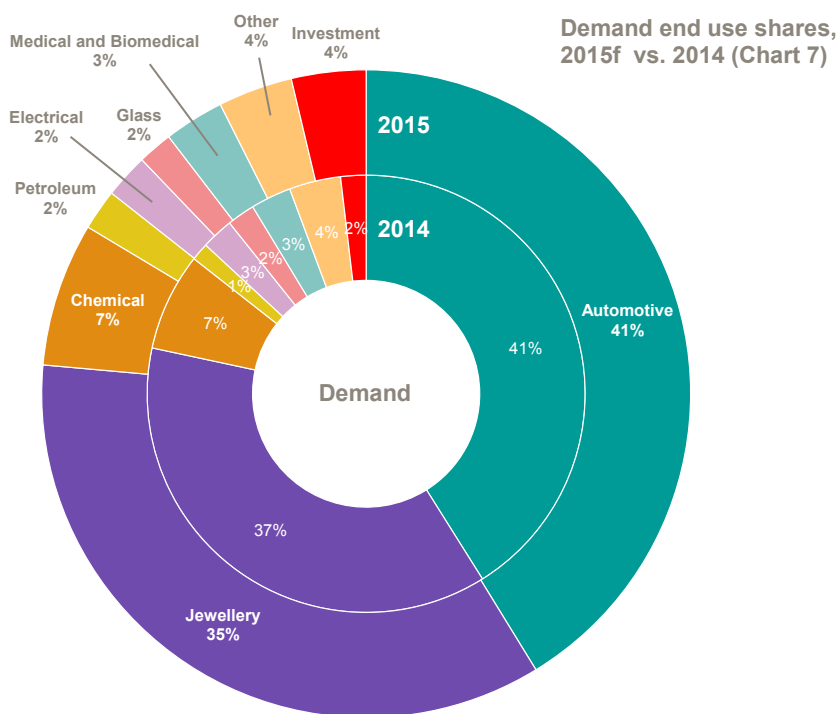


annual demand forecast. The summer months are typically a quieter period for jewellery demand in India but once the wedding season gets underway in the autumn this will lift demand further.

The weaker yen and limited wage growth has kept Japanese consumers cautious. Retail sales are expected to be slightly down year-on-year in 2015.

North American retail sales growth is expected to be 7% in 2015. Platinum jewellery has performed better than other jewellery with lower prices making it more affordable and attracting a wider range of customers.

Demand end-use shares for 2015 forecast versus 2014 are shown in Chart 7.



Source: SFA (Oxford)

**Industrial demand**

Platinum requirements for industrial end-uses are projected to rise by an estimated 5% year-on-year (75 koz) to 1,660 koz in 2015, mainly owing to greater consumption by the petroleum (65 koz) and chemical (20 koz) sectors. Steady demand growth is also anticipated for the medical and biomedical industry (10 koz) and other end-uses (5 koz), although declining demand from the glass (-20 koz) and electrical (-5 koz) sectors is expected to curb overall growth.

Regionally, North America (40 koz) is set to account for the majority of industrial demand growth this year, supported by higher consumption in China (15 koz), Japan (10 koz) and the RoW (10 koz). Western Europe’s demand is forecast to remain flat. The petroleum sector is expected to be the main growth industry for platinum in both North America and China.

**-Chemical**

Chemical sector demand for platinum is forecast to increase by 3% (20 koz) to 600 koz this year, mostly driven by growth in the RoW. Greater consumption in North America will most likely be offset by slightly lower requirements in China, whilst demand in Western Europe and Japan is set to remain flat year-on-year. Higher consumption by nitric acid producers is expected to account for most of the growth in the RoW. Propane dehydrogenation (PDH) is likely to be the main growth area on an end-use basis, with new plants starting up in China, North America and the RoW in 2015, closely followed by nitric acid production.



However, platinum demand for paraxylene production is expected to decrease this year, owing to slower capacity growth, particularly in China and the RoW.

