



TRAAP

Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	MARGINAL
FLUID CONDITION	ATTENTION

Machine Id
GRASSHOPPER LM
 Component
Gasoline Engine
 Fluid
TRC MOLY XL PRO-SPEC IV 10W30 (2 QTS)

RECOMMENDATION

Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		TR04139963	---	---
Sample Date		Client Info		22 Apr 2016	---	---
Machine Age	hrs	Client Info		182	---	---
Oil Age	hrs	Client Info		81	---	---
Filter Age	hrs	Client Info		81	---	---
Oil Changed		Client Info		Changed	---	---
Filter Changed		Client Info		Changed	---	---
Sample Status				ATTENTION	---	---

WEAR

Metal levels are typical for a new component breaking in.

Iron	ppm	ASTM D5185m	>150	282	---	---
Chromium	ppm	ASTM D5185m	>20	3	---	---
Nickel	ppm	ASTM D5185m	>5	2	---	---
Titanium	ppm	ASTM D5185m		0	---	---
Silver	ppm	ASTM D5185m	>2	0	---	---
Aluminum	ppm	ASTM D5185m	>40	20	---	---
Lead	ppm	ASTM D5185m	>50	21	---	---
Copper	ppm	ASTM D5185m	>155	12	---	---
Tin	ppm	ASTM D5185m	>10	10	---	---
Vanadium	ppm	ASTM D5185m		0	---	---
White Metal	scalar	*Visual	NONE	NONE	---	---
Yellow Metal	scalar	*Visual	NONE	NONE	---	---

CONTAMINATION

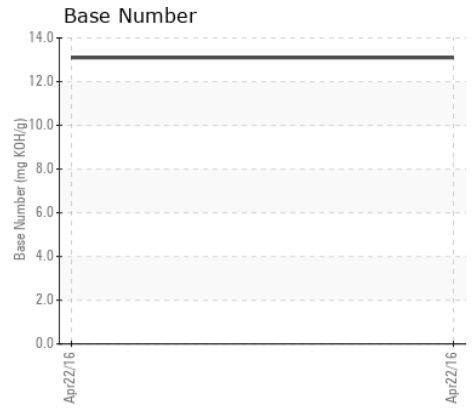
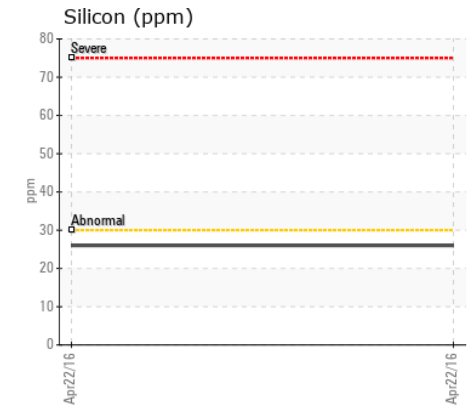
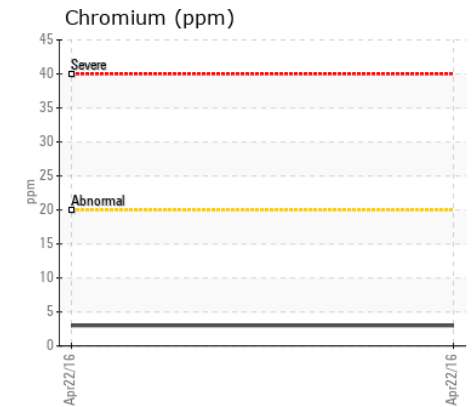
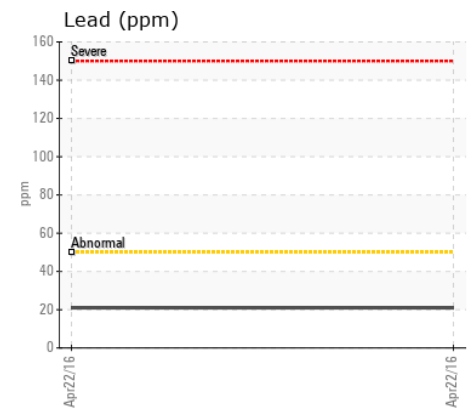
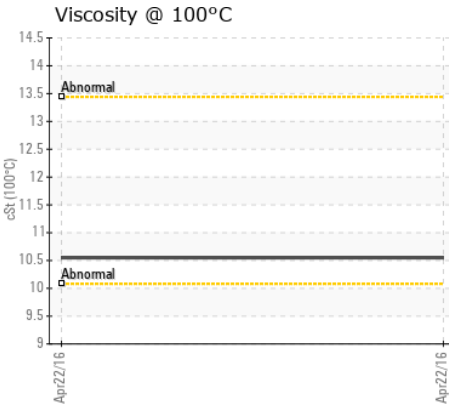
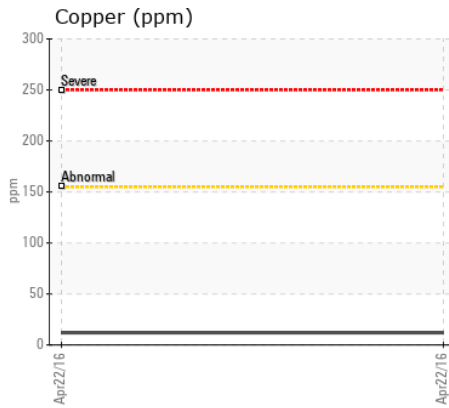
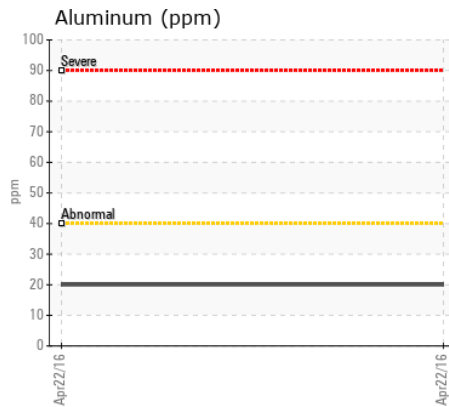
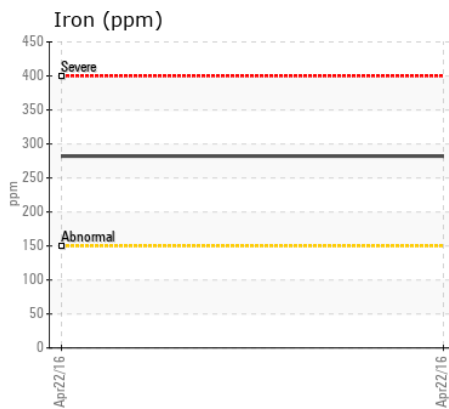
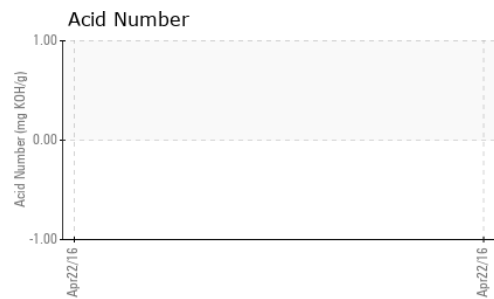
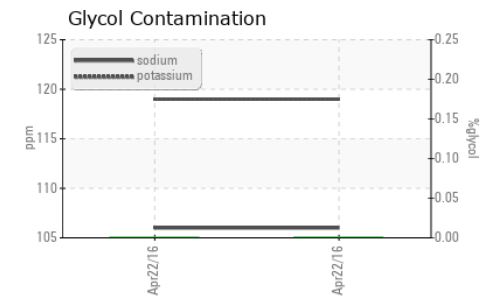
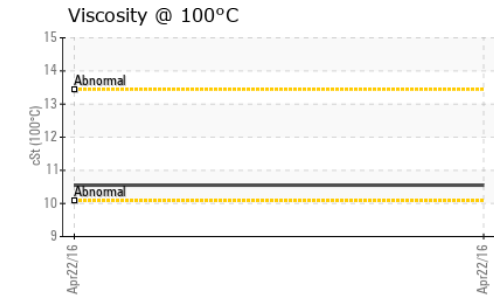
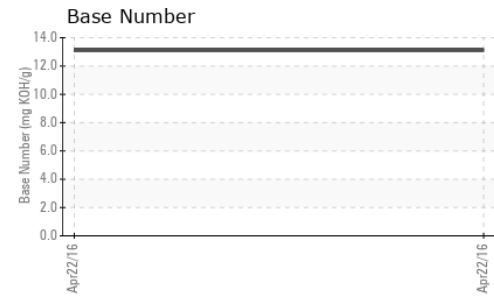
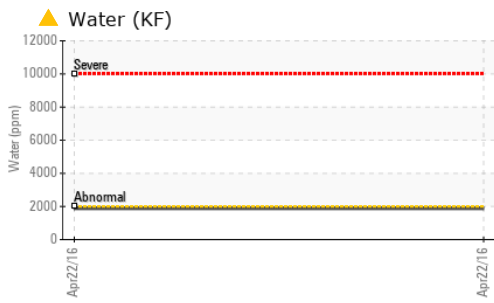
Sodium and/or potassium levels are high. There is a trace of moisture present in the oil. Test for glycol is negative.

Silicon	ppm	ASTM D5185m	>30	26	---	---
Potassium	ppm	ASTM D5185m	>20	▲ 119	---	---
Fuel		WC Method	>4.0	<1.0	---	---
Water	%	ASTM D6304	>0.2	▲ 0.188	---	---
ppm Water	ppm	ASTM D6304	>2000	▲ 1880	---	---
Glycol	%	*ASTM D2982		0.0	---	---
Soot %	%	*ASTM D7844		0	---	---
Nitration	Abs/cm	*ASTM D7624		16.	---	---
Sulfation	Abs/.1mm	*ASTM D7415		27.	---	---
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	>0.2	NEG	---	---

FLUID CONDITION

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

Sodium	ppm	ASTM D5185m	>400	▲ 106	---	---
Boron	ppm	ASTM D5185m		40	---	---
Barium	ppm	ASTM D5185m		0	---	---
Molybdenum	ppm	ASTM D5185m		248	---	---
Manganese	ppm	ASTM D5185m		7	---	---
Magnesium	ppm	ASTM D5185m		24	---	---
Calcium	ppm	ASTM D5185m		4768	---	---
Phosphorus	ppm	ASTM D5185m		1218	---	---
Zinc	ppm	ASTM D5185m		1328	---	---
Sulfur	ppm	ASTM D5185m		4718	---	---
Oxidation	Abs/.1mm	*ASTM D7414		21.	---	---
Base Number (BN)	mg KOH/g	ASTM D2896		13.1	---	---
Visc @ 100°C	cSt	ASTM D445		10.55	---	---



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TR04139963
Lab Number : 04139963
Unique Number : 7663349
Test Package : MOB 2 (Additional Tests: Glycol, KF, TAN Man)

Received : 11 Jan 2017
Tested : 13 Jan 2017
Diagnosed : 13 Jan 2017 - Doug Bogart

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)

PHIL HARDER
 57803 350TH STREET
 MOUNTAIN LAKE, MN
 US 56159
 Contact: PHILIP HARDER
 philbren@frontiernet.net
 T: 5(07) 227-6074
 F: