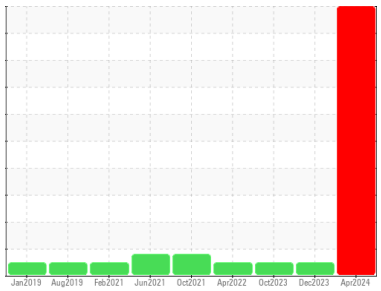
OIL ANALYSIS REPORT

OIL DIAGNOSTICS

Area
[68978]
Machine Id
OHT101
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)

Sample Rating Trend



WEAR

DIAGNOSIS

▲ Recommendation
We advise that you check for faulty combustion, plugged air filters, or aftercoolers. Oil and filter change at the time of sampling has been noted. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition. (Customer Sample Comment: PM-1 changed filters and fluid)

▲ Wear
Cylinder, crank, or cam shaft wear is indicated.

▲ Contamination
There is an abnormal amount of solids and carbon present in the oil.

Fluid Condition
The BN result indicates that there is suitable alkalinity remaining in the oil.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**PCA0109333**	PCA0085641	PCA0084712
Sample Date		Client Info		**04 Apr 2024**	21 Dec 2023	19 Oct 2023
Machine Age	hrs	Client Info		**17749**	17325	17273
Oil Age	hrs	Client Info		**17749**	52	17273
Oil Changed		Client Info		**Changed**	Changed	Changed
Sample Status				**SEVERE**	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method	>0.2	**NEG**	NEG	NEG
Glycol		WC Method		**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>86	▲ **164**	35	19
Chromium	ppm	ASTM D5185m	>3	▲ **6**	7	4
Nickel	ppm	ASTM D5185m	>3	**2**	<1	0
Titanium	ppm	ASTM D5185m	>2	**<1**	<1	<1
Silver	ppm	ASTM D5185m	>2	**0**	0	<1
Aluminum	ppm	ASTM D5185m	>15	**2**	2	1
Lead	ppm	ASTM D5185m	>16	**8**	3	3
Copper	ppm	ASTM D5185m	>250	**20**	6	7
Tin	ppm	ASTM D5185m	>2	**5**	2	<1
Vanadium	ppm	ASTM D5185m		**0**	0	0
Cadmium	ppm	ASTM D5185m		**<1**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	**2**	3	3
Barium	ppm	ASTM D5185m	0	**0**	<1	0
Molybdenum	ppm	ASTM D5185m	60	**70**	56	53
Manganese	ppm	ASTM D5185m	0	**1**	<1	<1
Magnesium	ppm	ASTM D5185m	1010	**1039**	928	858
Calcium	ppm	ASTM D5185m	1070	**1235**	1010	934
Phosphorus	ppm	ASTM D5185m	1150	**1146**	1051	966
Zinc	ppm	ASTM D5185m	1270	**1327**	1230	1134
Sulfur	ppm	ASTM D5185m	2060	**3269**	3052	2879

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>35	**20**	26	23
Sodium	ppm	ASTM D5185m		**2**	3	6
Potassium	ppm	ASTM D5185m	>20	**2**	<1	<1
Fuel	%	ASTM D3524	>5	**<1.0**	<1.0	<1.0

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	▲ **3.4**	0.5	0.1
Nitration	Abs/cm	*ASTM D7624	>20	**11.4**	5.5	4.5
Sulfation	Abs/.1mm	*ASTM D7415	>30	**26.8**	18.4	17.2

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**19.2**	13.5	13.1
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	**8.0**	9.2	9.5

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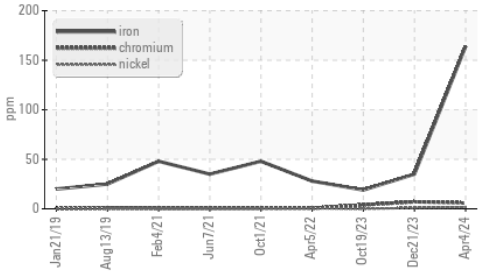
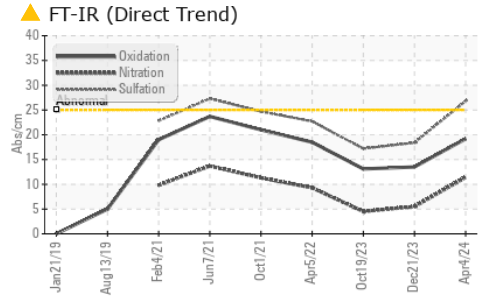
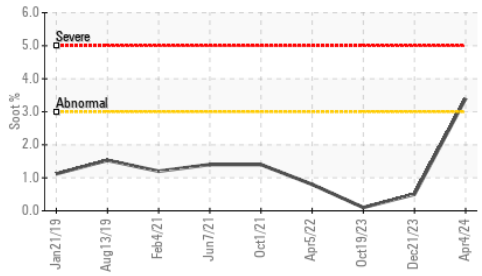
Ferrous Alloys



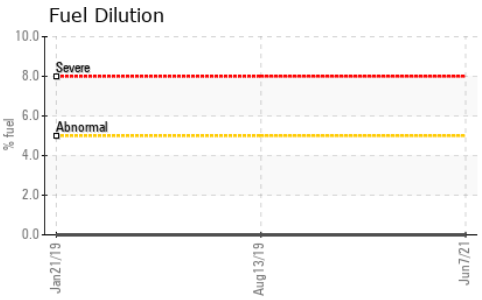
FT-IR (Direct Trend)



