# FUEL REPORT

Sample Rating Trend


ISO

Area
**{UNASSIGNED}**
Machine Id
**KIOTI WY8200039**
Component
**Diesel Fuel**
Fluid
**No.2 DIESEL FUEL (ULTRALOW SULPHUR) (--- GAL)**

## DIAGNOSIS

**Recommendation**
We advise that you filter this fluid before use. All laboratory tests indicate that this sample meets specifications for No.2 ultra-low-sulfur diesel fuel.

**Corrosion**
All metal levels are normal indicating no corrosion in the system.

**Contaminants**
There is a high amount of particulates present in the fuel. The water content is negligible. There is no bacteria or fungus (yeast and/or mold) indicated in the sample.

**Fuel Condition**
Sulfur value derived by ASTM D5453 method for ULSD validation. Sulfur level is acceptable for ULSD specification.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **KT0000936** | --- | --- |
| Sample Date | | Client Info | | **12 Apr 2024** | --- | --- |
| Machine Age | hrs | Client Info | | **53** | --- | --- |
| Sample Status | | | | **ABNORMAL** | --- | --- |

| PHYSICAL PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Fuel Color | text | *Visual Screen | Yllow | **Red** | --- | --- |
| ASTM Color | scalar | *ASTM D1500 | | **L5.5** | --- | --- |
| Visc @ 40°C | cSt | ASTM D445 | 3.0 | **2.6** | --- | --- |
| Pensky-Martens Flash Point | °C | *PMCC Calculated | 52 | **60.3** | --- | --- |

| SULFUR CONTENT | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sulfur | ppm | ASTM D5185m | 10 | **3** | --- | --- |
| Sulfur (UVF) | ppm | ASTM D5453 | | **12** | --- | --- |

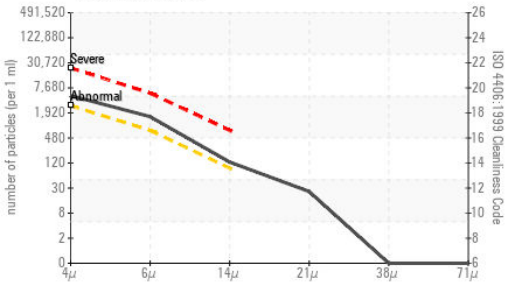
| DISTILLATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Initial Boiling Point | °C | ASTM D86 | 165 | **171** | --- | --- |
| 5% Distillation Point | °C | ASTM D86 | | **197** | --- | --- |
| 10% Distill Point | °C | ASTM D86 | 201 | **208** | --- | --- |
| 15% Distillation Point | °C | ASTM D86 | | **216** | --- | --- |
| 20% Distill Point | °C | ASTM D86 | 216 | **224** | --- | --- |
| 30% Distill Point | °C | ASTM D86 | 230 | **238** | --- | --- |
| 40% Distill Point | °C | ASTM D86 | 243 | **251** | --- | --- |
| 50% Distill Point | °C | ASTM D86 | 255 | **264** | --- | --- |
| 60% Distill Point | °C | ASTM D86 | 267 | **278** | --- | --- |
| 70% Distill Point | °C | ASTM D86 | 280 | **291** | --- | --- |
| 80% Distill Point | °C | ASTM D86 | 295 | **307** | --- | --- |
| 85% Distillation Point | °C | ASTM D86 | | **317** | --- | --- |
| 90% Distill Point | °C | ASTM D86 | 310 | **328** | --- | --- |
| 95% Distillation Point | °C | ASTM D86 | | **346** | --- | --- |
| Final Boiling Point | °C | ASTM D86 | 341 | **360** | --- | --- |

| IGNITION QUALITY | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| API Gravity | | ASTM D7777 | 37.7 | **37** | --- | --- |
| Cetane Index | | ASTM D4737 | <40.0 | **50** | --- | --- |

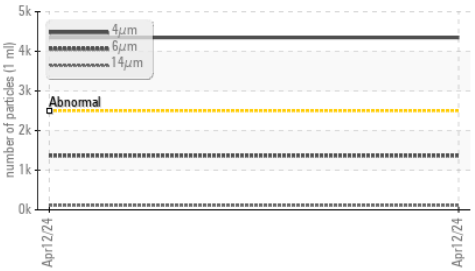
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | <1.0 | **0** | --- | --- |
| Sodium | ppm | ASTM D5185m | <0.1 | **0** | --- | --- |
| Potassium | ppm | ASTM D5185m | <0.1 | **<1** | --- | --- |
| Water | % | ASTM D6304 | <0.05 | **0.003** | --- | --- |
| ppm Water | ppm | ASTM D6304 | <500 | **30** | --- | --- |
| % Gasoline | % | *In-House | <0.50 | **0.0** | --- | --- |
| % Biodiesel | % | *In-House | <20.0 | **0.0** | --- | --- |

# FUEL REPORT

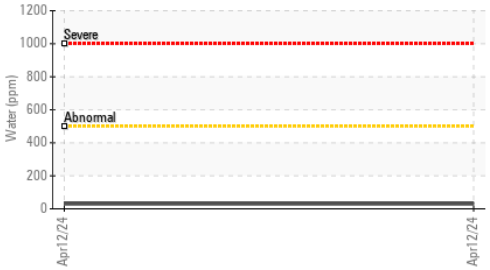
Particle Count




Particle Trend

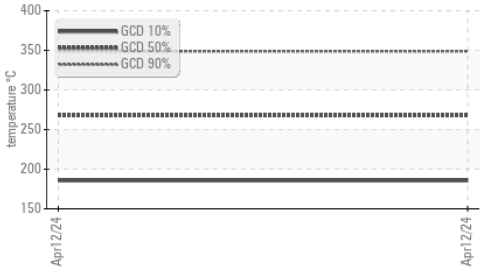



Water (KF)



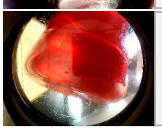

Viscosity @ 40°C


Gas Chromatography (GCD)



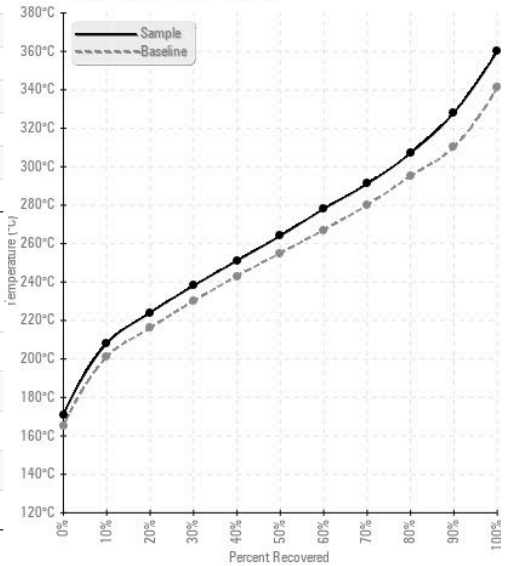

| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >2500 | **4347** | --- | --- |
| Particles >6µm | | ASTM D7647 | >640 | **1368** | --- | --- |
| Particles >14µm | | ASTM D7647 | >80 | **112** | --- | --- |
| Particles >21µm | | ASTM D7647 | >20 | **22** | --- | --- |
| Particles >38µm | | ASTM D7647 | >4 | **0** | --- | --- |
| Particles >71µm | | ASTM D7647 | >3 | **0** | --- | --- |
| Oil Cleanliness | | ISO 4406 (c) | >18/16/13 | **19/18/14** | --- | --- |

| HEAVY METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Aluminum | ppm | ASTM D5185m | <0.1 | **0** | --- | --- |
| Nickel | ppm | ASTM D5185m | <0.1 | **0** | --- | --- |
| Lead | ppm | ASTM D5185m | <0.1 | **0** | --- | --- |
| Vanadium | ppm | ASTM D5185m | <0.1 | **0** | --- | --- |
| Iron | ppm | ASTM D5185m | <0.1 | **0** | --- | --- |
| Calcium | ppm | ASTM D5185m | <0.1 | **0** | --- | --- |
| Magnesium | ppm | ASTM D5185m | <0.1 | **<1** | --- | --- |
| Phosphorus | ppm | ASTM D5185m | <0.1 | **0** | --- | --- |
| Zinc | ppm | ASTM D5185m | <0.1 | **0** | --- | --- |

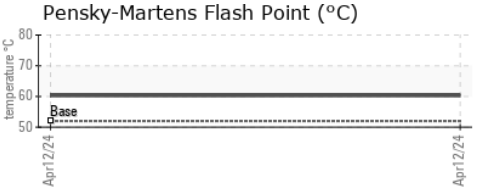
| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | |  | *no image* | *no image* |
| Bottom | | |  | *no image* | *no image* |

## GRAPHS

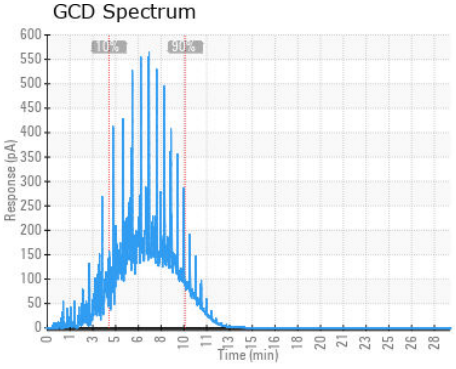
Fuel Distillation Curve




Pensky-Martens Flash Point (°C)




GCD Spectrum




**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : KT0000936
**Lab Number** : 06158666
**Unique Number** : 10994089
**Test Package** : DF-2 ( Additional Tests: Fuel, Screen )

**Received** : 23 Apr 2024
**Tested** : 06 May 2024
**Diagnosed** : 06 May 2024 - Doug Bogart

Certificate L2367

*To discuss this sample report, contact Customer Service at 1-800-237-1369.*
** - Denotes test methods that are outside of the ISO 17025 scope of accreditation.*
*Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)*

**FOUR BROTHERS OUTDOOR POWER**
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Report Id: FOUTER [WUSCAR] 06158666 (Generated: 05/06/2024 21:44:13) Rev: 1
Contact/Location: TRAVIS RICHARDSON - FOUTER