OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	MARGINAL

Machine Id
606014 HITACHI ZW370
Component
Diesel Engine
Fluid
SHELL 15W40 (--- GAL)

RECOMMENDATION

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

WEAR

All component wear rates are normal.

CONTAMINATION

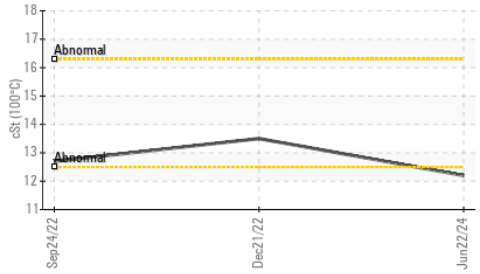
Fuel content negligible. There is no indication of any contamination in the oil.

FLUID CONDITION

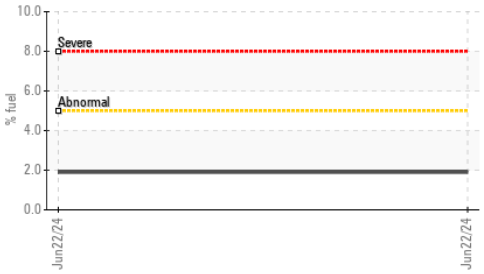
The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0910265	WC0661324	WC0661344
Sample Date		Client Info		22 Jun 2024	21 Dec 2022	24 Sep 2022
Machine Age	hrs	Client Info		3712	1775	1585
Oil Age	hrs	Client Info		250	460	380
Filter Age	hrs	Client Info		250	460	380
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				MARGINAL	NORMAL	NORMAL
Iron	ppm	ASTM D5185m	>100	12	2	6
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	0	<1
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	3	2	3
Lead	ppm	ASTM D5185m	>40	<1	<1	<1
Copper	ppm	ASTM D5185m	>330	4	<1	4
Tin	ppm	ASTM D5185m	>15	0	<1	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185m	>25	4	4	5
Potassium	ppm	ASTM D5185m	>20	1	0	1
Fuel	%	ASTM D3524	>5	1.9	<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	7.2	7.3	8.1
Sulfation	Abs/.1mm	*ASTM D7415	>30	18.4	16.5	18.3
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
Sodium	ppm	ASTM D5185m	>150	<1	1	1
Boron	ppm	ASTM D5185m		19	75	74
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		35	86	81
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		38	62	107
Calcium	ppm	ASTM D5185m		2440	2281	2096
Phosphorus	ppm	ASTM D5185m		1008	1079	992
Zinc	ppm	ASTM D5185m		1265	1248	1165
Sulfur	ppm	ASTM D5185m		4861	4790	4477
Oxidation	Abs/.1mm	*ASTM D7414	>25	11.9	11.8	13.4
Base Number (BN)	mg KOH/g	ASTM D2896		5.9	7.0	8.4
Visc @ 100°C	cSt	ASTM D445		▲ 12.2	13.5	12.7

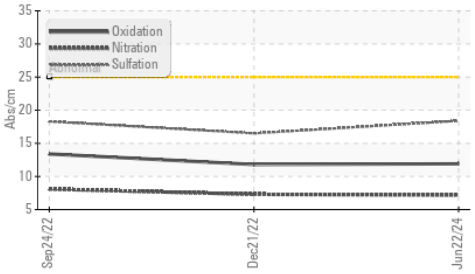
Viscosity @ 100°C



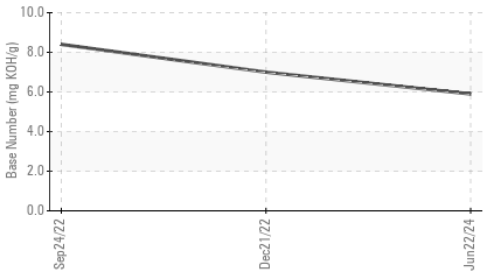
Fuel Dilution



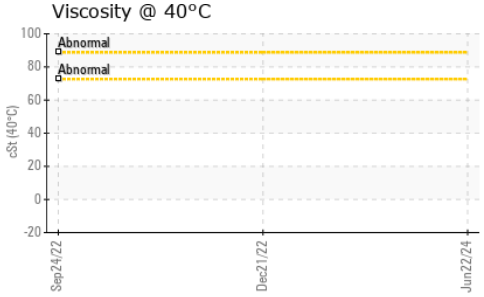
FT-IR (Direct Trend)



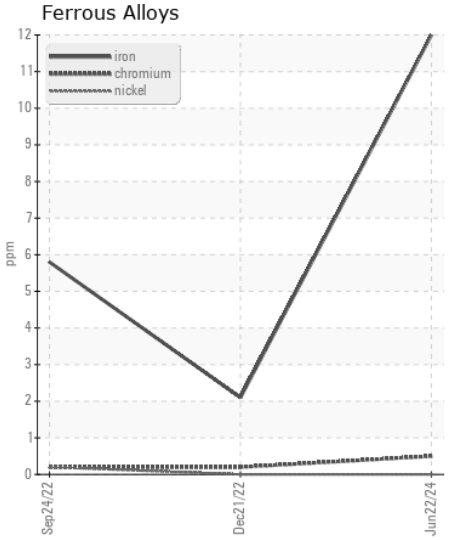
Base Number



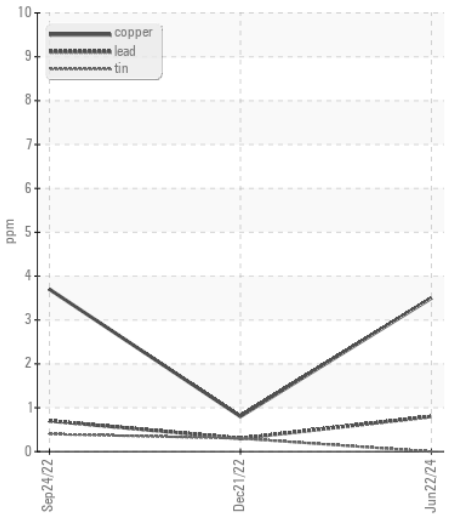
Viscosity @ 40°C



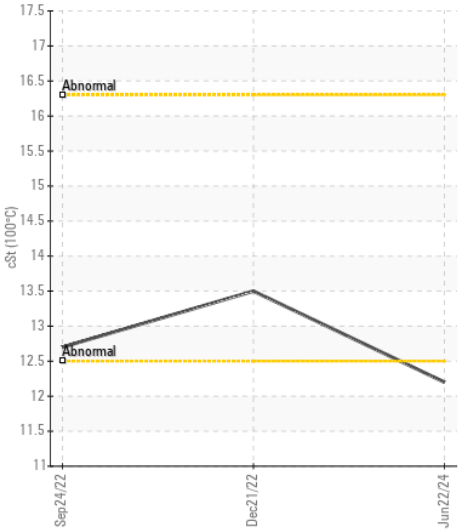
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



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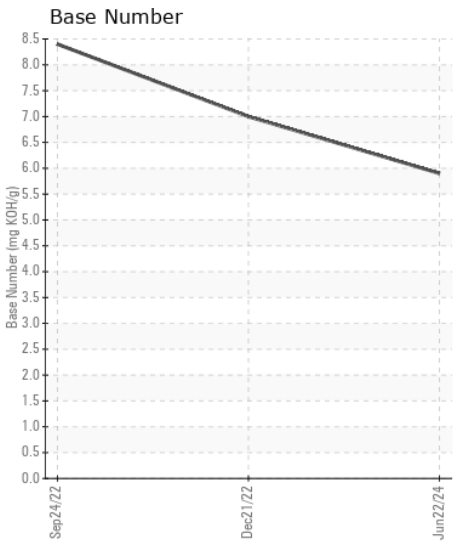

Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0910265 **Received** : 28 Jun 2024
Lab Number : 06223304 **Tested** : 03 Jul 2024
Unique Number : 11101501 **Diagnosed** : 03 Jul 2024 - Jonathan Hester
Test Package : FLEET (Additional Tests: FuelDilution, KV40, PercentFuel)

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)

TRI-CITY HIGHWAY
145 PODPADIC ROAD
RICHMONDVILLE, NY
US 12149
Contact: DAN CORBETT
dcorbett@tchpi.com
T:
F: