OIL ANALYSIS REPORT

WEAR	ABNORMAL
CONTAMINATION	SEVERE
FLUID CONDITION	NORMAL

Machine Id
146-1334
Component
Diesel Engine
Fluid
DIESEL ENGINE OIL SAE 15W40 (--- QTS)

RECOMMENDATION

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. We recommend that you drain the oil and perform a filter service on this component if not already done. We recommend an early resample to monitor this condition.

WEAR

Cylinder, crank, or cam shaft wear is indicated.

CONTAMINATION

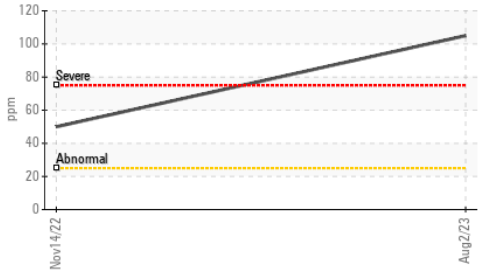
Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

FLUID CONDITION

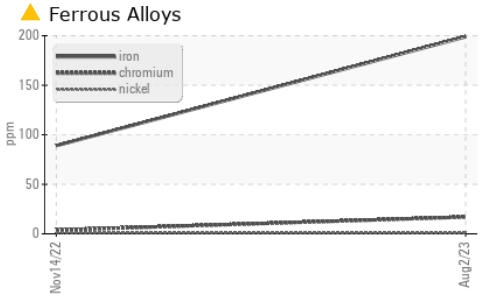
The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		RPL0011214	RPL0002133	---
Sample Date		Client Info		02 Aug 2023	14 Nov 2022	---
Machine Age	mls	Client Info		123623	39637	---
Oil Age	mls	Client Info		0	39637	---
Filter Age	mls	Client Info		0	39637	---
Oil Changed		Client Info		N/A	Changed	---
Filter Changed		Client Info		N/A	Changed	---
Sample Status				SEVERE	ATTENTION	---
Iron	ppm	ASTM D5185m	>100	▲ 199	89	---
Chromium	ppm	ASTM D5185m	>20	▲ 17	4	---
Nickel	ppm	ASTM D5185m	>4	<1	1	---
Titanium	ppm	ASTM D5185m		<1	<1	---
Silver	ppm	ASTM D5185m	>3	0	<1	---
Aluminum	ppm	ASTM D5185m	>20	● 23	29	---
Lead	ppm	ASTM D5185m	>40	16	19	---
Copper	ppm	ASTM D5185m	>330	4	29	---
Tin	ppm	ASTM D5185m	>15	4	6	---
Vanadium	ppm	ASTM D5185m		<1	0	---
White Metal	scalar	*Visual	NONE	NONE	NONE	---
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	---
Silicon	ppm	ASTM D5185m	>25	▲ 105	50	---
Potassium	ppm	ASTM D5185m	>20	15	82	---
Fuel		WC Method	>5	<1.0	0.3	---
Water		WC Method	>0.2	NEG	NEG	---
Glycol	%	*ASTM D2982		NEG	NEG	---
Soot %	%	*ASTM D7844	>3	0.9	1	---
Nitration	Abs/cm	*ASTM D7624	>20	13.3	12.3	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	26.0	26.5	---
Silt	scalar	*Visual	NONE	NONE	NONE	---
Debris	scalar	*Visual	NONE	NONE	NONE	---
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	---
Appearance	scalar	*Visual	NORML	NORML	NORML	---
Odor	scalar	*Visual	NORML	NORML	NORML	---
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	---
Sodium	ppm	ASTM D5185m	>158	8	6	---
Boron	ppm	ASTM D5185m	250	25	17	---
Barium	ppm	ASTM D5185m	10	0	3	---
Molybdenum	ppm	ASTM D5185m	100	75	14	---
Manganese	ppm	ASTM D5185m		4	5	---
Magnesium	ppm	ASTM D5185m	450	705	757	---
Calcium	ppm	ASTM D5185m	3000	1738	1353	---
Phosphorus	ppm	ASTM D5185m	1150	829	719	---
Zinc	ppm	ASTM D5185m	1350	1044	897	---
Sulfur	ppm	ASTM D5185m	4250	2953	2809	---
Oxidation	Abs/.1mm	*ASTM D7414	>25	28.2	23.7	---
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	5.1	5.9	---
Visc @ 100°C	cSt	ASTM D445	14.4	14.5	● 12.1	---

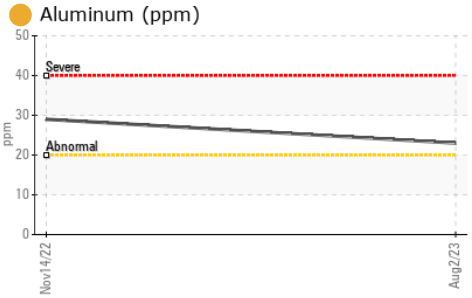
Silicon (ppm)



