



TRAAP

Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

WEAR	ABNORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
MACK 2016 MACK CHX613
 Component
Diesel Engine
 Fluid
TRC PRO-SPEC III SYNTHETIC BLEND 15W40 (9 GAL)

RECOMMENDATION

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		TR06210383	TR05849300	---
Sample Date		Client Info		03 Jun 2024	01 May 2023	---
Machine Age	mls	Client Info		567599	551724	---
Oil Age	mls	Client Info		6500	10000	---
Filter Age	mls	Client Info		6500	10000	---
Oil Changed		Client Info		Changed	Changed	---
Filter Changed		Client Info		Changed	Changed	---
Sample Status				ABNORMAL	ABNORMAL	---

WEAR

Valve wear is indicated. All other component wear rates are normal.

Iron	ppm	ASTM D5185m	>120	20	85	---
Chromium	ppm	ASTM D5185m	>20	2	4	---
Nickel	ppm	ASTM D5185m	>5	▲ 8	▲ 12	---
Titanium	ppm	ASTM D5185m	>2	<1	<1	---
Silver	ppm	ASTM D5185m	>2	0	0	---
Aluminum	ppm	ASTM D5185m	>20	10	21	---
Lead	ppm	ASTM D5185m	>40	<1	2	---
Copper	ppm	ASTM D5185m	>330	2	5	---
Tin	ppm	ASTM D5185m	>15	<1	1	---
Vanadium	ppm	ASTM D5185m		<1	<1	---
White Metal	scalar	*Visual	NONE	NONE	NONE	---
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	---

CONTAMINATION

There is no indication of any contamination in the oil.

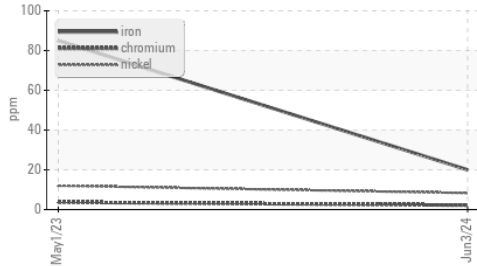
Silicon	ppm	ASTM D5185m	>25	12	13	---
Potassium	ppm	ASTM D5185m	>20	3	6	---
Fuel		WC Method	>3.0	<1.0	<1.0	---
Water		WC Method	>0.2	NEG	NEG	---
Glycol		WC Method		NEG	NEG	---
Soot %	%	*ASTM D7844	>4	0.5	0.6	---
Nitration	Abs/cm	*ASTM D7624	>20	8.3	16.1	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	20.5	29.2	---
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	---

FLUID CONDITION

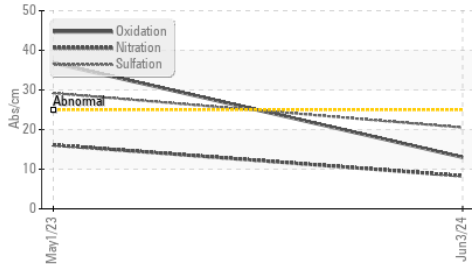
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		7	17	---
Boron	ppm	ASTM D5185m		185	32	---
Barium	ppm	ASTM D5185m		<1	0	---
Molybdenum	ppm	ASTM D5185m		209	42	---
Manganese	ppm	ASTM D5185m		<1	2	---
Magnesium	ppm	ASTM D5185m		459	544	---
Calcium	ppm	ASTM D5185m		3842	1843	---
Phosphorus	ppm	ASTM D5185m		851	756	---
Zinc	ppm	ASTM D5185m		1058	971	---
Sulfur	ppm	ASTM D5185m		3638	2468	---
Oxidation	Abs/.1mm	*ASTM D7414	>25	13.0	36.8	---
Base Number (BN)	mg KOH/g	ASTM D2896		12.16	6.27	---
Visc @ 100°C	cSt	ASTM D445	15.5	15.6	13.7	---

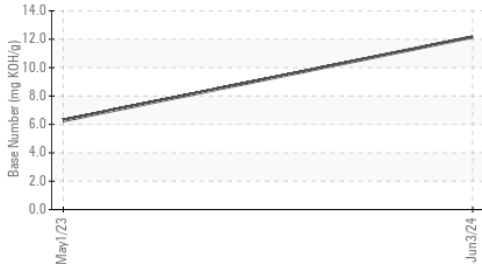
▲ Ferrous Alloys



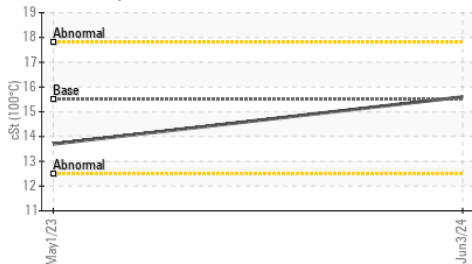
FT-IR (Direct Trend)



