



OIL ANALYSIS REPORT

WEAR	ATTENTION
CONTAMINANTS	NORMAL
OIL CONDITION	NORMAL

Area

[PRE-FILTER]

Machine Id

17A02D02 - Anchor Windlass Power Pack

Component

Hydraulic System

Fluid

PETRO CANADA HYDREX MV 32 (260 LTR)

RECOMMENDATION

Resample at the next service interval to monitor.

WEAR

Copper ppm levels are noted. All other component wear rates are normal. The ferrography results are normal indicating no abnormal wear in the system.

Magn: 200x Illum: BC



Magn: 50x Illum: RW



Magn: 100x Illum: RW



Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0839696	WC0839662	WC0839653
Sample Date		Client Info		13 May 2024	15 Apr 2024	13 Apr 2024
Machine Age	hrs	Client Info		1510	0	0
Oil Age	hrs	Client Info		0	0	0
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Not Changd	N/A	N/A
Filter Changed		Client Info		Not Changd	Changed	Not Changd
Sample Status				ATTENTION	ATTENTION	ATTENTION

PQ		ASTM D8184*		0	---	---
Iron	ppm	ASTM D5185(m)	>20	<1	<1	<1
Chromium	ppm	ASTM D5185(m)	>10	0	0	0
Nickel	ppm	ASTM D5185(m)	>10	0	0	0
Titanium	ppm	ASTM D5185(m)		0	0	0
Silver	ppm	ASTM D5185(m)		0	0	0
Aluminum	ppm	ASTM D5185(m)	>10	0	0	0
Lead	ppm	ASTM D5185(m)	>20	3	2	2
Copper	ppm	ASTM D5185(m)	>20	48	45	43
Tin	ppm	ASTM D5185(m)	>10	0	0	0
Vanadium	ppm	ASTM D5185(m)		0	0	0
White Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Large Particles		DR-Ferr*		6.6	---	---
Small Particles		DR-Ferr*		6.6	---	---
Total Particles		DR-Ferr*	>---	13.2	---	---
Large Particles Percentage	%	DR-Ferr*		0	---	---
Severity Index		DR-Ferr*		0	---	---
Ferrous Rubbing	Scale 0-10	ASTM D7684*		2		
Ferrous Sliding	Scale 0-10	ASTM D7684*				
Ferrous Cutting	Scale 0-10	ASTM D7684*				
Ferrous Rolling	Scale 0-10	ASTM D7684*		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*				

CONTAMINANTS

The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable.

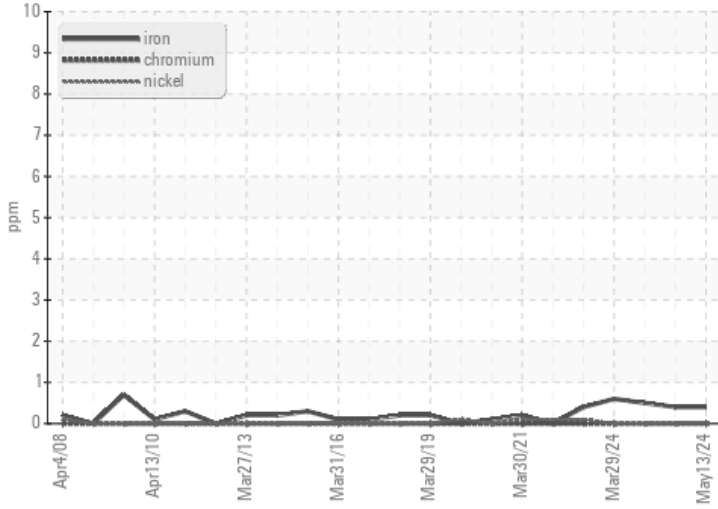
Silicon	ppm	ASTM D5185(m)	>15	0	0	0
Potassium	ppm	ASTM D5185(m)	>20	0	0	0
Water		WC Method	>0.05	NEG	NEG	NEG
Particles >4µm		ASTM D7647	>5000	1624	1290	2846
Particles >6µm		ASTM D7647	>1300	369	302	301
Particles >14µm		ASTM D7647	>160	24	16	16
Particles >21µm		ASTM D7647	>40	7	4	3
Particles >38µm		ASTM D7647	>10	1	1	1
Particles >71µm		ASTM D7647	>3	1	0	0
Oil Cleanliness		ISO 4406 (c)	>19/17/14	18/16/12	17/15/11	19/15/11
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*	>0.05	NEG	NEG	NEG
Carbonaceous Material	Scale 0-10	ASTM D7684*				
Sand/Dirt	Scale 0-10	ASTM D7684*		1		
Fibres	Scale 0-10	ASTM D7684*				
Spheres	Scale 0-10	ASTM D7684*				
Other	Scale 0-10	ASTM D7684*		1		

OIL CONDITION

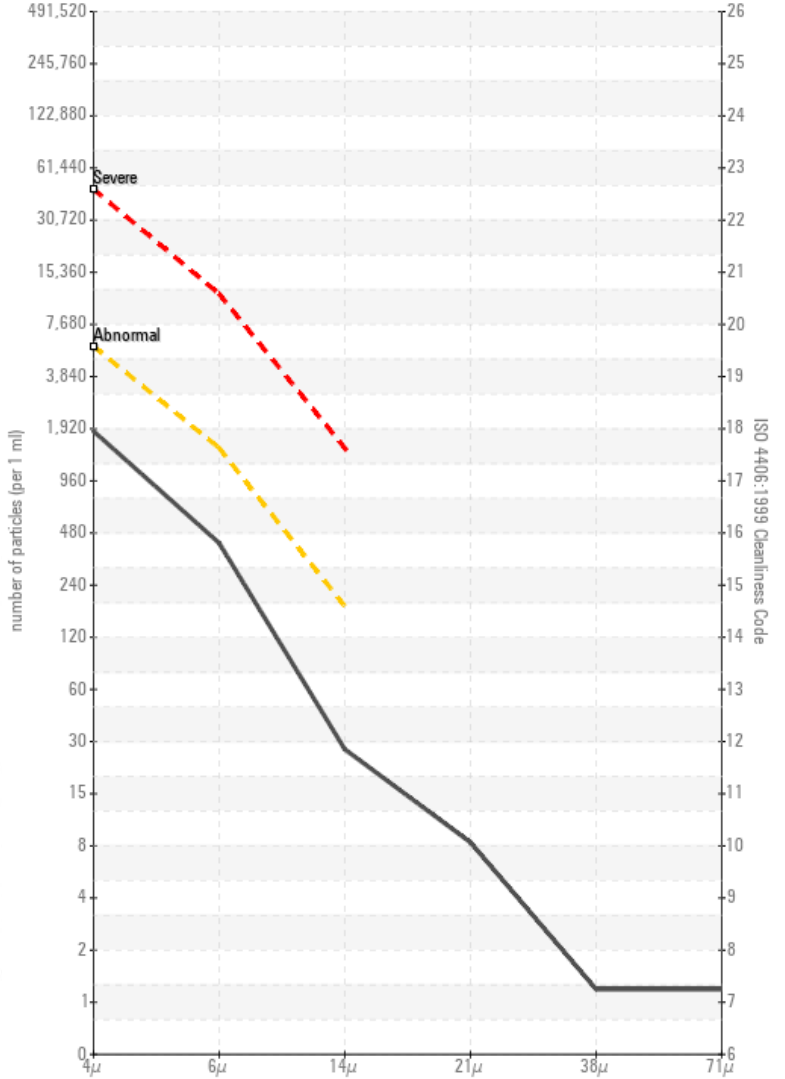
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185(m)		0	0	0
Boron	ppm	ASTM D5185(m)	0	0	<1	<1
Barium	ppm	ASTM D5185(m)	0	0	0	0
Molybdenum	ppm	ASTM D5185(m)	0	0	0	0
Manganese	ppm	ASTM D5185(m)	1	0	0	0
Magnesium	ppm	ASTM D5185(m)	0	<1	0	0
Calcium	ppm	ASTM D5185(m)	50	32	32	32
Phosphorus	ppm	ASTM D5185(m)	330	294	292	294
Zinc	ppm	ASTM D5185(m)	430	349	354	354
Sulfur	ppm	ASTM D5185(m)	760	730	732	730
Acid Number (AN)	mg KOH/g	ASTM D974*	0.60	0.31	0.32	0.32
Visc @ 40°C	cSt	ASTM D7279(m)	31.9	31.6	31.6	31.4
Lubricant Degradation	Scale 0-10	ASTM D7684*				

