

**BOILER TEST REPORT**  
**3 SADORE LANE, YONKERS NY. 10710**  
**FITCH FUEL CATALYST**



**Prepared by:**

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**Dated: August 10, 2009**

**update: March 25, 2010—fuel usage data.**

**DASTEC S.R.L.**

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## Executive Summary

### Purpose:

A test program to measure the benefit of the Fitch Fuel Catalyst on #6 heating oil fired boilers in an apartment co-operative.

**Location:** 3 Sadore Lane, Yonkers NY. 10710

**Boiler:** Federal FST 250 Horsepower

**Burner:** IC DEG 105P @75 gallons per hour.

**Dates:** Baseline data collection – July 7, 2009  
Fuel Catalyst activation - July 13 & 20, 2009  
Final Data collection: Aug 10, 2009

**Results:** Reduction in fuel consumption for whole building  
7.3% or approximately 9,153 gallons July 20 through March 3

Increase in efficiency:  
Boiler 1 -79% to 89.7%  
Boiler 2 - 82% to 87.2%

Smoke: Reduced 100% to 0 (both boilers)



### Discussion:

There are 3 seven story buildings located at this site. Oil fired boilers are used for heat and hot water. # 3 Sadore Lane is the first of these to be fitted with Fitch Fuel Catalyst. The boilers operate on #6 heating oil. Baseline emissions and temperature readings were taken. The Fitch units were then installed and allowed to run for a period of time before retesting. Robert Germain PE witnessed final testing of the boilers.

### Personnel:

Frank Spadaccini	Marlande Heating Corp
Louis Barrientos	Marlande Heating Corp Baseline test
Alfred Majkowski	Marlande Heating Corp Fitch test
Robert Germain	Germain Robert F ME PE
Michael Best	Advanced Power Systems International, Inc.

### Fitch Fuel Catalyst Technology:

Advanced Power Systems International, Inc. (APSI) the manufacturer describes the product in literature as follows: “The Fitch Fuel Catalyst is a polymetallic alloy housed in a canister and connected into a fuel system between the fuel tank and the burner. Its purpose is to reformulate fuel prior to combustion. It performs its function at the temperatures experienced by the equipment in normal service. The Fitch Fuel Catalyst is not a fuel additive. It is a special alloy that does not dissolve in fuel. The fuel is reformulated by the alloy catalyst to a state where it is capable of a more complete combustion. As a result, a boiler converts the chemical energy in the fuel to heat energy in a more efficient manner. The boiler efficiency is increased and the toxic exhaust emissions are decreased.”

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## Comparison of Baseline and Post Installation Data.

**Test Personnel:** Louis Barrientos      Marlande Heating Corp

### **Test Procedure:**

Fitch Fuel Catalyst units sized to service the boilers were installed. The boilers use #6 heating oil from 2 common 10,000 gallon in ground fuel tanks through separate heating and pump sets for each boiler. The Fitch units were installed with bypasses in the pump set supply line that services each boiler. Marlande Heating recorded baseline and post Fitch installation emissions and efficiency readings and ensured the system was operating within specification. Degree day data was collected and fuel delivery information provided by Castle Oil.

### **Test Data:**

	<u>July 7, 2009</u>	<u>Aug 10, 009</u>	
<u>Boiler #1</u>	<u>Baseline Reading</u>	<u>With Fitch</u>	<u>% Change</u>
Ambient temp F	90	105.4	17.1%
Stack temp F	620	367.8	-40.7%
Smoke #	2	0	-100.0%
CO2 %	9.50%	12.96%	36.4%
Efficiency %	79%	89.7%	13.5%
<u>Boiler #2</u>		<u>With Fitch</u>	<u>% Change</u>
Ambient temp F	90	99.7	10.7%
Stack temp F	580	419.6	-27.6%
Smoke #	2	0	-100.0%
CO2 %	9%	10.42%	15.7%
Efficiency %	82%	87.2%	6.3%
Time period	11/5/08 -7/15/2009	7/15/09 -3/3/10	
Degree days	4557	3672	
Gallons/ degree day	34.06	31.57	-7.3%
Est. degree day fuel savings			9,153 gallons

### **Test Results Discussions:**

“The measured data indicate the boilers are running more efficiently after the Fitch Fuel Catalyst installation. This result is consistent with every installation we have done to date with Fitch. Smoke and soot related measurements and customer complaints are reduced in #6 fuel oil applications through the use of the Fitch Fuel Catalyst product.”

Robert Hortsmann – Marlande Heating,

“Prior to the installation of the Fitch Fuel Catalysts at 3 Sadore Lane, we had responded to several service calls pursuant to smoking conditions, carbon build-up calls and safety conditions on both burners. Since the installation of the Fitch units in the beginning of July, we have not responded to a single service call.”

Frank Spadaccini – Marlande Heating, Service Manager

### **Conclusions – Results from Fitch Install**

1. Combined boiler combustion efficiency improved by 9.9%.
2. Smoke reduced to 0 from 1 indicating optimal combustion.
3. Combined degree day adjusted fuel consumption declined by 7.3%.

**Purpose:**

To have an engineer witness the measurement of burner efficiency and emissions after installation of the Fitch Fuel Catalyst on the test boilers.

**Boiler:** Two Federal FST 250 Horsepower

**Burner:** IC DEG 105P @75 gallons per hour.

**Fitch Fuel Catalyst - Model FHD5-UL** manufactured by APSI installed by Marlande Heating.

**Location:**

3 Sadore Lane, Yonkers NY. 10710

**Test Personnel:**

Alfred Majkowski Marlande Heating Corp

**Consulting Engineer:**

Robert Germain Germain Robert F Me PE

Marlande Heating measured the Fitch emissions and efficiency readings and ensured the system was operating within specification.

Robert Germain (PE) witnessed the data collection on August 10, 2009 test. Data recorded below.

**Test Data:**

	<u>Aug 10, 009</u>
<u>Boiler #1</u>	<u>With Fitch</u>
Ambient temp F	105.4
Stack temp F	376.8
Smoke #	0
CO2 %	12.96%
Efficiency %	89.7%
<u>Boiler #2</u>	<u>With Fitch</u>
Ambient temp F	99.7
Stack temp F	419.6
Smoke #	0
CO2 %	10.42%
Efficiency %	87.2%



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Combustion Chamber Flame



Fitch Installation on Boiler Fuel Line



#3 Sadore Lane Boiler Room



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