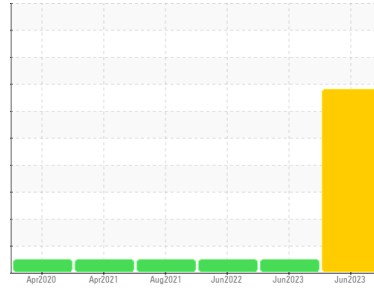


Area
EBI de Costa Rica
Machine Id
VOLVO A40E A40E-03
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (55 LTR)



DIAGNOSIS

Recommendation

We advise that you check for the source of the coolant leak. We recommend that you drain the oil from the component if this has not already been done. We advise that you flush the component thoroughly before re-filling with oil. We recommend an early resample to monitor this condition.

Wear

Silver ppm levels are abnormal.

Contamination

Test for glycol is positive. There is a high concentration of glycol present in the oil. There is a moderate concentration of water present in the oil.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number	Client Info			PC0073819	PC0073826	PC0063056
Sample Date	Client Info			08 Jun 2023	03 Jun 2023	18 Jun 2022
Machine Age	hrs	Client Info		20114	16846	15412
Oil Age	hrs	Client Info		250	250	250
Oil Changed	Client Info			N/A	Changed	N/A
Sample Status				SEVERE	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel	WC Method		>6.0	<1.0	<1.0	1.6

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>100	3	10	21
Chromium	ppm	ASTM D5185(m)	>20	0	<1	<1
Nickel	ppm	ASTM D5185(m)	>2	<1	<1	<1
Titanium	ppm	ASTM D5185(m)		0	<1	<1
Silver	ppm	ASTM D5185(m)	>2	2	<1	0
Aluminum	ppm	ASTM D5185(m)	>25	1	4	6
Lead	ppm	ASTM D5185(m)	>40	<1	1	2
Copper	ppm	ASTM D5185(m)	>330	1	1	2
Tin	ppm	ASTM D5185(m)	>15	0	0	<1
Antimony	ppm	ASTM D5185(m)		0	<1	0
Vanadium	ppm	ASTM D5185(m)		0	0	0
Beryllium	ppm	ASTM D5185(m)		0	0	0
Cadmium	ppm	ASTM D5185(m)		<1	0	0

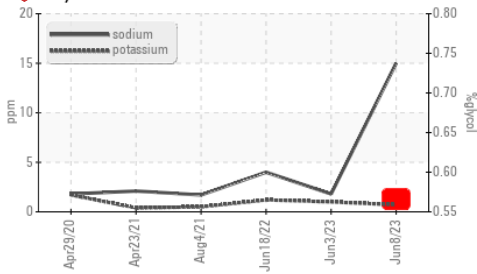
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	0	6	1	2
Barium	ppm	ASTM D5185(m)	0	0	0	0
Molybdenum	ppm	ASTM D5185(m)	60	56	58	58
Manganese	ppm	ASTM D5185(m)	0	0	<1	<1
Magnesium	ppm	ASTM D5185(m)	1010	948	972	994
Calcium	ppm	ASTM D5185(m)	1070	982	996	1128
Phosphorus	ppm	ASTM D5185(m)	1150	1035	1060	1031
Zinc	ppm	ASTM D5185(m)	1270	1177	1172	1245
Sulfur	ppm	ASTM D5185(m)	2060	2571	2583	2772
Lithium	ppm	ASTM D5185(m)		<1	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>25	3	9	14
Sodium	ppm	ASTM D5185(m)		15	2	4
Potassium	ppm	ASTM D5185(m)	>20	<1	1	1
Glycol	%	ASTM D7922*		0.579	NEG	NEG

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*	>3	0.1	0.1	0.3
Nitration	Abs/cm	ASTM D7624*	>20	5.5	5.6	7.0
Sulfation	Abs/.1mm	ASTM D7415*	>30	16.2	18.0	19.7

OIL ANALYSIS REPORT

Glycol Contamination



FLUID DEGRADATION

method	limit/base	current	history1	history2	
Oxidation	Abs/.1mm ASTM D7414*	>25	13.1	13.2	14.4
Base Number (BN)	mg KOH/g ASTM D2896*	9.8	9.19	9.35	8.54

VISUAL

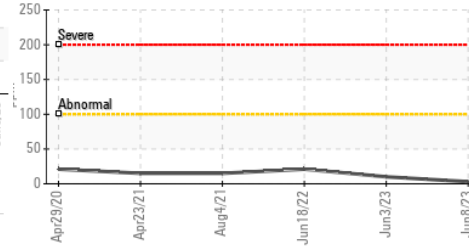
method	limit/base	current	history1	history2	
Emulsified Water	scalar Visual*	>0.2	▲ .5%	NEG	NEG
Free Water	scalar Visual*		NEG	NEG	NEG

FLUID PROPERTIES

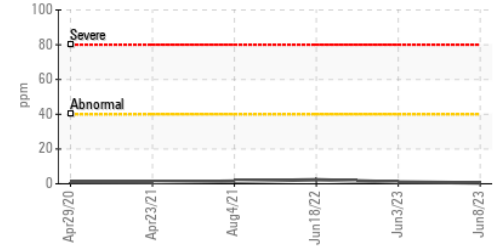
method	limit/base	current	history1	history2	
Visc @ 40°C	cSt ASTM D7279(m)	113.9	105	92.7	88.5
Visc @ 100°C	cSt ASTM D7279(m)	15.4	16.5	13.1	12.6
Viscosity Index (VI)	Scale ASTM D2270*	142	170	140	139

