

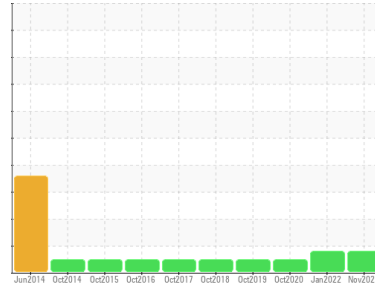


# FUEL REPORT

Sample Rating Trend

ISO

Area  
**HOSPITAL**  
 Machine Id  
**200G ABOVE GROUND DUKE NORTH PAVILION DAY TANK**  
 Component  
**Diesel Fuel**  
 Fluid  
**No.2 DIESEL FUEL (ULTRALOW SULPHUR) (200 GAL)**



## DIAGNOSIS

### Recommendation

All other 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 |             |            | <b>WC05687557</b>  | WC05437429  | WC05088148  |
| Sample Date        | Client Info |             |            | <b>07 Nov 2022</b> | 04 Jan 2022 | 11 Oct 2020 |
| Machine Age        | hrs         | Client Info |            | <b>0</b>           | 0           | 0           |
| Sample Status      |             |             |            | <b>ATTENTION</b>   | ATTENTION   | NORMAL      |

| PHYSICAL PROPERTIES        |        | method           | limit/base | current      | history1 | history2 |
|----------------------------|--------|------------------|------------|--------------|----------|----------|
| Specific Gravity           |        | *ASTM D1298      | 0.839      | <b>0.841</b> | 0.841    | 0.843    |
| Fuel Color                 | text   | *Visual Screen   | Yellow     | <b>Red</b>   | Red      | Red      |
| ASTM Color                 | scalar | *ASTM D1500      |            | <b>L4.5</b>  | L5.5     | L5.5     |
| Visc @ 40°C                | cSt    | ASTM D445        | 3.0        | <b>2.53</b>  | 2.5      | 2.35     |
| Pensky-Martens Flash Point | °C     | *PMCC Calculated | 52         | <b>61</b>    | 64       | 65       |

| SULFUR CONTENT |     | method      | limit/base | current   | history1 | history2 |
|----------------|-----|-------------|------------|-----------|----------|----------|
| Sulfur         | ppm | ASTM D5185m | 10         | <b>7</b>  | 9        | 6        |
| Sulfur (UVF)   | ppm | ASTM D5453  |            | <b>21</b> | 12       | 10       |

| DISTILLATION           |    | method   | limit/base | current    | history1 | history2 |
|------------------------|----|----------|------------|------------|----------|----------|
| Initial Boiling Point  | °C | ASTM D86 | 165        | <b>164</b> | 164      | 155      |
| 5% Distillation Point  | °C | ASTM D86 |            | <b>189</b> | 190      | 186      |
| 10% Distill Point      | °C | ASTM D86 | 201        | <b>200</b> | 200      | 199      |
| 15% Distillation Point | °C | ASTM D86 |            | <b>210</b> | 209      | 208      |
| 20% Distill Point      | °C | ASTM D86 | 216        | <b>217</b> | 217      | 217      |
| 30% Distill Point      | °C | ASTM D86 | 230        | <b>233</b> | 232      | 232      |
| 40% Distill Point      | °C | ASTM D86 | 243        | <b>247</b> | 246      | 246      |
| 50% Distill Point      | °C | ASTM D86 | 255        | <b>261</b> | 261      | 261      |
| 60% Distill Point      | °C | ASTM D86 | 267        | <b>276</b> | 276      | 275      |
| 70% Distill Point      | °C | ASTM D86 | 280        | <b>291</b> | 292      | 290      |
| 80% Distill Point      | °C | ASTM D86 | 295        | <b>307</b> | 309      | 310      |
| 85% Distillation Point | °C | ASTM D86 |            | <b>316</b> | 318      | 320      |
| 90% Distill Point      | °C | ASTM D86 | 310        | <b>327</b> | 329      | 330      |
| 95% Distillation Point | °C | ASTM D86 |            | <b>344</b> | 344      | 345      |
| Final Boiling Point    | °C | ASTM D86 | 341        | <b>351</b> | 352      | 352      |
| Distillation Residue   | %  | ASTM D86 | 3.0        | <b>1.4</b> | 1.4      | 1.4      |
| Distillation Loss      | %  | ASTM D86 | 3.0        | <b>0.6</b> | 0.5      | 1.6      |

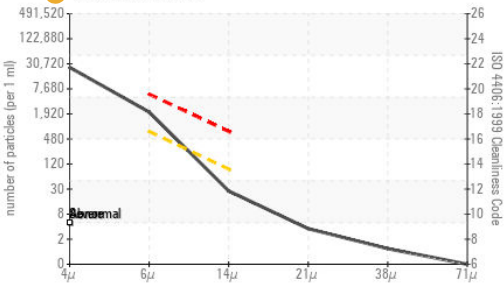
| IGNITION QUALITY |  | method     | limit/base | current     | history1 | history2 |
|------------------|--|------------|------------|-------------|----------|----------|
| API Gravity      |  | ASTM D7777 | 37.7       | <b>36.8</b> | 36.8     | 36.4     |
| Cetane Index     |  | ASTM D4737 | <40.0      | <b>48.1</b> | 48.4     | 48.1     |

| CONTAMINANTS |     | method      | limit/base | current      | history1 | history2 |
|--------------|-----|-------------|------------|--------------|----------|----------|
| Silicon      | ppm | ASTM D5185m | <1.0       | <b>0</b>     | 0        | 0        |
| Sodium       | ppm | ASTM D5185m | <0.1       | <b>0</b>     | 0        | <1       |
| Potassium    | ppm | ASTM D5185m | <0.1       | <b>0</b>     | 0        | 0        |
| Water        | %   | ASTM D6304  | <0.05      | <b>0.007</b> | 0.004    | 0.006    |
| ppm Water    | ppm | ASTM D6304  | <500       | <b>71.2</b>  | 43.7     | 64.3     |
| % Gasoline   | %   | *In-House   | <0.50      | <b>0.0</b>   | 0.0      | 0.0      |
| % Biodiesel  | %   | *In-House   | <20.0      | <b>0.0</b>   | 2.3      | 2.2      |

