



PLATINUM DELIVERS SUPERIOR SPARK PLUG PERFORMANCE

Future demand for platinum-tipped spark plugs ignited by drive to improve efficiency and reduce emissions

The use of platinum in spark plugs has improved engine efficiency and fuel economy in gasoline-powered cars, allowing automakers to meet increasingly stringent efficiency and emissions standards.

Plugs made with platinum last much longer than alternatives such as base-metal alloys, and also offer better combustion performance.

Platinum is perfect for a spark plug's hostile environment

Spark plugs perform an essential function, as they ignite the air-fuel mixture in the combustion chamber of gasoline engines. This process creates the power necessary to drive the vehicle.

Platinum's very high melting point (1,768°C) and corrosion resistance make it perfectly suited to the hot and highly corrosive environment inside an

internal combustion engine, where temperatures can exceed 700°C during fuel ignition.

These properties, along with its superior electrical and thermal conductivity, make platinum ideal for use in spark plugs, and platinum-tipped spark plugs are commonly used in the engines of gasoline vehicles, including cars and motorbikes.

The use of platinum has enabled advancements in spark-plug design, which have led to numerous operational improvements. These include optimised ignition (which minimises engine misfires and improves acceleration), more efficient combustion (which lowers fuel consumption) and longer operating life (which lowers maintenance and reduces cost per mile).

Platinum use has, therefore, helped to improve engine efficiencies and fuel economies, reducing vehicle emissions while increasing the efficiency of



Platinum-based spark plugs have been used in a variety of high performance cars

catalytic converters through cleaner combustion. This is assisting automakers around the world in meeting ever more stringent emissions regulations.

As a result of these performance benefits, platinum-based spark plugs have also been used in a variety of high-performance 'halo' cars, such as the BMW i8, the Jaguar F-Type and the Bugatti Veyron, as well as in premier motorsport competitions, including Formula One, MotoGP and the World Rally Championship.

Spark plugs remain central to automotive growth

Spark plugs were required in approximately 80% (c.75 million) of the light vehicles produced worldwide in 2017, including in gasoline-powered

internal combustion engines, flex-fuel vehicles and gasoline-based hybrids.

Despite the slow, yet growing, penetration of battery electric vehicles, the number of gasoline engines requiring spark plugs is forecast to grow to 90 million (still 80% of light vehicles) over the next ten years.

Most of this vehicle growth is predicted to come from emerging markets, mainly China and India, as well as western Europe and the US, with the growth of gasoline and gasoline hybrid vehicles in these regions supportive of platinum-tipped spark plug demand.

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