



CONSTRUCTION EQUIPMENT

1908BO FLYWAY VOLVO EC220EL 310218 - DIESEL ENGINE



Sample No: VCP400579
Oil Type: VOLVO VDS-4.5 Premium Motor Oil 15W40
Job No: 1908BO FLYWAY



SAMPLE INFORMATION

Sample Number	VCP400579	VCP355448	VCP331566	VCP323997
Sample Date	17 Feb 2023	01 Aug 2022	24 Nov 2021	15 Jun 2021
Machine Hours	5055	4492	3927	3387
Oil Hours	0	500	500	0
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	ABNORMAL	NORMAL	NORMAL	NORMAL

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OIL CONDITION

Visc @ 100°C	cSt	13.5	13.4	13.7	13.1
Base Number (BN)	mg KOH/g	6.5	10.6	9.2	---
Oxidation (PA)	%	52	93	106	93



CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Soot %	%	0.5	0.2	0.2	0.2
Nitration (PA)	%	78	86	99	84
Sulfation (PA)	%	56	65	68	67
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	5	16	10	7
Sodium	ppm	8	3	2	<1
Potassium	ppm	15	1	0	<1



WEAR METALS

Iron	ppm	12	61	15	15
Copper	ppm	▲ 190	1	2	2
Lead	ppm	1	<1	<1	<1
Tin	ppm	<1	1	<1	<1
Aluminum	ppm	4	4	1	0
Chromium	ppm	<1	1	<1	<1
Molybdenum	ppm	32	53	52	56
Nickel	ppm	2	<1	0	0
Titanium	ppm	<1	<1	<1	<1
Silver	ppm	0	0	0	0
Manganese	ppm	<1	<1	<1	<1
Vanadium	ppm	0	<1	0	0



ADDITIVES

Calcium	ppm	1795	1765	2004	1829
Magnesium	ppm	405	435	588	531
Zinc	ppm	1079	1061	1187	1158
Phosphorus	ppm	912	858	1081	993
Barium	ppm	0	<1	0	0
Boron	ppm	4	45	21	63

Diagnosis

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor. The copper level is abnormal. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core). All other component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Depot: INSEPH
Unique No: 10359451
Signed: Don Baldrige
Report Date: 02 Mar 2023



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GRAPHS

