

Lubricant Analysis Report

800-537-7683

0	1	2	3	4
NORMAL	ABNORMAL	CRITICAL		

Overall report severity based on comments.

Account Information		Component Information		Sample Information	
Account Number: 593000-0157-0000 Company Name: LUBRICATION TECHNOLOGIES Contact: Address: 120 BOSWORTH STREET WEST SPRINGFIELD, MA 01089 US Phone Number: 413-788-5823		Component ID: X535D E Secondary ID: Component Type: DIESEL ENGINE Manufacturer: BMW Model: X535D Application: AUTOMOTIVE Sump Capacity: 2 gal		Tracking Number: 08183002431 Lab Number: I-S38790 Lab Location: Indianapolis Data Analyst: EAD Sampled: 18-Dec-2009 Received: 06-Jan-2010 Completed: 11-Jan-2010	
Filter Information		Miscellaneous Information		Product Information	
Filter Type: FULLFLOW Micron Rating: 15		Miscellaneous:		Product Manufacturer: CASTROL Product Name: Viscosity Grade: SAE 5W30	
Comments	Flagged data does not indicate an immediate need for maintenance action. Continue to observe the trend and monitor equipment and fluid conditions. Manganese sources in engines include manganese/bronze valve guides and/or a fuel additive; Sample information has been added or tests have been rerun or additional testing was added and the report has been regenerated; Lubricant and filter change acknowledged;				

	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	Phosphorous	Zinc
5	16	0	0	10	3	0	0	0	0	0	2	0	3	0	3	1	1	0	0	6	1691	0	647	730
4	36	1	0	12	5	2	0	0	0	0	1	1	13	0	0	0	3	0	0	7	1747	0	671	733
3	72	3	0	17	11	2	1	1	0	0	6	2	26	0	0	0	7	0	1	5	1740	0	616	678
2	39	1	0	6	12	2	1	0	0	0	4	2	9	0	0	0	7	0	3	6	1692	0	629	609
1	31	0	0	11	11	3	2	0	0	0	14	4	13	0	0	0	12	0	19	6	1708	0	427	47

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 Number	Oxidation	Nitration
			mi	mi		gal		% Vol	% Vol	% Vol	cSt	cSt	mg KOH/g	mg KOH/g	abs/cm	abs/cm
5	11-Feb-2011	02-Mar-2011	4951	31237	Yes		Yes	<1 - GC	<.1 - FTIR	<.1 - FTIR		11.7		4.29		
4	06-Dec-2010	20-Dec-2010	4939	26289	Unk		Unk	2.3 - GC	0.1 - FTIR	<.1 - FTIR		11.9		3.78		
3	14-Sep-2010	21-Sep-2010	11498	21350	Unk		Unk	<1 - GC	0.3 - FTIR	<.1 - FTIR		10.9		3.09		
2	26-Mar-2010	07-May-2010	7320	9852	Yes		Unk	<1 - GC	<.1 - FTIR	<.1 - FTIR		10.7		3.46		
1	18-Dec-2009	06-Jan-2010	2532	2532	Yes		Yes	0.1 - GC	<.1 - FTIR	<.1 - FTIR		10.7				

Particle Count (particles/mL)											Additional Testing	
Sample #	ISO Code Based On 4/6/14	> 4 µm	> 6 µm	> 10 µm	> 14 µm	> 21 µm	> 38 µm	> 70 µm	> 100 µm	Test Method		
5	//											
4	//											
3	//											
2	//											
1	//											

Comments are advisory only and are based on the assumption that the sample and data submitted are valid. Missing fluid or component information limits the evaluation. No warranty is expressed or implied.

Historical Comments	5	Data indicates no abnormal findings. Resample at normal interval. Lubricant and filter change acknowledged;
	4	Flagged data does not indicate an immediate need for maintenance action. Continue to observe the trend and monitor equipment and fluid conditions. FUEL DILUTION is at a MINOR LEVEL; FUEL DILUTION possibly caused by excessive idling; Base Number is SLIGHTLY LOW. In order to properly compare data to the right standards, we need manufacturer and model of the unit, and the manufacturer, type and grade of the lubricant;
	3	Flagged data does not indicate an immediate need for maintenance action. Continue to observe the trend and monitor equipment and fluid conditions. Cylinder region metals (pistons, rings, liners etc,) are at a MINOR LEVEL; Potassium is at a MINOR LEVEL; Potassium sources: coolant (antifreeze), lube additive or supplement, solder flux, coating on new bearings, rust preventive coating, or environmental. Base Number is SLIGHTLY LOW. Flagged data has been rechecked and confirmed; Please provide missing lube type (PRODUCT NAME);
	2	Flagged data does not indicate an immediate need for maintenance action. Continue to observe the trend and monitor equipment and fluid conditions. Base Number is SLIGHTLY LOW. FLAGGED ADDITIVE levels indicate slight LUBE MIXING; Flagged data has been rechecked and confirmed; Please provide missing lube type (PRODUCT NAME); Lubricant change acknowledged;

