



TRAAP

Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
CUMMINS 46537759
 Component
Starboard Diesel Engine
 Fluid
TRC MOLY XL PRO-SPEC III SYNTHETIC15W40 (--- LTR)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		TR05699919	TR05432119	---
Sample Date		Client Info		20 Oct 2022	20 Nov 2021	---
Machine Age	hrs	Client Info		0	880	---
Oil Age	hrs	Client Info		0	0	---
Filter Age	hrs	Client Info		0	0	---
Oil Changed		Client Info		Changed	Changed	---
Filter Changed		Client Info		Changed	Changed	---
Sample Status				NORMAL	NORMAL	---

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>90	32	16	---
Chromium	ppm	ASTM D5185m	>20	2	<1	---
Nickel	ppm	ASTM D5185m	>2	2	<1	---
Titanium	ppm	ASTM D5185m	>2	1	1	---
Silver	ppm	ASTM D5185m	>2	2	1	---
Aluminum	ppm	ASTM D5185m	>20	2	1	---
Lead	ppm	ASTM D5185m	>40	6	5	---
Copper	ppm	ASTM D5185m	>330	19	16	---
Tin	ppm	ASTM D5185m	>15	2	<1	---
Vanadium	ppm	ASTM D5185m		<1	<1	---
White Metal	scalar	*Visual	NONE	NONE	NONE	---
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	---