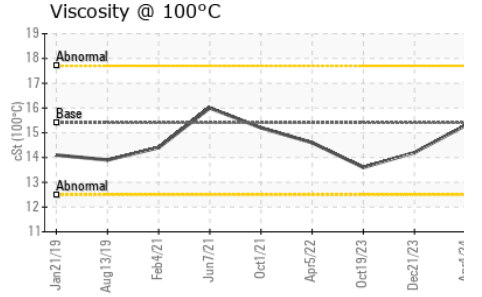
Soot %



Fuel Dilution



Viscosity @ 100°C

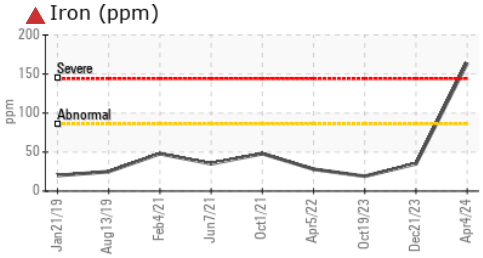


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Appearance	scalar	*Visual	NORML	**NORML**	NORML	NORML
Odor	scalar	*Visual	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	**NEG**	NEG	NEG
Free Water	scalar	*Visual		**NEG**	NEG	NEG

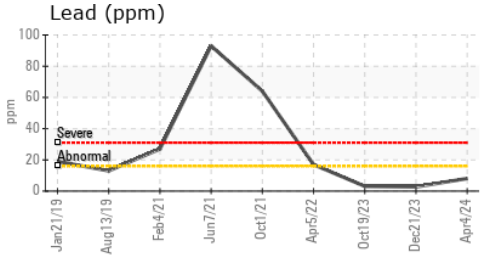
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	**15.3**	14.2	13.6

GRAPHS

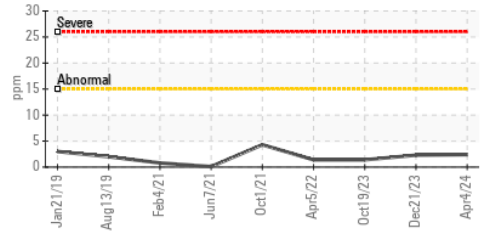
Iron (ppm)



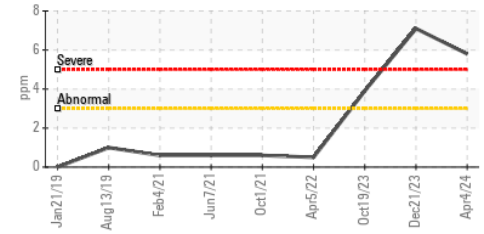
Lead (ppm)



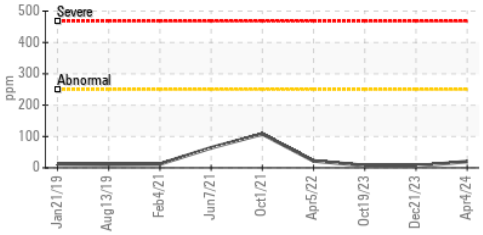
Aluminum (ppm)



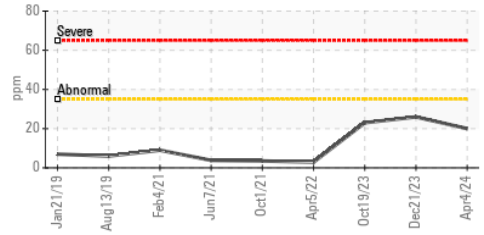
Chromium (ppm)



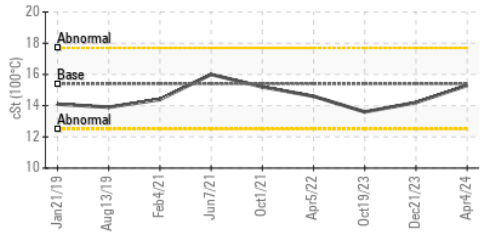
Copper (ppm)



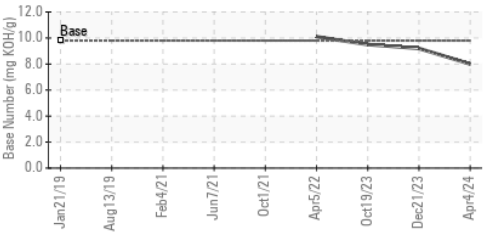
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0109333
Lab Number : 06148405
Unique Number : 10978483
Test Package : MOB 1 (Additional Tests: FuelDilution, TBN)

Received : 15 Apr 2024
Tested : 16 Apr 2024
Diagnosed : 17 Apr 2024 - Sean Felton

Kemp Quarries - Muskogee Sand
3395 W 50th St N
Porter, OK
US 74454
Contact:
muskogee@muskogeesand.com
T:
F:

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)

Report Id: KEMPOR [WUSCAR] 06148405 (Generated: 04/17/2024 13:43:58) Rev: 1

Submitted By: