



TRAAP

Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

WEAR	ABNORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	NORMAL

Machine Id
CATERPILLAR 988F WRCH 2 (S/N 2ZR01298)
 Component
Hydraulic System
 Fluid
CAT TDTO 10W (60 GAL)

RECOMMENDATION

We recommend you service the filters on this component. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		TR06085378	---	---
Sample Date		Client Info		30 Jan 2024	---	---
Machine Age	hrs	Client Info		916	---	---
Oil Age	hrs	Client Info		100	---	---
Filter Age	hrs	Client Info		150	---	---
Oil Changed		Client Info		Not Chngd	---	---
Filter Changed		Client Info		Not Chngd	---	---
Sample Status				ABNORMAL	---	---

WEAR

The copper level is abnormal. All other component wear rates are normal.

Iron	ppm	ASTM D5185m	>20	3	---	---
Chromium	ppm	ASTM D5185m	>10	0	---	---
Nickel	ppm	ASTM D5185m	>10	0	---	---
Titanium	ppm	ASTM D5185m		0	---	---
Silver	ppm	ASTM D5185m		0	---	---
Aluminum	ppm	ASTM D5185m	>10	0	---	---
Lead	ppm	ASTM D5185m	>10	1	---	---
Copper	ppm	ASTM D5185m	>75	▲ 79	---	---
Tin	ppm	ASTM D5185m	>10	0	---	---
Vanadium	ppm	ASTM D5185m		0	---	---
White Metal	scalar	*Visual	NONE	NONE	---	---
Yellow Metal	scalar	*Visual	NONE	NONE	---	---

