



TRAAP

Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

WEAR	ATTENTION
CONTAMINATION	ABNORMAL
FLUID CONDITION	ATTENTION

Machine Id
INTERNATIONAL 48
 Component
Front Diesel Engine
 Fluid
TRC PRO-SPEC IV 15W40 (40 QTS)

RECOMMENDATION

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		TR06086724	TR05778370	TR05538483
Sample Date		Client Info		08 Jan 2024	25 Jan 2023	13 Apr 2022
Machine Age	hrs	Client Info		3071	2583	2030
Oil Age	hrs	Client Info		488	553	452
Filter Age	hrs	Client Info		488	553	452
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	NORMAL	ABNORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	62	65	100
Chromium	ppm	ASTM D5185m	>20	5	5	7
Nickel	ppm	ASTM D5185m	>4	<1	1	<1
Titanium	ppm	ASTM D5185m		25	<1	6
Silver	ppm	ASTM D5185m	>3	0	0	<1
Aluminum	ppm	ASTM D5185m	>20	▲ 6	14	▲ 14
Lead	ppm	ASTM D5185m	>40	<1	<1	1
Copper	ppm	ASTM D5185m	>330	5	49	185
Tin	ppm	ASTM D5185m	>15	2	<1	2
Vanadium	ppm	ASTM D5185m		0	<1	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

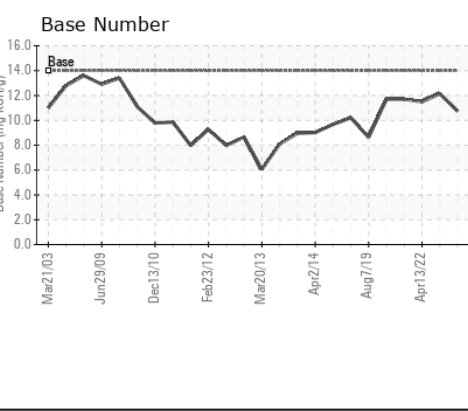
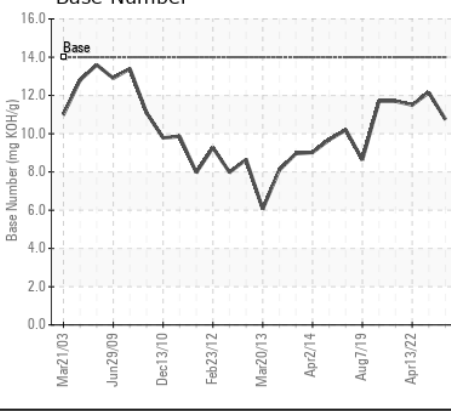
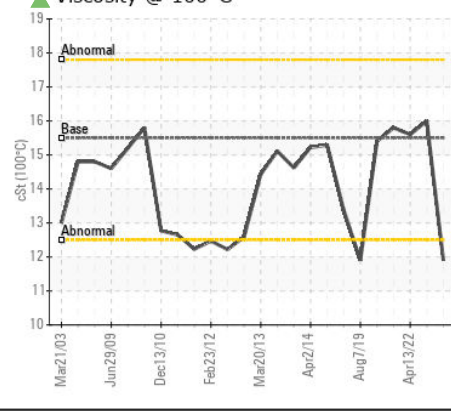
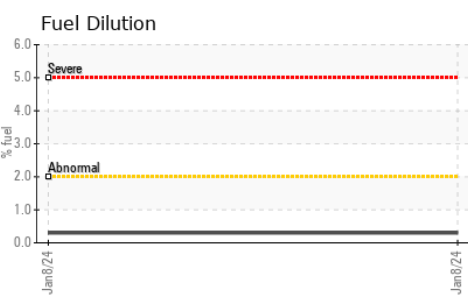
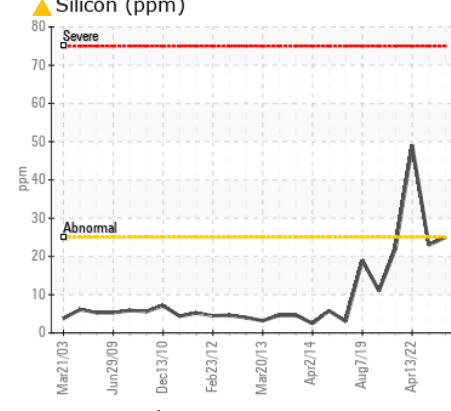
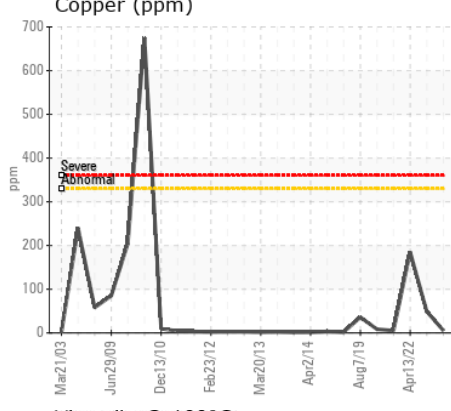
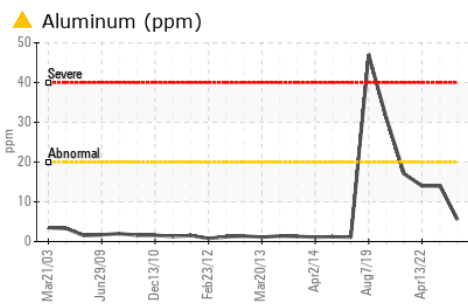
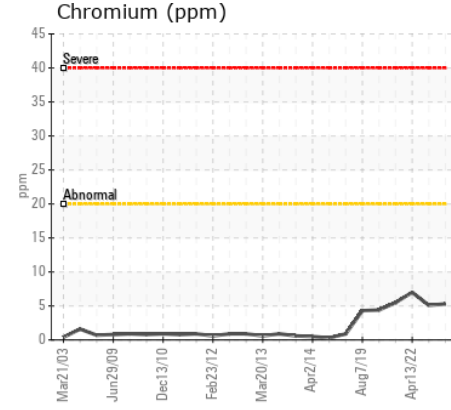
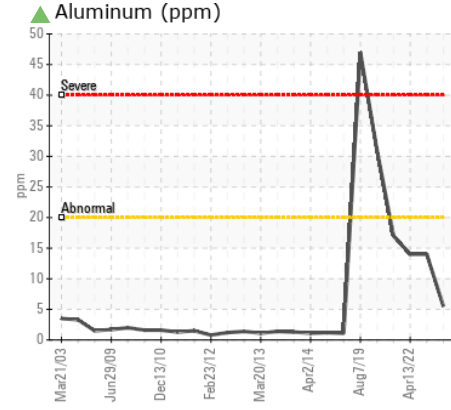
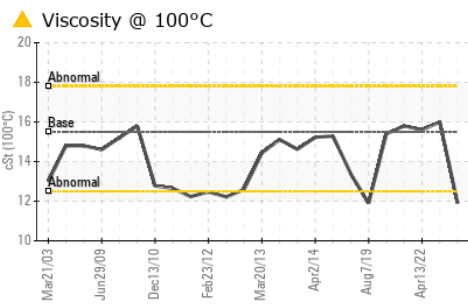
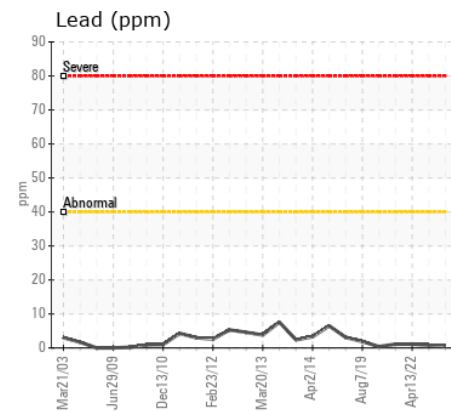
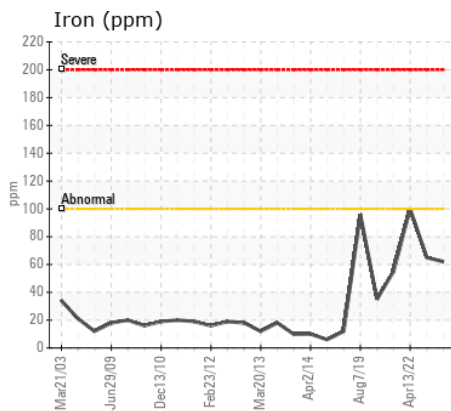
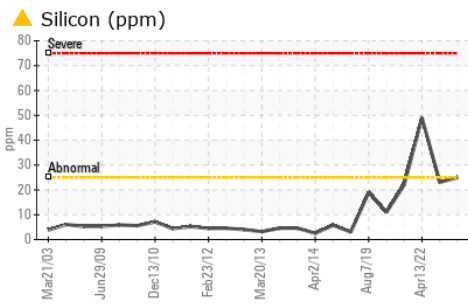
Fuel content negligible. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

Silicon	ppm	ASTM D5185m	>25	▲ 25	23	▲ 49
Potassium	ppm	ASTM D5185m	>20	9	30	36
Fuel	%	ASTM D3524	>2.0	0.3	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.3	0.8	0.8
Nitration	Abs/cm	*ASTM D7624	>20	7.7	11.6	10.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	19.1	24.3	24.2
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG

FLUID CONDITION

The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

Sodium	ppm	ASTM D5185m		7	8	6
Boron	ppm	ASTM D5185m		107	<1	8
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		7	1	3
Manganese	ppm	ASTM D5185m		4	1	2
Magnesium	ppm	ASTM D5185m		568	26	68
Calcium	ppm	ASTM D5185m	2300	1650	4510	4430
Phosphorus	ppm	ASTM D5185m		970	922	935
Zinc	ppm	ASTM D5185m	1200	1168	1131	1088
Sulfur	ppm	ASTM D5185m		3750	4840	3644
Oxidation	Abs/.1mm	*ASTM D7414	>25	13.1	13.8	13.4
Base Number (BN)	mg KOH/g	ASTM D2896	14	10.75	12.15	11.5
Visc @ 100°C	cSt	ASTM D445	15.5	▲ 11.9	16.0	15.6



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TR06086724
Lab Number : 06086724
Unique Number : 10874169
Test Package : MOB 2 (Additional Tests: FuelDilution, PercentFuel)

COTTONWOOD COUNTY
 1355 9TH AVE
 WINDOM, MN
 US 56101
 Contact: DARRYL BARGEN

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)

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