



TRAAP

Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	NORMAL

Machine Id
4031
 Component
Diesel Engine
 Fluid
TRC PRO-SPEC IV 15W40 (--- GAL)

RECOMMENDATION

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		TR06230913	TR05675220	TR05395467
Sample Date		Client Info		02 Jul 2024	19 Oct 2022	03 Nov 2021
Machine Age	mls	Client Info		533500	415800	352523
Oil Age	mls	Client Info		0	0	0
Filter Age	mls	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Filter Changed		Client Info		N/A	N/A	N/A
Sample Status				ABNORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	18	36	32
Chromium	ppm	ASTM D5185m	>20	<1	<1	2
Nickel	ppm	ASTM D5185m	>4	0	0	<1
Titanium	ppm	ASTM D5185m		<1	<1	14
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	4	4	5
Lead	ppm	ASTM D5185m	>40	3	13	11
Copper	ppm	ASTM D5185m	>330	2	2	3
Tin	ppm	ASTM D5185m	>15	<1	<1	0
Vanadium	ppm	ASTM D5185m		0	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

Elemental level of silicon (Si) above normal indicating ingress of seal material.

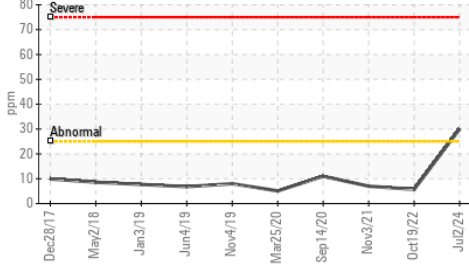
Silicon	ppm	ASTM D5185m	>25	▲ 30	6	7
Potassium	ppm	ASTM D5185m	>20	7	6	7
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.6	0.9	0.9
Nitration	Abs/cm	*ASTM D7624	>20	9.1	17.8	13.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	25.0	36.9	32.6
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

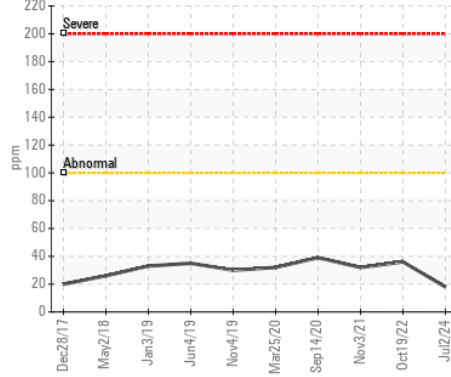
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		20	<1	4
Boron	ppm	ASTM D5185m		30	<1	18
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		34	9	27
Manganese	ppm	ASTM D5185m		0	<1	<1
Magnesium	ppm	ASTM D5185m		414	26	642
Calcium	ppm	ASTM D5185m	2300	1905	4536	2357
Phosphorus	ppm	ASTM D5185m		720	935	741
Zinc	ppm	ASTM D5185m	1200	926	1114	867
Sulfur	ppm	ASTM D5185m		2342	4818	4183
Oxidation	Abs/.1mm	*ASTM D7414	>25	24.8	32.6	30.6
Base Number (BN)	mg KOH/g	ASTM D2896	14	9.22	8.24	5.77
Visc @ 100°C	cSt	ASTM D445	15.5	12.9	16.1	14.7

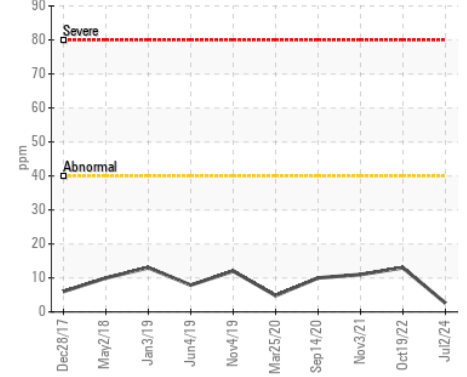
▲ Silicon (ppm)



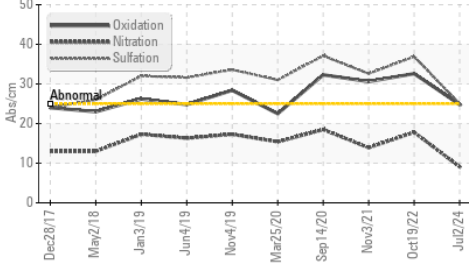
Iron (ppm)



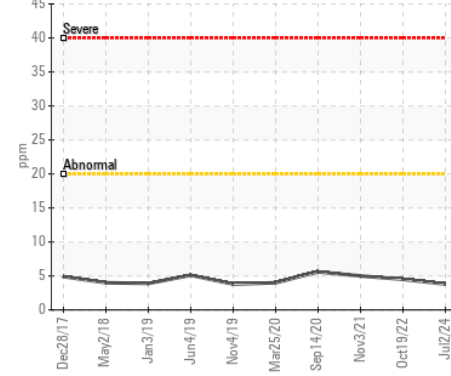
Lead (ppm)



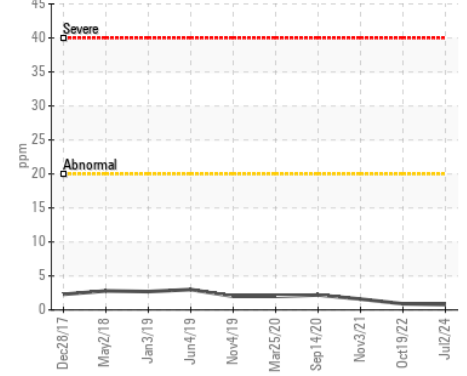
FT-IR (Direct Trend)



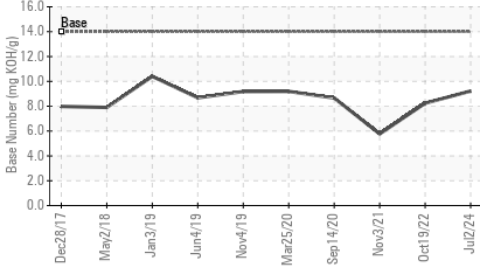
Aluminum (ppm)



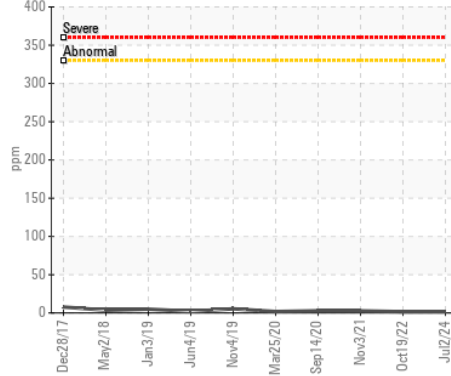
Chromium (ppm)



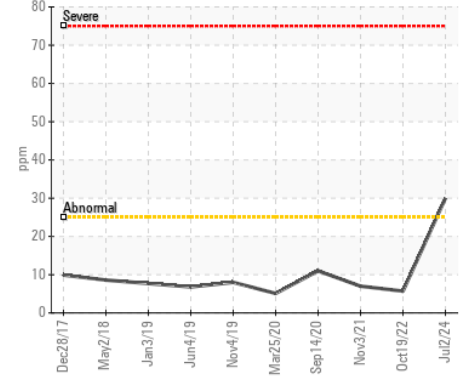
Base Number



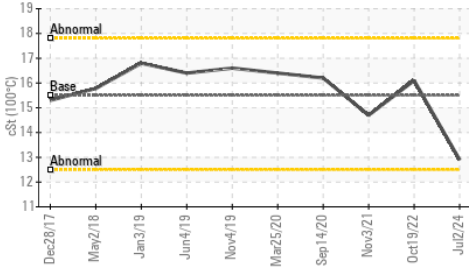
Copper (ppm)



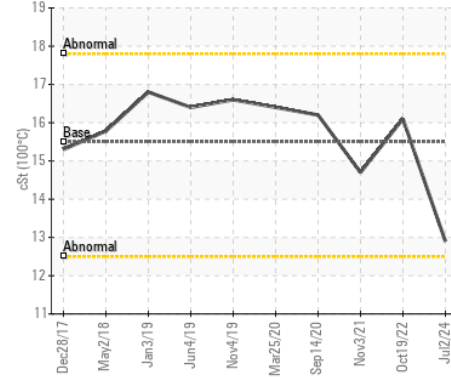
▲ Silicon (ppm)



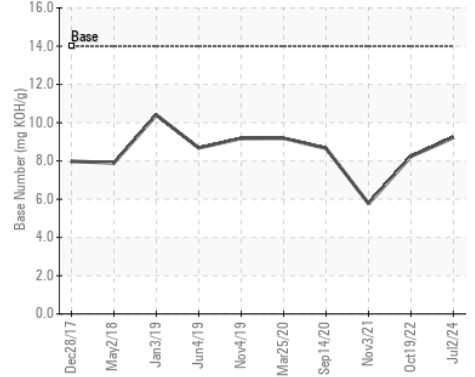
Viscosity @ 100°C



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
 Sample No. : TR06230913
 Lab Number : 06230913
 Unique Number : 11114406
 Test Package : MOB 2
 Received : 08 Jul 2024
 Tested : 10 Jul 2024
 Diagnosed : 10 Jul 2024 - Sean Felton

CHRISTENSEN FARMS
 24710 US HWY 14
 SLEEPY EYE, MN
 US 56085
 Contact: MATT

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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