

Lubricant Analysis Report

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0	1	2	3	4
NORMAL		ABNORMAL		CRITICAL

Overall report severity based on comments.

Account Information		Component Information		Sample Information	
Account Number: 122750-0001-0000 Company Name: ARCH OIL COMMENTS Contact: Address: Phone Number:		Component ID: MERCEDES BENZ B180CDI 2013R. Secondary ID: 0M651 Component Type: DIESEL ENGINE Manufacturer: MERCEDES BENZ Model: Information Requested Application: AUTOMOTIVE Sump Capacity:		Tracking Number: B2311705937 Lab Number: Z-321921 Lab Location: Poznan Data Analyst: JUK Sampled: 22-Apr-2023 Submitted: 27-Apr-2023 Received: 09-May-2023 Completed: 10-May-2023	
Filter Information		Miscellaneous Information		Product Information	
Filter Type: Information Requested Micron Rating: 0		Wildcard 1: +LIQUIMOLY MOS2 ADD. Fuchs Titan CargoMaxx Miscellaneous: 10W40 + 500ml RzOil RZ 58E added		Product Manufacturer: FUCHS Product Name: TITAN CARGO MAXX Viscosity Grade: SAE 10W40	
Comments	Flagged data does not indicate an immediate need for maintenance action. Continue to observe the trend and monitor equipment and fluid conditions. Molybdenum is slightly high for this lubricant. Please provide COMPONENT MODEL number to compare data to the correct standards for this component.				

	Wear Metals (ppm)										Contaminant Metals (ppm)			Multi-Source Metals (ppm)						Additive Metals (ppm)				
Sample #	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
BL	1	0	0	0	0	0	0	0	0	0	5	2	2	0	49	0	0	0	131	880	1287	0	734	821
1	7	0	0	3	0	0	0	0	0	0	999	5	2	0	70	0	0	1	65	1112	778	0	929	1093
2	9	0	0	0	0	0	0	0	0	0	121	5	1	0	82	0	0	0	51	1172	723	0	902	1087
3	9	1	0	0	0	1	0	0	0	0	22	5	0	0	63	0	0	0	51	1229	928	0	1040	1184
4	15	1	0	4	1	1	0	0	0	0	11	2	3	0	398	3	0	0	105	907	1217	1	693	823
5	23	1	0	0	0	0	0	0	0	0	12	1	1	0	330	0	0	0	116	897	1394	1	873	927

Sample #	Sample Information							Contaminants			Fluid Properties					
	Date Sampled	Date Received	Lube Time	Unit Time	Lube Change	Lube Added	Filter Change	Fuel Dilution	Soot	Water	Viscosity 40°C	Viscosity 100 °C	Acid Number	Base No. D4739	Oxidation	Nitration
			km	km		L		%	%	%	cSt	cSt	mg KOH / g	mg KOH / g	abs / cm	abs / 0.1mm
BL	N/A	13-May-2021	0	0	Unk	0	Unk			<.1 - FTIR	91.5	14.2	1.50		12	7
1	03-Aug-2021	01-Sep-2021	7500	137000	Unk	0	Unk	2.6 - GC	<.1	<.1 - FTIR		12.4	4.24	8.27	32	8
2	23-Dec-2021	12-Jan-2022	10000	146000	Unk	0	Unk	1.1 - GC	<.1	<.1 - FTIR	67.3	11.6	2.68	8.43	31	9
3	N/A	15-Jul-2022	8000	154000	Unk	0	Unk	2.2 - GC	<.1	<.1 - FTIR		11.9	2.76	6.92	30	9
4	12-Nov-2022	05-Dec-2022	8200	162300	Yes	0	Yes	<2 - Estimate	<.1	<.1 - FTIR		13.2	2.53	8.52	16	8
5	22-Apr-2023	09-May-2023	8530	170830	Yes	0	Yes	<2 - Estimate	<.1	<.1 - FTIR	82.1	13.0	2.12	8.33	18	9

Sample #	Particle Count (particles/mL)										Additional Testing		
	ISO Code										Base No. D2896	FTIR Scan	Viscosity Index
	Based On 4/6/14	particles / mL	particles / mL	particles / mL	particles / mL	particles / mL	particles / mL	particles / mL	particles / mL	Test Method	mg KOH / g		Index Number
BL	/ /										12.5	CMPLT	160
1	/ /												
2	/ /												169
3	/ /												
4	/ /												
5	/ /												159

Comments are advisory only and are based on the assumption that the sample and data submitted are valid. Results relate only to the items tested. Missing fluid or component information limits the evaluation. No warranty is expressed or implied. Measurement uncertainty available upon request.

Historical Comments		SILICON is high, however, there does not appear to be any wear as a result. SILICON sources can be abrasives (dirt, Alumina Silica), seals and gasket material, lube additive or lube supplement, and/or environmental contaminant; Oxidation is flagged, however we cannot determine the severity of this oxidation value. If using a synthetic lubricant starting oxidation values are typically higher.
	1	Continue to monitor other fluid properties for trends of oil degradation. FUEL DILUTION is at a MINOR LEVEL. The fuel dilution test was performed using the diesel method. Please specify if this sample is from a diesel or gasoline engine to ensure the appropriate fuel dilution method is utilized. Acid Number is SLIGHTLY HIGH, which may be due to oxidation, contamination with an acidic product, extended drain interval, or lubricant mixing. Resample at half interval. Flagged data has been rechecked and confirmed.
	2	SILICON is high, however, there does not appear to be any wear as a result. SILICON sources can be abrasives (dirt, Alumina Silica), seals and gasket material, lube additive or lube supplement, and/or environmental contaminant; Oxidation is flagged, however we cannot determine the severity of this oxidation value. If using a synthetic lubricant starting oxidation values are typically higher. Continue to monitor other fluid properties for trends of oil degradation. Viscosity is MODERATELY LOW. Causes include contamination, incorrectly identified viscosity grade, or adding a different viscosity grade to the component. Please specify diesel, natural gas, liquid petroleum gas, unleaded gasoline or gasoline engine. Please provide COMPONENT MODEL number to compare data to the correct standards for this component. Please provide this units sump capacity with next sample. Resample at half interval.
	3	Oxidation is flagged, however we cannot determine the severity of this oxidation value. If using a synthetic lubricant starting oxidation values are typically higher. Continue to monitor other fluid properties for trends of oil degradation. Silicon is at a MINOR LEVEL; SILICON sources can be abrasives (dirt, Alumina Silica), seals and gasket material, lube additive or lube supplement, and/or environmental contaminant; FUEL DILUTION is at a MINOR LEVEL. FUEL DILUTION possibly caused by excessive idling; FUEL DILUTION has caused viscosity to decrease slightly below grade; FUEL DILUTION reduces the viscosity of the lubricant which decreases FILM STRENGTH and LUBRICITY and may lead to increased wear. Please provide this units sump capacity with next sample.
	4	Data indicates no abnormal findings. Resample at normal interval. Please provide COMPONENT MODEL number to compare data to the correct standards for this component. Lubricant and filter change acknowledged.

