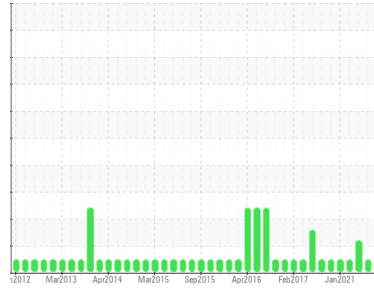


OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Area

Cranes

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

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		PC	PC0080619	PC
Sample Date	Client Info		19 Mar 2024	20 Jan 2024	04 Oct 2023
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	NORMAL	ABNORMAL

CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>5	<1.0	<1.0	<1.0
Water	WC Method	>0.2	NEG	NEG	NEG
Glycol	WC Method		NEG	0.0	NEG

WEAR METALS

	method	limit/base	current	history1	history2
PQ	ASTM D8184*		0	0	0
Iron	ppm	ASTM D5185(m) >100	7	15	14
Chromium	ppm	ASTM D5185(m) >20	<1	<1	<1
Nickel	ppm	ASTM D5185(m) >4	1	3	2
Titanium	ppm	ASTM D5185(m)	0	0	0
Silver	ppm	ASTM D5185(m) >3	0	0	<1
Aluminum	ppm	ASTM D5185(m) >20	1	2	2
Lead	ppm	ASTM D5185(m) >40	0	<1	<1
Copper	ppm	ASTM D5185(m) >330	<1	3	3
Tin	ppm	ASTM D5185(m) >15	0	<1	<1
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	<1	2	2
Barium	ppm	ASTM D5185(m) 0	0	0	<1
Molybdenum	ppm	ASTM D5185(m) 60	65	77	75
Manganese	ppm	ASTM D5185(m) 0	0	0	0
Magnesium	ppm	ASTM D5185(m) 1010	969	1035	1042
Calcium	ppm	ASTM D5185(m) 1070	1030	1139	1119
Phosphorus	ppm	ASTM D5185(m) 1150	965	1045	1032
Zinc	ppm	ASTM D5185(m) 1270	1172	1277	1279
Sulfur	ppm	ASTM D5185(m) 2060	2459	2718	2527
Lithium	ppm	ASTM D5185(m)	<1	<1	<1

CONTAMINANTS

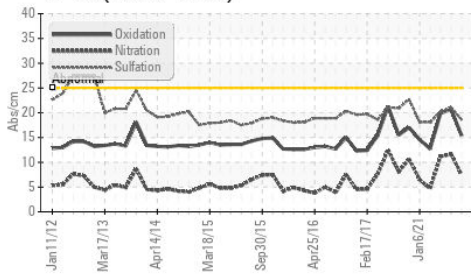
	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m) >25	1	4	3
Sodium	ppm	ASTM D5185(m)	1	2	2
Potassium	ppm	ASTM D5185(m) >20	0	1	0

INFRA-RED

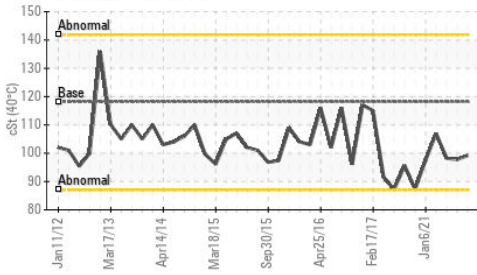
	method	limit/base	current	history1	history2
Soot %	%	ASTM D7844* >3	0	0	0
Nitration	Abs/cm	ASTM D7624* >20	7.5	11.6	11.2
Sulfation	Abs./1mm	ASTM D7415* >30	18.6	21.1	20.2

OIL ANALYSIS REPORT

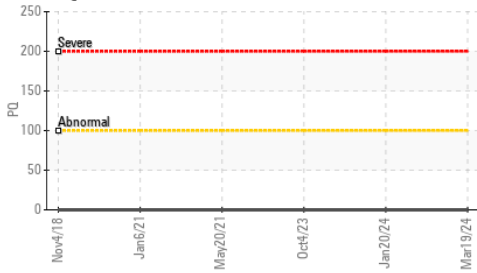
FT-IR (Direct Trend)



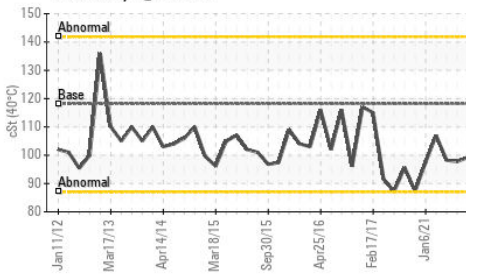
Viscosity @ 40°C



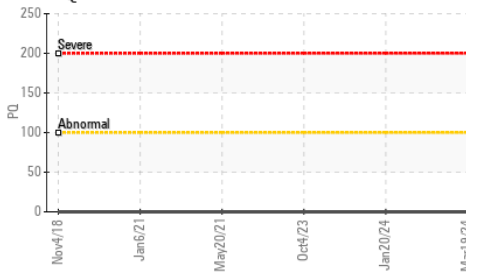
PQ



Viscosity @ 40°C



PQ



FLUID CLEANLINESS

method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647 >20000	---	---	---
Particles >6µm	ASTM D7647 >5000	---	---	---
Particles >14µm	ASTM D7647 >640	---	---	---
Particles >21µm	ASTM D7647 >160	---	---	---
Particles >38µm	ASTM D7647 >40	---	---	---
Particles >71µm	ASTM D7647 >10	---	---	---
Oil Cleanliness	ISO 4406 (c) >21/19/16	---	---	---

FLUID DEGRADATION

method	limit/base	current	history1	history2
Oxidation	Abs/.1mm ASTM D7414* >25	15.4	20.7	19.9
Base Number (BN)	mg KOH/g ASTM D2896* 9.8	10.68	9.89	8.84

VISUAL

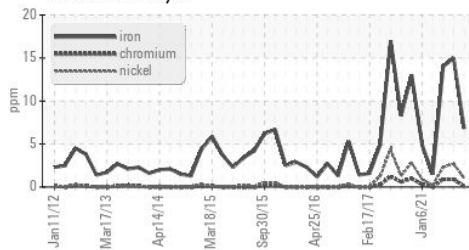
method	limit/base	current	history1	history2
Emulsified Water	scalar Visual* >0.2	NEG	.2%	NEG
Free Water	scalar Visual*	NEG	NEG	NEG

FLUID PROPERTIES

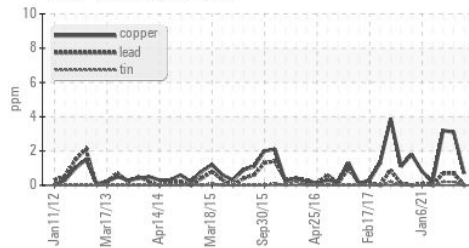
method	limit/base	current	history1	history2
Visc @ 40°C	cSt ASTM D7279(m) 118.2	99.2	97.8	98.2
Visc @ 100°C	cSt ASTM D7279(m) 15.6	13.8	13.4	13.5
Viscosity Index (VI)	Scale ASTM D2270* 139	140	136	137

GRAPHS

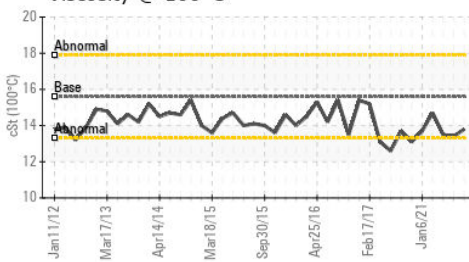
Ferrous Alloys



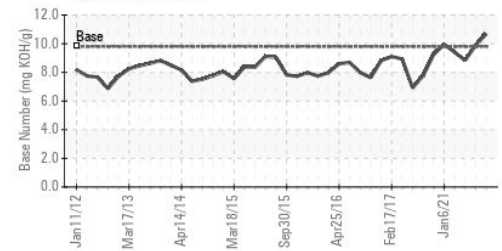
Non-ferrous Metals



Viscosity @ 100°C



Base Number



ISO 17025:2017
Accredited
Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
 Sample No. : PC
 Lab Number : **02626045**
 Unique Number : 5759177
 Test Package : MAR 2 (Additional Tests: KV40, PQ, PrtCount, VI)
 Received : 02 Apr 2024
 Tested : 04 Apr 2024
 Diagnosed : 04 Apr 2024 - Kevin Marson

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.

Suncor - Terra Nova Projects
 Scotia Centre, 235 Water Street
 St. John's, NL
 CA A1C 1B6
 Contact: Josh Hynes
 joshhynes@suncor.com
 T: (709)778-3575
 F: (709)724-2835