CONTAMINATION

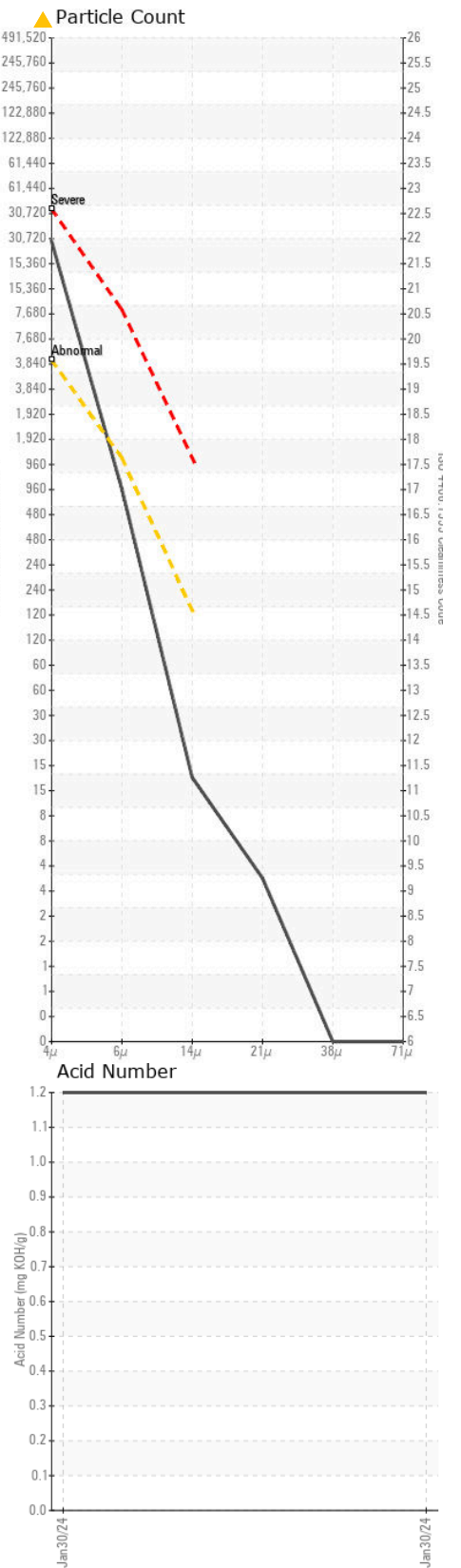
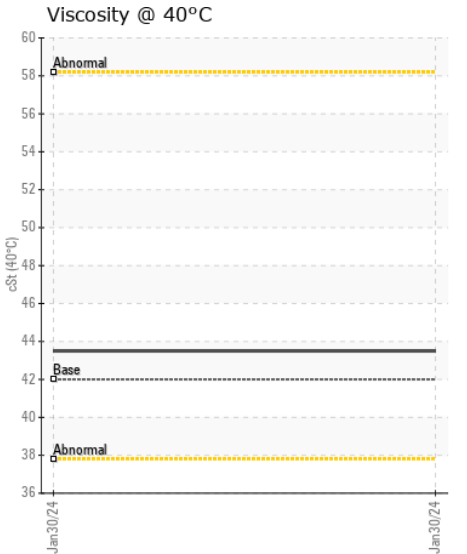
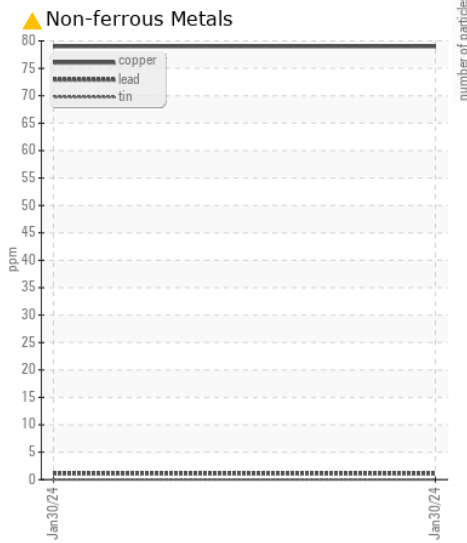
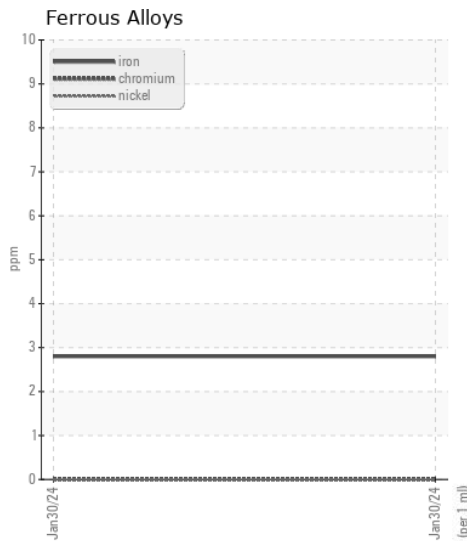
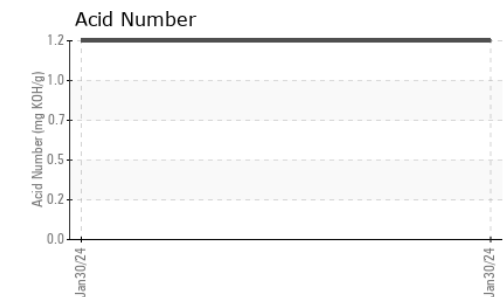
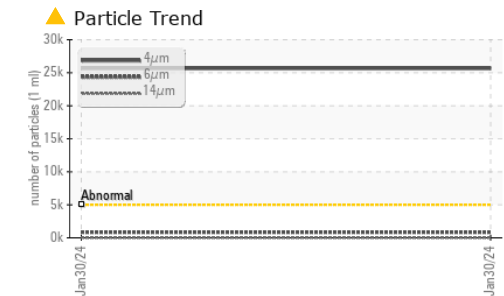
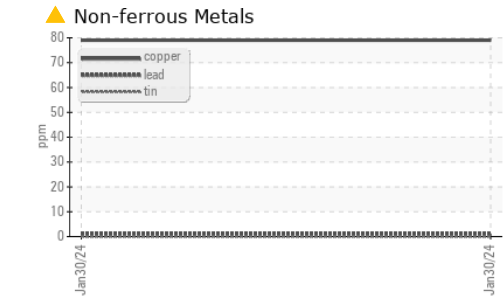
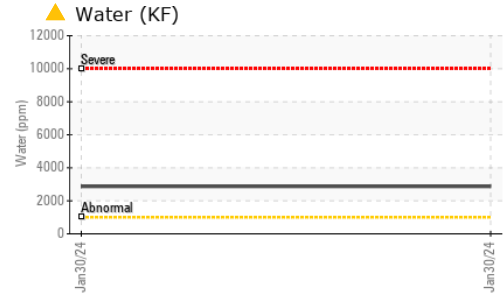
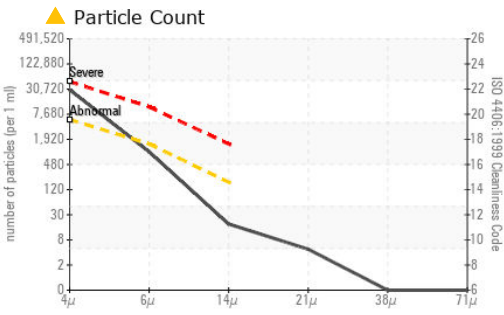
There is a high amount of silt (particulates < 6 microns in size) present in the oil. There is a light concentration of water present in the oil.

