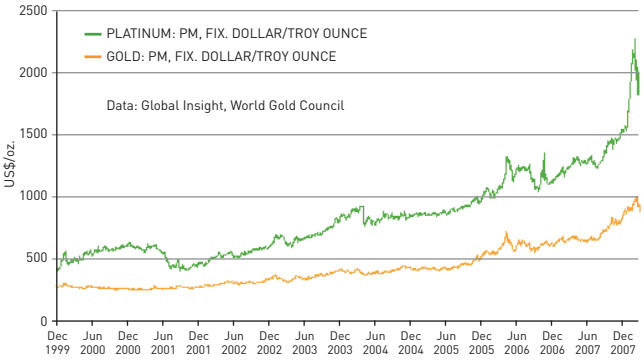
Gold in diesel oxidation catalysts

Gold is currently around half the price of platinum. If a way could be found to at least partially replace platinum with some gold in automotive catalysts, huge potential cost savings could be realised by the industry. Following the announcement in 2007, by a silicon valley-based start-up company called Nanostellar Inc, that it had developed a break-through diesel oxidation catalyst material that contains platinum, palladium and gold, that opportunity is now available on diesel engined vehicles.

Nanostellar has shown that its next-generation catalyst, called NS Gold™, enables diesel engine manufacturers to reduce noxious emissions by up to 40% over platinum only products. This opportunity is important, even with the recent run up in gold prices as platinum prices also continue to rise and the spread between platinum and gold prices continues to widen (see the illustration below).



Historical Gold and Platinum prices

Reducing the cost of automotive pollution control

The automotive industry is no stranger to precious metals with 4.24 million oz. (119 tons) of platinum used for automotive emissions control catalysts in 2007. Similar amounts of its sister metal palladium are used in this application too. This precious metal containing catalyst sits in the exhaust system of the vehicle, and by a reaction over the catalyst, the harmful gases of carbon monoxide, hydrocarbons and oxides of nitrogen are converted to the safe products carbon dioxide, water and nitrogen. Similarly, diesel engines also have a filler to remove particulate matter.

The potential to use gold in this type of application has long been considered, but until now the technical challenges concerning catalyst durability have prevented gold's use. That is, the gold nanoparticles used in the catalyst tend to agglomerate when exposed to the elevated temperatures in the exhaust system and the catalyst efficiency falls off dramatically. Nanostellar has a unique catalyst technology to prevent that process from occurring, developed through a process called Rational Design. This method of working combines computational nanoscience and advanced synthetic chemistry to speed up the pace of development for nano-engineered materials.

With encouraging support from investors, commentators and industry, the omens look good for Nanostellar and for gold's role in automotive emission control. For more information on Nanostellar, including the NS Gold™ product and investment opportunities, please contact:

nanostellar

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