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## Combustion Chemistry

Ferox works on the chemical level of the combustion process and therefore works in exactly the same way regardless of the type of liquid or solid fuel in which it is used. Ferox interacts with the carbon-carbon and carbon-hydrogen bonds of fuel particles. It makes no difference whether the particle is a short carbon chain (gasoline), a medium length carbon chain (kerosene), or a long carbon chain (diesel). The Ferox combustion catalysts interact with one carbon bond at a time. When the temperature of the combustion environment reaches a minimum of about 200 °C the Ferox catalysts are activated and the chemical reaction begins to occur. The catalysts can't tell what kind of fuel they are in, or what type of engine they are in, or what type of combustion environment they are in. All they see are carbon-carbon and carbon-hydrogen bonds in an environment of 200 °C or more. This process is the same for all hydrocarbon fuels regardless of whether it is being burned in an internal combustion engine including turbines or open flame type applications. Ferox will improve the combustion efficiency, remove hard carbon deposits, and reduce fuel consumption and overall emissions in all types of applications and equipment. The trends will be the same regardless. The only thing that the type of equipment or type of fuel used will affect is the magnitude of the trends.

Generally the lighter the fuel the greater the improvement in fuel economy that will show up. Also a dirtier engine will show greater improvement after it is cleaned up than a not so dirty engine. Another example is with particulate and smoke production. Generally the heavier the fuel the greater the reduction in smoke and particulate emissions. In yet another example CO reduction in gasoline is high while CO reduction in diesel is lower partly due to the fact that CO emissions in diesel applications are naturally low in the first place. In all cases the trends are the same with only the degree of magnitude differing.

Once the chemistry of Ferox is understood it is not hard to predict with good accuracy the trends that one will see due to its use. The difficult part is predicting the magnitude of those trends. In most cases a ball park estimate can be given, but it is not until all the variables affecting the combustion environment are understood or controlled that a number can be declared. However, the trends will be the same regardless of the fuel type or the application.