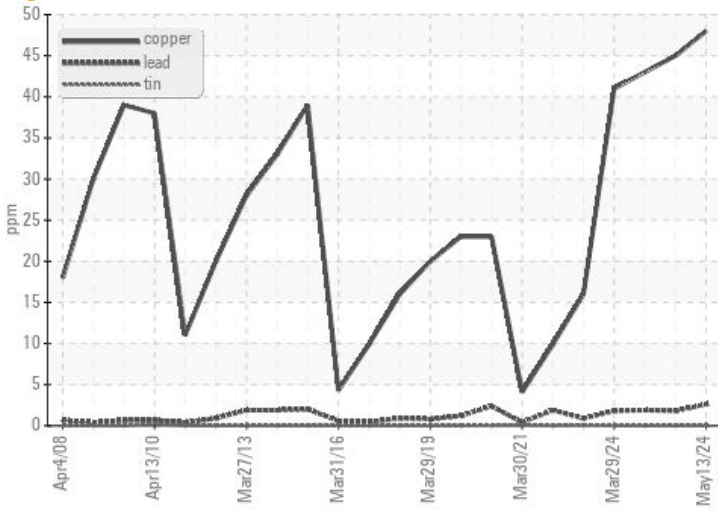
Ferrous Alloys



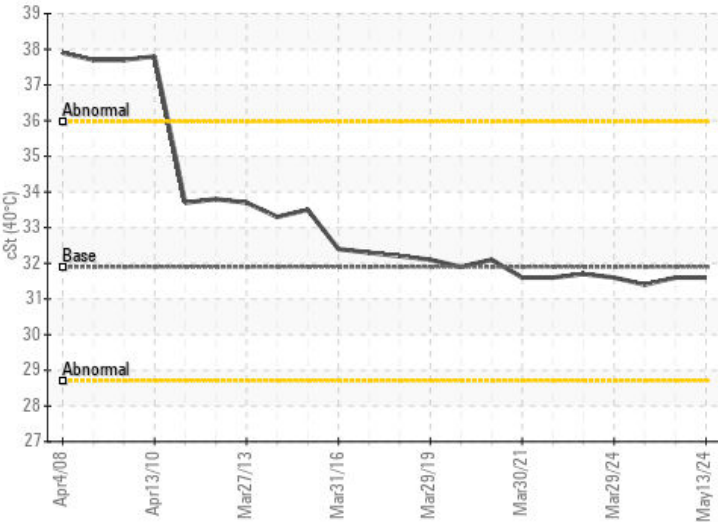
Particle Count



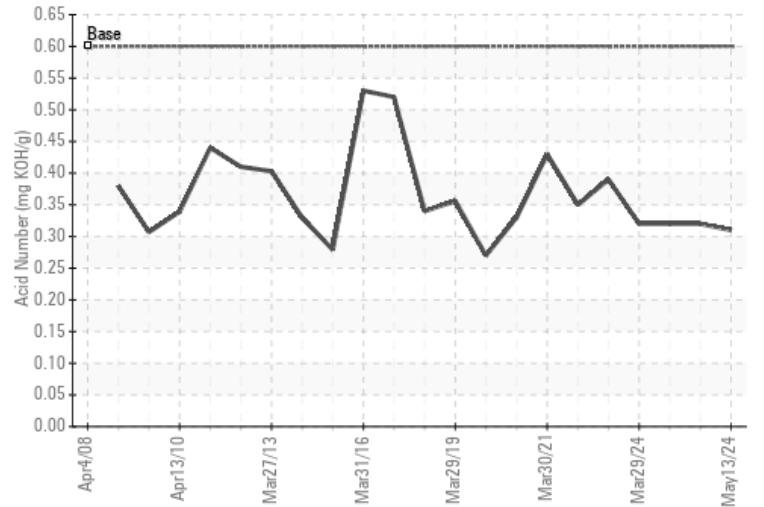
Non-ferrous Metals



Viscosity @ 40°C



Acid Number



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0839696
Lab Number : 02638857
Unique Number : 5788019
Test Package : MAR 3

CANADIAN COAST GUARD
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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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