IND II LUBE 360™ OIL DIAGNOSTICS

OIL ANALYSIS REPORT

WEAR	ABNORMAL
CONTAMINATION	SEVERE
FLUID CONDITION	SEVERE

Machine Id
SKPR P-12
Component
Hydraulic System
Fluid
PETRO CANADA TURBOFLO R&O 46 (--- GAL)

RECOMMENDATION

Check seals and/or filters for points of contaminant entry. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. We recommend that you drain the oil from the component if this has not already been done. We recommend you service the filters on this component. Confirm the source of the lubricant being utilized for top-up/fill. Resample in 30-45 days to monitor this situation. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

WEAR

Iron ppm levels are abnormal. The low ferrous density (PQ) index indicates the wear metal levels are due to corrosion.

CONTAMINATION

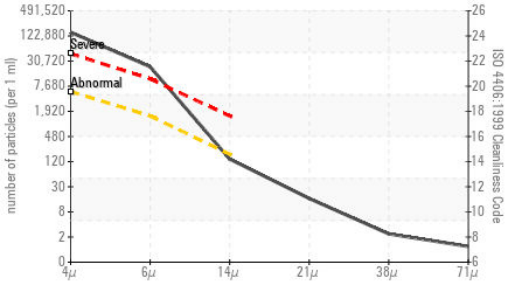
There is a high amount of silt (particulates < 14 microns in size) present in the oil.

FLUID CONDITION

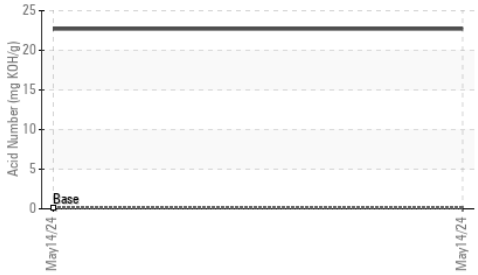
The oil viscosity is higher than normal. The high AN level of the oil indicates the presence of oxi-polymerized products. The AN level is much higher than the recommended limit. This plus the additive levels indicates that this is not the same brand, or type of oil as reported. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		PC	---	---
Sample Date		Client Info		14 May 2024	---	---
Machine Age	hrs	Client Info		0	---	---
Oil Age	hrs	Client Info		0	---	---
Filter Age	hrs	Client Info		0	---	---
Oil Changed		Client Info		N/A	---	---
Filter Changed		Client Info		N/A	---	---
Sample Status				SEVERE	---	---
PQ		ASTM D8184*		0	---	---
Iron	ppm	ASTM D5185(m)	>20	▲ 41	---	---
Chromium	ppm	ASTM D5185(m)	>20	7	---	---
Nickel	ppm	ASTM D5185(m)	>20	<1	---	---
Titanium	ppm	ASTM D5185(m)		<1	---	---
Silver	ppm	ASTM D5185(m)		0	---	---
Aluminum	ppm	ASTM D5185(m)	>20	<1	---	---
Lead	ppm	ASTM D5185(m)	>20	0	---	---
Copper	ppm	ASTM D5185(m)	>20	4	---	---
Tin	ppm	ASTM D5185(m)	>20	0	---	---
Vanadium	ppm	ASTM D5185(m)		0	---	---
White Metal	scalar	Visual*	NONE	VLITE	---	---
Yellow Metal	scalar	Visual*	NONE	NONE	---	---
Silicon	ppm	ASTM D5185(m)	>15	1	---	---
Potassium	ppm	ASTM D5185(m)	>20	1	---	---
Water		WC Method	>0.05	NEG	---	---
Particles >4µm		ASTM D7647	>5000	▲ 130017	---	---
Particles >6µm		ASTM D7647	>1300	▲ 19424	---	---
Particles >14µm		ASTM D7647	>160	122	---	---
Particles >21µm		ASTM D7647	>40	14	---	---
Particles >38µm		ASTM D7647	>10	2	---	---
Particles >71µm		ASTM D7647	>3	1	---	---
Oil Cleanliness		ISO 4406 (c)	>19/17/14	▲ 24/21/14	---	---
Silt	scalar	Visual*	NONE	NONE	---	---
Debris	scalar	Visual*	NONE	NONE	---	---
Sand/Dirt	scalar	Visual*	NONE	NONE	---	---
Appearance	scalar	Visual*	NORML	NORML	---	---
Odor	scalar	Visual*	NORML	NORML	---	---
Emulsified Water	scalar	Visual*	>0.05	NEG	---	---
Sodium	ppm	ASTM D5185(m)		2	---	---
Boron	ppm	ASTM D5185(m)		1	---	---
Barium	ppm	ASTM D5185(m)		<1	---	---
Molybdenum	ppm	ASTM D5185(m)		0	---	---
Manganese	ppm	ASTM D5185(m)		<1	---	---
Magnesium	ppm	ASTM D5185(m)		3	---	---
Calcium	ppm	ASTM D5185(m)	0	● 39	---	---
Phosphorus	ppm	ASTM D5185(m)	3	● 78	---	---
Zinc	ppm	ASTM D5185(m)	0	9	---	---
Sulfur	ppm	ASTM D5185(m)		684	---	---
Acid Number (AN)	mg KOH/g	ASTM D974*	0.12	▲ 22.7	---	---
Visc @ 40°C	cSt	ASTM D7279(m)	44.4	▲ 56.8	---	---
Visc @ 100°C	cSt	ASTM D7279(m)	6.72	▲ 10.3	---	---
Viscosity Index (VI)	Scale	ASTM D2270*	104	▲ 172	---	---

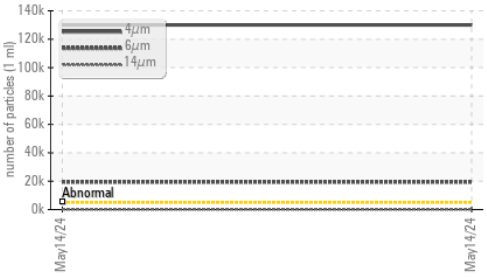
Particle Count



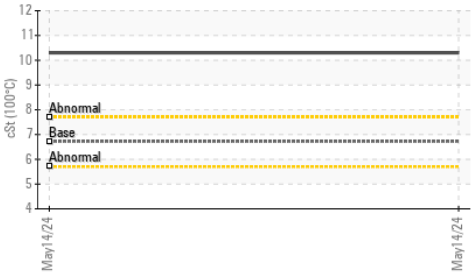
Acid Number



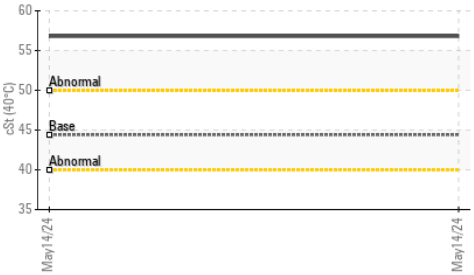
Particle Trend



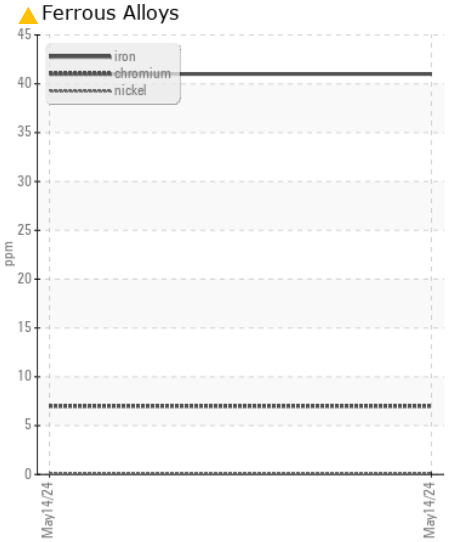
Viscosity @ 100°C



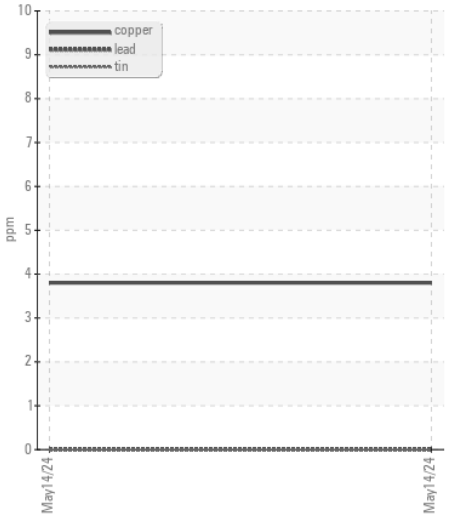
Viscosity @ 40°C



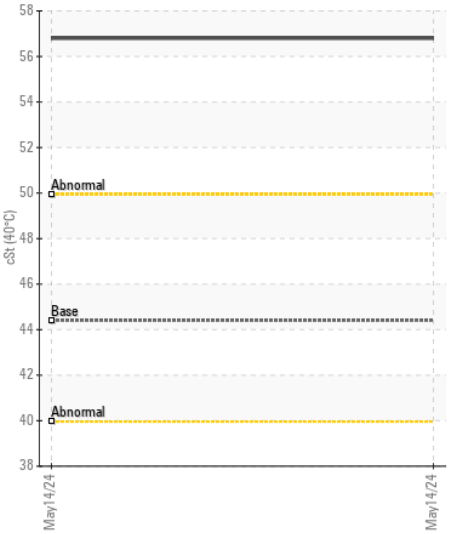
Ferrous Alloys



Non-ferrous Metals

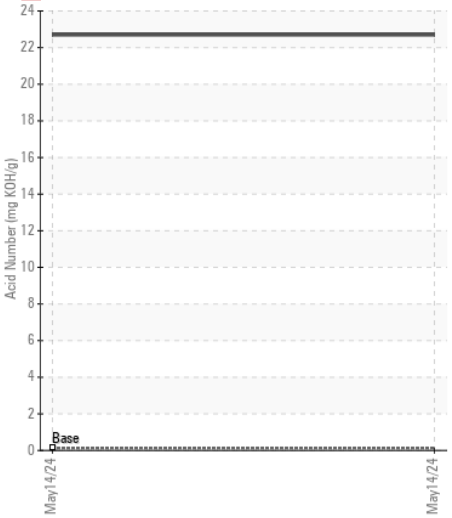


Viscosity @ 40°C



Particle Filter (Magn: 100 x)

Acid Number



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 **Petro-Canada Technical/Behshad Sabah**
Sample No. : PC **Received** : 15 May 2024
Lab Number : 02635707 **Tested** : 21 May 2024 Mississauga, ON
Unique Number : 5776860 **Diagnosed** : 21 May 2024 - Kevin Marson CA L5J 1K2
Test Package : IND 2 (Additional Tests: Bottom, BottomAnalysis, FilterPatch, KV100, PQ, PrtFilter, TAN Manual) Contact: Behshad Sabah

To discuss this sample report, contact Customer Service at 1-800-268-2131. Behshad.Sabah@hfsinclair.com
Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab. T: (905)716-2158
Validity of results and interpretation are based on the sample and information as supplied. F: (905)403-6740