



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINANTS	ATTENTION
OIL CONDITION	NORMAL

Machine Id
WARTSILA INTERMEDIATE THRUST BEARING (ITB) (S/N 40653477)

Component
Thrust Bearing

Fluid
PETRO CANADA TURBOFLO R&O 150 (138 LTR)

RECOMMENDATION

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0883762	WC0757630	WC0711585
Sample Date		Client Info		24 Dec 2023	03 Oct 2023	28 Nov 2022
Machine Age	hrs	Client Info		0	4873	0
Oil Age	hrs	Client Info		0	0	0
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Not Changed	Not Changed	Not Changed
Filter Changed		Client Info		Not Changed	Not Changed	Not Changed
Sample Status				ATTENTION	ATTENTION	ATTENTION

WEAR

PQ		ASTM D8184*		0	0	0
Iron	ppm	ASTM D5185(m)	>85	<1	<1	<1
Chromium	ppm	ASTM D5185(m)	>2	0	0	0
Nickel	ppm	ASTM D5185(m)	>2	<1	<1	0
Titanium	ppm	ASTM D5185(m)		0	0	0
Silver	ppm	ASTM D5185(m)		0	<1	0
Aluminum	ppm	ASTM D5185(m)	>40	<1	0	<1
Lead	ppm	ASTM D5185(m)	>60	0	<1	0
Copper	ppm	ASTM D5185(m)	>7	<1	<1	<1
Tin	ppm	ASTM D5185(m)	>40	2	2	<1
Vanadium	ppm	ASTM D5185(m)		0	0	0
White Metal	scalar	Visual*	NONE	NONE	VLITE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Large Particles		DR-Ferr*		6.6	5.9	6.2
Small Particles		DR-Ferr*		4.1	4.8	2.5
Total Particles		DR-Ferr*	>---	10.7	10.7	8.7
Large Particles Percentage	%	DR-Ferr*		23.4	10.3	42.5
Severity Index		DR-Ferr*		17	6	23
Ferrous Rubbing	Scale 0-10	ASTM D7684*		3	3	3
Ferrous Sliding	Scale 0-10	ASTM D7684*				
Ferrous Cutting	Scale 0-10	ASTM D7684*				
Ferrous Rolling	Scale 0-10	ASTM D7684*		1	1	1
Ferrous Break-in	Scale 0-10	ASTM D7684*				
Ferrous Spheres	Scale 0-10	ASTM D7684*				
Ferrous Black Oxides	Scale 0-10	ASTM D7684*				
Ferrous Red Oxides	Scale 0-10	ASTM D7684*				
Ferrous Corrosive	Scale 0-10	ASTM D7684*				
Ferrous Other	Scale 0-10	ASTM D7684*				
Nonferrous Rubbing	Scale 0-10	ASTM D7684*				
Nonferrous Sliding	Scale 0-10	ASTM D7684*				
Nonferrous Cutting	Scale 0-10	ASTM D7684*				
Nonferrous Rolling	Scale 0-10	ASTM D7684*				
Nonferrous Other	Scale 0-10	ASTM D7684*				1

Magn: 200x Illum: BC



Magn: 50x Illum: RW



Magn: 100x Illum: RW



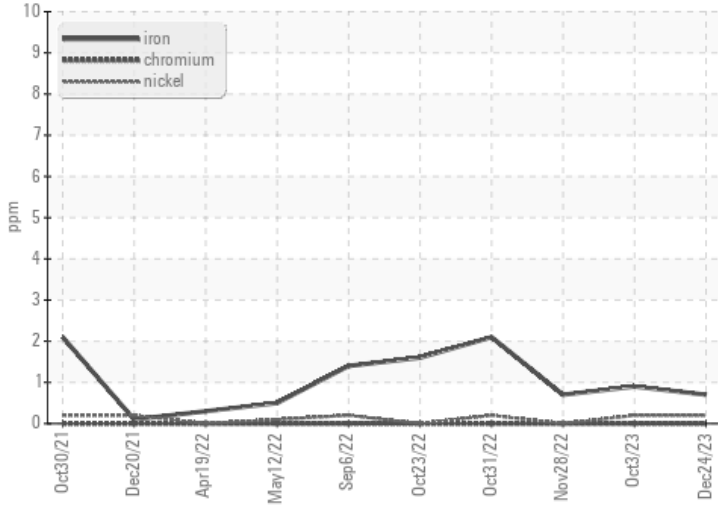
CONTAMINANTS

Silicon	ppm	ASTM D5185(m)	>20	<1	<1	6
Potassium	ppm	ASTM D5185(m)	>20	4	0	0
Water		WC Method	>0.1	NEG	NEG	NEG
Particles >4µm		ASTM D7647	>10000	▲ 15556	▲ 17385	▲ 12357
Particles >6µm		ASTM D7647	>2500	1791	2412	2436
Particles >14µm		ASTM D7647	>160	36	77	97
Particles >21µm		ASTM D7647	>40	8	10	26
Particles >38µm		ASTM D7647	>10	3	2	7
Particles >71µm		ASTM D7647	>3	3	1	5
Oil Cleanliness		ISO 4406 (c)	>20/18/14	▲ 21/18/12	▲ 21/18/13	▲ 21/18/14
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*	>0.1	NEG	NEG	NEG
Carbonaceous Material	Scale 0-10	ASTM D7684*				
Sand/Dirt	Scale 0-10	ASTM D7684*		1	1	1
Fibres	Scale 0-10	ASTM D7684*				
Spheres	Scale 0-10	ASTM D7684*				
Other	Scale 0-10	ASTM D7684*		1	1	1