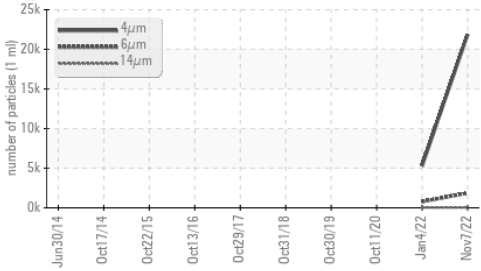


# FUEL REPORT

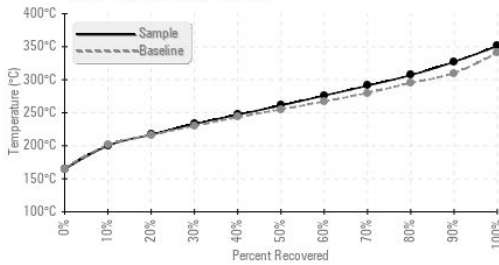
● Particle Count



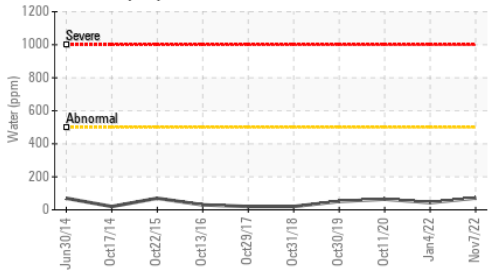
● Particle Trend



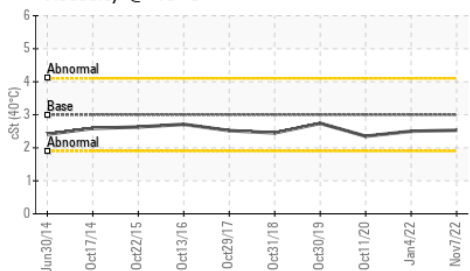
Fuel Distillation Curve



Water (KF)



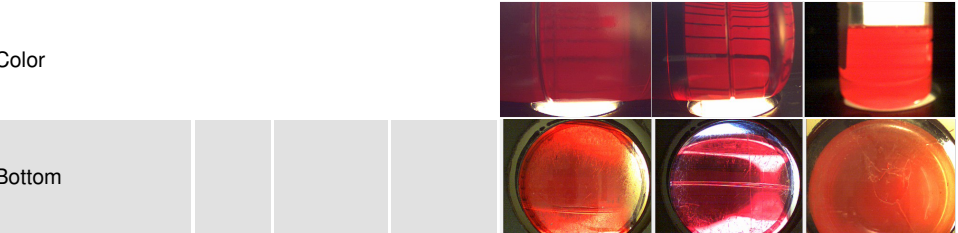
Viscosity @ 40°C



| FLUID CLEANLINESS | method       | limit/base | current         | history1 | history2 |
|-------------------|--------------|------------|-----------------|----------|----------|
| Particles >4µm    | ASTM D7647   |            | <b>21852</b>    | 5288     | ---      |
| Particles >6µm    | ASTM D7647   | >640       | <b>1864</b>     | 781      | ---      |
| Particles >14µm   | ASTM D7647   | >80        | <b>24</b>       | 20       | ---      |
| Particles >21µm   | ASTM D7647   | >20        | <b>3</b>        | 5        | ---      |
| Particles >38µm   | ASTM D7647   | >4         | <b>1</b>        | 0        | ---      |
| Particles >71µm   | ASTM D7647   | >3         | <b>0</b>        | 0        | ---      |
| Oil Cleanliness   | ISO 4406 (c) | >--/16/13  | <b>22/18/12</b> | 20/17/11 | ---      |

| HEAVY METALS | method | limit/base       | current      | history1 | history2 |
|--------------|--------|------------------|--------------|----------|----------|
| Aluminum     | ppm    | ASTM D5185m <0.1 | <b>0</b>     | <1       | 0        |
| Nickel       | ppm    | ASTM D5185m <0.1 | <b>0</b>     | 0        | 0        |
| Lead         | ppm    | ASTM D5185m <0.1 | <b>0</b>     | 0        | 0        |
| Vanadium     | ppm    | ASTM D5185m <0.1 | <b>0</b>     | 0        | 0        |
| Iron         | ppm    | ASTM D5185m <0.1 | <b>0</b>     | <1       | <1       |
| Calcium      | ppm    | ASTM D5185m <0.1 | <b>0</b>     | <1       | 2        |
| Magnesium    | ppm    | ASTM D5185m <0.1 | <b>0</b>     | 0        | <1       |
| Phosphorus   | ppm    | ASTM D5185m <0.1 | <b>&lt;1</b> | <1       | 0        |
| Zinc         | ppm    | ASTM D5185m <0.1 | <b>0</b>     | 0        | 0        |

SAMPLE IMAGES



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WC05687557 **Received** : 07 Nov 2022  
**Lab Number** : **05687557** **Tested** : 14 Nov 2022  
**Unique Number** : 10207129 **Diagnosed** : 17 Nov 2022 - Doug Bogart  
**Test Package** : DF-2 ( Additional Tests: Screen )

**COUCH OIL COMPANY**  
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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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