GRAPHS

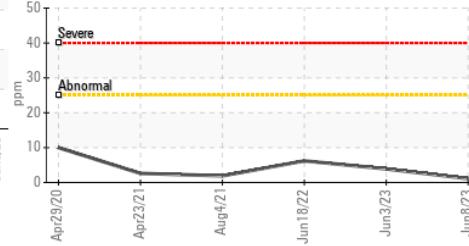
Iron (ppm)



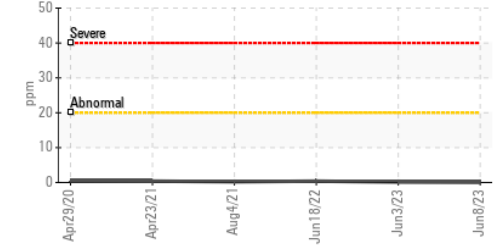
Lead (ppm)



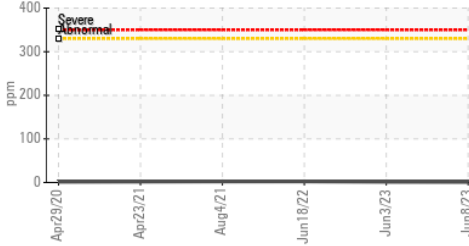
Aluminum (ppm)



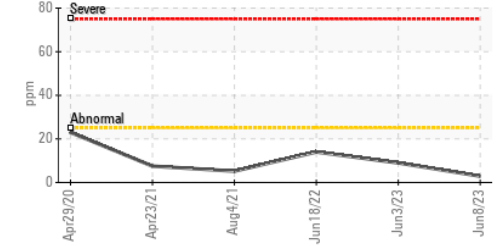
Chromium (ppm)



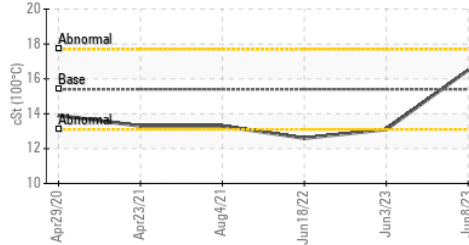
Copper (ppm)



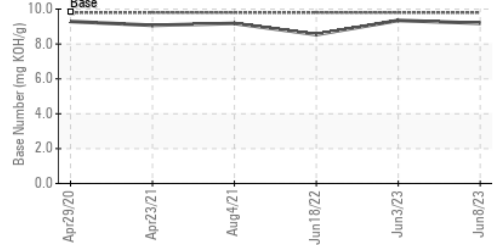
Silicon (ppm)



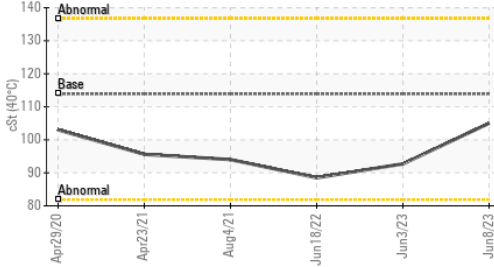
Viscosity @ 100°C



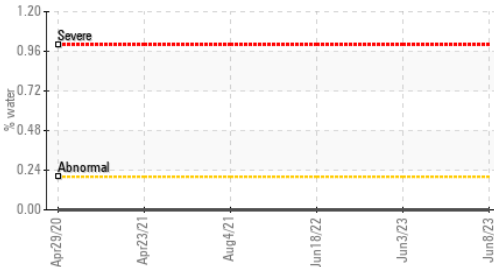
Base Number



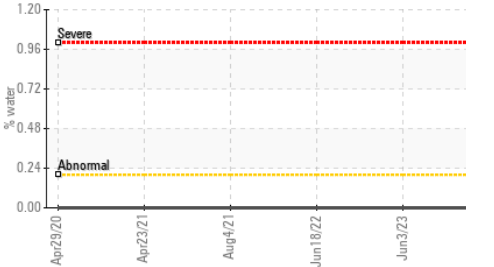
Viscosity @ 40°C



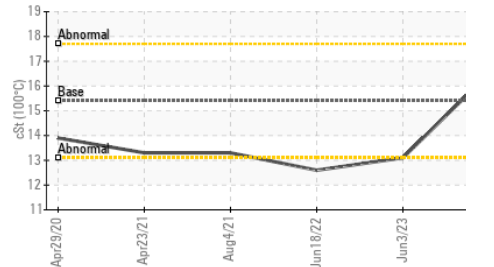
Water



Water



Viscosity @ 100°C



ISO 17025:2017
Accredited
Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 **INDUSTRIAS del PETROLEO CANAD. SA**
Sample No. : PC0073819 **Received** : 13 Jul 2023
Lab Number : 02569546 **Diagnosed** : 17 Jul 2023
Unique Number : 5606592 **Diagnostician** : Kevin Marson
Test Package : MOB 2 (Additional Tests: Glycol, KF, KV40, VI)

To discuss this sample report, contact Customer Service at 1-800-268-2131.
 Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
 Validity of results and interpretation are based on the sample and information as supplied.

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 CR
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 F: 1(115)062-2870