



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	ATTENTION

Machine Id
X52 (S/N NDNJ2611)

Component
Diesel Engine

Fluid
VALVOLINE PREMIUM BLUE 2000 15W40 (--- GAL)

RECOMMENDATION

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0849038	WC0793090	WC0731577
Sample Date		Client Info		16 Nov 2023	21 Mar 2023	20 Aug 2022
Machine Age	hrs	Client Info		2648	1739	830
Oil Age	hrs	Client Info		909	909	830
Filter Age	hrs	Client Info		909	909	830
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ATTENTION	ABNORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	32	29	67
Chromium	ppm	ASTM D5185m	>20	1	1	1
Nickel	ppm	ASTM D5185m	>4	0	<1	0
Titanium	ppm	ASTM D5185m		<1	0	<1
Silver	ppm	ASTM D5185m	>3	0	0	<1
Aluminum	ppm	ASTM D5185m	>20	12	7	15
Lead	ppm	ASTM D5185m	>40	<1	0	<1
Copper	ppm	ASTM D5185m	>330	8	10	33
Tin	ppm	ASTM D5185m	>15	<1	<1	3
Vanadium	ppm	ASTM D5185m		0	0	0
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.

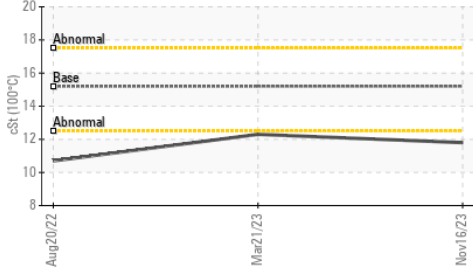
Silicon	ppm	ASTM D5185m	>25	4	5	10
Potassium	ppm	ASTM D5185m	>20	30	18	30
Fuel	%	ASTM D3524	>5	<1.0	1.1	0.4
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.5	0.5	0.4
Nitration	Abs/cm	*ASTM D7624	>20	10.9	11.5	7.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	21.9	22.1	21.4
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

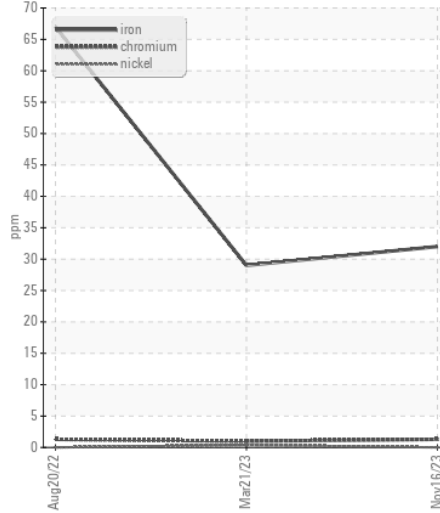
The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

Sodium	ppm	ASTM D5185m		4	3	3
Boron	ppm	ASTM D5185m		27	30	35
Barium	ppm	ASTM D5185m		0	2	0
Molybdenum	ppm	ASTM D5185m		75	56	46
Manganese	ppm	ASTM D5185m		1	2	8
Magnesium	ppm	ASTM D5185m		696	637	504
Calcium	ppm	ASTM D5185m		1243	1287	1562
Phosphorus	ppm	ASTM D5185m		630	656	710
Zinc	ppm	ASTM D5185m		829	831	875
Sulfur	ppm	ASTM D5185m		2351	2204	2254
Oxidation	Abs/.1mm	*ASTM D7414	>25	20.8	21.5	16.2
Base Number (BN)	mg KOH/g	ASTM D2896	10.0	5.9	7.0	11.3
Visc @ 100°C	cSt	ASTM D445	15.2	11.8	12.3	10.7

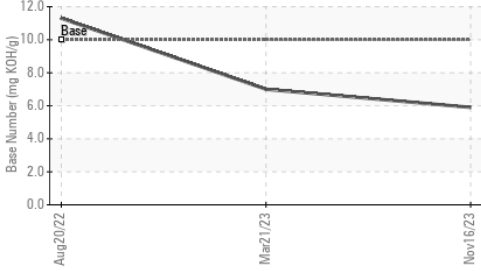
▲ Viscosity @ 100°C



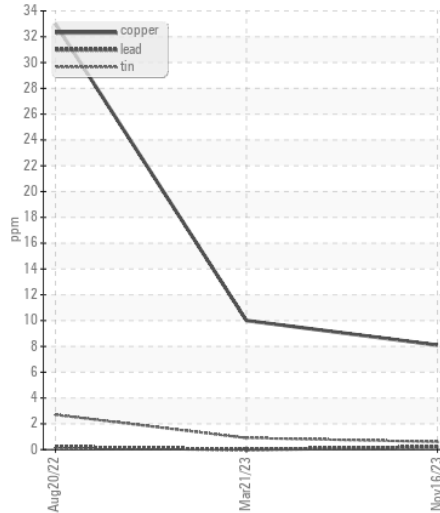
Ferrous Alloys



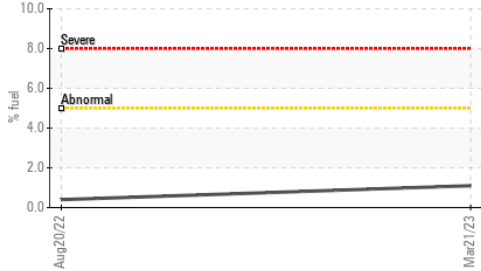
Base Number



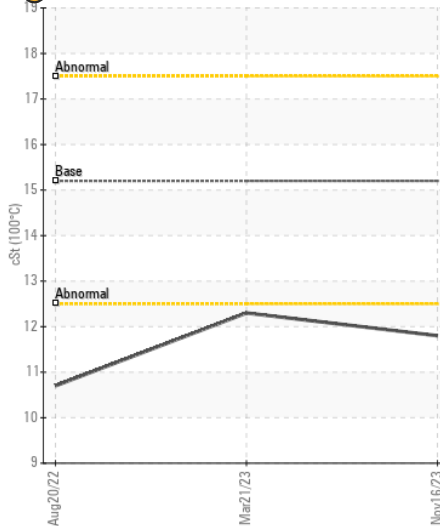
Non-ferrous Metals



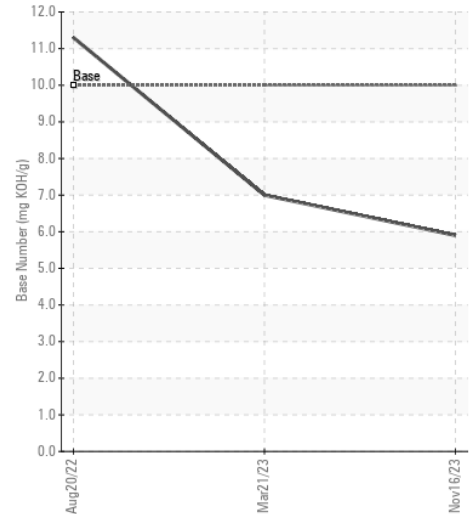
Fuel Dilution



● Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0849038 **Received** : 21 Nov 2023
Lab Number : 06014491 **Tested** : 22 Nov 2023
Unique Number : 10753635 **Diagnosed** : 22 Nov 2023 - Jonathan Hester
Test Package : CONST (Additional Tests: FuelDilution, 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)