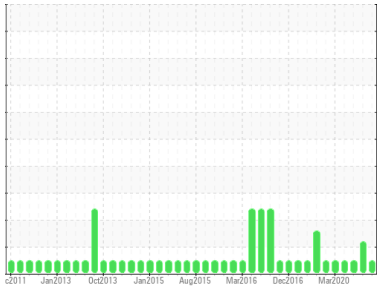
OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Area
Cranes [450255637]
Machine Id
Crane - Mid Ship Engine Crank Case (S/N Sample Tag MA-04002-S10)
Component
Diesel Engine
Fluid
PETRO CANADA DURON HP 15W40 (42 LTR)

DIAGNOSIS

Recommendation
Resample at the next service interval to monitor.

Wear
All component wear rates are normal.

Contamination
The water content is negligible. There is no indication of any contamination in the oil.

Fluid Condition
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**PC0080619**	PC	PC0030625
Sample Date		Client Info		**20 Jan 2024**	04 Oct 2023	20 May 2021
Machine Age	hrs	Client Info		**0**	0	0
Oil Age	hrs	Client Info		**0**	0	0
Oil Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**NORMAL**	ABNORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>5	**<1.0**	<1.0	<1.0

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		**0**	0	0
Iron	ppm	ASTM D5185(m)	>100	**15**	14	2
Chromium	ppm	ASTM D5185(m)	>20	**<1**	<1	0
Nickel	ppm	ASTM D5185(m)	>4	**3**	2	<1
Titanium	ppm	ASTM D5185(m)		**0**	0	0
Silver	ppm	ASTM D5185(m)	>3	**0**	<1	<1
Aluminum	ppm	ASTM D5185(m)	>20	**2**	2	<1
Lead	ppm	ASTM D5185(m)	>40	**<1**	<1	0
Copper	ppm	ASTM D5185(m)	>330	**3**	3	<1
Tin	ppm	ASTM D5185(m)	>15	**<1**	<1	0
Antimony	ppm	ASTM D5185(m)		**0**	0	0
Vanadium	ppm	ASTM D5185(m)		**0**	0	0
Beryllium	ppm	ASTM D5185(m)		**0**	0	0
Cadmium	ppm	ASTM D5185(m)		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	0	**2**	2	2
Barium	ppm	ASTM D5185(m)	0	**0**	<1	0
Molybdenum	ppm	ASTM D5185(m)	60	**77**	75	57
Manganese	ppm	ASTM D5185(m)	0	**0**	0	<1
Magnesium	ppm	ASTM D5185(m)	1010	**1035**	1042	925
Calcium	ppm	ASTM D5185(m)	1070	**1139**	1119	997
Phosphorus	ppm	ASTM D5185(m)	1150	**1045**	1032	1004
Zinc	ppm	ASTM D5185(m)	1270	**1277**	1279	1215
Sulfur	ppm	ASTM D5185(m)	2060	**2718**	2527	2704
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>25	**4**	3	4
Sodium	ppm	ASTM D5185(m)		**2**	2	2
Potassium	ppm	ASTM D5185(m)	>20	**1**	0	<1
Water	%	ASTM D6304*	>0.2	**0.049**	---	---
ppm Water	ppm	ASTM D6304*	>2000	**494**	---	---
Glycol	%	ASTM D7922*		**0.0**	NEG	NEG

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*	>3	**0**	0	0
Nitration	Abs/cm	ASTM D7624*	>20	**11.6**	11.2	4.7
Sulfation	Abs/.1mm	ASTM D7415*	>30	**21.1**	20.2	18.1

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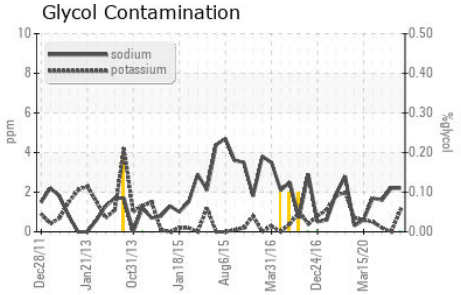
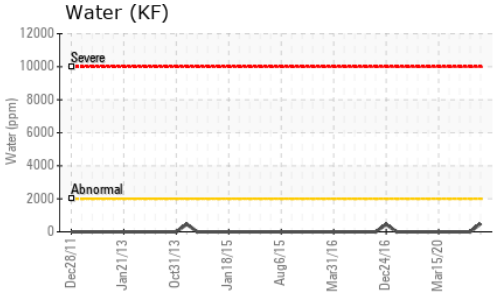
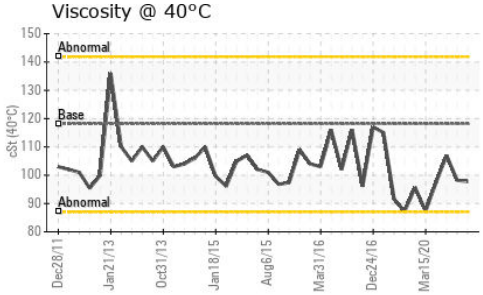
Glycol Contamination



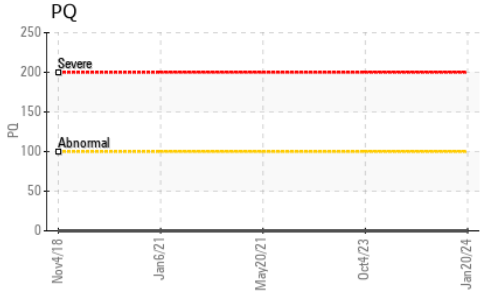
Water (KF)



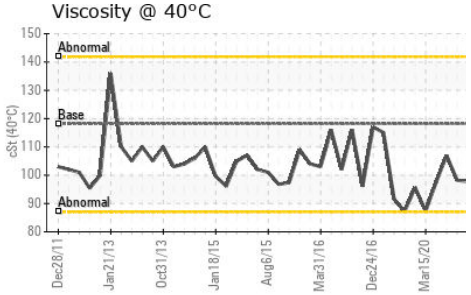
Viscosity @ 40°C



PQ



Viscosity @ 40°C



FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>20000	---	---	295478
Particles >6µm		ASTM D7647	>5000	---	---	81733
Particles >14µm		ASTM D7647	>640	---	---	349
Particles >21µm		ASTM D7647	>160	---	---	70
Particles >38µm		ASTM D7647	>40	---	---	2
Particles >71µm		ASTM D7647	>10	---	---	0
Oil Cleanliness		ISO 4406 (c)	>21/19/16	---	---	25/24/16

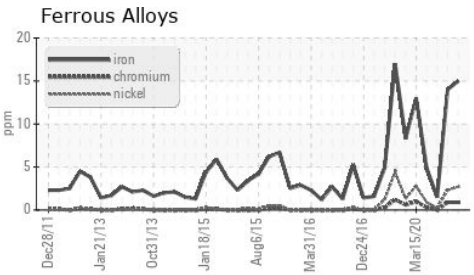
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*	>25	**20.7**	19.9	12.7
Base Number (BN)	mg KOH/g	ASTM D2896*	9.8	**9.89**	8.84	9.40

VISUAL		method	limit/base	current	history1	history2
Emulsified Water	scalar	Visual*	>0.2	**.2%**	NEG	NEG
Free Water	scalar	Visual*		**NEG**	NEG	NEG

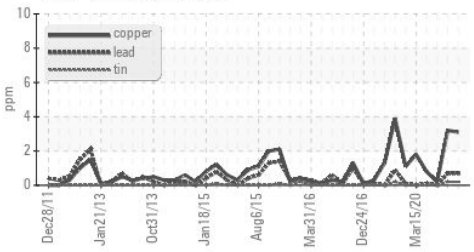
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	118.2	**97.8**	98.2	107
Visc @ 100°C	cSt	ASTM D7279(m)	15.6	**13.4**	13.5	14.7
Viscosity Index (VI)	Scale	ASTM D2270*	139	**136**	137	141

GRAPHS

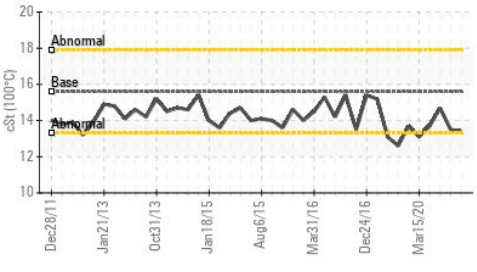
Ferrous Alloys



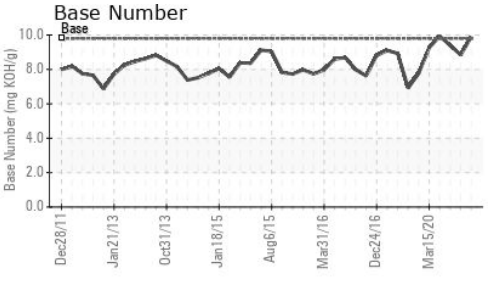
Non-ferrous Metals



Viscosity @ 100°C



Base Number



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC0080619 **Received** : 09 Feb 2024
Lab Number : 02614353 **Tested** : 15 Feb 2024
Unique Number : 5723448 **Diagnosed** : 15 Feb 2024 - Kevin Marson
Test Package : MAR 2 (Additional Tests: Glycol, KF, KV40, PQ, PrtCount, 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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