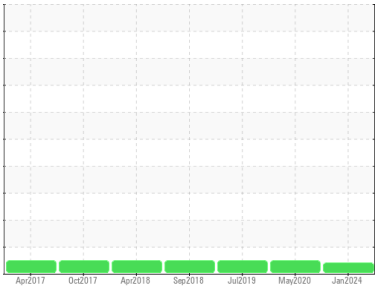
OIL DIAGNOSTICS

OIL ANALYSIS REPORT

Sample Rating Trend



VISCOSITY

Machine Id
CATERPILLAR 3280 20-59 (S/N CAT0328DCGTN00603)
Component
Diesel Engine
Fluid
PETRO CANADA DURON XL SYN BLEND 15W40 (8 GAL)

DIAGNOSIS

Recommendation
Oil and filter change at the time of sampling has been noted. 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 oil.

Fluid Condition
The oil viscosity is lower than normal. 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		**PCA0056826**	PCA0024084	PCA0002357
Sample Date		Client Info		**26 Jan 2024**	29 May 2020	25 Jul 2019
Machine Age	hrs	Client Info		**13828**	13292	12834
Oil Age	hrs	Client Info		**536**	550	801
Oil Changed		Client Info		**Changed**	Changed	N/A
Sample Status				**MARGINAL**	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	>100	**15**	12	18
Chromium	ppm	ASTM D5185m	>20	**0**	<1	<1
Nickel	ppm	ASTM D5185m	>2	**0**	0	<1
Titanium	ppm	ASTM D5185m	>2	**0**	0	0
Silver	ppm	ASTM D5185m	>2	**0**	0	0
Aluminum	ppm	ASTM D5185m	>25	**<1**	1	2
Lead	ppm	ASTM D5185m	>40	**0**	1	4
Copper	ppm	ASTM D5185m	>330	**<1**	11	46
Tin	ppm	ASTM D5185m	>15	**0**	<1	<1
Antimony	ppm	ASTM D5185m		**---**	0	0
Vanadium	ppm	ASTM D5185m		**0**	0	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	1	**3**	6	10
Barium	ppm	ASTM D5185m	1	**0**	0	0
Molybdenum	ppm	ASTM D5185m	60	**50**	61	58
Manganese	ppm	ASTM D5185m	1	**0**	<1	<1
Magnesium	ppm	ASTM D5185m	1010	**760**	949	916
Calcium	ppm	ASTM D5185m	1070	**1447**	1112	1166
Phosphorus	ppm	ASTM D5185m	1150	**1042**	1042	975
Zinc	ppm	ASTM D5185m	1270	**1229**	1149	1093
Sulfur	ppm	ASTM D5185m	2060	**3498**	2462	3254

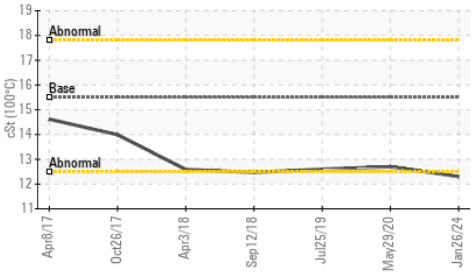
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	**2**	1	2
Sodium	ppm	ASTM D5185m		**2**	2	2
Potassium	ppm	ASTM D5185m	>20	**0**	1	<1
Fuel	%	ASTM D3524	>5	**<1.0**	<1.0	<1.0

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	**0.5**	0.4	0.6
Nitration	Abs/cm	*ASTM D7624	>20	**7.8**	7.8	8.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	**19.7**	20.7	21.6

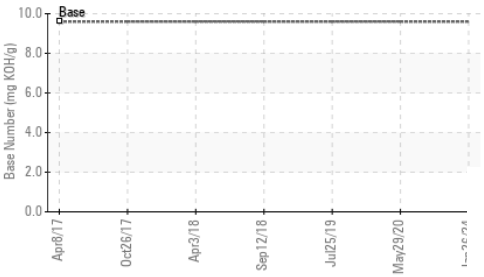
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**13.4**	15.8	17
Base Number (BN)	mg KOH/g	ASTM D2896	9.6	**7.2**	---	---

