

SUMMARY

PLATINUM

- The platinum market was in surplus by 285,000 oz in 2009. Gross demand fell by 11.9% to 7.04 million oz. Supplies fell by 0.3% to 5.92 million oz. Platinum recovery from recycling dropped 23.2% to 1.41 million oz.
- Gross autocatalyst demand for platinum decreased by 39.0% to a nine-year low of 2.23 million oz in 2009 with European demand particularly weak.
- Gross demand for platinum from the jewellery sector climbed by 950,000 oz to a total of 3.01 million oz in 2009 due to strong growth in the Chinese market.
- Industrial demand for platinum weakened by 33.7% to a total of 1.14 million oz in 2009.
- Identifiable physical investment demand rose by 18.9% to 660,000 oz in 2009 due to strong ETF investment.

Difficult economic conditions negatively affected demand for platinum in many sectors during 2009, driving gross demand 11.9 per cent lower to 7.04 million ounces. Supplies fell by only 20,000 oz to 5.92 million ounces despite the closure of some uneconomic mine production in South Africa. Although the weight of platinum recovered from open loop recycling also fell, to 1.41 million ounces, the platinum market was in oversupply by 285,000 oz during 2009.

Gross automotive demand for platinum decreased by 1.43 million ounces during 2009 to 2.23 million ounces. Global light duty vehicle output sank by 12.2 per cent as sales tumbled and auto makers cut their inventories of unsold vehicles. They also reduced their stocks of catalysts and metal. Gross demand for platinum fell in Japan, North America and the Rest of the World region, dropping from a combined 1.54 million ounces in 2008 to 1.13 million ounces. Manufacturers continued to switch to palladium-based technology on any gasoline vehicles where platinum-based catalysts were still in use. Even in China, where car production climbed strongly, this substitution of platinum by palladium in gasoline vehicles meant that platinum demand decreased.

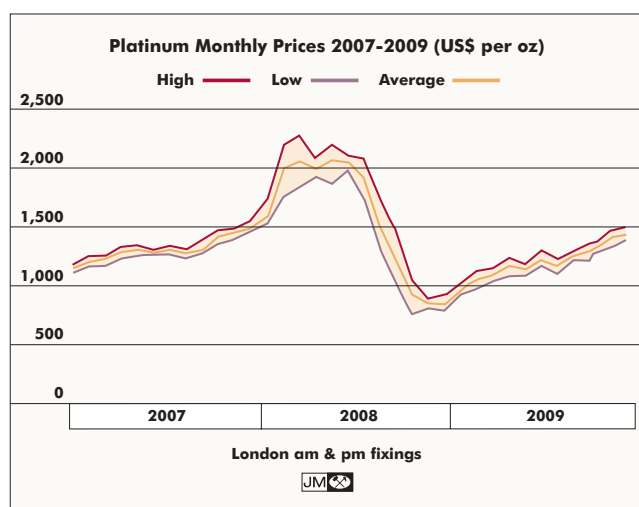
The largest fall in automotive demand came in Europe. Vehicle sales and production fell as in most other regions but the effect on platinum offtake was accentuated by a temporary decline in the market share of the diesel engine. Various national vehicle scrappage schemes supported sales of smaller, gasoline-fuelled vehicles rather than larger, diesel-powered ones which use platinum in their catalytic aftertreatment. The auto makers also continued to introduce palladium into diesel oxidation catalysts and particulate filters at the expense of some of the platinum previously used. As a result, gross European automotive demand for platinum decreased by one million ounces to 970,000 oz, its lowest level since 2000.

Much of the weakness in the global automotive markets was offset by a strong performance in the jewellery sector, where gross platinum demand increased by 46.1 per cent to 3.01 million ounces. In Europe and North America, the economic downturn reduced consumer spending and, with jewellery and watch retailers keen to minimise stocks costs due to a tightening of credit availability, gross demand fell in both regions to a combined 320,000 oz. The Japanese market performed fairly well in the first half

of the year before weakening as the price rose: gross demand here was almost static at 535,000 oz.

In China, though, a booming economy and the lower price of platinum reignited the jewellery market. Consumer purchasing rose and retailers rapidly expanded the amount of jewellery on offer. Manufacturers also took the opportunity to rebuild stock levels, adding further to demand. Increasing profit margins attracted a number of new participants at the manufacturing and retail levels, helping to drive Chinese gross demand to a record 2.08 million ounces. For more details, see our Special Feature on pages 34-35.

Gross industrial demand suffered in 2009 due to the weak global economy, falling by a third to 1.14 million ounces. Most industries were affected, with weak sales exacerbated by poor availability of credit to manufacturers, retailers and consumers.



The price of platinum recovered strongly in 2009, having collapsed by over fifty per cent in the second half of 2008.

In many sectors – just as in the automotive industry – this led to extended destocking throughout the supply chain, driving production levels far below even the poor rate of sales in the first half of 2009. In the electrical sector, gross demand for platinum fell from 230,000 oz to 190,000 oz as a result of this destocking despite some recovery in output in the second half of the year. In the chemical and petroleum refining industries, demand fell to 295,000 oz and 205,000 oz respectively as fewer new plants were built and requirements for top-up metal fell due to low plant utilisation rates.

Glass sector demand was particularly weak. The fragile economy affected sales of products such as flat screen televisions, and less new manufacturing capacity was installed than in 2008. As importantly, though, the success of LCD technology in capturing market share from traditional cathode ray tube (CRT) sets led to the closure of a number of CRT glass factories and the consequent release of a large amount of metal back to the market. Overall, glass sector demand for platinum slumped from 315,000 oz to only 10,000 oz.

Identifiable physical investment demand surged by 18.9 per cent to 660,000 oz last year. Japanese investors purchased 160,000 oz of platinum, a lower total than in 2008 despite a strong first quarter, as worries over the stability of the financial system dissipated. However, European Exchange Traded Fund (ETF) demand was particularly strong. ETF holdings increased throughout the year, leading to net demand of 385,000 oz in Europe and 5,000 oz in Australia. Although the launch of a US-based ETF was announced in late 2009, the launch itself did not take place until 2010 and it therefore did not contribute to demand last year.

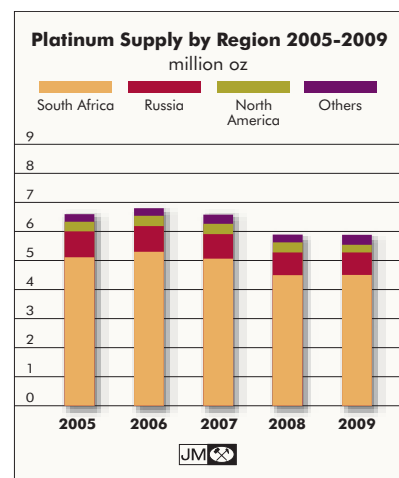
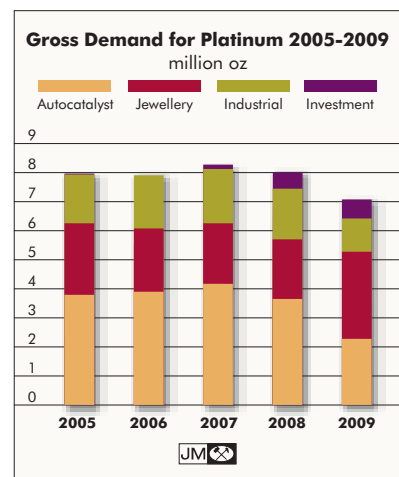
The weight of platinum recovered from open loop recycling of autocatalysts, electronics and jewellery fell from 1.83 million ounces in 2008 to 1.41 million ounces in 2009. Weak sales of new automobiles resulted in lower recycling of end-of-life vehicles despite scrappage schemes such as the US “Cash for Clunkers” plan, driving recycling of platinum from this source down to 830,000 oz – 300,000 oz lower than one year earlier. The recycling of jewellery decreased by 130,000 oz to 565,000 oz as a lower platinum price reduced the economic incentive for Japanese consumers to recycle old jewellery.

Platinum supplies from current mining fell marginally to 5.92 million ounces in 2009. In South Africa, three new mines started production but this was balanced by the closure of some existing production in response to the strength of the rand and the weakness of precious metals prices. Supplies from Lonmin declined due to the closure of some of its production at Marikana and the decision to place its Limpopo mine on care and maintenance. Impala's output fell due to industrial action and safety stoppages at its lease area. At Anglo Platinum, underlying production was flat but some metal was sold from stock and supplies rose. Total South African supplies of platinum increased by 15,000 oz to 4.53 million ounces.

Russian supplies of platinum fell by 20,000 oz to 785,000 oz as lower production at the alluvial mines more than offset a slight rise in output at Norilsk Nickel. Supplies from North America dropped to 260,000 oz largely due to lengthy industrial action at Vale Inco's Sudbury nickel operations. Only in Zimbabwe did output improve significantly: platinum supplies grew from 180,000 oz to 230,000 oz as both Mimoso and Ngezi continued to expand.

The price of platinum rose strongly throughout 2009 following its decline in late 2008. It began the year at \$934 and ended the year 57.0 per cent higher at \$1,466. Although industrial and automotive demand remained weak, strong Chinese jewellery demand provided good support for the price. As importantly, the US Dollar weakened against the Euro for much of the year, bolstering all commodity prices. The gold price climbed to record levels and investment flows into the commodity sector resumed, driving ETF holdings and net long speculative futures positions higher and boosting the price of platinum.

Platinum Supply and Demand '000 oz			
Supply	2007	2008	2009
South Africa	5,070	4,515	4,530
Russia	915	805	785
Others	615	620	605
Total Supply	6,600	5,940	5,920
Gross Demand			
Autocatalyst	4,145	3,655	2,230
Jewellery	2,110	2,060	3,010
Investment	170	555	660
Others	1,845	1,720	1,140
Total Gross Demand	8,270	7,990	7,040
Recycling	(1,590)	(1,830)	(1,405)
Total Net Demand	6,680	6,160	5,635
Movements in Stocks	(80)	(220)	285



PALLADIUM

- Palladium was in surplus by 760,000 oz during 2009. Gross demand fell by 6.3% to 7.77 million oz. Supplies of palladium dropped by 2.9% to 7.10 million oz. Palladium recovery from recycling fell by 11.5% to 1.43 million oz.
- Gross automotive sector demand for palladium fell by 9.3% to 4.05 million oz in 2009 with demand growing in China but falling elsewhere.
- Gross palladium jewellery demand fell by 17.3% to 815,000 oz in 2009 due to weaker Chinese output.
- Gross industrial demand for palladium (including dental demand) decreased by 5.8% to 2.28 million oz in 2009.
- Net annual identifiable physical investment demand for palladium increased by 48.8% to 625,000 oz last year.

Palladium demand suffered due to the weak state of the world's economy. Gross automotive demand fell by 9.3 per cent and gross electrical sector demand decreased by 7.3 per cent as companies and individuals restrained their spending in the first half of 2009 in particular. Although the economic picture started to improve later in the year, total gross demand fell to 7.77 million ounces. Supplies of palladium fell to 7.10 million ounces – including the sale of 960,000 oz from Russian state stocks – with mine output decreasing in North America, Russia and South Africa but rising in Zimbabwe. The weight of metal recovered from scrapped autocatalysts, electronics and jewellery declined to 1.43 million ounces. The palladium market was therefore in oversupply during 2009 by 760,000 oz, a slightly larger surplus than in the previous year.

Gross automotive sector demand for palladium fell by 415,000 oz to 4.05 million ounces in 2009, although this was a much shallower percentage decline than was the case for either platinum or rhodium. Light duty vehicle production fell in almost every country during 2009 as a direct effect of the widespread economic turmoil and global output slipped by 8.3 million units.

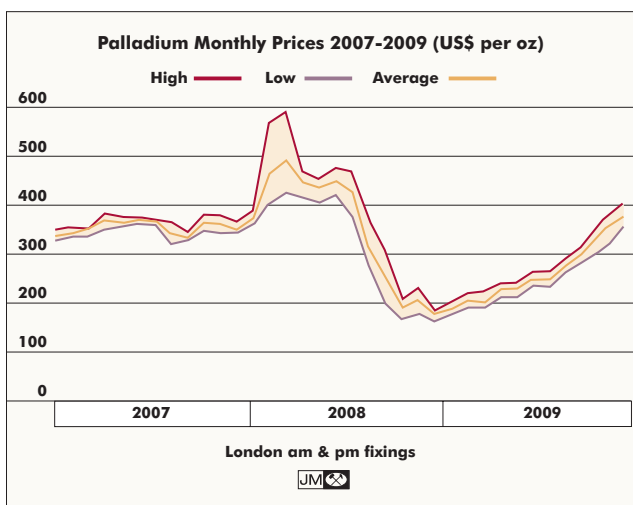
However, at various points in the year, a number of countries introduced schemes designed – one way or another – to subsidise the purchase of new vehicles. For instance, the “Cash for Clunkers” scheme provided some support for vehicle sales in the middle of 2009 in the USA. The health of the US economy also improved gradually throughout the year. However, light duty vehicle output there still fell substantially and palladium demand in North America slipped 20.9 per cent lower to only 1.02 million ounces. Vehicle manufacturing also contracted in Japan, despite the introduction of a scrappage scheme there, and in the Rest of the World region and palladium demand fell in each of these locations.