### **-Petroleum**

Platinum consumption by the petroleum industry is predicted to grow by 65 koz to 170 koz in 2015, boosted by greater usage in North America and China. Refining capacity is expected to increase in both regions this year, as well as in the RoW, with growth in these areas considerably outweighing capacity cuts in Western Europe and Japan. Refinery closures in Western Europe are not likely to be as severe as previously forecast for 2015, with many units improving margins and some planned shutdowns being stretched out over the next 18 months. Despite this, net demand in the region is still predicted to be negative again this year. Following capacity growth last year, gas-to-liquids (GTL) demand in the RoW is set to drop back to normal levels, negating the higher platinum requirements for the expanding refinery capacity in the region.

### **-Electrical**

Platinum demand for use in electrical devices is projected to fall by 3% year-on-year to 185 koz, owing to lower consumption by hard disk drive (HDD) manufacturers. Following the decline in HDD shipments during the first half of this year versus 2014, the full-year estimate for 2015 has been revised downwards and shipments are now expected to decrease by 5% year-on-year, assuming a strong recovery in H2'15. Lower laptop and desktop PC HDD shipments accounted for much of the overall decline in H1'15, as consumer demand weakened and retailers reduced PC inventories ahead of new technology releases in the latter half of the year. Traditionally, shipments are higher in H2 than H1 and platinum demand is forecast to strengthen in the second half of 2015.

### **-Glass**

Glass sector platinum requirements are expected to shrink by 12% (20 koz) to 145 koz in 2015, as fewer new plants are anticipated to be commissioned in China and the RoW compared to last year. Plant closures at the end of 2014 and during 2015 are also likely to reduce new metal buying in North America and Western Europe. However, platinum demand for glass plants should pick up during the second half of the year, ahead of several new facilities set to open in Q1'16, particularly in the RoW.

### **-Other**

Demand for platinum for other industrial end-uses is forecast to grow by an estimated 2% year-on-year to 310 koz this year, owing to slightly higher consumption by the fuel cell sector, which should outweigh lower platinum requirements for turbine blade manufacture. China and Japan are expected to be the main growth areas, underpinned by rising platinum demand for vehicle sensors and fuel cells, respectively.

### **Investment demand**

Investment is forecast to take up 310 koz of platinum in 2015. This is a significant upward revision from the 50 koz previously projected. The fall in the platinum price in the second quarter resulted in a surge in bar buying in Japan and a resumption of ETF demand that has carried through into the third quarter.

## **ABOVE GROUND STOCKS**

Above-ground stocks reduced by 55 koz to 2,325 koz at the end of the second quarter.

Above-ground stocks are expected to decline to 2,165 koz at the end of 2015, a 17% reduction compared to the end of 2014. The 2015 year-end stock estimate is lower than forecast in the Q1'15 report, owing to the wider market deficit that is now anticipated for the year and the lower starting point as a result of revisions to 2014 estimates. The anticipated market deficit this year has been raised to 445 koz from 190 koz in the previous report primarily owing to an increase in expected investment demand (+260 koz).

