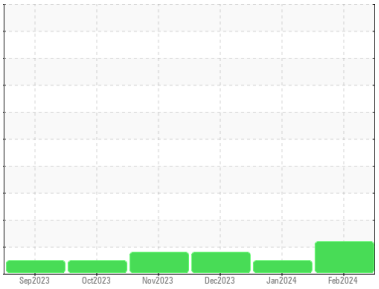
# FUEL REPORT

Sample Rating Trend




ISO

Machine Id
## IDEM FO2T 12-13
Component
**Diesel Fuel**
Fluid
**DIESEL FUEL No. 2 (--- GAL)**

## DIAGNOSIS

**Recommendation**

We advise that you filter this fluid before use if applicable. ASTM D240 result 18,921 BTU/lb. Test performed at subcontracted ISO 17025 laboratory. All laboratory tests indicate that this sample meets specifications for No.2 low-sulfur diesel fuel.

**Corrosion**

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

**Contaminants**

There is a high amount of silt (particulates < 14 microns in size) present in the fuel. There is no bacteria or fungus (yeast and/or mold) indicated in the sample. The water content is negligible.

**Fuel Condition**

Sulfur value derived by ASTM D5453 method for ULSD validation.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **WC0911759** | WC0901676 | WC0892753 |
| Sample Date | | Client Info | | **15 Feb 2024** | 14 Jan 2024 | 15 Dec 2023 |
| Machine Age | hrs | Client Info | | **0** | 0 | 0 |
| Sample Status | | | | **ABNORMAL** | NORMAL | ATTENTION |

| PHYSICAL PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Specific Gravity | | *ASTM D1298 | | **0.863** | 0.862 | 0.862 |
| Fuel Color | text | *Visual Screen | | **Red** | Red | Red |
| ASTM Color | scalar | *ASTM D1500 | | **L4.5** | L5.5 | L5.0 |
| Visc @ 40°C | cSt | ASTM D445 | 4.1 | **2.67** | 2.7 | 2.85 |
| Pensky-Martens Flash Point | °C | *PMCC Calculated | | **63** | 62 | 64 |
| Cloud Point | °C | ASTM D5771 | | **-21** | -21 | -21 |
| Pour Point | °C | ASTM D5950 | | **-38** | -38 | -38 |

| SULFUR CONTENT | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sulfur | ppm | ASTM D5185m | | **23** | 27 | 31 |
| Sulfur (UVF) | ppm | ASTM D5453 | | **25** | 38 | 40 |

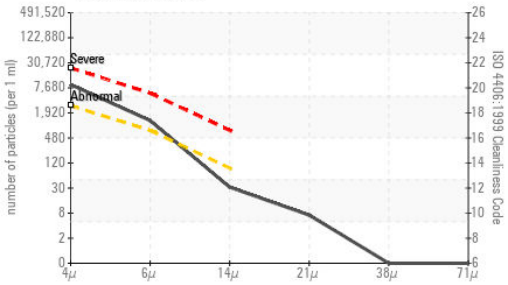
| DISTILLATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Initial Boiling Point | °C | ASTM D86 | | **173** | 170 | 174 |
| 5% Distillation Point | °C | ASTM D86 | | **198** | 199 | 199 |
| 10% Distill Point | °C | ASTM D86 | | **211** | 211 | 212 |
| 15% Distillation Point | °C | ASTM D86 | | **221** | 221 | 221 |
| 20% Distill Point | °C | ASTM D86 | | **228** | 229 | 229 |
| 30% Distill Point | °C | ASTM D86 | | **242** | 241 | 242 |
| 40% Distill Point | °C | ASTM D86 | | **254** | 253 | 254 |
| 50% Distill Point | °C | ASTM D86 | | **265** | 265 | 265 |
| 60% Distill Point | °C | ASTM D86 | | **278** | 277 | 278 |
| 70% Distill Point | °C | ASTM D86 | | **290** | 289 | 290 |
| 80% Distill Point | °C | ASTM D86 | | **304** | 303 | 304 |
| 85% Distillation Point | °C | ASTM D86 | | **312** | 312 | 313 |
| 90% Distill Point | °C | ASTM D86 | | **323** | 322 | 323 |
| 95% Distillation Point | °C | ASTM D86 | | **340** | 339 | 341 |
| Final Boiling Point | °C | ASTM D86 | | **352** | 351 | 353 |
| Distillation Residue | % | ASTM D86 | | **1.4** | 1.4 | 1.4 |
| Distillation Loss | % | ASTM D86 | | **0.5** | 0.5 | 0.6 |

| IGNITION QUALITY | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| API Gravity | | ASTM D7777 | | **32.5** | 32.7 | 32.7 |
| Cetane Index | | ASTM D4737 | <40.0 | **41.6** | 41.7 | 41.9 |

