



WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
SMARTROC EP-D60 TMG18SED0241
 Component
Diesel Engine
 Fluid
JOHN DEERE ENGINE OIL PLUS 50 II 15W40 (41 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		JR0214073	JR0208990	JR0186581
Sample Date		Client Info		14 Jul 2024	08 Apr 2024	06 Dec 2023
Machine Age	hrs	Client Info		9877	8482	7952
Oil Age	hrs	Client Info		9877	8482	195
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	19	11	10
Chromium	ppm	ASTM D5185m	>20	<1	1	<1
Nickel	ppm	ASTM D5185m	>4	0	<1	0
Titanium	ppm	ASTM D5185m		0	<1	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	5	5	3
Lead	ppm	ASTM D5185m	>40	1	1	<1
Copper	ppm	ASTM D5185m	>330	6	3	2
Tin	ppm	ASTM D5185m	>15	0	1	<1
Vanadium	ppm	ASTM D5185m		0	<1	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

There is no indication of any contamination in the oil.

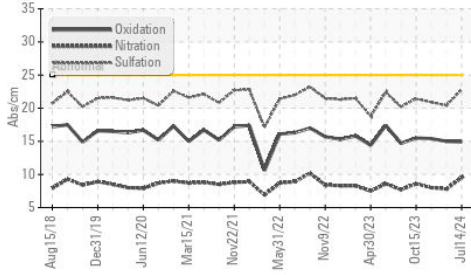
Silicon	ppm	ASTM D5185m	>25	10	9	11
Potassium	ppm	ASTM D5185m	>20	2	3	1
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	1.1	0.3	0.4
Nitration	Abs/cm	*ASTM D7624	>20	9.5	7.8	8.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	22.8	20.4	20.9
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

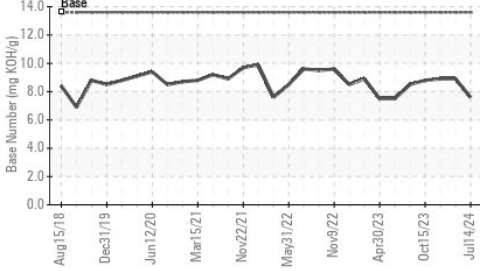
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		4	2	2
Boron	ppm	ASTM D5185m		93	182	223
Barium	ppm	ASTM D5185m		<1	1	0
Molybdenum	ppm	ASTM D5185m		173	189	250
Manganese	ppm	ASTM D5185m		<1	1	<1
Magnesium	ppm	ASTM D5185m		568	654	877
Calcium	ppm	ASTM D5185m		1789	1520	1534
Phosphorus	ppm	ASTM D5185m		952	928	968
Zinc	ppm	ASTM D5185m		1091	1080	1143
Sulfur	ppm	ASTM D5185m		3620	3462	3198
Oxidation	Abs/.1mm	*ASTM D7414	>25	14.9	15.0	15.4
Base Number (BN)	mg KOH/g	ASTM D2896	13.6	7.6	8.9	8.9
Visc @ 100°C	cSt	ASTM D445	15.4	13.1	13.1	13.3

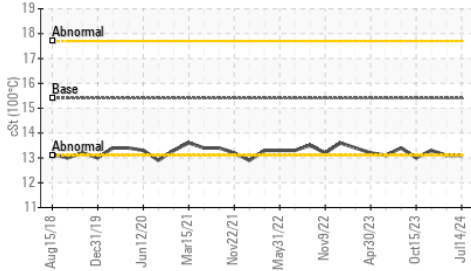
FT-IR (Direct Trend)



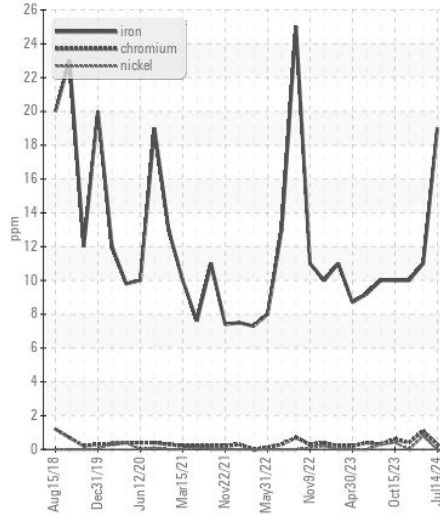
Base Number



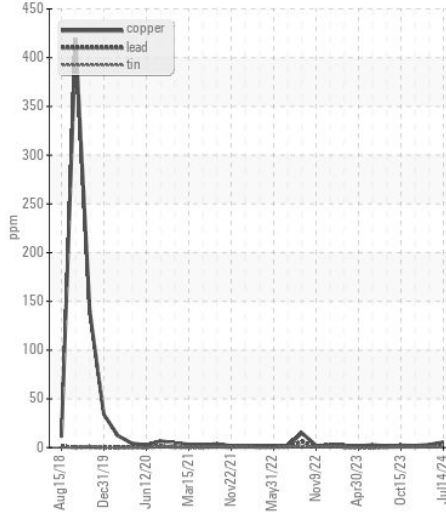
Viscosity @ 100°C



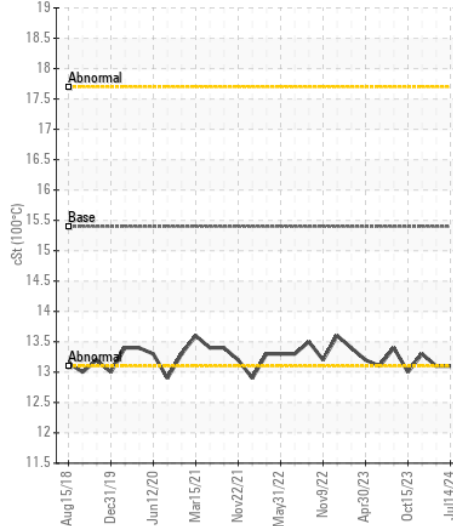
Ferrous Alloys



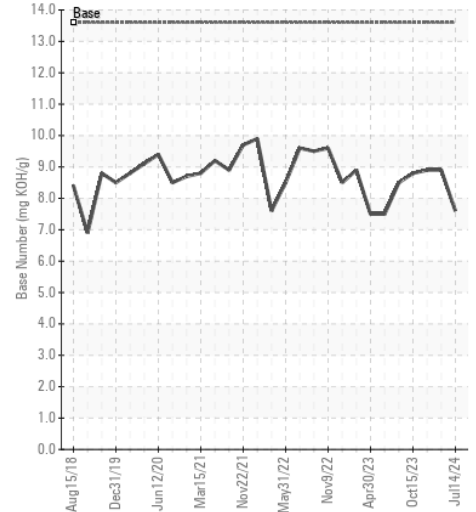
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : JR0214073 **Received** : 16 Jul 2024
Lab Number : 06237568 **Tested** : 17 Jul 2024
Unique Number : 11126402 **Diagnosed** : 17 Jul 2024 - Wes Davis
Test Package : CONST (Additional Tests: TBN)

MARTIN MARIETTA - FOUNTAIN
 5368 ALLEN GAY ROAD
 FOUNTAIN, NC
 US 27829
 Contact: BRIAN SAMS
 Brian.sams@martinmarietta.com

To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - 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)

T:
F: