



EcoMix™ - Greenhouse Gas Emissions Reduction simplified

Fossil fuel combustion in boilers, furnaces and engines, so fundamental to the worldwide economy, produces NOx and soot emissions. Fortunately, there is a technology that reduces both. This technology can also increase fuel efficiency and thus decrease CO2 greenhouse gas emissions. The technology that can deliver this “triple-crown” of environmental and economic benefits is emulsified fuel technology.

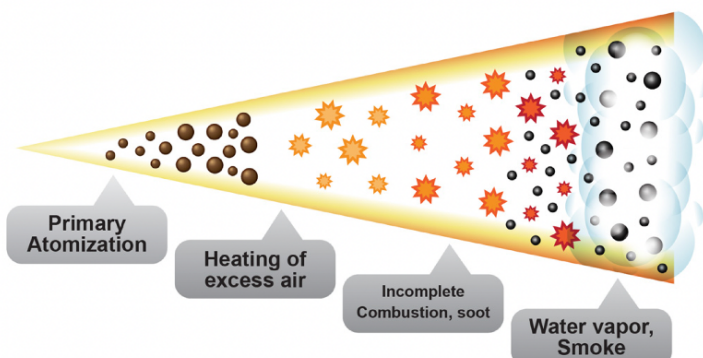
An emulsion is a mixture of two immiscible fluids. For example, oil phased emulsion features water droplets – the dispersed phase – uniformly distributed throughout the fuel oil – the continuous phase. An emulsion takes on the characteristics of the continuous phase. Hence, oil phased emulsions exhibit characteristics of fuel oil, not water.

Emulsions are inherently unstable. Over time they separate into two separate layers. To maintain emulsion stability, “surfactants”, are incorporated into the emulsion. These surfactants encase the droplets of water distributed throughout the oil phase and prevent the water droplets from coming together and coalescing.

Three of AET’s products increase fuel efficiency during combustion in furnaces, boilers and internal combustion engines. These products are emulsified diesel oil (including biodiesel), fuel oil and residual oil emulsions (DOE, FOE and ROE).

- AET’s decades of experience insure the proper amount of water in the emulsion, the emulsion’s proper application along with the proper equipment and emulsifiers to stabilize the emulsion is used as a package.
- Maintaining the caloric value of the original fuel after emulsification with water provides a significant cost reduction besides reducing GHG emissions
- Prior to fuel ignition, water in the emulsification bursts into steam and atomizes fuel droplets, increasing the degree of combustion and, incidentally, steam-cleaning burner tips for additional benefits.
- As an even greater economic benefit for residual oil, the resultant viscosity reduction due to emulsification eliminates the need for expensive cutters used with those heavy fuel oils.

Traditional HFO Combustion (standard levels of excess air)



Note: Theoretical Combustion: Methane + Oxygen → Carbon Dioxide + Water = CH₄ + 2O₂ → CO₂ + 2H₂O