



CONSTRUCTION EQUIPMENT

SW-23755-2 CASTLE VA VOLVO EC220EL 310178 - DIESEL ENGINE



Sample No: VCP412191
Oil Type: VOLVO ULTRA DIESEL ENGINE OIL 15W40 VDS-3
Job No: SW-23755-2 CASTLE VA



SAMPLE INFORMATION

Sample Number	VCP412191	VCP383477	VCP354160	VCP330581
Sample Date	07 Sep 2023	04 Jan 2023	12 Jul 2022	11 Apr 2022
Machine Hours	6228	5709	5043	4435
Oil Hours	500	700	600	527
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	NORMAL	NORMAL	NORMAL	NORMAL

ARNOLD MACHINERY COMPANY
 2975 WEST 2100 SOUTH
 SALT LAKE CITY, UT
 US 84119
 Contact: TONY PAYAN
 tpayan@arnoldmachinery.com
 T: (801)972-4000
 F: (801)975-9434



OIL CONDITION

Visc @ 100°C	cSt	14.6	14.4	14.4	14.2
Base Number (BN)	mg KOH/g	8.1	9.1	10.0	10.3
Oxidation (PA)	%	83	80	101	109

Diagnosis

Resample at the next service interval to monitor. All 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.



CONTAMINATION

Soot %	%	0.2	0.2	0.2	0.2
Nitration (PA)	%	86	81	97	100
Sulfation (PA)	%	63	63	71	71
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	8	13	6	10
Sodium	ppm	2	<1	1	3
Potassium	ppm	0	<1	1	2



WEAR METALS

Iron	ppm	8	12	8	11
Copper	ppm	1	2	<1	1
Lead	ppm	<1	<1	1	<1
Tin	ppm	<1	<1	<1	<1
Aluminum	ppm	4	2	2	2
Chromium	ppm	<1	1	<1	1
Molybdenum	ppm	89	87	79	41
Nickel	ppm	0	0	0	0
Titanium	ppm	<1	0	0	<1
Silver	ppm	0	0	0	0
Manganese	ppm	<1	<1	<1	<1
Vanadium	ppm	0	0	0	0



ADDITIVES

Calcium	ppm	1368	1364	1645	1934
Magnesium	ppm	988	930	699	579
Zinc	ppm	1208	1243	1134	1289
Phosphorus	ppm	1009	1019	919	1072
Barium	ppm	0	0	0	0
Boron	ppm	86	93	100	49

Depot: VOLVO8770
Unique No: 10648375
Signed: Wes Davis
Report Date: 18 Sep 2023



CONSTRUCTION EQUIPMENT



GRAPHS