OIL ANALYSIS REPORT

▲ Viscosity @ 100°C



Base Number

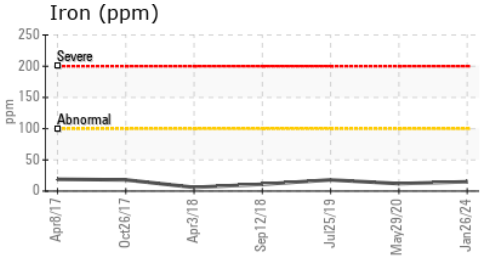


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	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

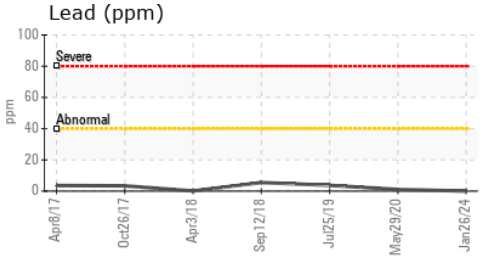
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.5	▲ **12.3**	12.7	12.6

GRAPHS

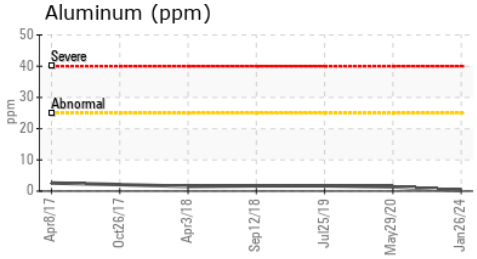
Iron (ppm)



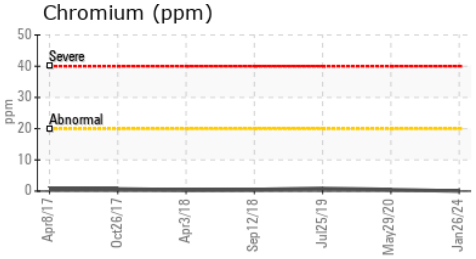
Lead (ppm)



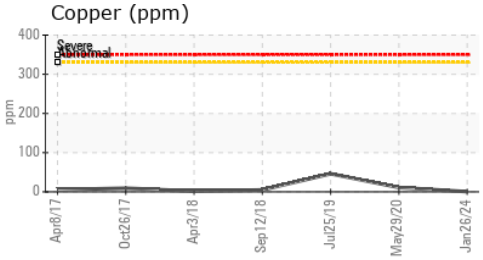
Aluminum (ppm)



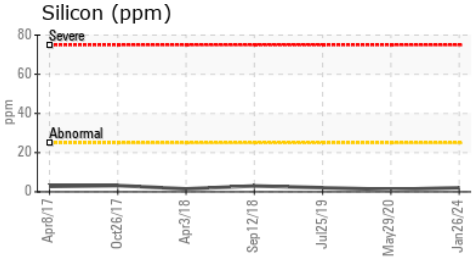
Chromium (ppm)



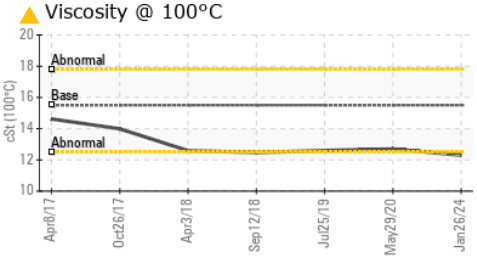
Copper (ppm)



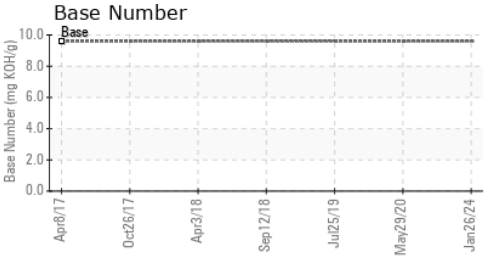
Silicon (ppm)



▲ Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PCA0056826
Lab Number : 06120505
Unique Number : 10929338
Test Package : MOB 1 (Additional Tests: FuelDilution, TBN)

Received : 18 Mar 2024
Tested : 20 Mar 2024
Diagnosed : 20 Mar 2024 - Jonathan Hester

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)

JOHNSON DAVIS CONTRACTORS
604 HILBRATH DR
LANTANA, FL
US 33462
Contact: GENE GARDNER
ggardner@johnsondavis.com
T: (561)588-1170
F: