

COOLANT REPORT

Detroit

[Detroit] Coolant - Port Genset

Coolant

CATERPILLAR ELC (--- GAL)





Recommendation

No corrective action is recommended at this time. The fluid is suitable for further service. (Customer Sample Comment: Chris Wray)

Corrosion

All metal levels are normal indicating no corrosion in the cooling system.

Contaminants

There is no indication of any contamination in the coolant.

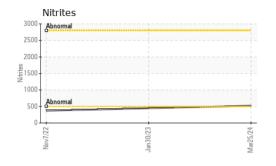
Coolant Condition

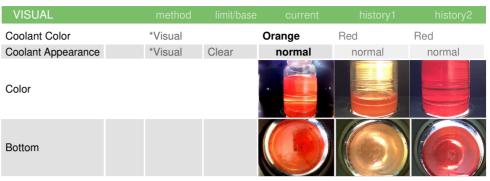
Carboxylate test failed. Glycol and nitrite levels are acceptable. The pH level of this fluid is within the acceptable limits.

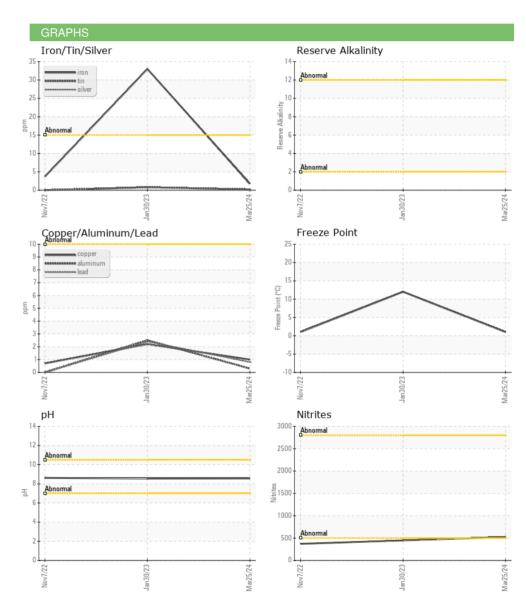
SAMPLE INFORMATION method limit/base current history1 history2			No	v2022	Jan2023 Mar2	024	
Sample Date Client Info 25 Mar 2024 30 Jan 2023 07 Nov 2022 Machine Age hrs Client Info 22305 0 16082 Oil Age hrs Client Info 0 0 16082 Oil Changed Client Info N/A NA Not Changd Sample Status NoRMAL NF Not Changd PHYSICAL TEST RESULTS method Imitities NoRMAL SEVERE NORMAL PHYSICAL TEST RESULTS method Imitities current history1 history2 Glycol Type FT-IR Specific Gravity *ASTM D1287 8.56 8.54 8.62 Nitrities ppm AP-053:2009 524 448 372 Reserve Alkalinity \$260:03 *ASTM D6130 23.2.3 1 1 12 1 1 1 1 1 1 1 1 1 1 1 1 2 1 1 1	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 22305 0 16082 Oil Age hrs Client Info 0 0 16082 Oil Changed Client Info N/A N/A N/A Not Changd Sample Status NORMAL SEVERE NORMAL NORMAL SEVERE NORMAL PHYSICAL TEST RESULTS method limit/bass current history1 history2 Glycol Type FT-IR Specific Gravity *ASTM D1287 8.56 8.54 8.62 Nitrites ppm AP-053:2009 524 448 372 Reserve Alkalinity Percentage Glycol ASTM D332! 32.6 23.4 32.3 Freezing Point °F ASTM D332! 1 12 1 Total Dissolved Solids 237.0 167.0 237.0 Carboxylate method limit/base current history1 history2 Silicon ppm ASTM D6	Sample Number		Client Info		WC0804775	WC0731928	WC0731972
Oil Age hrs Client Info N/A N/A N/A Not Changd Sample Status Client Info N/A N/A Not Changd PHYSICAL TEST RESULTS method Imili/base current history1 history2 Glycol Type FT-IR Specific Gravity 'ASTM D1288 1.044 1.031 1.043 pH Scale 044 ASTM D1287 8.56 8.54 8.62 Nitrites ppm AP-053:2009 524 448 372 Reserve Alkalinity Scale 0:20 'ASTM D1321 Percentage Glycol % ASTM D3321 32.6 23.4 32.3 Freezing Point °F ASTM D3321 1 12 1 Total Dissolved Solids 237.0 167.0 237.0 167.0 237.0 Carboxylate method Imiti/base current history1 history2 Silicon	Sample Date		Client Info		25 Mar 2024	30 Jan 2023	07 Nov 2022
Oil Changed Sample Status Client Info N/A N/A N/A Not Changd NORMAL PHYSICAL TEST RESULTS method limit/base current history1 history2 Glycol Type FT-IR Specific Gravity 'ASTM D1288 1.044 1.031 1.043 pH Scale 0-14 ASTM D1287 8.56 8.54 8.62 Nitrites ppm AP-053/2009 524 448 372 Reserve Alkalinity Scale 0-14 ASTM D1221 Percentage Glycol % ASTM D3321 32.6 23.4 32.3 Freezing Point °F ASTM D3321 1 12 1 Total Dissolved Solids 237.0 167.0 237.0 237.0 167.0 237.0 Carboxylate method limit/base current history1 history2 Silicon ppm ASTM D6130 0 3 37 10 Phos	Machine Age	hrs	Client Info		22305	0	16082
Sample Status	Oil Age	hrs	Client Info		0	0	16082
PHYSICAL TEST RESULTS method limit/base current history1 history2	Oil Changed		Client Info		N/A	N/A	Not Changd
Glycol Type	Sample Status				NORMAL	SEVERE	NORMAL
Specific Gravity	PHYSICAL TEST F	RESULTS	method	limit/base	current	history1	history2
pH Scale 0-14 Nitrites ASTM D1287 8.56 8.54 8.62 Nitrites ppm AP-053:2009 524 448 372 Reserve Alkalinity Scale 0:20 "ASTM D321" Percentage Glycol % ASTM D3321 32.6 23.4 32.3 Freezing Point °F ASTM D3321 1 12 1 Total Dissolved Solids 237.0 167.0 237.0 Carboxylate fail fail fail fail CORROSION INHIBITORS method limit/base current history1 history2 Silicon ppm ASTM D6130 0 3 3.7 10 Phosphorus ppm ASTM D6130 0 2 30 0 Boron ppm ASTM D6130 0 7 28 25 Molybdenum ppm ASTM D6130 >15 2 33 4 Aluminum ppm ASTM D6130 >10	Glycol Type		FT-IR				
Nitrites ppm AP-053:2009 524 448 372 Reserve Alkalinity Scale 0:20 'ASTM D1121 Percentage Glycol % ASTM D3321 32.6 23.4 32.3 Freezing Point °F ASTM D3321 1 12 1 Total Dissolved Solids 237.0 167.0 237.0 Carboxylate fail fail fail CORROSION INHIBITORS method limit/base current history1 history2 Silicon ppm ASTM D6130 0 3 37 10 Phosphorus ppm ASTM D6130 0 2 30 0 Boron ppm ASTM D6130 0 7 28 25 Molybdenum ppm ASTM D6130 950 451 70 829 CORROSION method limit/base current history1 history2 Iron ppm ASTM D6130 >15 2 33 4 Aluminum ppm ASTM D6130 >10 -1 2 -1 <t< th=""><th>Specific Gravity</th><th></th><th>*ASTM D1298</th><th></th><th>1.044</th><th>1.031</th><th>1.043</th></t<>	Specific Gravity		*ASTM D1298		1.044	1.031	1.043
Reserve Alkalinity	pН	Scale 0-14	ASTM D1287		8.56	8.54	8.62
Percentage Glycol % ASTM D3321 32.6 23.4 32.3 Freezing Point °F ASTM D3321 1 12 1 Total Dissolved Solids Carboxylate 237.0 167.0 237.0 CORROSION INHIBITORS method limit/base current bistory1 history2 Silicon ppm ASTM D6130 0 3 3 37 10 Phosphorus ppm ASTM D6130 0 2 30 2 30 0 0 Boron ppm ASTM D6130 0 7 28 25 25 Molybdenum ppm ASTM D6130 950 451 70 829 CORROSION method limit/base current history1 history2 history2 Iron ppm ASTM D6130 >15 2 4 33 4 4 33 4 4 Aluminum ppm ASTM D6130 >10 c1 2 0 2 0 33 4 4 Copper ppm ASTM D6130 >10 1 1 2 0 0 2 c1 2 0 2 0 2 c1 1 2 0 Lead ppm ASTM D6130 >10 c1 2 1 2 0 2 0 2 0 2 0 Tin ppm ASTM D6130 >10 c1 2 1 2 0 2 0 2 0 CONTAMINANTS method limit/base current history1 history2 history2 Chlorine ppm ASTM D6130 D 6 186 186 12 4786 186 12 SCAL	Nitrites	ppm	AP-053:2009		524	448	372
Freezing Point °F ASTM D3321 1 12 1 Total Dissolved Solids 237.0 167.0 237.0 Carboxylate fail fail fail CORROSION INHIBITORS method limit/base current history1 history2 Silicon ppm ASTM D6130 0 3 37 10 Phosphorus ppm ASTM D6130 0 2 30 0 Boron ppm ASTM D6130 0 7 28 25 Molybdenum ppm ASTM D6130 950 451 70 829 CORROSION method limit/base current history1 history2 Iron ppm ASTM D6130 >15 2 33 4 Aluminum ppm ASTM D6130 >10 <1 2 <1 Lead ppm ASTM D6130 >10 <1 2 <1 Lead ppm ASTM D6130	Reserve Alkalinity	Scale 0-20	*ASTM D1121				
Total Dissolved Solids 237.0 167.0 237.0 Carboxylate fail fail fail fail CORROSION INHIBITORS method limit/base current history1 history2 Silicon ppm ASTM D6130 0 3 37 10 Phosphorus ppm ASTM D6130 0 2 30 0 Boron ppm ASTM D6130 0 7 28 25 Molybdenum ppm ASTM D6130 950 451 70 829 CORROSION method limit/base current history1 history2 Iron ppm ASTM D6130 >15 2 ▲ 33 4 Aluminum ppm ASTM D6130 >10 <1 2 <1 Lead ppm ASTM D6130 >10 <1 2 <1 Lead ppm ASTM D6130 >10 <1 <1 <1 0 Cinc<	Percentage Glycol	%	ASTM D3321		32.6	23.4	32.3
Carboxylate fail history2 Silicon ppm ASTM D6130 0 3 37 10 Boron ppm ASTM D6130 0 7 28 25 Molybdenum ppm ASTM D6130 >15 2 333 4 CORROSION method 85130 >1 2 0 CORROSION method 85130 >1 2 0 CORROSION method 85130 >1 1	Freezing Point	°F	ASTM D3321		1	12	1
CORROSION INHIBITORS method limit/base current history1 history2 Silicon ppm ASTM D6130 0 3 37 10 Phosphorus ppm ASTM D6130 0 2 30 0 Boron ppm ASTM D6130 0 7 28 25 Molybdenum ppm ASTM D6130 950 451 70 829 CORROSION method limit/base current history1 history2 Iron ppm ASTM D6130 >15 2 ▲ 33 4 Aluminum ppm ASTM D6130 >10 <1 2 0 Copper ppm ASTM D6130 >10 <1 2 <1 Lead ppm ASTM D6130 >10 <1 <1 0 Zinc ppm ASTM D6130 0 1 0 0 CONTAMINANTS method limit/base current <t< th=""><th>Total Dissolved Solids</th><th></th><th></th><th></th><th>237.0</th><th>167.0</th><th>237.0</th></t<>	Total Dissolved Solids				237.0	167.0	237.0
Silicon ppm ASTM D6130 0 3 37 10 Phosphorus ppm ASTM D6130 0 2 30 0 Boron ppm ASTM D6130 0 7 28 25 Molybdenum ppm ASTM D6130 950 451 70 829 CORROSION method limit/base current history1 history2 Iron ppm ASTM D6130 >15 2 ▲ 33 4 Aluminum ppm ASTM D6130 >10 <1 2 0 Copper ppm ASTM D6130 >10 <1 2 <1 Lead ppm ASTM D6130 >10 <1 2 0 Tin ppm ASTM D6130 >10 <1 <1 0 Zinc ppm ASTM D6130 0 1 1 0 CONTAMINANTS method limit/base current hist	Carboxylate				fail	fail	fail
Phosphorus ppm ASTM D6130 0 2 30 0 Boron ppm ASTM D6130 0 7 28 25 Molybdenum ppm ASTM D6130 950 451 70 829 CORROSION method limit/base current history1 history2 Iron ppm ASTM D6130 >15 2 33 4 Aluminum ppm ASTM D6130 >10 <1 2 0 Copper ppm ASTM D6130 >10 1 2 <1 Lead ppm ASTM D6130 >10 <1 2 0 Tin ppm ASTM D6130 >10 <1 <1 0 Zinc ppm ASTM D6130 0 1 0 0 CONTAMINANTS method limit/base current history1 history2 Chlorine ppm ASTM D6130 3327 4056	CORROSION INH	IBITORS	method	limit/base	current	history1	history2
