



ASCENDUM

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



Area
Ascendum Machinery/250 Hour CSA
Machine Id
CATERPILLAR 329E 1533 (S/N PLW01331)
Component
Diesel Engine
Fluid
SHELL ROTELLA T4 15W40 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		ASC0011399	ASC0010277	ASC0006175
Sample Date		Client Info		21 May 2024	28 Mar 2024	25 Jan 2024
Machine Age	hrs	Client Info		10500	10190	9918
Oil Age	hrs	Client Info		500	250	500
Filter Age	hrs	Client Info		500	250	500
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	18	20	23
Chromium	ppm	ASTM D5185m	>20	1	2	2
Nickel	ppm	ASTM D5185m	>2	0	<1	<1
Titanium	ppm	ASTM D5185m	>2	0	<1	<1
Silver	ppm	ASTM D5185m	>2	<1	0	0
Aluminum	ppm	ASTM D5185m	>25	21	23	38
Lead	ppm	ASTM D5185m	>40	0	<1	1
Copper	ppm	ASTM D5185m	>330	3	7	34
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		<1	0	<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.

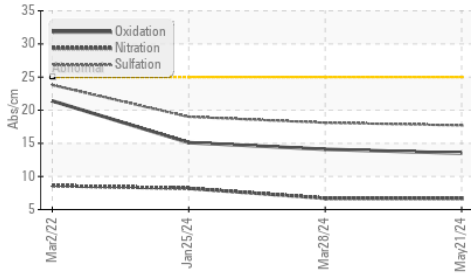
Silicon	ppm	ASTM D5185m	>25	7	7	9
Potassium	ppm	ASTM D5185m	>20	1	4	5
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.2	0.3	0.4
Nitration	Abs/cm	*ASTM D7624	>20	6.7	6.7	8.2
Sulfation	Abs/.1mm	*ASTM D7415	>30	17.7	18.1	19.0
Silt	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

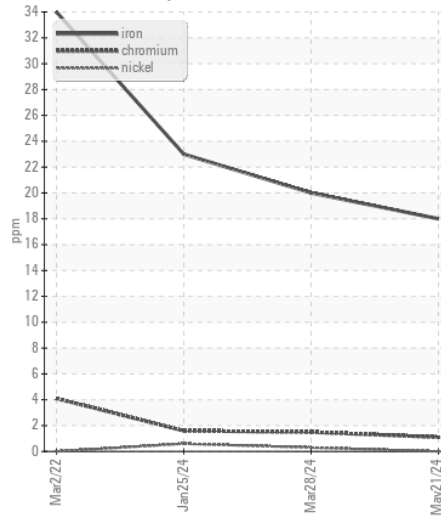
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		<1	0	2
Boron	ppm	ASTM D5185m		0	1	5
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		63	64	59
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		1035	979	923
Calcium	ppm	ASTM D5185m		1213	1140	1030
Phosphorus	ppm	ASTM D5185m		1096	985	1039
Zinc	ppm	ASTM D5185m		1318	1251	1267
Sulfur	ppm	ASTM D5185m		3699	3242	2918
Oxidation	Abs/.1mm	*ASTM D7414	>25	13.5	14.1	15.1
Base Number (BN)	mg KOH/g	ASTM D2896	10.1	8.6	9.3	7.7
Visc @ 100°C	cSt	ASTM D445	15	13.9	14.5	13.9

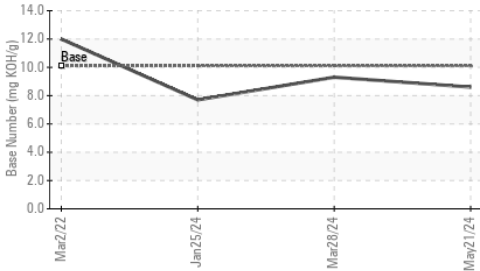
FT-IR (Direct Trend)



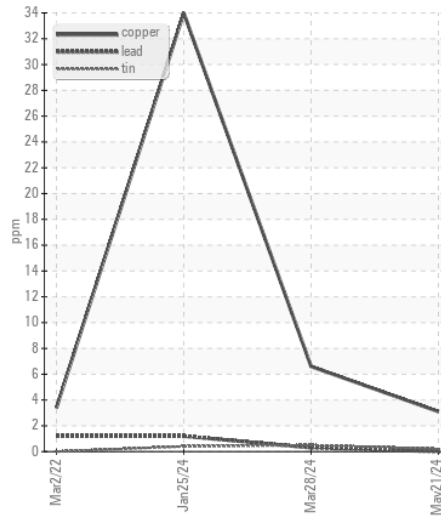
Ferrous Alloys



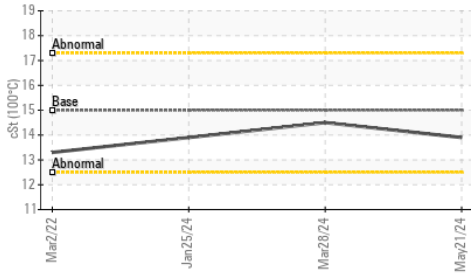
Base Number



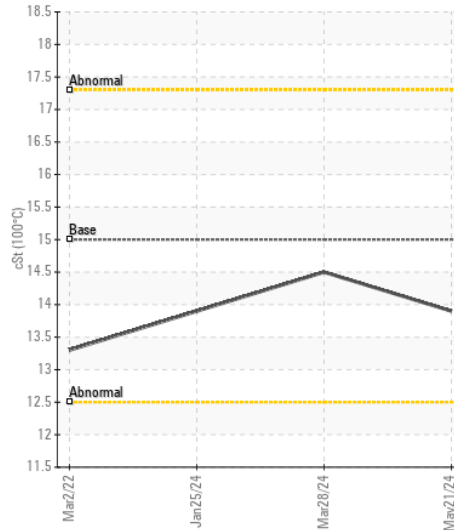
Non-ferrous Metals



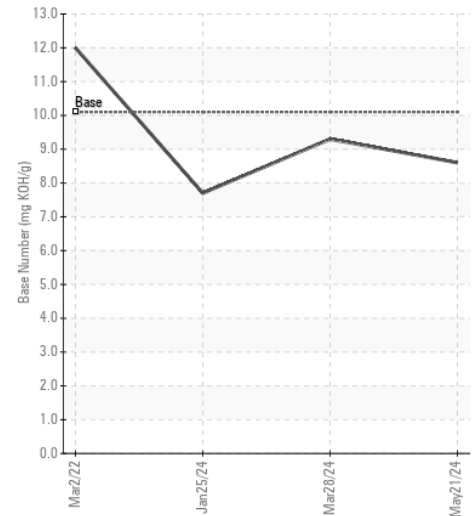
Viscosity @ 100°C



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : ASC0011399 **Received** : 23 May 2024
Lab Number : 06188829 **Tested** : 24 May 2024
Unique Number : 11045581 **Diagnosed** : 28 May 2024 - Don Baldrige
Test Package : CONST (Additional Tests: TBN)

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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)