



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	ATTENTION

Machine Id
31258
 Component
Diesel Engine
 Fluid
DIESEL ENGINE OIL 10W40 (--- QTS)

RECOMMENDATION

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0924408	WC0856849	WC0786422
Sample Date		Client Info		11 Jun 2024	09 Nov 2023	24 Aug 2023
Machine Age	hrs	Client Info		1031	780	547
Oil Age	hrs	Client Info		500	1000	547
Filter Age	hrs	Client Info		500	1000	547
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ATTENTION	NORMAL	ATTENTION

WEAR

Iron	ppm	ASTM D5185m	>100	12	12	32
Chromium	ppm	ASTM D5185m	>20	0	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	1	5
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	0	0	4
Tin	ppm	ASTM D5185m	>15	<1	0	<1
Vanadium	ppm	ASTM D5185m		0	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

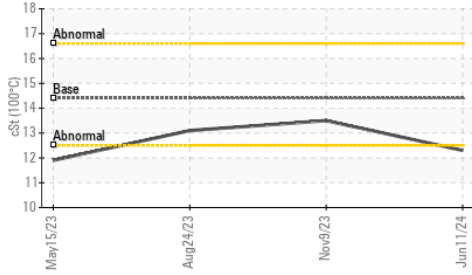
CONTAMINATION

Silicon	ppm	ASTM D5185m	>25	8	8	15
Potassium	ppm	ASTM D5185m	>20	2	1	1
Fuel	%	ASTM D3524	>5	0.1	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.1	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	8.8	7.6	10.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	21.7	18.5	16.4
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

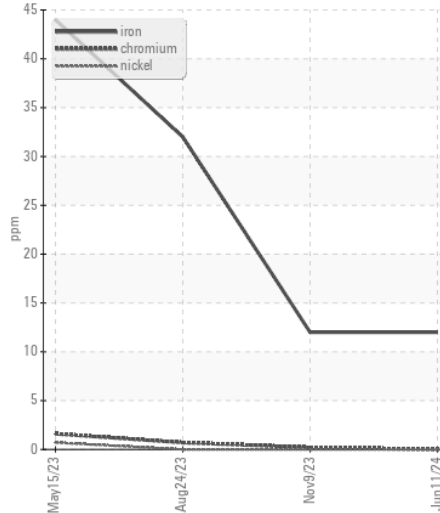
FLUID CONDITION

Sodium	ppm	ASTM D5185m		2	0	5
Boron	ppm	ASTM D5185m	250	111	171	264
Barium	ppm	ASTM D5185m	10	0	0	0
Molybdenum	ppm	ASTM D5185m	100	39	<1	4
Manganese	ppm	ASTM D5185m		<1	<1	1
Magnesium	ppm	ASTM D5185m	450	904	733	103
Calcium	ppm	ASTM D5185m	3000	1357	1487	4177
Phosphorus	ppm	ASTM D5185m	1150	789	856	970
Zinc	ppm	ASTM D5185m	1350	897	971	1153
Sulfur	ppm	ASTM D5185m	4250	2969	3734	3291
Oxidation	Abs/.1mm	*ASTM D7414	>25	21.0	17.3	12.5
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	10.3	8.1	14.5
Visc @ 100°C	cSt	ASTM D445	14.4	12.3	13.5	13.1

