Soot Compounds and the Particulates in your Heat System you breathe

The Inventor's theory is proven in test results using home and commercial heating fuel oils. "If you could ionize and cause a thermo-chemical reaction to a complex fuel chain, like heating oil or diesel fuel, just before and during the onset of combustion, then these new free radicals could bond to create simple fuel chains. When this occurs the fuel burns more completely, resulting in more H_2O, CO_2 , SO_3, and less dangerous NO_x emissions, acid salts like nitric acid (largest component of acid rain), carbon monoxide (CO), sulfur monoxide (SO), and sulfur dioxide (SO_2) while saving an average 25% on fuel usage. Also you would experience a large reduction in soot so your heat exchanger can run more efficient longer (all season)."

Inventor, Eric T. LaVoie

When using the same volume of the same fuel oil: why does a standard flame produce less heat output (~1,480°F) than The Burner Booster flame which uses the same fuel but reaches higher heat output (~1,890°F)?

This happens most likely because:

1. S- Sulfur, contains over 537,600 Kg per mole of heat. It is extremely useful as high heat energy fuel when ionization and oxidation occur almost simultaneously, before and during combustion to higher oxidation thermal states. SO- SO2- SO3- S2O4- S3O5.

2. C- Carbon, contains over 472,700 Kg per mole of heat. It is also useful as heat energy fuel when treated the same way as sulfur, this produces more heat and less toxic Carbon Monoxide. Carbon Monoxide (CO) and other Unburnt hydra-carbon gasses and particulates when properly oxidized will produce more heat, water and Carbon Dioxide (CO_2).

3. Less, N- Nitrogen and oxide compounds of nitrogen, NO, NO_2, (NO_3- nitrates- common in fuel oil), plus the input air for combustion is 70% nitrogen gas. This can have a very negative effect unless higher thermal stability can be reached. Excess combustion air actually cools the combustion area and causes of a negative list of events: heat loss up the stack, larger volumes of nitric acid gases and salts, more SO production, more unburnt radical Hydra-carbon compounds to build up in the combustion area and spread to the environment while all decreasing your efficiency. **Did you know that *NO_x gases are 310 times more harmful to the air, water, and environment than CO_2?*** **(**Eric can you cite a source of this fact?)

COMMON FLUE GASES INFORMATION & SOOT PARTICULATES WE BREATHE:

Sulfur Monoxide (SO) - is 4 times more toxic than Carbon Monoxide and known as a radical compound when released into the air. The H_2S (Hydrogen Sulfide) smell of rotten eggs, is a compound of Sulfur monoxide. SO stays at low levels, less than 1,000 feet above the ground and is a very serious lung, neurological and eye irritant. Causes damage to vegetation & animal life. Sulfur Monoxide (SO), is an indication of sulfur compounds with incomplete/ poor combustion.

Sulfur Dioxide (SO_2) - is 12 times more of a greenhouse gas than Carbon Dioxide (CO_2). This gas is showing better combustion of sulfur compounds in a hydrocarbon fuel. Sulfur Dioxide (SO_2), while less harmful, shows more heat yield which allows better sulfur tri-oxide(SO_3), a lighter gas to occur. This rise in SO_2 and the lowering of Sulfur Monoxide SO is evidence of more complete combustion and much more heat. There is often less than 3% sulfur in heating oil and is not the most acidic compound in the combustion process. NOx compounds makes Nitric acid, 40 to 1 compared to sulfur acids.

IN**VENTOR'S COMMENTS:**

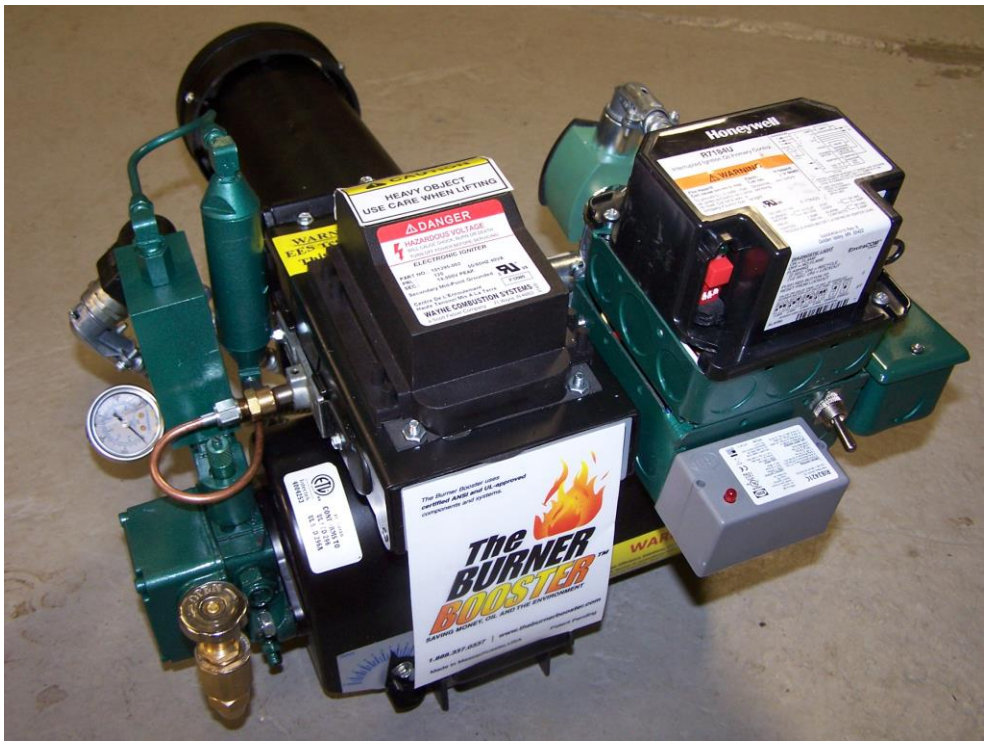
The % of sulfur compounds in #2 heating fuel oil has been historically between 2.5%-4.0% in most cases – *CAUTION*: the new "Ultra Low Sulfur oil" may be .15% Sulfur on average, but real world usage is now showing its use will increase carbon dioxide (CO_2) and CO emissions as it produces 8%-10% less heat per same gallon of fuel oil and cost about 8-14 cents more per gallon. So the customer will see approximately a 16% increase in cost, and more CO emissions as the chamber will not be as hot as before.CO2 will rise by about 0%.

Sulfur Trioxide (SO_3) - shows ideal combustion and proper oxidation. It is a lighter gas than SO_2 and bonds quickly to water vapor in the upper atmosphere to form a weak acid. It is the smallest component of acid rain.

Carbon Dioxide (CO_2) & Water Vapor – are light greenhouse gases which are major compounds in the earth's carbon cycle. CO_2 and water along with other green-house gases are mostly absorbed by the planets oceans and land bio-mass. Water and NOx from fossil fuel combustion are the largest greenhouse gases we emit into our environment with issues, not CO_2.

The Burner Booster uses what would become SOOT as added fuel to produces a cleaner hotter burn.

The wasted fuel that occurs from standard burner technology, makes operations more costly and polluting while it reduces our heating efficiency in heating systems, The Burner Booster systems produces 28-32 % less NOx and SO_2 emissions. It also produces 12- 18 % less CO_2, and 80% less Carbon Monoxide and Sulfur Monoxide, not to mention less "soot" compounds because of the unique patented burn technology.



A Simple solution to treat the many causes of the poorly 35 year old design and performance of oil fired burners; that have not been updated in 35 years..

While the upside of this system pays for its self in about 3 years, the commercial systems see ROI's under 2 years.

There are over 85 systems installed and not one boiler has required cleaning; which is on par with cleaner natural gas emission soot levels.