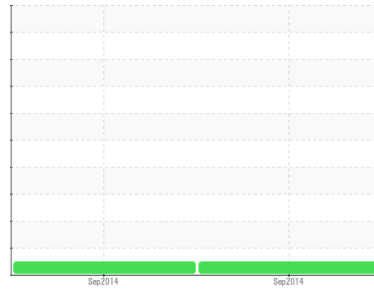




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id
CATERPILLAR 3499
 Component
Hydraulic System
 Fluid
 {not provided} (30 GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the component. The amount and size of particulates present in the system is acceptable.

Fluid Condition

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

SAMPLE INFORMATION

| | method | limit/base | current | history1 | history2 |
|---------------|-------------|-------------|--------------------|-------------|----------|
| Sample Number | Client Info | | PTKM2241485 | PTKM2240191 | --- |
| Sample Date | Client Info | | 13 Sep 2014 | 06 Sep 2014 | --- |
| Machine Age | hrs | Client Info | 3807 | 3678 | --- |
| Oil Age | hrs | Client Info | 0 | 0 | --- |
| Oil Changed | Client Info | | N/A | Not Changd | --- |
| Sample Status | | | NORMAL | NORMAL | --- |

CONTAMINATION

| | method | limit/base | current | history1 | history2 |
|-------|-----------|------------|------------|----------|----------|
| Water | WC Method | >0.1 | NEG | NEG | --- |

WEAR METALS

| | method | limit/base | current | history1 | history2 |
|----------|--------|-----------------|--------------|----------|----------|
| Iron | ppm | ASTM D5185m >20 | 4 | 4 | --- |
| Chromium | ppm | ASTM D5185m >10 | <1 | <1 | --- |
| Nickel | ppm | ASTM D5185m | <1 | <1 | --- |
| Titanium | ppm | ASTM D5185m | <1 | <1 | --- |
| Silver | ppm | ASTM D5185m | <1 | <1 | --- |
| Aluminum | ppm | ASTM D5185m >10 | <1 | <1 | --- |
| Lead | ppm | ASTM D5185m >10 | <1 | 0 | --- |
| Copper | ppm | ASTM D5185m >75 | 12 | 12 | --- |
| Tin | ppm | ASTM D5185m >10 | 0 | 0 | --- |
| Antimony | ppm | ASTM D5185m | 0 | 0 | --- |
| Vanadium | ppm | ASTM D5185m | 0 | 0 | --- |
| Cadmium | ppm | ASTM D5185m | 0 | 0 | --- |

ADDITIVES

| | method | limit/base | current | history1 | history2 |
|------------|--------|-------------|--------------|----------|----------|
| Boron | ppm | ASTM D5185m | <1 | <1 | --- |
| Barium | ppm | ASTM D5185m | 0 | 0 | --- |
| Molybdenum | ppm | ASTM D5185m | 0 | <1 | --- |
| Manganese | ppm | ASTM D5185m | <1 | <1 | --- |
| Magnesium | ppm | ASTM D5185m | 6 | 7 | --- |
| Calcium | ppm | ASTM D5185m | 172 | 182 | --- |
| Phosphorus | ppm | ASTM D5185m | 643 | 648 | --- |
| Zinc | ppm | ASTM D5185m | 818 | 840 | --- |
| Sulfur | ppm | ASTM D5185m | 1485 | 1536 | --- |

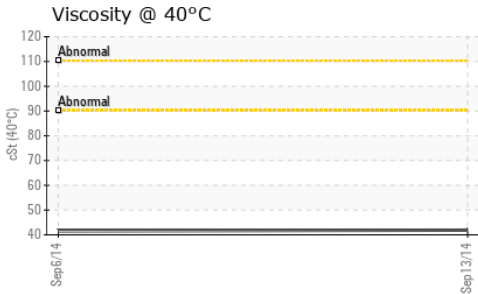
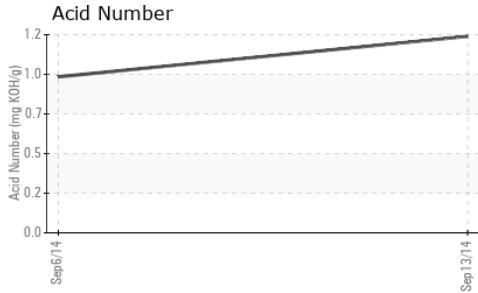
CONTAMINANTS

| | method | limit/base | current | history1 | history2 |
|-----------|--------|-----------------|--------------|----------|----------|
| Silicon | ppm | ASTM D5185m >20 | 3 | 3 | --- |
| Sodium | ppm | ASTM D5185m | <1 | 1 | --- |
| Potassium | ppm | ASTM D5185m >20 | 4 | 10 | --- |

FLUID CLEANLINESS

| | method | limit/base | current | history1 | history2 |
|-----------------|--------------|------------|-----------------|----------|----------|
| Particles >4µm | ASTM D7647 | | 142 | 531 | --- |
| Particles >6µm | ASTM D7647 | >2500 | 77 | 289 | --- |
| Particles >14µm | ASTM D7647 | >320 | 13 | 49 | --- |
| Particles >21µm | ASTM D7647 | >80 | 4 | 16 | --- |
| Particles >38µm | ASTM D7647 | >20 | 0 | 2 | --- |
| Particles >71µm | ASTM D7647 | >4 | 0 | 0 | --- |
| Oil Cleanliness | ISO 4406 (c) | >18/15 | 14/13/11 | 16/15/13 | --- |

OIL ANALYSIS REPORT



| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|-------------------|----------|------------|------------|-------------|----------|----------|
| Acid Number (AN) | mg KOH/g | ASTM D8045 | | 1.19 | 0.945 | --- |

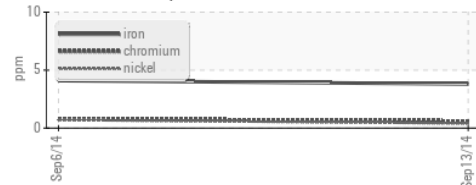
| VISUAL | | method | limit/base | current | history1 | history2 |
|------------------|--------|---------|------------|--------------|----------|----------|
| White Metal | scalar | *Visual | NONE | VLITE | VLITE | --- |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | --- |
| Precipitate | scalar | *Visual | NONE | NONE | NONE | --- |
| Silt | scalar | *Visual | NONE | NONE | NONE | --- |
| Debris | scalar | *Visual | NONE | NONE | NONE | --- |
| Sand/Dirt | scalar | *Visual | NONE | NONE | NONE | --- |
| Appearance | scalar | *Visual | NORML | NORML | NORML | --- |
| Odor | scalar | *Visual | NORML | NORML | NORML | --- |
| Emulsified Water | scalar | *Visual | >0.1 | NEG | NEG | --- |
| Free Water | scalar | *Visual | | NEG | NEG | --- |

| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|------------------|-----|-----------|------------|--------------|----------|----------|
| Visc @ 40°C | cSt | ASTM D445 | | 41.89 | 41.57 | --- |

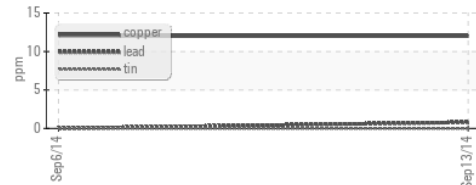
| SAMPLE IMAGES | | method | limit/base | current | history1 | history2 |
|---------------|--|--------|------------|-----------------|-----------------|-----------------|
| Color | | | | <i>no image</i> | <i>no image</i> | <i>no image</i> |
| Bottom | | | | <i>no image</i> | <i>no image</i> | <i>no image</i> |

GRAPHS

Ferrous Alloys



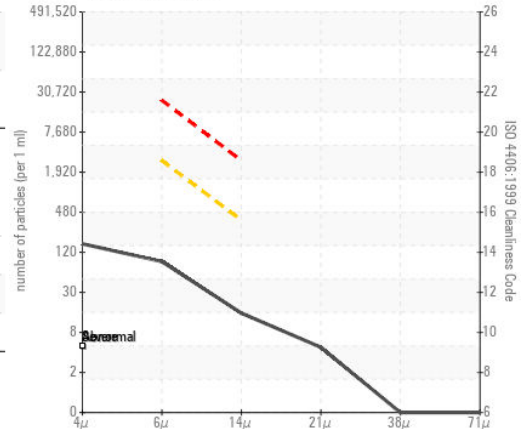
Non-ferrous Metals



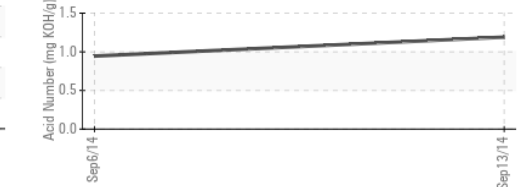
Viscosity @ 40°C



Particle Count



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PTKM2241485
Lab Number : 03584203
Unique Number : 6747131
Test Package : MOB 2

Received : 18 Sep 2014
Tested : 21 Sep 2014
Diagnosed : 21 Sep 2014 - Jonathan Hester

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 6770 S DAWSON CIRCLE SUITE 300
 CENTENNIAL, CO
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 carj04@juno.com
 T: (720)377-2171
 F: (720)377-2172

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)