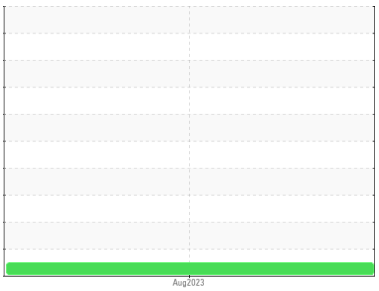
# FUEL REPORT

Sample Rating Trend




NORMAL

Area
**[SC-3456946]**
Machine Id
**JCB 3CX 3143560**
Component
**Diesel Fuel**
Fluid
**{not provided} (--- QTS)**

## DIAGNOSIS

**Recommendation**
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**
The water content is negligible. There is no bacteria or fungus (yeast and/or mold) indicated in the sample. There is no indication of any contamination in the fuel. The amount and size of particulates present in the system are acceptable.

**Fuel Condition**
Sulfur value derived by ASTM D5453 method for ULSD validation.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **JCBDF04580** | --- | --- |
| Sample Date | | Client Info | | **14 Aug 2023** | --- | --- |
| Machine Age | hrs | Client Info | | **0** | --- | --- |
| Sample Status | | | | **NORMAL** | --- | --- |

| PHYSICAL PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Specific Gravity | | *ASTM D1298 | | **0.838** | --- | --- |
| Fuel Color | text | *Visual Screen | | **YIlow** | --- | --- |
| ASTM Color | scalar | *ASTM D1500 | | **L3.0** | --- | --- |
| Visc @ 40°C | cSt | ASTM D445 | | **2.33** | --- | --- |
| Pensky-Martens Flash Point | °C | *PMCC Calculated | | **62** | --- | --- |

| SULFUR CONTENT | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sulfur | ppm | ASTM D5185m | | **20** | --- | --- |
| Sulfur (UVF) | ppm | ASTM D5453 | | **45** | --- | --- |

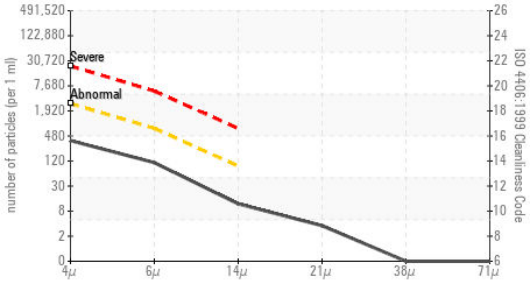
| DISTILLATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Initial Boiling Point | °C | ASTM D86 | | **170** | --- | --- |
| 5% Distillation Point | °C | ASTM D86 | | **191** | --- | --- |
| 10% Distill Point | °C | ASTM D86 | | **200** | --- | --- |
| 15% Distillation Point | °C | ASTM D86 | | **208** | --- | --- |
| 20% Distill Point | °C | ASTM D86 | | **217** | --- | --- |
| 30% Distill Point | °C | ASTM D86 | | **232** | --- | --- |
| 40% Distill Point | °C | ASTM D86 | | **246** | --- | --- |
| 50% Distill Point | °C | ASTM D86 | | **259** | --- | --- |
| 60% Distill Point | °C | ASTM D86 | | **272** | --- | --- |
| 70% Distill Point | °C | ASTM D86 | | **287** | --- | --- |
| 80% Distill Point | °C | ASTM D86 | | **304** | --- | --- |
| 85% Distillation Point | °C | ASTM D86 | | **313** | --- | --- |
| 90% Distill Point | °C | ASTM D86 | | **324** | --- | --- |
| 95% Distillation Point | °C | ASTM D86 | | **342** | --- | --- |
| Final Boiling Point | °C | ASTM D86 | | **348** | --- | --- |
| Distillation Residue | % | ASTM D86 | | **1.4** | --- | --- |
| Distillation Loss | % | ASTM D86 | | **0.9** | --- | --- |

| IGNITION QUALITY | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| API Gravity | | ASTM D7777 | | **37.4** | --- | --- |
| Cetane Index | | ASTM D4737 | <40.0 | **48.9** | --- | --- |

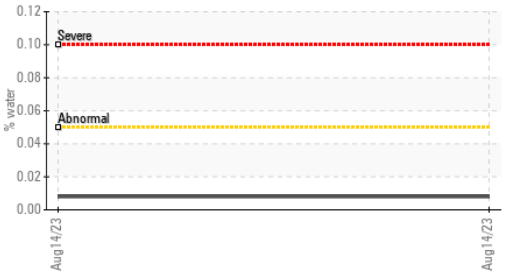
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | <1.0 | **2** | --- | --- |
| Sodium | ppm | ASTM D5185m | <0.1 | **<1** | --- | --- |
| Potassium | ppm | ASTM D5185m | <0.1 | **0** | --- | --- |
| Water | % | ASTM D6304 | <0.05 | **0.008** | --- | --- |
| ppm Water | ppm | ASTM D6304 | <500 | **80.6** | --- | --- |
| % Gasoline | % | *In-House | <0.50 | **0.0** | --- | --- |
| % Biodiesel | % | *In-House | <20.0 | **2.2** | --- | --- |

# FUEL REPORT

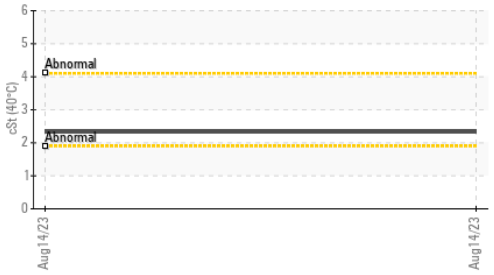
Particle Count




Water

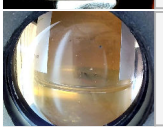



Viscosity @ 40°C



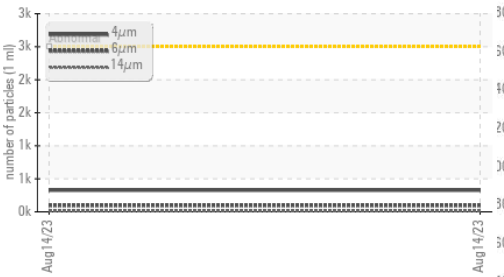

| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >2500 | **327** | --- | --- |
| Particles >6µm | | ASTM D7647 | >640 | **97** | --- | --- |
| Particles >14µm | | ASTM D7647 | >80 | **10** | --- | --- |
| Particles >21µm | | ASTM D7647 | >20 | **3** | --- | --- |
| Particles >38µm | | ASTM D7647 | >4 | **0** | --- | --- |
| Particles >71µm | | ASTM D7647 | >3 | **0** | --- | --- |
| Oil Cleanliness | | ISO 4406 (c) | >18/16/13 | **16/14/10** | --- | --- |

| 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 | **2** | --- | --- |
| Magnesium | ppm | ASTM D5185m | <0.1 | **2** | --- | --- |
| Phosphorus | ppm | ASTM D5185m | <0.1 | **3** | --- | --- |
| Zinc | ppm | ASTM D5185m | <0.1 | **0** | --- | --- |

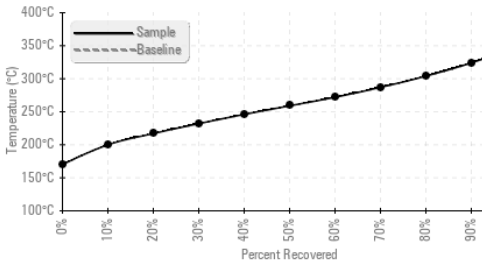
| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | |  | *no image* | *no image* |
| Bottom | | |  | *no image* | *no image* |

## GRAPHS

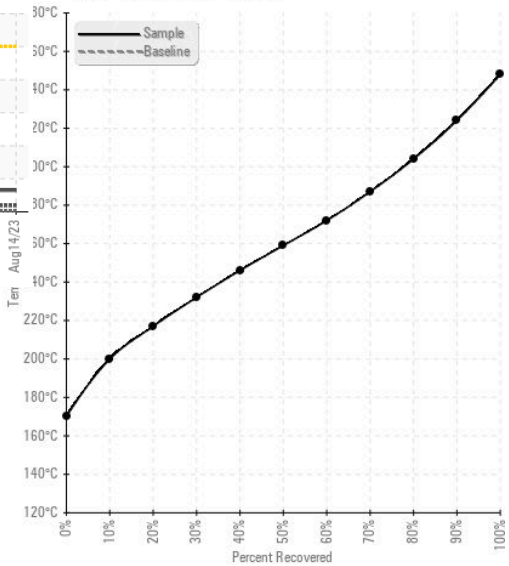
Particle Trend



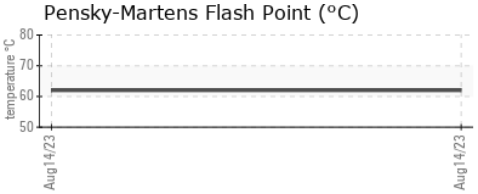

Fuel Distillation Curve




Fuel Distillation Curve




Pensky-Martens Flash Point (°C)




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : JCBDF04580 **Received** : 17 Aug 2023
**Lab Number** : 05927670 **Diagnosed** : 23 Aug 2023
**Unique Number** : 10607617 **Diagnostician** : Doug Bogart
**Test Package** : DF-2 ( Additional Tests: Screen )

*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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