CONTAMINATION

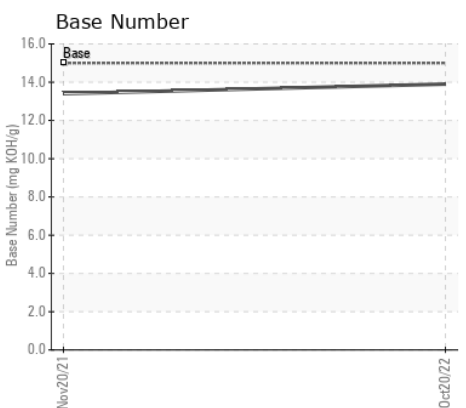
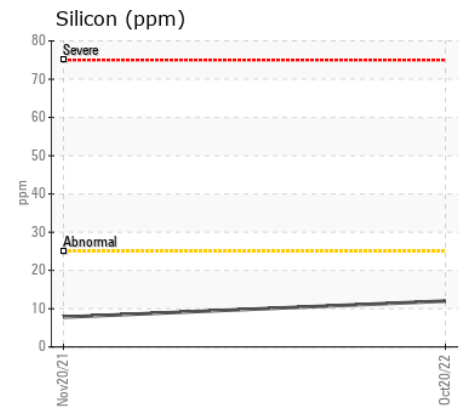
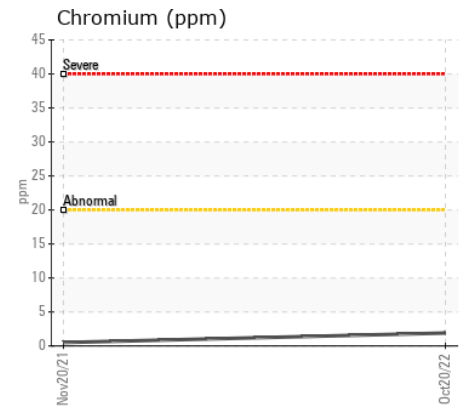
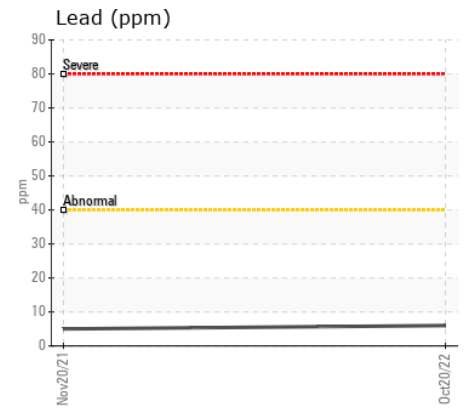
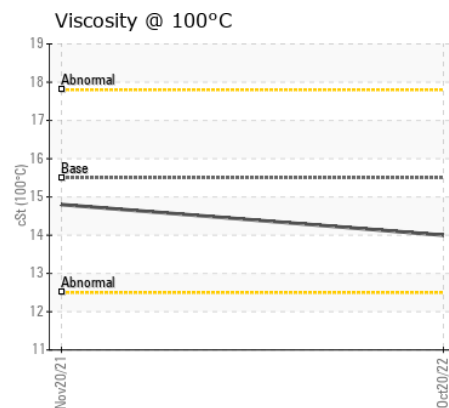
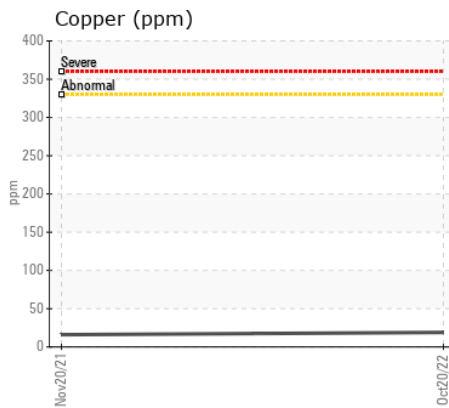
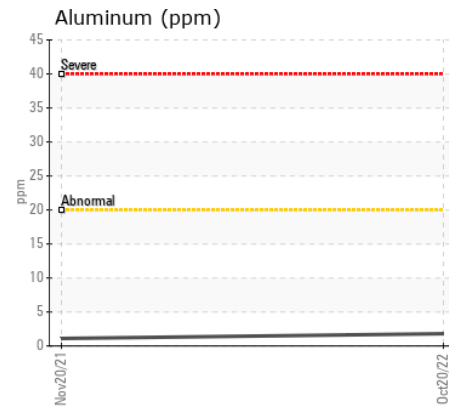
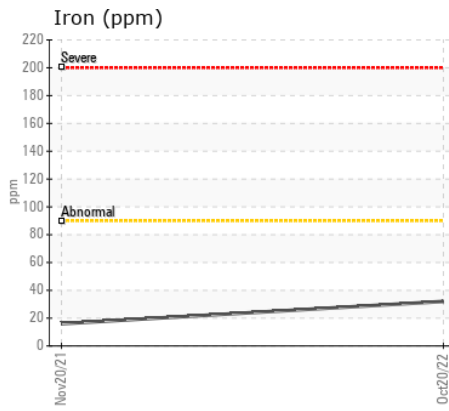
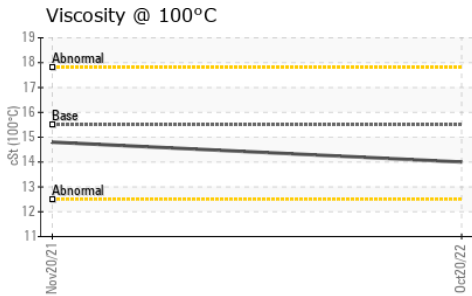
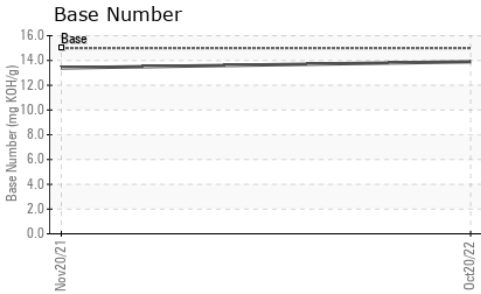
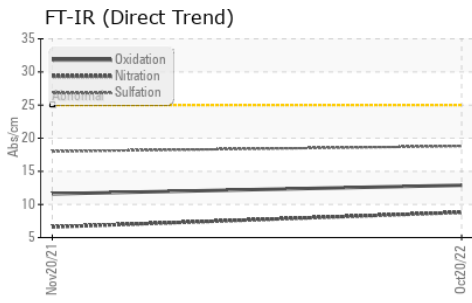
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	12	8	---
Potassium	ppm	ASTM D5185m	>20	5	<1	---
Fuel		WC Method	>3.0	<1.0	<1.0	---
Water		WC Method	>0.2	NEG	NEG	---
Glycol		WC Method		NEG	NEG	---
Soot %	%	*ASTM D7844	>6	0.3	0.2	---
Nitration	Abs/cm	*ASTM D7624	>20	8.8	6.6	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	18.8	18	---
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		3	3	---
Boron	ppm	ASTM D5185m		168	182	---
Barium	ppm	ASTM D5185m		0	0	---
Molybdenum	ppm	ASTM D5185m		175	162	---
Manganese	ppm	ASTM D5185m		<1	<1	---
Magnesium	ppm	ASTM D5185m		450	425	---
Calcium	ppm	ASTM D5185m	4500	3783	3812	---
Phosphorus	ppm	ASTM D5185m		914	917	---
Zinc	ppm	ASTM D5185m	1400	1100	969	---
Sulfur	ppm	ASTM D5185m		4513	3053	---
Oxidation	Abs/.1mm	*ASTM D7414	>25	12.9	11.6	---
Base Number (BN)	mg KOH/g	ASTM D2896	15	13.9	13.4	---
Visc @ 100°C	cSt	ASTM D445	15.5	14.0	14.8	---



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : TR05699919

Lab Number : 05699919

Unique Number : 10229493

Test Package : MOB 2

Received : 21 Nov 2022

Tested : 22 Nov 2022

Diagnosed : 23 Nov 2022 - Don Baldrige

STEPHEN MARTORELLA

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T:

F:

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)