# PLATINUM QUARTERLY Q2 2015

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

| SUPPLY   | 2013          | 2014         | 2015f        | 2015f/2014<br>Growth % | Q3 2014        | Q4 2014        | Q1 2015        | Q2 2015        |
|--|---------------|--------------|--------------|------------------------|----------------|----------------|----------------|----------------|
| <b>Refined Production</b>                            | <b>6,070</b>  | <b>4,880</b> | <b>5,730</b> | <b>17%</b>             | <b>1,320</b>   | <b>1,420</b>   | <b>1,315</b>   | <b>1,535</b>   |
| South Africa   | 4,355         | 3,115        | 4,040        | 30%                    | 870            | 980            | 890            | 1,080          |
| Zimbabwe   | 405           | 405          | 390          | -4%                    | 95             | 95             | 95             | 115            |
| North America  | 355           | 400          | 385          | -4%                    | 105            | 115            | 100            | 100            |
| Russia   | 740           | 740          | 705          | -5%                    | 200            | 175            | 180            | 190            |
| Other  | 215           | 220          | 210          | -5%                    | 50             | 55             | 50             | 50             |
| <b>Change (-)/Decrease (+) in Producer Inventory</b> | <b>-215</b>   | <b>+350</b>  | <b>+115</b>  | <b>-67%</b>            | <b>+65</b>     | <b>-40</b>     | <b>+45</b>     | <b>-15</b>     |
| <b>Total Mining Supply</b>                           | <b>5,855</b>  | <b>5,230</b> | <b>5,845</b> | <b>12%</b>             | <b>1,385</b>   | <b>1,380</b>   | <b>1,360</b>   | <b>1,520</b>   |
| <b>Recycling</b>                                     | <b>1,985</b>  | <b>2,005</b> | <b>2,065</b> | <b>3%</b>              | <b>570</b>     | <b>475</b>     | <b>435</b>     | <b>465</b>     |
| Autocatalyst   | 1,120         | 1,255        | 1,380        | 10%                    | 365            | 305            | 315            | 300            |
| Jewellery  | 855           | 740          | 680          | -8%                    | 200            | 170            | 120            | 165            |
| Industrial   | 10            | 10           | 5            | -50%                   | 5              | 0              | 0              | 0              |
| <b>Total Supply</b>                                  | <b>7,840</b>  | <b>7,235</b> | <b>7,910</b> | <b>9%</b>              | <b>1,955</b>   | <b>1,855</b>   | <b>1,795</b>   | <b>1,985</b>   |
| <b>DEMAND</b>  |               | <b>2014</b>  | <b>2015f</b> |                        | <b>Q3 2014</b> | <b>Q4 2014</b> | <b>Q1 2015</b> | <b>Q2 2015</b> |
| <b>Automotive</b>                                    | <b>3,165</b>  | <b>3,295</b> | <b>3,445</b> | <b>5%</b>              | <b>775</b>     | <b>830</b>     | <b>880</b>     | <b>875</b>     |
| Autocatalyst   | 3,030         | 3,150        | 3,295        | 5%                     | 740            | 795            | 845            | 835            |
| Non-road   | 135           | 145          | 150          | 3%                     | 35             | 35             | 35             | 40             |
| <b>Jewellery</b>                                     | <b>2,945</b>  | <b>2,990</b> | <b>2,940</b> | <b>-2%</b>             | <b>750</b>     | <b>685</b>     | <b>750</b>     | <b>665</b>     |
| <b>Industrial</b>                                    | <b>1,545</b>  | <b>1,585</b> | <b>1,660</b> | <b>5%</b>              | <b>375</b>     | <b>415</b>     | <b>415</b>     | <b>400</b>     |
| Chemical   | 605           | 580          | 600          | 3%                     | 160            | 135            | 160            | 150            |
| Petroleum  | 75            | 105          | 170          | 62%                    | 25             | 25             | 40             | 40             |
| Electrical   | 190           | 190          | 185          | -3%                    | 50             | 50             | 45             | 45             |
| Glass  | 155           | 165          | 145          | -12%                   | 20             | 50             | 35             | 20             |
| Medical & Biomedical                                 | 235           | 240          | 250          | 4%                     | 50             | 70             | 60             | 70             |
| Other  | 285           | 305          | 310          | 2%                     | 70             | 85             | 75             | 75             |
| <b>Investment</b>                                    | <b>930</b>    | <b>150</b>   | <b>310</b>   | <b>107%</b>            | <b>-180</b>    | <b>-5</b>      | <b>-20</b>     | <b>100</b>     |
| Change in Bars, Coins                                | -10           | 50           |              |                        | 10             | 35             | 35             | 60             |
| Change in ETF Holdings                               | 905           | 215          |              |                        | -95            | -30            | -50            | 45             |
| Change in Stocks Held by Exchanges                   | 35            | -115         |              |                        | -95            | -10            | -5             | -5             |
| <b>Total Demand</b>                                  | <b>8,585</b>  | <b>8,020</b> | <b>8,355</b> | <b>4%</b>              | <b>1,720</b>   | <b>1,925</b>   | <b>2,025</b>   | <b>2,040</b>   |
| <b>Balance</b>                                       | <b>-745</b>   | <b>-785</b>  | <b>-445</b>  | <b>-43%</b>            | <b>235</b>     | <b>-70</b>     | <b>-230</b>    | <b>-55</b>     |
| <b>Above Ground Stocks</b>                           | <b>4,140*</b> | <b>3,395</b> | <b>2,610</b> | <b>-17%</b>            | <b>2,680</b>   | <b>2,610</b>   | <b>2,380</b>   | <b>2,325</b>   |

