

LIEBHERR

CONSTRUCTION EQUIPMENT



[RICHMOND STEEL [577894]] LIEBHERR R934CEW 036784-027 -Dies

Sample No: LH0269709

Oil Type: DIESEL ENGINE OIL SAE 5W30



SAMPLE INFORMATION

Sample Number	LH0269709	LH0124815	LH0104770	LH0104757
Sample Date	08 Nov 2023	15 Feb 2018	06 Sep 2016	12 May 2016
Machine Hours	5342	7813	4957	4368
Oil Hours	0	0	0	0
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	ABNORMAL	SEVERE	ABNORMAL	NORMAL

RICHMOND STEEL RECYCLING
 11760 MITCHELL ROAD
 RICHMOND, BC
 CA V6V 1V8
 Contact: Aaron Kaetler
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OIL CONDITION

Visc @ 40°C	cSt	---	176	90.4	---
Visc @ 100°C	cSt	16.1	20.6	13.2	12.4
Viscosity Index (VI)	Scale	---	137	145	---
Oxidation (PA)	%	63	86	61	55



CONTAMINATION

Soot %	%	4.9	6.4	2.2	1.2
Nitration (PA)	%	86	118	70	58
Sulfation (PA)	%	78	132	70	60
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	5	12	7	7
Sodium	ppm	3	5	3	1
Potassium	ppm	0	1	0	<1



WEAR METALS

Iron	ppm	25	44	14	12
Copper	ppm	2	12	5	3
Lead	ppm	<1	13	1	1
Tin	ppm	0	<1	<1	<1
Aluminum	ppm	2	4	3	3
Chromium	ppm	<1	<1	<1	<1
Molybdenum	ppm	57	71	8	6
Nickel	ppm	0	<1	<1	<1
Titanium	ppm	0	<1	0	0
Silver	ppm	0	0	0	0
Manganese	ppm	0	<1	<1	<1
Vanadium	ppm	0	<1	0	0



ADDITIVES

Calcium	ppm	939	1734	2417	2491
Magnesium	ppm	989	525	41	36
Zinc	ppm	1134	1233	1175	1237
Phosphorus	ppm	959	980	973	1009
Barium	ppm	<1	0	<1	<1
Boron	ppm	18	87	42	31

Diagnosis

The oil change at the time of sampling has been noted. Confirm the source of the lubricant being utilized for top-up/fill. All component wear rates are normal. Light concentration of carbon/soot present in the oil. The oil viscosity is higher than normal. This plus the additive levels indicates that this is not the same brand, or type of oil as reported. The oil is no longer serviceable due to the presence of contaminants.

Depot: RIC117RIC
 Unique No: 5672619
 Signed: Wes Davis
 Report Date: 10 Nov 2023



GRAPHS