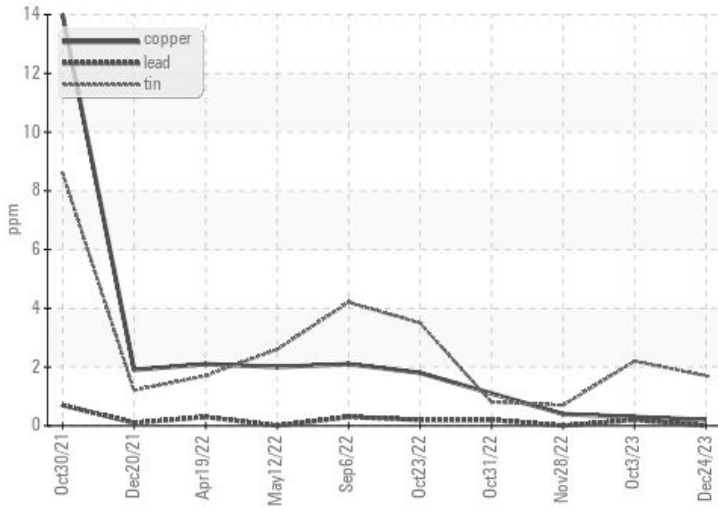
OIL CONDITION

Sodium	ppm	ASTM D5185(m)		0	<1	<1
Boron	ppm	ASTM D5185(m)		7	8	67
Barium	ppm	ASTM D5185(m)		0	<1	0
Molybdenum	ppm	ASTM D5185(m)		0	0	0
Manganese	ppm	ASTM D5185(m)		0	0	0
Magnesium	ppm	ASTM D5185(m)		<1	0	<1
Calcium	ppm	ASTM D5185(m)	0	<1	1	1
Phosphorus	ppm	ASTM D5185(m)	4	36	39	283
Zinc	ppm	ASTM D5185(m)	0	2	2	3
Sulfur	ppm	ASTM D5185(m)		1123	1088	4922
Acid Number (AN)	mg KOH/g	ASTM D974*	0.18	0.20	0.13	0.41
Visc @ 40°C	cSt	ASTM D7279(m)	137.1	143	144	151
Lubricant Degradation	Scale 0-10	ASTM D7684*				

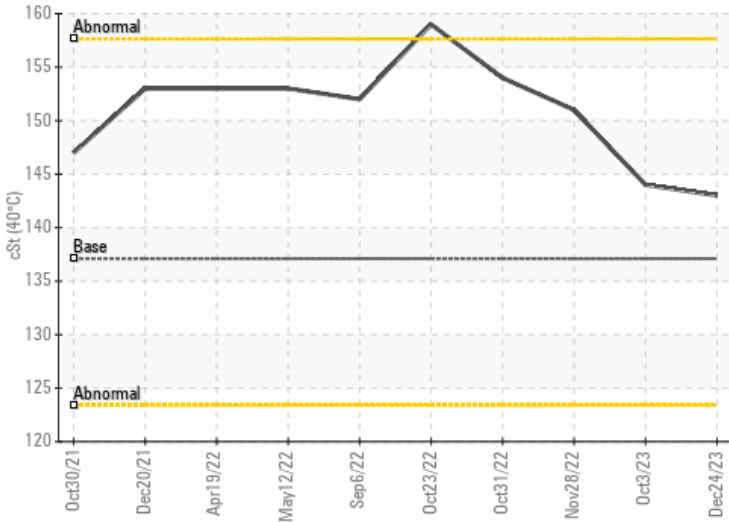
Ferrous Alloys



Non-ferrous Metals



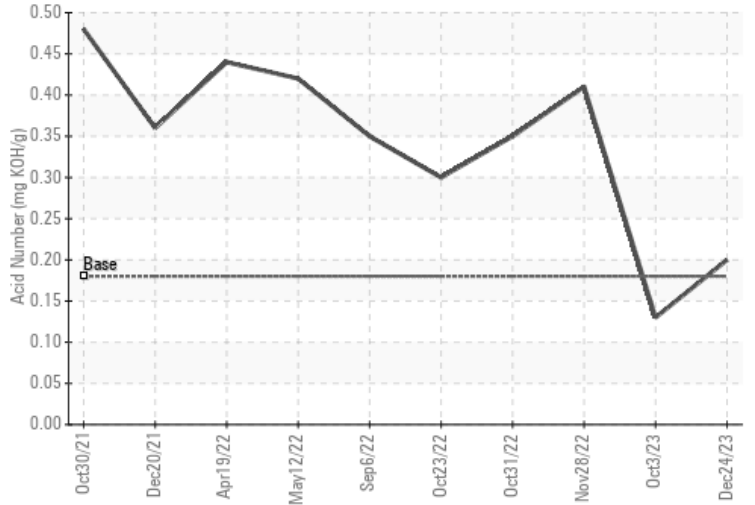
Viscosity @ 40°C



Particle Filter (Magn: 200 x)



Acid Number



ISO 17025:2017
Accredited
Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 **Canadian Coast Guard - John Cabot**
Sample No. : WC0883762 **Received** : 11 Jan 2024 **280 Southside Road**
Lab Number : 02608166 **Diagnosed** : 16 Jan 2024 **St. John's, NL**
Unique Number : 5709252 **Diagnostician** : Kevin Marson **CA A1E 0A3**
Test Package : MAR 3 (Additional Tests: BottomAnalysis, FilterPatch, PrtCount, PrtFilter, TAN Man) **Contact: Chief Engineer**

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.

johncabotce@ccgs-ngcc.gc.ca

T: (709)730-4628

F:

This page left intentionally blank