Fuel Borne Catalysts
Innospec has unparalleled experience in the development and supply of fuel borne catalysts (FBCs) for use in exhaust systems with a diesel particulate filter.

Global pressure to restrict greenhouse gas emissions and reduce automotive exhaust pollutants has encouraged the development of more fuel-efficient diesel engines and exhaust systems that can filter out harmful particulate emissions.

Our dedicated Fuel Borne Catalysts team, which is part of Innospec’s international Fuel Specialties business, has been at the forefront of FBC technology for many years, helping to create a unique range of products for different particulate filter designs.

Our products help to burn off the soot deposits in a filter by lowering the temperature at which the particles combust. This regenerates diesel particulate filters without compromising engine performance.

Accredited by numerous environmental bodies in Europe and beyond, our innovative range of fuel borne catalyst products are supplied to both original equipment manufacturers and the retrofit filter market.

As a company, Innospec operates on a truly worldwide scale. This provides all our business operations with the type of global reach and financial resources few of our competitors can match. This means we can provide innovation, support and a fast response to our customers’ needs on both a local and international scale.

Innospec’s Fuel Specialties business comprises of a number of dedicated teams. The Fuel Borne Catalysts team focuses on additives for exhaust systems with diesel particulate filters. We also have teams serving the needs of the refinery, power, heating, marine and performance specialties markets.
Typically they will reduce the number of ultra-fine soot particles emitted from the tailpipe by between 99.0% and 99.9% - bringing exhaust gases up to near ambient air quality.

However, these filters will only remain efficient if the trapped soot can be disposed of during normal engine operation. If this is not done regularly, the filter will clog. This increases the backpressure from the exhaust and ultimately stops the engine running.

Although there are a number of methods for regenerating a particulate filter, the most widely used and the most cost-effective is to use a fuel borne catalyst. A fuel borne catalyst works by reducing the ignition temperature of the trapped soot.

Innospec’s unique range of satacen® iron-based organo-metallic fuel borne catalysts ensure complete and rapid filter regeneration by pre-catalysing the soot formed during combustion, with tiny particles of iron oxide. This ensures that any soot trapped in the filter will burn off at the lower temperatures typically encountered during normal engine operation. The filter is therefore regenerated during everyday driving without having to worry about filter clogging or damage.

Innospec has not only created an outstandingly cost-effective range of fuel borne catalysts for use with particulate filters. It has also used its global resources to develop innovative dosing systems to extend the range of applications and deliver unsurpassed service reliability.
Innospec’s unique range of satacen® fuel borne catalysts offer original equipment manufacturers and the retrofit filter market a number of important benefits.

Our team of chemists has evolved new versions of the proven satacen® fuel borne catalyst. Innospec’s third generation satacen® 3 product offers the possibility of an even wider range of applications and lower costs. This third generation product offers:

- Excellent stability properties from -40°C to +80°C
- Outstanding viscosity characteristics (easily pumped at -40°C)
- Economical compact storage volumes
- Economical low active treat rates
- Compatibility with the non-aggressive solvents in low cost plastics and elastomers
- VERT approval for use with a particulate filter
- Acceptance by environmental bodies including German UBA

During engine operation the additive is continually replenished with every litre of fuel consumed. This means there is no possibility of the catalyst aging and reducing regeneration performance over time.

The regeneration process can also be either passive or actively controlled. Either way Innospec’s satacen® technology ensures rapid and complete burnout of the accumulated soot. This occurs across a range of temperatures making the system very tolerant of city centre driving patterns.

At the tailpipe, using satacen® will dramatically reduce NO₂ emissions. In fact, with selected catalyst coatings, NO₂ is almost eliminated. Excellent reductions in HC and CO emissions are also observed.

If desired, conventional precious metal catalyst coatings may be used in combination with our satacen® products. This will reduce the already low treat rates of the fuel borne catalyst and save on the quantity of costly precious metal required to coat the filter.

Our additive can be used in a variety of diesel engine sizes. It is also tolerant of high sulphur fuels and there is no requirement for a minimum NOx to particulate ratio in the engine exhaust.
By logging and analysing the data collected over many years we have been able to provide clear evidence of our product’s success. This has resulted in our technology being accepted by environmental bodies including the German UBA (Federal Environmental Agency), Swiss BUWAL and VERT.

Collaboration with original equipment manufacturers has led to our fuel borne catalysts being used in passenger cars for the mass market as well as in special installations for the retrofit market. We have managed to find regeneration solutions for vehicles that could not otherwise have been fitted with a particulate filter.

From our extensive laboratories at Ellesmere Port, UK and our new testing facility at Millbrook, UK our highly skilled experts work closely with customers to identify, develop and prove fuel treatments that meet a specific technical requirement.

As interest around the world in the use of exhaust after-treatment for diesel engines grows, we expect the demand for our fuel borne catalysts to increase significantly. By continually pushing the boundaries of this exciting technology forward, we can help our customers reduce exhaust emissions today and in the future.

Innospec is a dynamic global specialty chemicals company. Our Fuel Specialties business specialises in manufacturing and supplying additives to improve fuel efficiency, boost engine performance and reduce harmful emissions. As the only business solely focused on fuel and fuel additive technology, we have become the champion of innovative new fuel treatment technologies in a rapidly changing market.
For more information on how Innospec’s Fuel Borne Catalysts team can work with you, please contact our sales office.

Our international office network offers unrivalled product support and it has the resources to deliver fuel treatments to a customers’ specification anywhere in the world.

fbc@innospecinc.com