

OIL ANALYSIS REPORT



SCARLETE RINER MITCH VOLVO PENTA 1013897351 (S/N 101397351) - PORT DIESEL ENGINE

Sample No: VPA051853
Oil Type: VOLVO VDS-4.5 Premium Motor Oil 15W40

SAMPLE INFORMATION

Sample Number	VPA051853	VPA051762	VPA051763	VPA034045
Sample Date	01 Mar 2024	01 Oct 2023	23 Jul 2023	22 Feb 2023
Machine Hours	2341	1975	1623	1032
Oil Hours	300	950	589	1032
Oil Changed	Not Changd	Changed	Not Changd	Changed
Sample Status	ABNORMAL	ABNORMAL	ABNORMAL	ABNORMAL

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OIL CONDITION

Visc @ 100°C	cSt	▲ 11.4	▲ 11.6	▲ 11.3	▲ 11.2
Base Number (BN)	mg KOH/g	■ 6.9	■ 7.4	■ 7.8	■ 7.8
Oxidation (PA)	%	73	69	77	76

CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Soot %	%	■ 0.3	■ 0.2	■ 0.2	■ 0.2
Nitration (PA)	%	78	73	78	76
Sulfation (PA)	%	59	58	60	61
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	▲ 5.4	▲ 4.6	▲ 7.4	▲ 6.3
Silicon	ppm	■ 7	■ 7	■ 20	■ 18
Sodium	ppm	■ 2	■ 4	■ 3	■ 0
Potassium	ppm	■ 6	■ 8	■ 28	■ 31

Diagnosis

We advise that you check the fuel injection system. Resample at the next service interval to monitor. The copper level has decreased, but is still abnormal. There is a moderate amount of fuel present in the oil. Fuel is present in the oil and is lowering the viscosity. The BN result indicates that there is suitable alkalinity remaining in the oil.

WEAR METALS

Iron	ppm	■ 11	■ 12	■ 20	■ 19
Copper	ppm	▲ 91	▲ 146	▲ 234	▲ 288
Lead	ppm	■ 3	■ 2	■ 4	■ 1
Tin	ppm	■ <1	■ <1	■ 2	■ 2
Aluminum	ppm	■ 5	■ 4	■ 12	■ 12
Chromium	ppm	■ <1	■ 0	■ <1	■ <1
Molybdenum	ppm	■ 60	■ 57	■ 54	■ 55
Nickel	ppm	■ <1	■ 0	■ 0	■ 0
Titanium	ppm	■ 0	■ 0	■ <1	■ 0
Silver	ppm	■ 0	■ 0	■ 0	■ 0
Manganese	ppm	■ <1	■ <1	■ 2	■ 2
Vanadium	ppm	<1	0	<1	0

ADDITIVES

Calcium	ppm	■ 1142	1013	■ 1227	■ 1230
Magnesium	ppm	1049	964	874	787
Zinc	ppm	■ 1297	■ 1234	■ 1225	■ 1141
Phosphorus	ppm	■ 1001	■ 947	■ 925	■ 946
Barium	ppm	■ 0	■ 0	■ 0	■ 0
Boron	ppm	■ 0	■ 0	■ 7	■ 11

Depot: VP99298099
Unique No: 10915908
Signed: Jonathan Hester
Report Date: 12 Mar 2024

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VOLVO PENTA

GRAPHS

