

OIL ANALYSIS REPORT

Sample Rating Trend

NO CONTRACTOR OF THE PROPERTY OF THE PROPERTY

NORMAL





ALLIED - 151 Machine Id CATERPILLAR 151-#18

Right Diesel Engine

PETRO CANADA DURON HP 15W40 (280 LTR)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. Please contact your representative for information regarding the proper sampling kits for your service. NOTE: We recommend using MOB 3 test kits, this testkit includes Analytical Ferrography which provides a detailed morphological analysis of wear particles present in the fluid. this testkit includes BN to determine the suitability of the oil for continued use.

Wear

Metal levels are typical for a new component breaking in. Component wear rates appear to be normal (unconfirmed).

Contamination

There is no indication of any contamination in the oil.

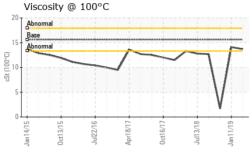
Fluid Condition

The condition of the oil is acceptable for the time in service (unconfirmed).

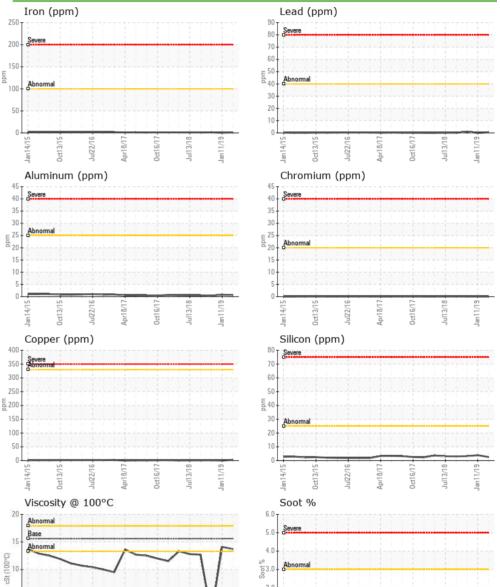
SAMPLE INFORMATION method limit/base current history 1 Sample Number WC0309223 WC0309257 Sample Date 20 Apr 2019 11 Jan 2019 Machine Age hrs 397 329 Oil Age hrs 0 0 Oil Changed Not Changd Not Changd Sample Status Normal MRGINAL CONTAMINATION method limit/base current history 1 Fuel ASTM D3524 >5 <1.0 3.5 GIycol NEG NEG WEAR METALS method limit/base current history 1 Image: current history 1 Iron ppm ASTM D5185 >100 1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <	history 3 WC112866 12 Oct 2018 328 0 Not Change SEVERE history 3 5.5 0.02
Sample Date 20 Apr 2019 11 Jan 2019 Machine Age hrs 397 329 Oil Age hrs 0 0 Oil Changed Not Changd Not Changd Sample Status NORMAL MARGINAL CONTAMINATION method limit/base current history 1 Fuel ASTM D3524 >5 <1.0	12 Oct 2018 328 0 Not Change SEVERE history 3 5.5 0.02
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CONTAMINATION method limit/base current history 1 Fuel ASTM D3524 >5 <1.0	history : 5.5 0.02
STIM D3524 >5	▲ 5.5 ▲ 0.02
NEG NEG	▲ 0.02
WEAR METALS method limit/base current history 1 Iron ppm ASTM D5185 >100 1 <1	
Chromium	history :
Chromium ppm ASTM D5185 >20 0 0 Nickel ppm ASTM D5185 >2 0 0 Titanium ppm ASTM D5185 >2 0 0 Silver ppm ASTM D5185 >2 0 0 Aluminum ppm ASTM D5185 >2 1 <1	
Nickel	1
Titanium ppm ASTM D5185 >2 0 0 Silver ppm ASTM D5185 >2 0 0 Aluminum ppm ASTM D5185 >25 <1	0
Silver ppm ASTM D5185 >2 0 0 Aluminum ppm ASTM D5185 >25 <1	<1
Aluminum ppm ASTM D5185 >25 <1 <1 Lead ppm ASTM D5185 >40 <1	0
Lead ppm ASTM D5185 >40 <1 0 Copper ppm ASTM D5185 >330 3 <1	0
Copper ppm ASTM D5185 >330 3 <1 Tin ppm ASTM D5185 >15 0 0 Antimony ppm ASTM D5185 0 0 Vanadium ppm ASTM D5185 0 0 Beryllium ppm ASTM D5185 0 0 Cadmium ppm ASTM D5185 0 0 Cadmium ppm ASTM D5185 0 0 Boron ppm ASTM D5185 0 26 27 Barium ppm ASTM D5185 0 0 0 Molybdenum ppm ASTM D5185 0 46 48 Manganese ppm ASTM D5185 0 <1	<1
Tin ppm ASTM D5185 >15 0 0 Antimony ppm ASTM D5185 0 0 Vanadium ppm ASTM D5185 0 0 Beryllium ppm ASTM D5185 0 0 Cadmium ppm ASTM D5185 0 0 ADDITIVES method limit/base current history 1 Boron ppm ASTM D5185 0 26 27 Barium ppm ASTM D5185 0 0 0 Molybdenum ppm ASTM D5185 0 46 48 Manganese ppm ASTM D5185 0 <1	1
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Vanadium ppm ASTM D5185 0 0 Beryllium ppm ASTM D5185 0 0 Cadmium ppm ASTM D5185 0 0 ADDITIVES method limit/base current history 1 Boron ppm ASTM D5185 0 26 27 Barium ppm ASTM D5185 0 0 0 Molybdenum ppm ASTM D5185 60 46 48 Manganese ppm ASTM D5185 0 <1 <1 Magnesium ppm ASTM D5185 1010 766 775 Calcium ppm ASTM D5185 1070 1104 1112 Phosphorus ppm ASTM D5185 1270 1143 1143 Sulfur ppm ASTM D5185 2060 2682 2695 Lithium ppm ASTM D5185 0 0 0	0
Cadmium ppm ASTM D5185 0 0 ADDITIVES method limit/base current history 1 Boron ppm ASTM D5185 0 26 27 Barium ppm ASTM D5185 0 0 0 Molybdenum ppm ASTM D5185 60 46 48 Manganese ppm ASTM D5185 0 <1	0
ADDITIVES method limit/base current history 1 Boron ppm ASTM D5185 0 26 27 Barium ppm ASTM D5185 0 0 0 Molybdenum ppm ASTM D5185 60 46 48 Manganese ppm ASTM D5185 0 <1	0
Boron ppm ASTM D5185 0 26 27 Barium ppm ASTM D5185 0 0 0 Molybdenum ppm ASTM D5185 60 46 48 Manganese ppm ASTM D5185 0 <1	<1
Barium ppm ASTM D5185 0 0 0 Molybdenum ppm ASTM D5185 60 46 48 Manganese ppm ASTM D5185 0 <1	history :
Molybdenum ppm ASTM D5185 60 46 48 Manganese ppm ASTM D5185 0 <1	176
Manganese ppm ASTM D5185 0 <1 <1 Magnesium ppm ASTM D5185 1010 766 775 Calcium ppm ASTM D5185 1070 1104 1112 Phosphorus ppm ASTM D5185 1150 973 969 Zinc ppm ASTM D5185 1270 1143 1143 Sulfur ppm ASTM D5185 2060 2682 2695 Lithium ppm ASTM D5185 0 0 CONTAMINANTS method limit/base current history 1	0
Magnesium ppm ASTM D5185 1010 766 775 Calcium ppm ASTM D5185 1070 1104 1112 Phosphorus ppm ASTM D5185 1150 973 969 Zinc ppm ASTM D5185 1270 1143 1143 Sulfur ppm ASTM D5185 2060 2682 2695 Lithium ppm ASTM D5185 0 0 CONTAMINANTS method limit/base current history 1	<1
Calcium ppm ASTM D5185 1070 1104 1112 Phosphorus ppm ASTM D5185 1150 973 969 Zinc ppm ASTM D5185 1270 1143 1143 Sulfur ppm ASTM D5185 2060 2682 2695 Lithium ppm ASTM D5185 0 0 CONTAMINANTS method limit/base current history 1	<1
Phosphorus ppm ASTM D5185 1150 973 969 Zinc ppm ASTM D5185 1270 1143 1143 Sulfur ppm ASTM D5185 2060 2682 2695 Lithium ppm ASTM D5185 0 0 CONTAMINANTS method limit/base current history 1	8
Zinc ppm ASTM D5185 1270 1143 1143 Sulfur ppm ASTM D5185 2060 2682 2695 Lithium ppm ASTM D5185 0 0 CONTAMINANTS method limit/base current history 1	1961
Sulfur ppm ASTM D5185 2060 2682 2695 Lithium ppm ASTM D5185 0 0 CONTAMINANTS method limit/base current history 1	913
Lithium ppm ASTM D5185 0 0 CONTAMINANTS method limit/base current history 1	1039
CONTAMINANTS method limit/base current history 1	2881
·	0
ACTAIN DEADE	history :
Silicon ppm ASTM D5185 >25 3 4	3
Sodium ppm ASTM D5185 1 <1	2
Potassium ppm ASTM D5185 >20 <1 1	<u>^</u> 6
INFRA-RED method limit/base current history 1	history :
Soot % % ASTM D7686 >3 0 0	0
Nitration Abs/cm ASTM D7624 >20 5.4 4.7	9.0
Sulfation Abs/.1mm ASTM D7415 >30 19.2 18.6	
FLUID DEGRADATION method limit/base current history 1	15.7
Oxidation Abs/.1mm ASTM D7414 >25 14.1 13.9	15.7 history



OIL ANALYSIS REPORT



VISUAL		method	limit/base	current	history 1	history 2
Emulsified Water	scalar	Visual	>0.2	NEG	NEG	5 %
Free Water	scalar	Visual		NEG	NEG	<u>1</u> %
FLUID PROPE	RTIES	method	limit/base	current	history 1	history 2
Visc @ 100°C	cSt	ASTM D7279	15.6	13.7	14.1	1.7
GRAPHS						
Iron (ppm)			0.0	Lead (ppm)		



2.0

0.0



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 Sample No.

: WC1234567 Received : 26 Apr 2019 Lab Number : 01234567 Diagnosed : 26 Apr 2019 : 12345678 **Unique Number** Diagnostician : Wes Davis

Test Package : MOB 1

Cusany Logistics Inc. 1212 Industrial Place

Centerville, OH USA 75900

Contact: Jim Leduc jim.leduc@cusanylogisticsinc.com

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To discuss diagnosis or test data, contact Technical Support at 1-800-268-2131. To change component or sample information, contact Customer Service at 1-800-268-2131.