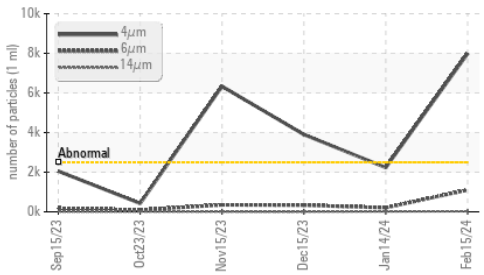
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | <1.0 | **0** | 0 | 0 |
| Sodium | ppm | ASTM D5185m | <0.1 | **<1** | <1 | <1 |
| Potassium | ppm | ASTM D5185m | <0.1 | **<1** | <1 | 0 |
| Water | % | ASTM D6304 | <0.05 | **0.003** | 0.010 | 0.006 |
| ppm Water | ppm | ASTM D6304 | <500 | **39** | 106 | 65 |
| % Gasoline | % | *In-House | <0.50 | **0.0** | 0.0 | 0.0 |
| % Biodiesel | % | *In-House | <20.0 | **0.0** | 0.0 | 0.0 |

# FUEL REPORT

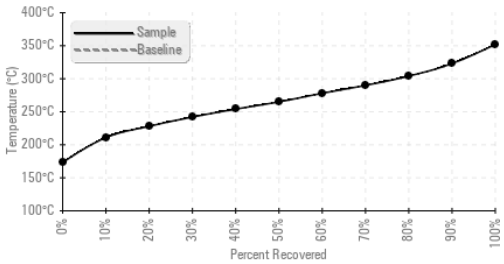
Particle Count



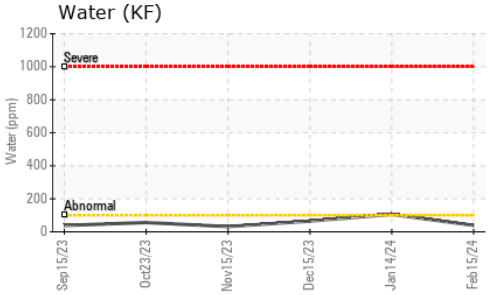

Particle Trend



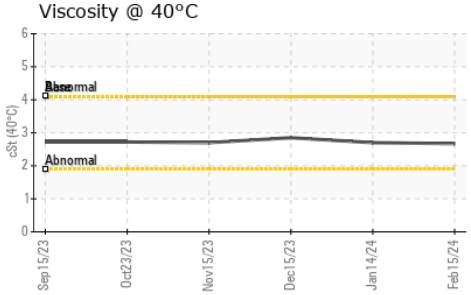

Fuel Distillation Curve




Water (KF)

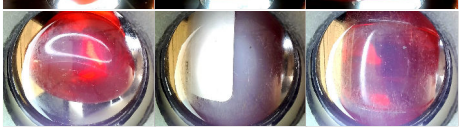



Viscosity @ 40°C




| FLUID CLEANLINESS | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Particles >4µm | ASTM D7647 | >2500 | ▲ **7984** | 2234 | ● 3901 |
| Particles >6µm | ASTM D7647 | >640 | ● **1102** | 203 | 332 |
| Particles >14µm | ASTM D7647 | >80 | **28** | 16 | 4 |
| Particles >21µm | ASTM D7647 | >20 | **6** | 4 | 1 |
| Particles >38µm | ASTM D7647 | >4 | **0** | 1 | 0 |
| Particles >71µm | ASTM D7647 | >3 | **0** | 0 | 0 |
| Oil Cleanliness | ISO 4406 (c) | >18/16/13 | ▲ **20/17/12** | 18/15/11 | ● 19/16/9 |

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

| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | |  | | |
| Bottom | | |  | | |

Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : WC0911759
**Lab Number** : 06097351
**Unique Number** : 10890204
**Test Package** : DF-3 ( Additional Tests: Screen )

**Received** : 22 Feb 2024
**Tested** : 12 Mar 2024
**Diagnosed** : 12 Mar 2024 - Doug Bogart

*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)*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