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

# PLATINUM QUARTERLY Q2 2015

## Regional demand (Table 2)

| PLATINUM GROSS DEMAND (koz)   | 2013         | 2014         | 2015f        | 2015f/2014<br>Growth % | Q1 2015      | Q2 2015      | H2 2014      | H1 2015      |
|-------------------------------|--------------|--------------|--------------|------------------------|--------------|--------------|--------------|--------------|
| <b>Automotive</b>             | <b>3,165</b> | <b>3,295</b> | <b>3,445</b> | <b>5%</b>              | <b>880</b>   | <b>875</b>   | <b>1,605</b> | <b>1,755</b> |
| North America                 | 425          | 470          |              |                        |              |              |              |              |
| Western Europe                | 1,350        | 1,440        |              |                        |              |              |              |              |
| Japan                         | 585          | 590          |              |                        |              |              |              |              |
| China                         | 125          | 115          |              |                        |              |              |              |              |
| India                         | 160          | 160          |              |                        |              |              |              |              |
| Rest of the World             | 520          | 520          |              |                        |              |              |              |              |
| <b>Jewellery</b>              | <b>2,945</b> | <b>2,990</b> | <b>2,940</b> | <b>-2%</b>             | <b>750</b>   | <b>665</b>   | <b>1,430</b> | <b>1,415</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>605</b>   | <b>580</b>   | <b>600</b>   | <b>3%</b>              | <b>160</b>   | <b>150</b>   | <b>295</b>   | <b>310</b>   |
| North America                 | 85           | 80           |              |                        |              |              |              |              |
| Western Europe                | 50           | 50           |              |                        |              |              |              |              |
| Japan                         | 30           | 30           |              |                        |              |              |              |              |
| China                         | 170          | 180          |              |                        |              |              |              |              |
| Rest of the World             | 270          | 240          |              |                        |              |              |              |              |
| <b>Petroleum</b>              | <b>75</b>    | <b>105</b>   | <b>170</b>   | <b>62%</b>             | <b>40</b>    | <b>40</b>    | <b>50</b>    | <b>80</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>185</b>   | <b>-3%</b>             | <b>45</b>    | <b>45</b>    | <b>100</b>   | <b>90</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>35</b>    | <b>20</b>    | <b>70</b>    | <b>55</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>60</b>    | <b>70</b>    | <b>120</b>   | <b>130</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>285</b>   | <b>305</b>   | <b>310</b>   | <b>2%</b>              | <b>75</b>    | <b>75</b>    | <b>155</b>   | <b>150</b>   |
| <b>Investment</b>             | <b>930</b>   | <b>150</b>   | <b>310</b>   | <b>107%</b>            | <b>-20</b>   | <b>100</b>   | <b>-185</b>  | <b>80</b>    |
| <b>Total Demand</b>           | <b>8,585</b> | <b>8,020</b> | <b>8,355</b> | <b>4%</b>              | <b>2,025</b> | <b>2,040</b> | <b>3,640</b> | <b>4,065</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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