



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	SEVERE
FLUID CONDITION	NORMAL

Area
Hyd. shack # 2
Machine Id
Q400#1 (S/N 8424)
Component
Hydraulic System
Fluid
ESSO NUTO H ISO 32 (200 GAL)

RECOMMENDATION

We recommend that you use electrostatic filtration to remove insolubles from the oil and to reduce the levels of varnish in the system. Alternatively draining a percentage of the oil and topping up with fresh oil (sweetening the oil) may provide a reduction in the varnish potential level. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0777385	WC0670680	WC0670683
Sample Date		Client Info		18 Dec 2023	20 May 2023	06 Jan 2023
Machine Age	hrs	Client Info		0	0	0
Oil Age	hrs	Client Info		0	0	0
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Filter Changed		Client Info		N/A	N/A	N/A
Sample Status				SEVERE	ATTENTION	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185(m)	>20	2	1	1
Chromium	ppm	ASTM D5185(m)	>10	0	0	0
Nickel	ppm	ASTM D5185(m)	>10	0	<1	0
Titanium	ppm	ASTM D5185(m)		0	0	0
Silver	ppm	ASTM D5185(m)		<1	0	0
Aluminum	ppm	ASTM D5185(m)	>10	<1	<1	<1
Lead	ppm	ASTM D5185(m)	>20	<1	0	<1
Copper	ppm	ASTM D5185(m)	>20	2	1	1
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

CONTAMINATION

MPC (Membrane Patch Colorimetry) test indicates a high concentration of varnish present. The system cleanliness is acceptable for your target ISO 4406 cleanliness code.

Silicon	ppm	ASTM D5185(m)	>15	<1	<1	0
Potassium	ppm	ASTM D5185(m)	>20	<1	0	<1
Water		WC Method	>0.05	NEG	NEG	NEG
MPC Varnish Potential	Scale	ASTM D7843(m)*	>15	63	---	---
Particles >4µm		ASTM D7647	>320	120	▲ 424	97
Particles >6µm		ASTM D7647	>80	46	▲ 107	34
Particles >14µm		ASTM D7647	>10	3	5	3
Particles >21µm		ASTM D7647	>3	1	2	0
Particles >38µm		ASTM D7647	>3	0	1	0
Particles >71µm		ASTM D7647	>3	0	1	0
Oil Cleanliness		ISO 4406 (c)	>15/13/10	14/13/9	▲ 16/14/10	14/12/9
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

FLUID CONDITION

The AN level is acceptable for this fluid.

Sodium	ppm	ASTM D5185(m)		1	<1	<1
Boron	ppm	ASTM D5185(m)	0	<1	0	<1
Barium	ppm	ASTM D5185(m)	0	<1	0	0
Molybdenum	ppm	ASTM D5185(m)	0	0	0	0
Manganese	ppm	ASTM D5185(m)		0	0	0
Magnesium	ppm	ASTM D5185(m)	5	<1	<1	<1
Calcium	ppm	ASTM D5185(m)	50	29	33	35
Phosphorus	ppm	ASTM D5185(m)	330	339	362	369
Zinc	ppm	ASTM D5185(m)	420	347	355	363
Sulfur	ppm	ASTM D5185(m)	2700	3621	3600	3766
Acid Number (AN)	mg KOH/g	ASTM D974*	.40	0.56	0.53	0.46
Visc @ 40°C	cSt	ASTM D7279(m)	32.6	30.6	30.7	30.6

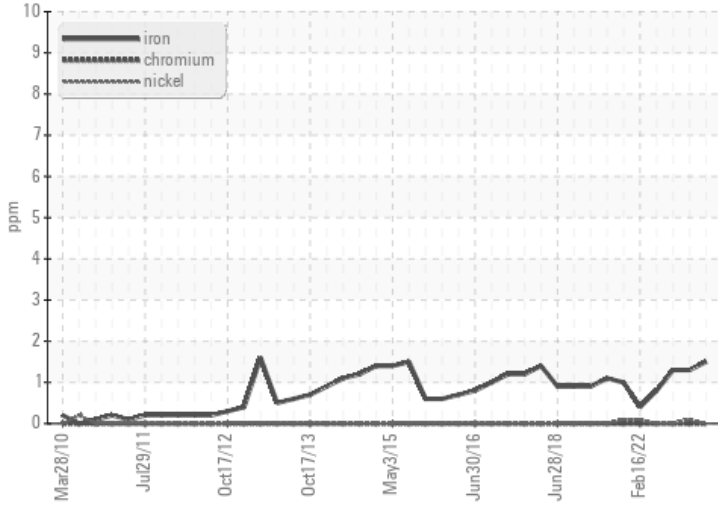
MPC (Varnish Test)



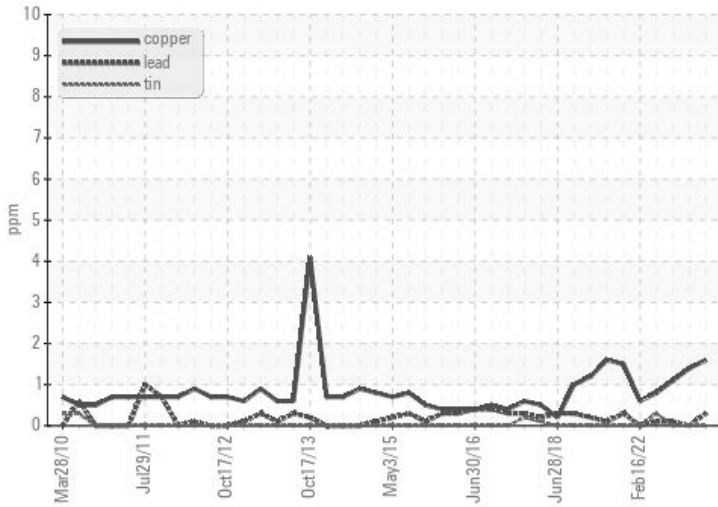
Sample Color & Clarity



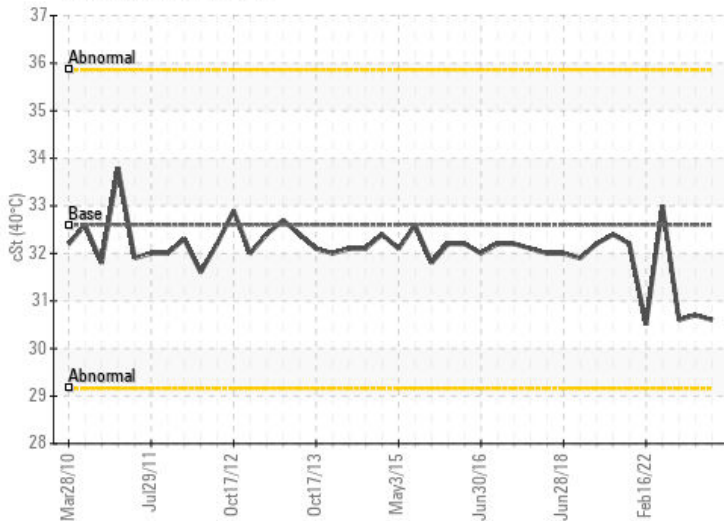
Ferrous Alloys



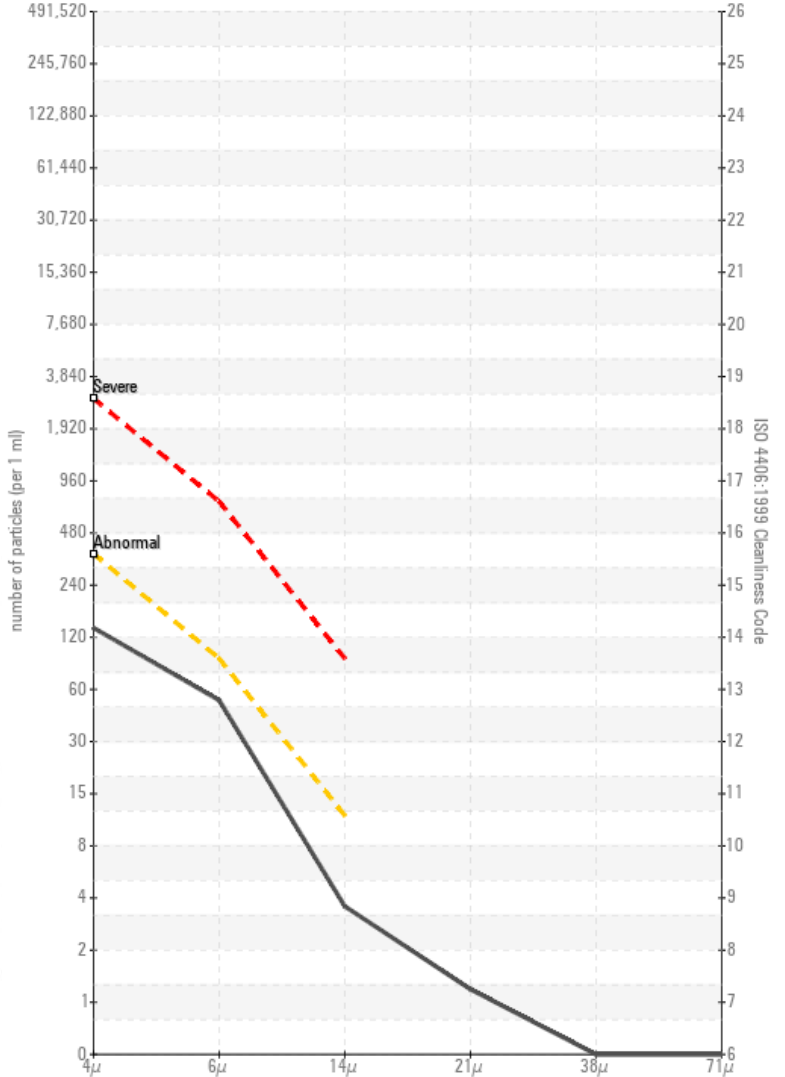
Non-ferrous Metals



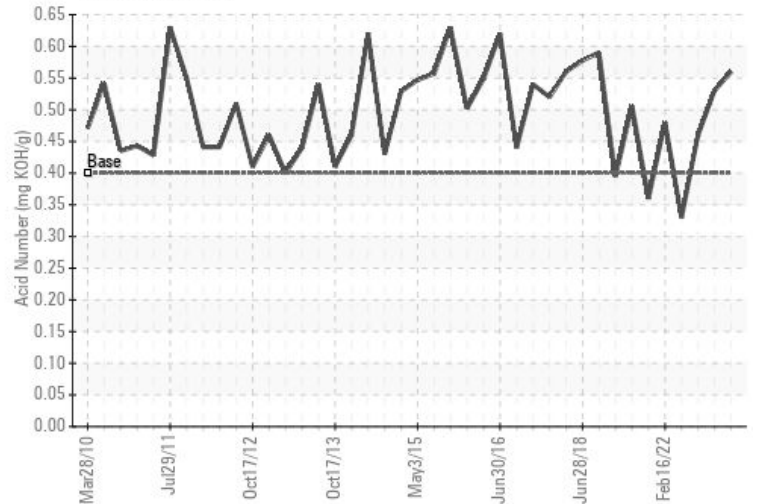
Viscosity @ 40°C



Particle Count



Acid Number



ISO 17025:2017
Accredited
Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0777385
Lab Number : 02604124
Unique Number : 5697209
Test Package : IND 2 (Additional Tests: MPC, TAN Man)

Received : 19 Dec 2023
Tested : 30 Jan 2024
Diagnosed : 31 Jan 2024 - Bill Quesnel

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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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