Silicon	ppm	ASTM D5185m	>20	11	---	---
Potassium	ppm	ASTM D5185m	>20	0	---	---
Water	%	ASTM D6304	>0.1	▲ 0.287	---	---
ppm Water	ppm	ASTM D6304	>1000	▲ 2870	---	---
Particles >4µm		ASTM D7647	>5000	▲ 25653	---	---
Particles >6µm		ASTM D7647	>1300	847	---	---
Particles >14µm		ASTM D7647	>160	16	---	---
Particles >21µm		ASTM D7647	>40	4	---	---
Particles >38µm		ASTM D7647	>10	0	---	---
Particles >71µm		ASTM D7647	>3	0	---	---
Oil Cleanliness		ISO 4406 (c)	>19/17/14	▲ 22/17/11	---	---
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	>0.1	0.2%	---	---

FLUID CONDITION

The AN level is acceptable for this fluid. The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185m		3	---	---
Boron	ppm	ASTM D5185m		9	---	---
Barium	ppm	ASTM D5185m		4	---	---
Molybdenum	ppm	ASTM D5185m		17	---	---
Manganese	ppm	ASTM D5185m		<1	---	---
Magnesium	ppm	ASTM D5185m		211	---	---
Calcium	ppm	ASTM D5185m	2980	2442	---	---
Phosphorus	ppm	ASTM D5185m	1100	889	---	---
Zinc	ppm	ASTM D5185m	1270	1157	---	---
Sulfur	ppm	ASTM D5185m		3645	---	---
Acid Number (AN)	mg KOH/g	ASTM D8045		1.20	---	---
Visc @ 40°C	cSt	ASTM D445	42.0	43.5	---	---
Visc @ 100°C	cSt	ASTM D445	6.3	7.3	---	---
Viscosity Index (VI)	Scale	ASTM D2270	97	131	---	---



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TR06085378 **Received** : 09 Feb 2024
Lab Number : 06085378 **Tested** : 13 Feb 2024
Unique Number : 10872823 **Diagnosed** : 13 Feb 2024 - Doug Bogart
Test Package : MOB 2 (Additional Tests: KF, KV100, VI)

WIE - WESTERN INDUSTRIAL EQUIPMENT
 10761 N WILSON RD
 LAKE CITY, MI
 US 49651
 Contact: JOHN HIGGINS

Certificate L2367
 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)