EMISSIONS

What are emissions

Emissions are pollutants generated by variety of sources, i.e. machines, burning, vehicles, etc. Exhaust gas (on cars, trucks, ships, and others) or flue gas (Boilers, furnaces and others) are emitted as a result of the combustion of fuels such as natural gas, gasoline, gasoline, biodiesel blends, diesel fuel, fuel oil, or coal. According to the type of engine, they are discharged into the atmosphere through an exhaust pipe, flue gas stack, or propelling nozzle.

The largest part of most combustion gas is nitrogen (N2), water vapor (H2O) and carbon dioxide (CO2). A relatively smaller part of combustion gas is toxic substances (pollutants), such as carbon monoxide (CO) from incomplete combustion, hydrocarbons (HC) from unburnt fuel, nitrogen oxides (NOx) from excessive combustion temperatures, sulfur oxides (SO), and particulate matter (PM) from non-combustible materials.

Diesel engines on mobile and fix units produce significant amounts of especially harmful particulate contaminants when running without enough oxygen to fully combust the fuel.

Flue gas is the gas exiting to the atmosphere via a flue, which is a pipe or channel for conveying exhaust gases from a fireplace, oven, furnace, boiler or steam generator. Quite often, the flue gas refers to the combustion exhaust gas produced at power plants.

Standards and Solutions

Under the Clean Air Act, EPA establishes air quality standards to protect public health and the environment. EPA has set national air quality standards for six common air pollutants. These include:

- CO - carbon monoxide
- NOx - nitrogen dioxide
- SO2 - sulfur dioxide
- PM - particulate matter (also known as particle pollution)
- Pb - lead

The majority of the first 4 are produced by mobile units burning fuel. Each state or territory in the US has established different minimums allowed.

During the last 50 years, various technologies have been developed to try to reduce the small but damaging emissions. Engine manufacturers have developed better engines to do so, but very little has been accomplished by reducing the use of fossil fuels by alternative technologies.

Chemical companies, such as Xp Lab with Xp3, have been involved in the development of additives that will treat the fuel and improve the combustion of the fuel.

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