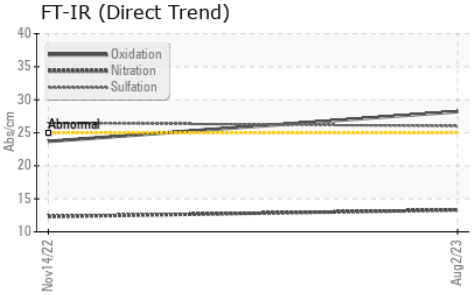
Ferrous Alloys



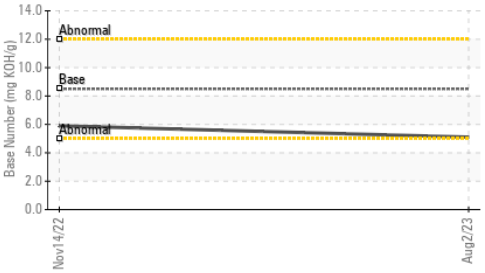
Aluminum (ppm)



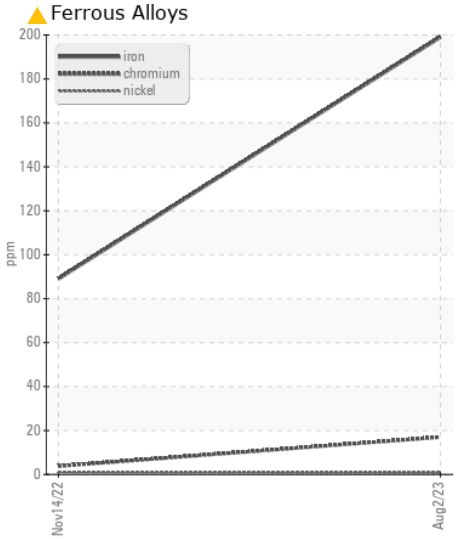
FT-IR (Direct Trend)



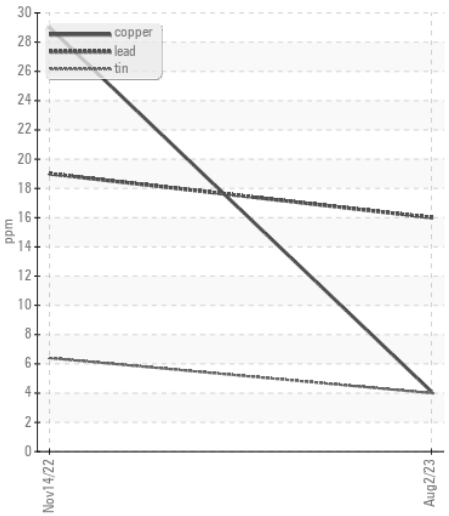
Base Number



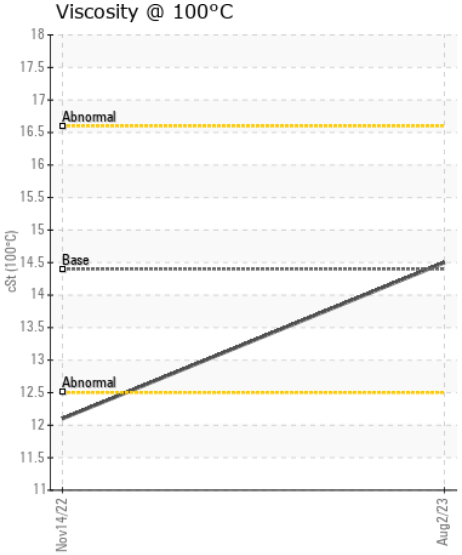
Ferrous Alloys



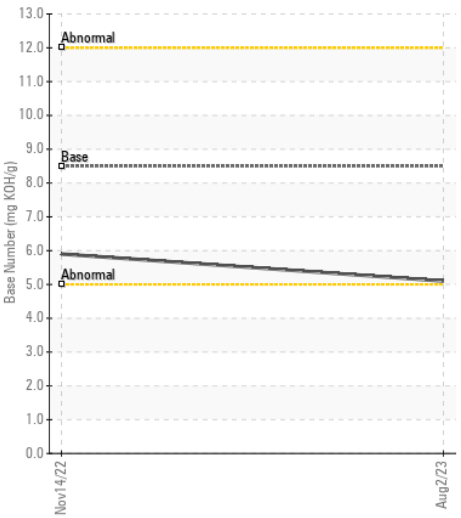
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : RPL0011214
Lab Number : 05949877
Unique Number : 10645836
Test Package : FLEET (Additional Tests: Glycol)
Received : 13 Sep 2023
Tested : 18 Sep 2023
Diagnosed : 18 Sep 2023 - Don Baldridge

To discuss this sample report, contact Customer Service at 1-800-237-1369.
** - Denotes test methods that are outside of the ISO 17025 scope of accreditation.*
Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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