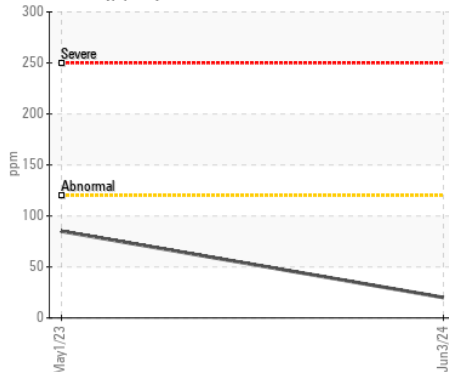
Base Number



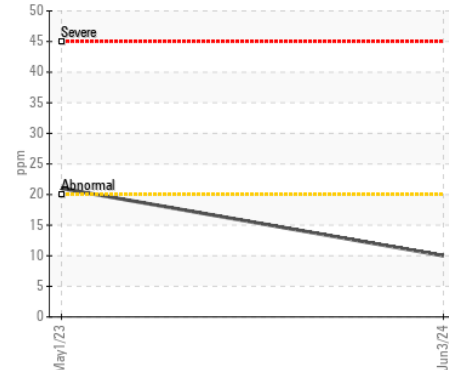
Viscosity @ 100°C



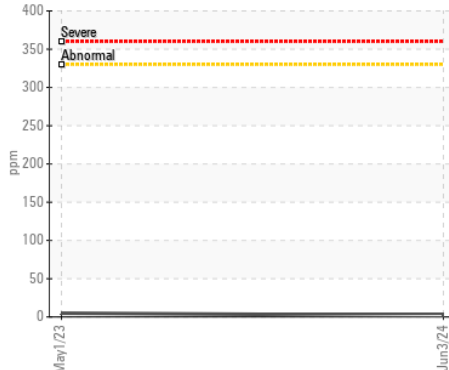
Iron (ppm)



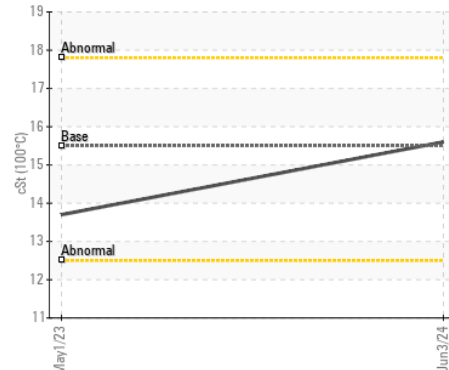
Aluminum (ppm)



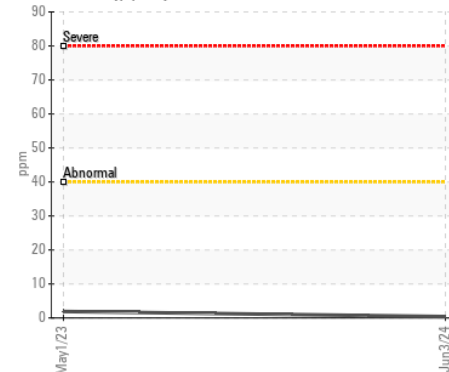
Copper (ppm)



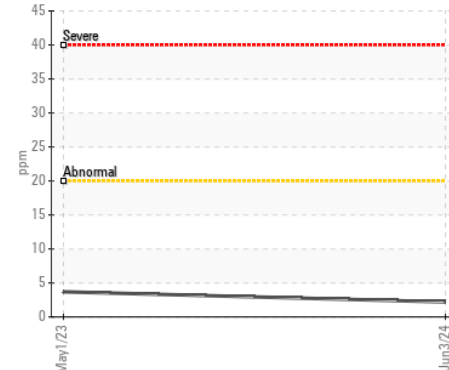
Viscosity @ 100°C



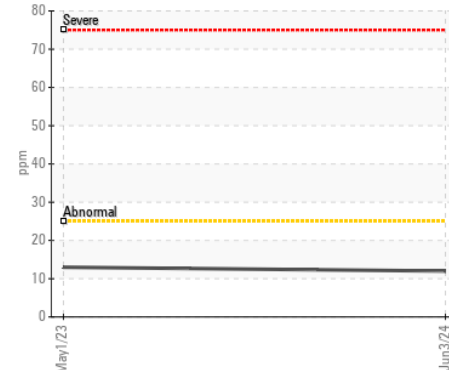
Lead (ppm)



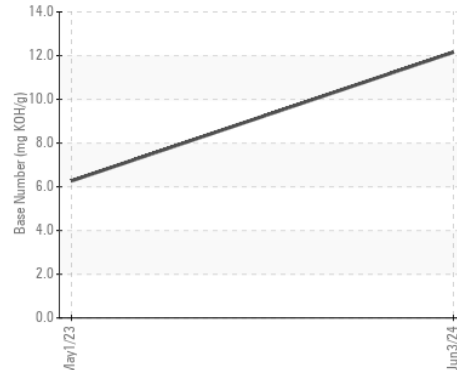
Chromium (ppm)



Silicon (ppm)



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TR06210383
Lab Number : 06210383
Unique Number : 11083247
Test Package : MOB 2
Received : 14 Jun 2024
Tested : 18 Jun 2024
Diagnosed : 18 Jun 2024 - Don Baldrige

NOLL CONSTRUCTION
 BOX 152
 GOLVA, ND
 US 58632
 Contact: KELLY ZIETLOW

To discuss this sample report, contact Customer Service at 1-800-827-0711.
 * - 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)