

## ALGAE-X STS-5000 Automatic Fuel Conditioning and Filtration System Installation at a critical data center in the US



Two indoor, above ground tanks made of steel holding 3000 Gallons each supplying a standby generator at a critical facility. STS 5000-10GPM Fuel Conditioning and Filtration System is installed in between the tanks with a fuel manifold on inlet and outlet to cycle fuel or transfer fuel from one to another while polishing and filtering it. Customer uses 30 micron primary SEPAR filter elements and ALGAE-X 3 micron Water Block secondary filters in the STS.

The STS 5000-10GPM utilizes an LG-X 3000 Fuel Conditioner to restore fuel quality and stabilize it.

### Text of customer's email message:

*"We could clearly see a visible difference in the fuel clarity, color and opacity after we installed the ALGAE-X system. Now the STS automatically comes on once a week to keep my stored fuel in good shape (see lab report). What is remarkable is that the first time I got a new load of fuel from my high quality supplier I ran the STS 5000 and I clogged filters with this brand new fuel that came in ... this is why I love your system and it gives me a safe feeling looking at fuel related gen set reliability.  
 John O."*

### Extract from results:

Fuel samples before and after processing it through an ALGAE-X STS 5000		
PARAMETER	BEFORE sample	AFTER sample
Color - ASTM D1500	No. 7 (dark)	No. 4
Appearance / Workmanship – ASTM D4176	fail (solids)	pass (clear)
Sediment and Water [%] – ASTM D1796	2.75	<0.05
Particulate Contamination mg/l – ASTM D5452	2400	115
Oxidation Stability – DuPo F21-61	No. 5 (pass)	No. 2 (pass)
Bacterial Yeast and Fungus Cont. – (Mod) 907	Positive	Negative

Fuel samples were analyzed by an independent fuel lab. Pls see full lab reports for further details.



Certificate of Analysis

Friday, August 1, 2003

Prepared expressly for:

[Redacted customer information]

Report for Lab No: 96223.  
Samples received by Martel.  
P.O. Number: TC030032

MARTEL Lab Number	SAMPLE IDENTIFICATION			Sample Date/Time
96223 000001	#2 Fuel Oil - Primary Before			07/08/2003 00:00
Analytical Parameter	Test Value	Test Unit	Method	Analysis Date/Time/Initial
Color	No. 7	dark	ASTM D1500	07/10/2003 14:45 NS
Appearance / Workmanship	fail	solids	ASTM D4176	07/10/2003 14:30 NS
Metals by ICP	Results	Follow	ASTM D5185m	07/11/2003 14:48 NS
Nickel	2	ppm	ASTM ICP	07/11/2003 14:48 NS
Silicon, (Abrasives)	2	ppm	ASTM ICP	07/11/2003 14:48 NS
Sodium	<1	ppm	ASTM ICP	07/11/2003 14:48 NS
Vanadium	<1	ppm	ASTM ICP	07/11/2003 14:48 NS
Aluminum	<1	ppm	ASTM ICP	07/11/2003 14:48 NS
Iron	<1	ppm	ASTM ICP	07/11/2003 14:48 NS
Sediment and Water	2.75	%	ASTM D1796	07/17/2003 15:25 NS
Particulate Contamination	2400	mg/l	ASTM D5452	07/18/2003 16:30 NS
Oxidation Stability (Accelerated Method)	No. 5	pass	DuPo F21-61	07/14/2003 13:30 NS
Bacterial Yeast and Fungus Content	Positive	count/ml	(Mod) 907	07/11/2003 09:15 MA
Kinematic Viscosity at 40 C	2.5	cSt	ASTM D445	07/10/2003 17:15 NS
Cloud Point	6	deg F	ASTM D2500	07/18/2003 16:00 NS
Flash Point (Pensky-Martens closed cup)	156	deg F	ASTM D93	07/14/2003 14:00 NS
Distillation of Petroleum Products	Results	Follow	ASTM D86	07/18/2003 15:12 SUB
Initial Boiling Point	353	deg F	ASTM D86	07/17/2003 15:40 SUB
10 % Recovered	407	deg F	ASTM D86	07/17/2003 15:40 SUB
50 % Recovered	496	deg F	ASTM D86	07/17/2003 15:40 SUB
90 % Recovered	600	deg F	ASTM D86	07/17/2003 15:40 SUB
End Point	664	deg F	ASTM D86	07/17/2003 15:40 SUB
Gravity, API (Hydrometer)	33.5	deg API	ASTM D287	07/14/2003 13:00 NS
Cetane Index	42.1		ASTM D4737	07/22/2003 11:30 PAD

MARTEL Lab Number	SAMPLE IDENTIFICATION			Sample Date/Time
96223 000002	#2 Fuel Oil - Primary After			07/08/2003 00:00
Analytical Parameter	Test Value	Test Unit	Method	Analysis Date/Time/Initial
Color	No. 4		ASTM D1500	07/10/2003 14:45 NS
Appearance / Workmanship	pass	clear	ASTM D4176	07/10/2003 14:30 NS
Metals by ICP	Results	Follow	ASTM D5185m	07/11/2003 14:50 NS

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*Sensible Scientific Solutions*

MARTEL Lab Number	SAMPLE IDENTIFICATION			Sample Date/Time
96223 000002	#2 Fuel Oil - Primary After			07/08/2003 00:00
Analytical Parameter	Test Value	Test Unit	Method	Analysis Date/Time/Initial
Nickel	<1	ppm	ASTM ICP	07/11/2003 14:50 NS
Silicon, (Abrasives)	<1	ppm	ASTM ICP	07/11/2003 14:50 NS
Sodium	<1	ppm	ASTM ICP	07/11/2003 14:50 NS
Vanadium	<1	ppm	ASTM ICP	07/11/2003 14:50 NS
Aluminum	<1	ppm	ASTM ICP	07/11/2003 14:50 NS
Iron	2	ppm	ASTM ICP	07/11/2003 14:50 NS
Sediment and Water	<0.05	%	ASTM D1796	07/17/2003 15:25 NS
Particulate Contamination	115	mg/l	ASTM D5452	07/18/2003 16:30 NS
Oxidation Stability (Accelerated Method)	No. 2	pass	DuPo F21-61	07/14/2003 13:30 NS
Bacterial Yeast and Fungus Content	Negative		(Mod) 907	07/11/2003 09:15 MA
Kinematic Viscosity at 40 C	2.5	cSt	ASTM D445	07/10/2003 17:15 NS
Cloud Point	6	deg F	ASTM D2500	07/18/2003 16:00 NS
Flash Point (Pensky-Martens closed cup)	154	deg F	ASTM D93	07/14/2003 14:00 NS
Distillation of Petroleum Products	Results	Follow	ASTM D86	07/18/2003 15:12 SUB
Initial Boiling Point	351	deg F	ASTM D86	07/18/2003 10:54 SUB
10 % Recovered	408	deg F	ASTM D86	07/18/2003 10:54 SUB
50 % Recovered	496	deg F	ASTM D86	07/18/2003 10:54 SUB
90 % Recovered	602	deg F	ASTM D86	07/18/2003 10:54 SUB
End Point	664	deg F	ASTM D86	07/18/2003 10:54 SUB
Gravity, API (Hydrometer)	33.7	deg API	ASTM D287	07/14/2003 13:00 NS
Cetane Index	42.6		ASTM D4737	07/22/2003 11:30 PAD