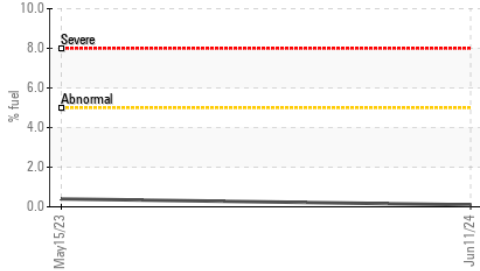
● Viscosity @ 100°C



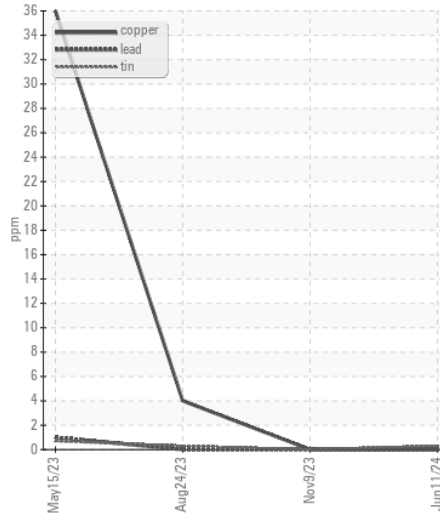
Ferrous Alloys



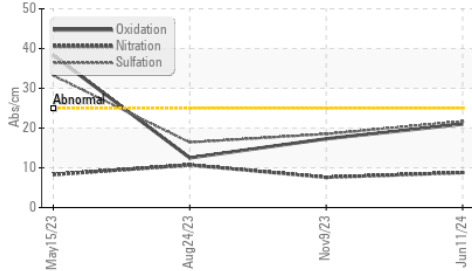
Fuel Dilution



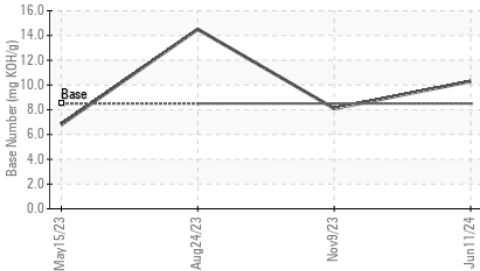
Non-ferrous Metals



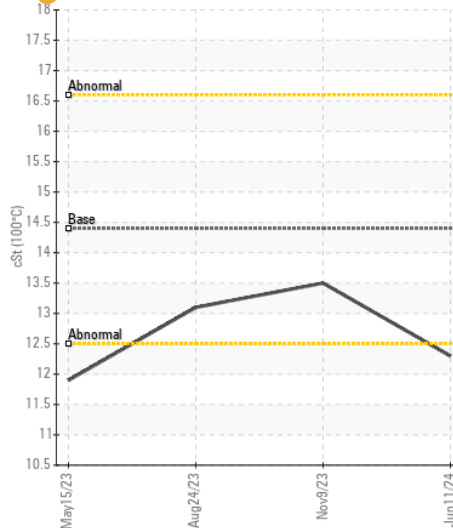
FT-IR (Direct Trend)



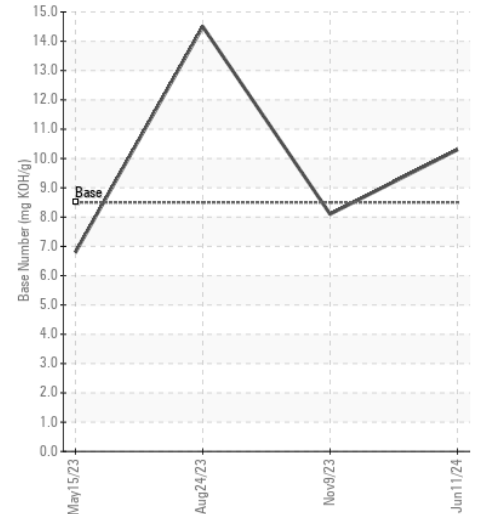
Base Number



● Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0924408 **Received** : 19 Jun 2024
Lab Number : 06214483 **Tested** : 21 Jun 2024
Unique Number : 11087347 **Diagnosed** : 21 Jun 2024 - Don Baldrige
Test Package : CONST (Additional Tests: FuelDilution, PercentFuel, TBN)

SULLIVAN EASTERN INC-LIEBHERR
 2860 C SLATER RD
 MORRISVILLE, NC
 US 27560
 Contact: CHRIS CALTON

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)

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