European demand was much more stable, falling only by 10,000 oz to 995,000 oz. Vehicle output was supported by a number of scrappage schemes including those in France, Germany and the UK but the majority of purchasers opted for smaller, gasoline-fuelled vehicles at the expense of diesel cars. Production of gasoline vehicles was almost flat compared with the previous year and palladium demand in this sub-segment actually grew. In the diesel sector, palladium benefited from its growing use in diesel catalysts alongside platinum. However, this was offset by the weakness of the diesel vehicle market itself and total palladium usage

on diesel vehicles fell marginally.

By far the most positive area for automotive palladium usage was the Chinese market where rapid growth in vehicle sales and production meant that gross palladium demand soared from 390,000 oz to 685,000 oz.

In the jewellery sector, gross purchases of palladium declined by 17.3 per cent to 815,000 oz. Demand rose in Europe and was stable in North America where palladium has now established a niche in men's wedding bands. In China, however, gross palladium demand fell from 740,000 oz to 560,000 oz. The success of platinum in the domestic jewellery market raised the profits available to manufacturers working in that metal. Many therefore moved some of their production to platinum, cutting the capacity available for palladium production. Although other companies filled some of this gap, retail interest within China



The palladium price more than doubled during 2009, supported by strong investment inflows, record gold prices and a weak US Dollar.

remained mixed and palladium jewellery demand fell.

Close examination of trade statistics indicates that more metal was imported into China in 2009 than can readily be explained in terms of automotive, industrial and jewellery demand. We believe much of this was purchased for speculative investment as the price rose. This view has been supported by the return of a significant quantity of this material to the market during the first part of 2010.

Gross electronics demand decreased by 100,000 oz to 1.27 million ounces. As in many other industrial sectors, destocking hurt demand for palladium in this industry in the first part of 2009. With purchasing of consumer electronics also poor, demand was particularly weak in the first half of the year. However, sales improved throughout the year as the economic outlook brightened and the overall fall in demand was relatively modest.

Dental demand fell by 10,000 oz to 615,000 oz as a result of weakness in the North American market where precious metal treatments continued to lose ground to other treatments such as all-ceramic crowns. Japanese demand was flat at 275,000 oz.

Net identifiable physical investment demand climbed strongly during 2009 – rising by 205,000 oz to 625,000 oz – mainly due to the behaviour of ETF investors whose total holdings climbed by 530,000 oz. A buoyant palladium price, an improving outlook for the automotive sector and a rising gold price all created a bullish environment which attracted more investors into this metal through the European ETFs. Investment through coins and small bars also performed strongly, with demand almost doubling to 95,000 oz.

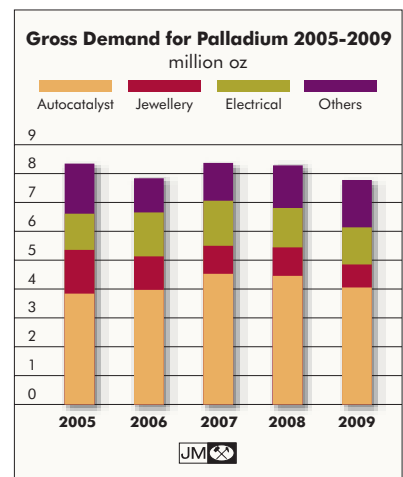
Palladium supplies declined from 7.31 million ounces in 2008 to 7.10 million ounces in 2009 with production dropping in every region except Zimbabwe. Sales of palladium from Russian mining dipped marginally to 2.68 million ounces but outperformed expectations as Norilsk Nickel improved metal recoveries in its platinum group metal processing. We estimate that a further 960,000 oz of palladium was sold from Russian state stocks during the year, adding to supplies. Although there was little evidence of shipments of metal from this source during 2009, it is our firm opinion that the metal shipped in late 2007 and the second half of 2008 is being sold over a three-year period and we have therefore included 960,000 oz in our 2009 supplies total.

South African supplies fell by 60,000 oz to 2.37 million ounces. A number of marginal shafts and open pits were closed in response to weak metal prices. Industrial action, safety stoppages and smelter shutdowns also hurt output. North American supplies of palladium fell by 155,000 oz to 755,000 oz due to the temporary closure of the Lac des Iles mine in late 2008 and industrial action in the nickel mining industry during 2009.

