CHALMERS Lubrication Service
(704) 660-LUBE(5823)

OIL ANALYSIS REPORT

WEAR	ATTENTION
CONTAMINATION	SEVERE
FLUID CONDITION	ABNORMAL

Machine Id
KOMATSU PC-138 TH-11 (S/N 40162)
Component
Diesel Engine
Fluid
DIESEL ENGINE OIL SAE 15W40 (3 GAL)

RECOMMENDATION

We advise that you check the fuel injection system. We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

WEAR

All component wear rates are normal.

CONTAMINATION

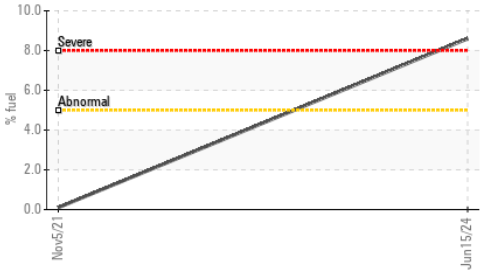
There is a high amount of fuel present in the oil. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

FLUID CONDITION

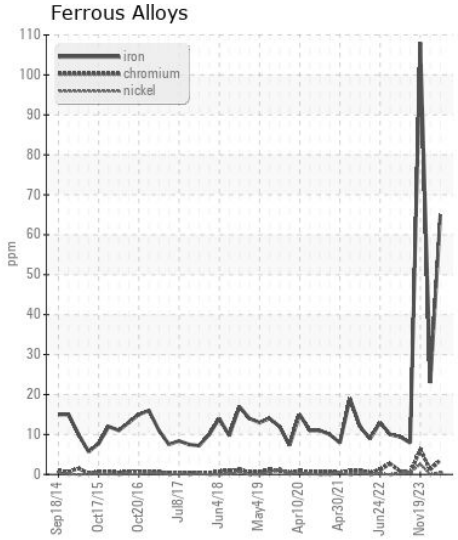
Fuel is present in the oil and is lowering the viscosity. The BN result indicates that there is suitable alkalinity remaining in the oil.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		CL0005574	CL0005209	CL0004936
Sample Date		Client Info		15 Jun 2024	08 Mar 2024	19 Nov 2023
Machine Age	hrs	Client Info		12045	11730	11500
Oil Age	hrs	Client Info		315	230	0
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				SEVERE	NORMAL	ABNORMAL
Iron	ppm	ASTM D5185m	>100	65	23	▲ 108
Chromium	ppm	ASTM D5185m	>20	4	1	6
Nickel	ppm	ASTM D5185m	>4	<1	0	3
Titanium	ppm	ASTM D5185m		<1	<1	1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	● 15	6	● 25
Lead	ppm	ASTM D5185m	>40	26	11	▲ 58
Copper	ppm	ASTM D5185m	>330	64	7	42
Tin	ppm	ASTM D5185m	>15	3	1	6
Vanadium	ppm	ASTM D5185m		<1	0	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185m	>25	▲ 30	9	▲ 37
Potassium	ppm	ASTM D5185m	>20	<1	<1	5
Fuel	%	ASTM D3524	>5	▲ 8.6	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.4	0.2	0.2
Nitration	Abs/cm	*ASTM D7624	>20	10.3	9.0	6.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	20.9	18.0	18.5
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	>158	2	1	4
Boron	ppm	ASTM D5185m	250	21	46	7
Barium	ppm	ASTM D5185m	10	0	0	0
Molybdenum	ppm	ASTM D5185m	100	83	78	53
Manganese	ppm	ASTM D5185m		<1	<1	2
Magnesium	ppm	ASTM D5185m	450	32	102	813
Calcium	ppm	ASTM D5185m	3000	2328	1910	1078
Phosphorus	ppm	ASTM D5185m	1150	1032	972	1035
Zinc	ppm	ASTM D5185m	1350	1262	1122	1170
Sulfur	ppm	ASTM D5185m	4250	3949	3851	2958
Oxidation	Abs/.1mm	*ASTM D7414	>25	16.4	14.2	14.3
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	5.7	7.0	9.1
Visc @ 100°C	cSt	ASTM D445	14.4	▲ 11.9	12.5	12.9

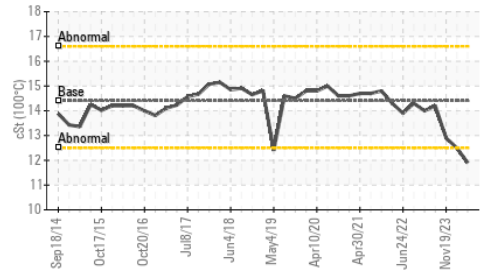
Fuel Dilution



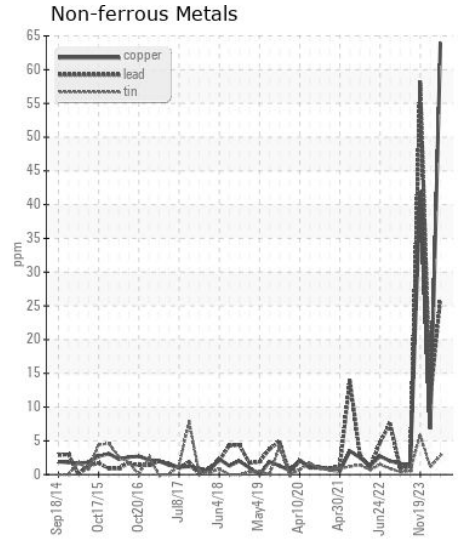
Ferrous Alloys



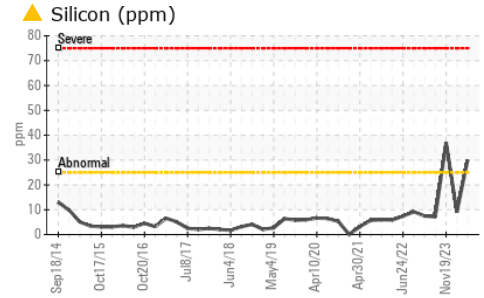
Viscosity @ 100°C



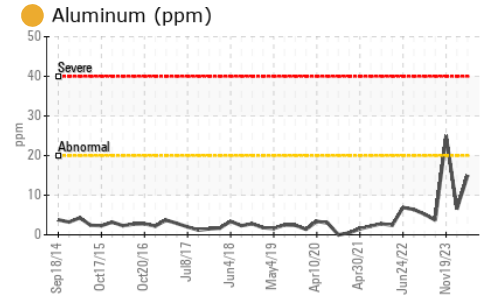
Non-ferrous Metals



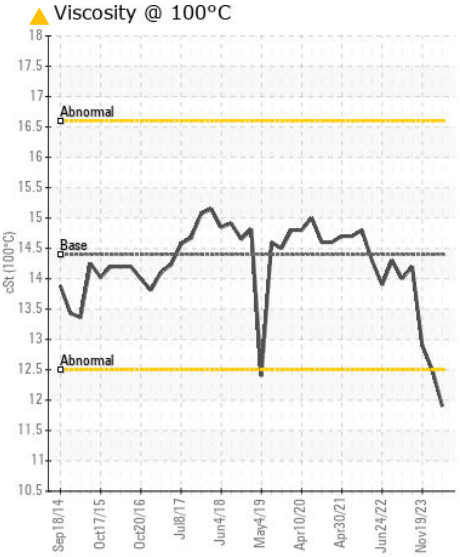
Silicon (ppm)



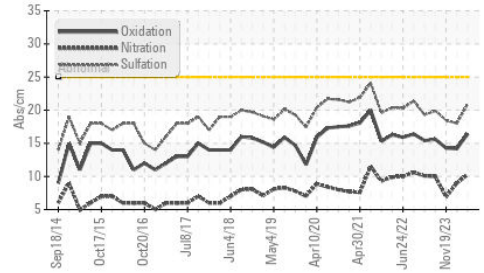
Aluminum (ppm)



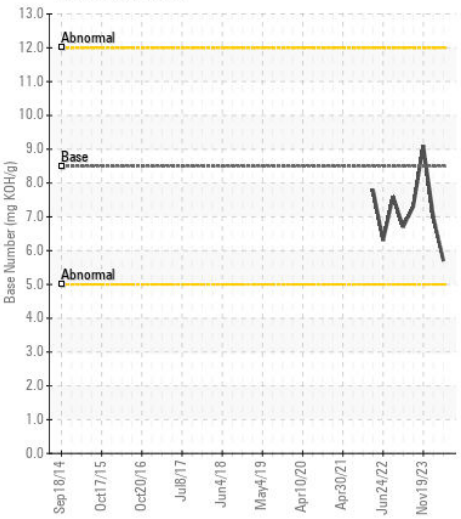
Viscosity @ 100°C



FT-IR (Direct Trend)



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : CL0005574 **Received** : 24 Jun 2024
Lab Number : 06217904 **Tested** : 26 Jun 2024
Unique Number : 11096101 **Diagnosed** : 27 Jun 2024 - Jonathan Hester
Test Package : CONST (Additional Tests: FuelDilution, PercentFuel, TBN)

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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