TRAAP
Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
WILLMAR 6200 (S/N 06L0000172)
Component
Hydrostatic
Fluid
TRC UNIV TORQUE FLUID (15 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

WEAR

All component wear rates are normal.

CONTAMINATION

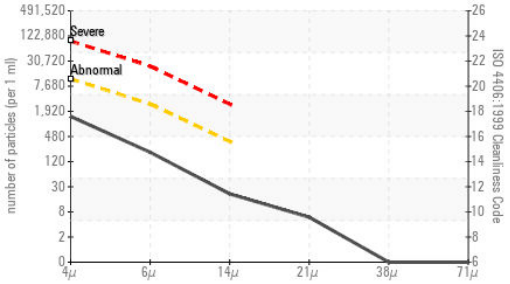
The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable.

FLUID CONDITION

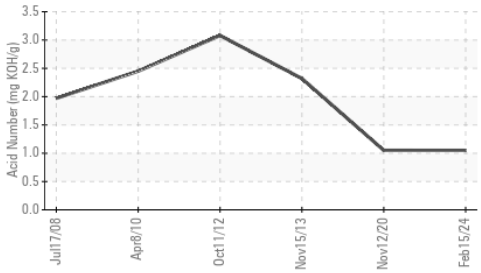
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		TR06100893	TR05122409	TR03400134
Sample Date		Client Info		15 Feb 2024	12 Nov 2020	15 Nov 2013
Machine Age	hrs	Client Info		11520	10366	8070
Oil Age	hrs	Client Info		364	1642	2041
Filter Age	hrs	Client Info		364	1642	2041
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Filter Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
Iron	ppm	ASTM D5185m	>200	5	22	25
Chromium	ppm	ASTM D5185m	>10	<1	<1	<1
Nickel	ppm	ASTM D5185m		0	0	<1
Titanium	ppm	ASTM D5185m		0	<1	<1
Silver	ppm	ASTM D5185m		0	2	0
Aluminum	ppm	ASTM D5185m	>50	2	2	2
Lead	ppm	ASTM D5185m	>50	0	3	2
Copper	ppm	ASTM D5185m	>200	82	131	77
Tin	ppm	ASTM D5185m	>10	0	<1	0
Vanadium	ppm	ASTM D5185m		0	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	LIGHT
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185m	>50	24	41	29
Potassium	ppm	ASTM D5185m	>20	4	<1	<1
Water		WC Method	>0.1	NEG	NEG	NEG
Particles >4µm		ASTM D7647	>10000	1272	---	---
Particles >6µm		ASTM D7647	>2500	177	---	---
Particles >14µm		ASTM D7647	>320	18	---	---
Particles >21µm		ASTM D7647	>80	5	---	---
Particles >38µm		ASTM D7647	>20	0	---	---
Particles >71µm		ASTM D7647	>4	0	---	---
Oil Cleanliness		ISO 4406 (c)	>20/18/15	17/15/11	---	---
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	>0.1	NEG	NEG	NEG
Sodium	ppm	ASTM D5185m		<1	3	3
Boron	ppm	ASTM D5185m		153	140	116
Barium	ppm	ASTM D5185m		8	0	0
Molybdenum	ppm	ASTM D5185m		0	<1	0
Manganese	ppm	ASTM D5185m		0	<1	<1
Magnesium	ppm	ASTM D5185m		12	14	10
Calcium	ppm	ASTM D5185m	4200	4081	4575	4102
Phosphorus	ppm	ASTM D5185m	1100	1323	1426	1504
Zinc	ppm	ASTM D5185m	2000	1638	1658	1714
Sulfur	ppm	ASTM D5185m		4996	6087	7359
Acid Number (AN)	mg KOH/g	ASTM D8045		1.05	1.051	2.32
Visc @ 40°C	cSt	ASTM D445	53.5	48.7	---	---
Visc @ 100°C	cSt	ASTM D445	9.55	8	7.6	7.9
Viscosity Index (VI)	Scale	ASTM D2270	164	135	---	---

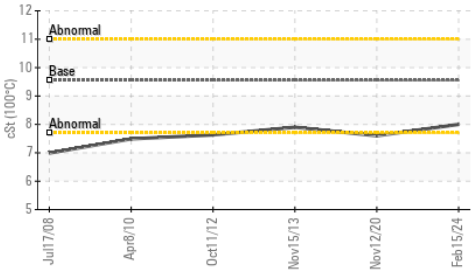
Particle Count



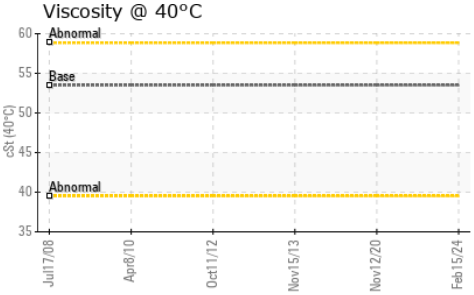
Acid Number



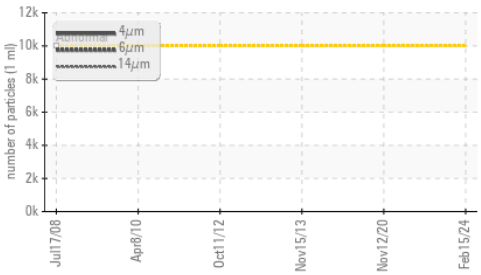
Viscosity @ 100°C



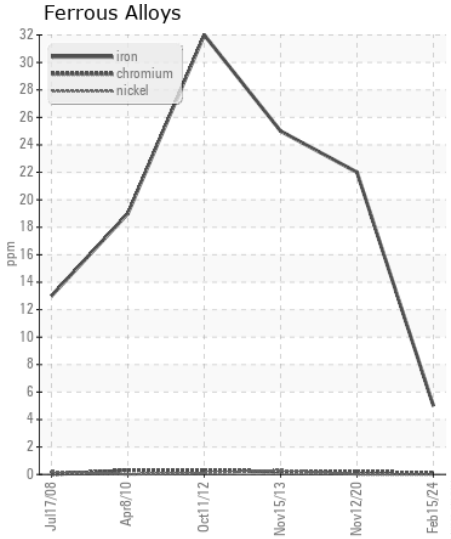
Viscosity @ 40°C



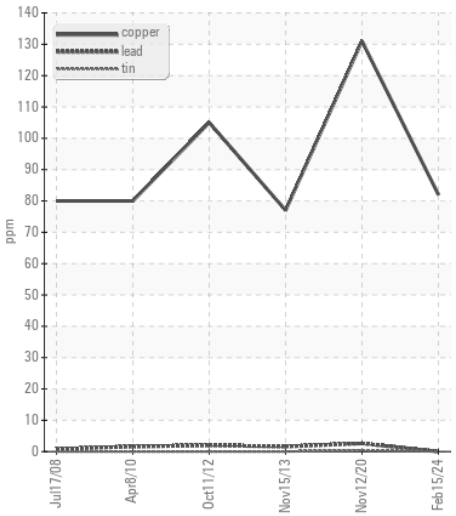
Particle Trend



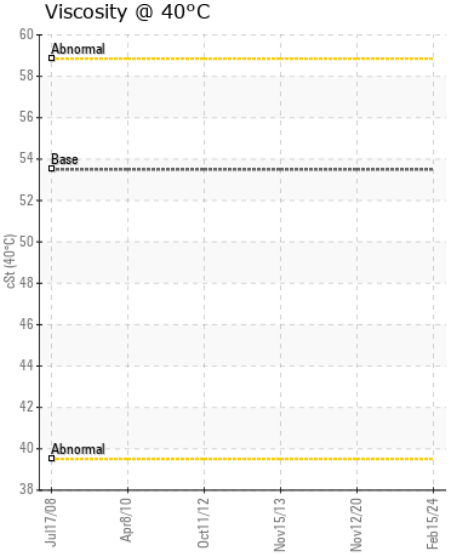
Ferrous Alloys



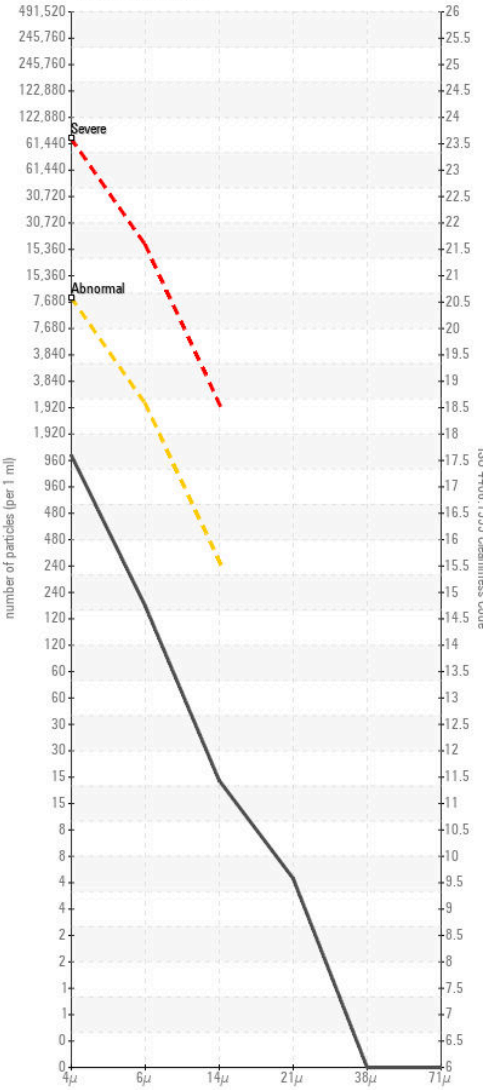
Non-ferrous Metals



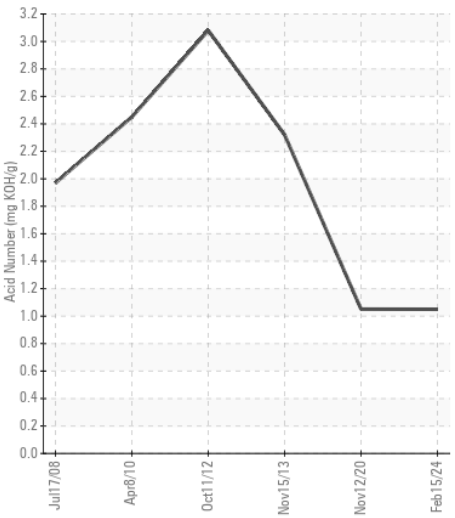
Viscosity @ 40°C



Particle Count



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TR06100893 **Received** : 26 Feb 2024
Lab Number : 06100893 **Tested** : 27 Feb 2024
Unique Number : 10899123 **Diagnosed** : 27 Feb 2024 - Wes Davis
Test Package : MOB 2 (Additional Tests: KV100, PrtCount, VI)

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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