eurofins | TestOil

Overall Condition Marginal

Machine Name: CDU-J99

Machine ID:

COMPREHENSIVE COOLANT ANALYSIS

Component Information		Sample Information		Customer Information
Coolant:	CDU Coolant X	Received:	10/16/2023	Bob Smith
Coolant Chemistry:	PG, unknown additives	Report:	1/13/2023	Large AI HPC System
Machine MFG:	UNKNOWN	Sample No.	289534	1 Server Way
Machine MOD:		Analyst / Test:	JQT / CLCOMPRA	Cleveland, OH
Machine Criticality:	Unknown	Sample Source Rating:	Unknown	

PROBLEMS

Low Glycol
High Conductivity
High Total Dissolved Solids

COMMENTS

The glycol concentration is lower than expected. Due to the low glycol concentration, conductivity and total dissolved solids results are also elevated and considered abnormal. This may reduce the corrosion protection for the cooling system. Please restore fluid to the recommended concentration.

CUSTOMER NOTES

Sample Date	New Fluid	1/12/2025	10/27/2024	7/28/2024	4/28/2024					Normal Values
Lab Number		4665163	5216564	5080365	4968202					
Hours on Engine		Unknown	2611	2552	2495					
Hours on Fluid		Unknown	194	135	78					
Condition		Critical	Marginal	Marginal	Marginal					
FLUID CONDITION										
Glycol % (R)		26.7	49	50	51					50.0
Freezing Point °C (R)		-11	-11	-11	-11					< -30
Boiling Point °C (R)		101	101	101	101					> 100
pH (G)		9.6	9.6	9.6	9.6					7.0 - 11.0
OBSERVATIONS (analyst rating) IWI-520										
Color		Yellow	Yellow	Yellow	Yellow					
Visual Clarity		Clear								Clear
Visible Foam		None								None
Visible Oil		None								None
Fuel Odor		None								None
Magnetic Particles		None								None
Non-Magnetic Particles		None								None
CONTAMINATION										
Specific Conductance (N)		6708	6402	6010	6002					< 6600
Total Dissolved Solids (N)		3522	3125	2500	1072					< 3400
Calcium (E)		-	-	-	-					< 60
Magnesium (E)		-	-	-	-					< 20
Hardness as $CaCO_3$ (E)		-	-	-	-					< 300
Chloride (A)		-	-	-	-					< 75
Fluoride (A)		13	15	12	10					< 30
Sulfate (A)		43	41	41	40					< 300
DEGRADATION (mg/L) Ion Chromatography ASTM D5827 Mod										
Glycolate (A)		-	-	-	-					< 1500
Acetate (A)		-	-	-	-					
Oxalate (A)		-	-	-	-					< 50
Formate (A)		-	-	-	-					< 250

TestOil - 20338 Progress Drive - Strongsville, OH 44149 216-251-2510 www.testoil.com

eurofins | TestOil

Overall Condition Marginal

Machine Name: CDU-J99

Machine ID:

COMPREHENSIVE COOLANT ANALYSIS

Sample Date	New Fluid	1/12/2025	10/27/2024	7/28/2024	4/28/2024					Normal Values
Lab Number		4665163	5216564	5080365	4968202					
Hours on Engine		Unknown	2611	2552	2495					
Hours on Fluid		Unknown	194	135	78					
Condition		Critical	Marginal	Marginal	Marginal					
ADDITIVES (INORGANIC)										
Nitrate (A)		-	-	-	-					
Molybdenum (E)		-	-	-	-					
Nitrite (IWI-321) (J)										
Nitrite (A)		26	25	20	19					
Phosphate (A)		8857	8856	8852	8850					
Phosphorus (E)		3302	3300	3300	3301					
Boron (E)		-	-	-	-					
Silicon (E)		35	34	34	33					
Sodium (E)		291	290	290	289					
Potassium (E)		7117	7115	7117	7114					
SCA Number (U)		0.0	0.0	0.0	0.0					
ORGANIC ACID TECHNOLOGY (mg/L) HPLC IWI-510										
2-Ethylhexanoic Acid		-	-	-	-					
4-tBu-Benzoic Acid		-	-	-	-					
Adipic Acid		-	-	-	-					
Benzoic Acid		-	-	-	-					
Octanoic Acid		-	-	-	-					
p-Toluic Acid		-	-	-	-					
Sebacic Acid		-	-	-	-					
BT		-	-	-	-					
MBT		-	-	-	-					
TT		1142	1140	1141	1141					
WEAR (ppm) ICP Spectroscopy IWI-101										
Aluminum (E)		-	-	-	-					< 5
Copper (E)		-	-	-	-					< 5
Iron (E)		-	-	-	-					< 10
Lead (E)		-	-	-	-					< 5
Silver (E)		-	-	-	-					< 5
Tin (E)		-	-	-	-					< 5
Zinc (E)		-	-	-	-					< 10
ADDITIONAL TESTING										
Reserve Alkalinity (H)		8.6	8.7	8.8	8.9					

Report Key: (-) Below detection limit, (A) mg/L - Ion Chromatography ASTM D5827 Mod, (E) ppm - ICP Spectroscopy IWI-101, (G) pH units IWI-142, (H) ml 0.1N HCl / 10ml IWI-143, (J) mg/L IWI-321, (N) uS/cm IWI-480, (R) Calculated from refractive index IWI-134, (U) Calculated from nitrite and molybdenum, (BT) Benzotriazole, (MBT) Mercaptobenzothiazole, (TT) Tolyltriazole

Lab No. 4665163 Rev. 1

TestOil - 20338 Progress Drive - Strongsville, OH 44149 216-251-2510 www.testoil.com

COMPREHENSIVE COOLANT ANALYSIS

REPORT REFERENCE

Fluid Condition	Glycol concentration shows whether the right mix ratio is being employed (water to glycol); when lower than expected there is likely inadequate protection for the cooling system and engine, and when higher than expected there will be a loss of heat transfer capabilities. Freeze and Boiling Points are dependent on glycol% and hint at the expected operating temperature range. The pH of conventional coolants is typically higher than that of OAT or HOAT coolants, but both are typically alkaline (pH >7). If the coolant becomes acidic (pH <7) then there is a risk of corrosion, and if the coolant is more alkaline than expected it usually indicates mixing of coolants or over-concentration.
Observations	Color, clarity, and foam provide an overview of the physical appearance of the coolant, as any change will indicate likely degradation and/or contamination. Odors are checked for signs of contamination due to adverse conditions within the cooling system. Non-magnetic particles can appear for a number of reasons including a poor source of water (used to dilute coolant concentrate) or environmental ingression; magnetic particles are signs of corrosion, cavitation or defective electrical grounds.
Contamination	Conductivity increasing indicates contamination originating from the water supply, such as hardness (calcium and magnesium) and fluoride, or combustion gases; sudden changes may be the result of overdosing inhibitor or concentrate, or mixing with another coolant. The presence of these contaminants can lead to scale and/or corrosion within the cooling system.
Degradation	Glycolate indicates the primary breakdown of the glycol portion of the coolant which is generally caused by localized overheating or an air leak (i.e., combustion blow-by) within the system. Acetate, oxalate, and formate are all signs that degradation has progressed into a more severe, secondary stage of degradation.
Additives	The presence and concentration of additives will vary from one coolant to another and should be compared to the new fluid reference; the presence of additives not seen in the reference coolant indicates that mixing with another coolant has likely occurred, and may void the OEM warranty.
Organic Acid Technology	The presence and concentration of these additives will appear in some Extended Life Coolants (ELC) and should be compared to the new fluid reference.
Wear	Wear metals are most commonly signs of corrosion (driven by low or incorrect additives) or cavitation (driven by air leaks). They may also appear due to grounding faults, localized hot spots, or poor water source.