The weight of metal recovered from open loop sources of recycling – autocatalysts, electronics and jewellery – fell by 11.5 per cent to 1.43 million ounces. Less metal was recovered from the automotive sector, where fewer vehicles were scrapped than in 2008, and from the jewellery sector where fewer Pd950 alloy pieces were recycled in China. The weight of palladium recovered from end-of-life electronics rose to 395,000 oz.

The palladium market thus remained in oversupply in 2009: the surplus climbed from 635,000 oz to 760,000 oz. Excluding the sale of Russian state stocks, current mine supply fell short of demand. However, the palladium price performed strongly throughout the year. As with platinum, it was boosted by the very positive performance of the rest of the precious metal sector and by a prolonged spell of weakness in the US Dollar. Investment flows were also substantial, as ETF positions climbed rapidly and net long speculative futures positions approached record levels. Having started the year at \$185, the palladium price more than doubled, to end 2009 at \$402.

Palladium Supply and Demand '000 oz			
Supply	2007	2008	2009
South Africa	2,765	2,430	2,370
Russia	4,540	3,660	3,635
Others	1,275	1,220	1,095
Total Supply	8,580	7,310	7,100
Gross Demand			
Autocatalyst	4,545	4,465	4,050
Jewellery	950	985	815
Investment	260	420	625
Others	2,640	2,420	2,280
Total Gross Demand	8,395	8,290	7,770
Recycling	(1,565)	(1,615)	(1,430)
Total Net Demand	6,830	6,675	6,340
Movements in Stocks	1,750	635	760



OTHER PGM

- Rhodium was in oversupply by 241,000 oz in 2009, compared to a surplus of 25,000 oz in 2008.
- Gross rhodium demand fell by 20.2% to 716,000 oz due to weak automotive purchasing.
- Recovery of rhodium from spent autocatalysts decreased by 17.6% to 187,000 oz in 2009.
- Supplies of rhodium increased by 10.8% in 2009 to an annual total of 770,000 oz.
- Ruthenium demand declined for the third successive year, falling by 17.9% to 574,000 oz in 2009.
- Iridium demand also fell for the third successive year in 2009, decreasing by 10.8% to 91,000 oz.

Rhodium

The rhodium market moved from a surplus of 25,000 oz in 2008 into a much larger surplus of 241,000 oz in 2009. Supplies rose from 695,000 oz to 770,000 oz. Demand was hit by a poor performance by its largest sector – the automotive market – where gross demand fell 19.4 per cent lower to 619,000 oz, the lowest figure since 2004. Demand fell in most other applications too, although some of this weakness was offset by lower rhodium recovery from scrapped autocatalysts.

Supplies of rhodium climbed by 75,000 oz to 770,000 oz, primarily due to higher sales of metal from South Africa. Underlying output of rhodium was flat as the closure of some South African production balanced increasing output of rhodium-rich UG2 ore from several newer mines. More importantly, an accumulation of rhodium in the processing pipeline restricted the amount of metal available for sale during 2008. A decrease in pipeline stocks in 2009 meant that more refined rhodium was released for sale: South African supplies therefore climbed to 663,000 oz. Supplies of rhodium from elsewhere fell from 121,000 oz to 107,000 oz.

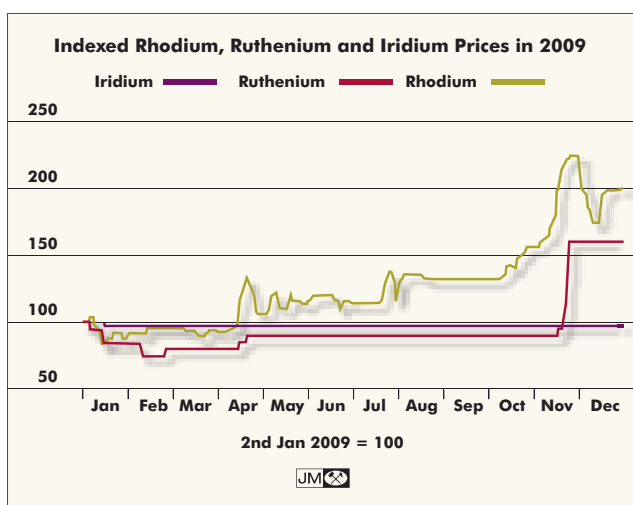
Demand for rhodium was weak during 2009. The automotive sector accounts for the majority of rhodium demand and the slowdown in global vehicle production had a powerful negative impact. Most gasoline vehicles are fitted with palladium:rhodium catalysts and lower vehicle sales therefore hit gross rhodium usage. The impact was greater than sales figures alone would suggest, though. Inventories of unsold cars were high at the start of 2009 and as the industry tried to reduce these, vehicle production fell below the level of sales. Working stocks of catalyst and raw metal fell too, further depressing rhodium demand.

In a number of markets, consumers' response to the financial crisis was to delay or cancel the purchase of new vehicles. However, even where purchases did take place, there was a general shift towards buying smaller vehicles, reducing average catalyst size and typical rhodium content. Additionally, the auto makers have intensified their efforts to reduce the rhodium loadings in their three-way catalysts over recent years in response to high prevailing rhodium prices. Although rhodium remains an essential catalytic component of these devices, these thrifting programmes have had some success, further hurting rhodium

demand. Overall, gross automotive demand for rhodium fell from 768,000 oz in 2008 to 619,000 oz last year. Only in China, where government action drove booming vehicle production, did rhodium demand increase.

Rhodium demand was weak in most other sectors too. Although some glass manufacturers increased the rhodium content of their alloys, construction of fewer new factories and the closure of some cathode ray tube glass facilities meant that rhodium demand in this sector fell to 19,000 oz. Chemical industry demand also fell – to 54,000 oz – due to delays in the installation of new capacity for the LP oxo-alcohol process.

The dip in sales of new vehicles was clearly reflected in the performance of the automotive recycling sector where the amount of metal recovered from spent catalysts slumped from 227,000 oz a year earlier to 187,000 oz last year. With fewer



The rhodium price rebounded during 2009 after falling from record levels of over \$10,000 per ounce in mid-2008. The ruthenium price recovered some ground too.

new cars bought, relatively few vehicles were scrapped in most developed countries and rhodium recovery suffered. A number of scrappage schemes were introduced around the world throughout the year, however, providing some support for this sector and ensuring that the weight of metal recovered did not fall too far below the levels of 2007.

Although the rhodium market moved into a large surplus, the price performed strongly throughout 2009. Automotive purchasing was weak at the start of 2009 but gradually strengthened as the year progressed, although it remained softer than in recent years. However, this weakness was balanced by some speculative rhodium purchasing in Asia and North America in particular, causing the price to double from \$1,250 at the start of 2009 to its closing Johnson Matthey Base Price of \$2,500.

Ruthenium

Ruthenium demand decreased from 699,000 oz to 574,000 oz in 2009, continuing its slide from the elevated levels of 2006. Demand in the electrical sector fell once again, to 336,000 oz, and chemical industry demand softened too. Ruthenium use in the electrochemical sector and in a number of other small applications was steady compared to previous year levels. Supplies were adequate to meet demand.

In most of the electronics industry, demand was hit by the same negative factors as in many other sectors: a weak global economy depressed sales of consumer electronics, while demand for components such as chip resistors was further damaged by destocking throughout the supply chain. The amount of metal purchased by the hard disk sector for use in perpendicular magnetic recording (PMR) disks also decreased in 2009, despite a rise in the market share of this technology, which is now almost entirely dominant. In fact, this increase in market share, when coupled with only a marginal decline in hard disk production, meant that ruthenium use on disks increased. However, the industry was able to source most of its metal requirements from stocks it had previously built up. Demand decreased last year as a result but should return to growth in 2010.

Chemical sector demand dipped as less new plant capacity was installed in Asia than in recent years. Electrochemical demand, however, was supported at 95,000 oz by a decision by the Chinese authorities to upgrade the country's chlor-alkali capacity to newer, more environmentally-friendly, ruthenium-containing membrane technology. The use of ruthenium in a number of other minor applications slipped only marginally to 54,000 oz.

As in the rhodium market, there were indications of a degree of speculative short term investment in ruthenium within Asia in the second half of the year. As demand improved steadily, the price eventually responded, rising to end the year at \$160.

Iridium

Iridium demand dropped in 2009, slipping from 102,000 oz to 91,000 oz. In the electrochemical sector, demand rose from 25,000 oz to 33,000 oz, reflecting the move to upgrade the Chinese chlor-alkali industry to membrane technology. Chemical demand remained flat at 21,000 oz. Temporary falls in demand for iridium crucibles and for new vehicles drove demand in the electrical sector and other applications – principally spark plugs – lower to 7,000 oz and 30,000 oz respectively. Supplies of iridium – mainly from South Africa – remained sufficient to meet demand and the price moved little throughout the year, remaining at \$425 for most of 2009.