Boron ppm ASTM D6130 0 7 28 25 Molybdenum ppm ASTM D6130 950 451 70 829 CORROSION method limit/base current history1 history2 Iron ppm ASTM D6130 >15 2 ▲ 33 4 Aluminum ppm ASTM D6130 >10 <1 2 0 Copper ppm ASTM D6130 >10 <1 2 <1 Lead ppm ASTM D6130 >10 <1 2 0 Tin ppm ASTM D6130 >10 <1 <1 0 Zinc ppm ASTM D6130 0 1 0 0 CONTAMINANTS method limit/base current history1 history2 Chlorine ppm ASTM D6130 3327 4056 4786 Potassium ppm ASTM D6130 6 186	Silicon	ppm	ASTM D6130	0	3	37	10
Molybdenum ppm ASTM D6130 950 451 70 829 CORROSION method limit/base current history1 history2 Iron ppm ASTM D6130 >15 2 ▲ 33 4 Aluminum ppm ASTM D6130 >10 <1 2 0 Copper ppm ASTM D6130 >10 <1 2 <1 Lead ppm ASTM D6130 >10 <1 2 0 Tin ppm ASTM D6130 >10 <1 <1 0 Zinc ppm ASTM D6130 0 1 0 0 CONTAMINANTS method limit/base current history1 history2 Chlorine ppm ASTM D6130 3327 4056 4786 Potassium ppm ASTM D6130 6 186 12 SCALE POTENTIAL method limit/base current <th>Phosphorus</th> <th>ppm</th> <th>ASTM D6130</th> <th>0</th> <th>2</th> <th>30</th> <th>0</th>	Phosphorus	ppm	ASTM D6130	0	2	30	0
CORROSION method limit/base current history1 history2 Iron ppm ASTM D6130 >15 2 ▲ 33 4 Aluminum ppm ASTM D6130 >10 <1 2 0 Copper ppm ASTM D6130 >10 1 2 <1 Lead ppm ASTM D6130 >10 <1 2 0 Tin ppm ASTM D6130 >10 <1 <1 0 Zinc ppm ASTM D6130 0 1 0 0 CONTAMINANTS method limit/base current history1 history2 Chlorine ppm ASTM D6130 24 124 34 CARRIER SALTS method limit/base current history1 history2 Sodium ppm ASTM D6130 6 186 12 SCALE POTENTIAL method limit/base current history1 history2	Boron	ppm	ASTM D6130	0	7	28	25
Iron ppm ASTM D6130 >15 2 ▲ 33 4 Aluminum ppm ASTM D6130 >10 <1 2 0 Copper ppm ASTM D6130 >10 1 2 <1 Lead ppm ASTM D6130 >10 <1 2 0 Tin ppm ASTM D6130 >10 <1 <1 0 Zinc ppm ASTM D6130 0 1 0 0 CONTAMINANTS method limit/base current history1 history2 Chlorine ppm ASTM D6130 24 124 34 CARRIER SALTS method limit/base current history1 history2 Sodium ppm ASTM D6130 6 186 12 SCALE POTENTIAL method limit/base current history1 history2 Calcium ppm ASTM D6130 23 85 43	Molybdenum	ppm	ASTM D6130	950	451	70	829
Aluminum ppm ASTM D6130 >10 <1	CORROSION		method	limit/base	current	history1	history2
Copper ppm ASTM D6130 >10 1 2 <1	Iron	ppm	ASTM D6130	>15	2	3 3	4
Lead ppm ASTM D6130 >10 <1	Aluminum	ppm	ASTM D6130	>10	<1	2	0
Tin ppm ASTM D6130 billion >10 control <1 color	Copper	ppm	ASTM D6130	>10	1	2	<1
Zinc ppm ASTM D6130 0 1 0 CONTAMINANTS method limit/base current history1 history2 Chlorine ppm ASTM D6130 24 124 34 CARRIER SALTS method limit/base current history1 history2 Sodium ppm ASTM D6130 3327 4056 4786 Potassium ppm ASTM D6130 6 186 12 SCALE POTENTIAL method limit/base current history1 history2 Calcium ppm ASTM D6130 23 85 43	Lead	ppm	ASTM D6130	>10	<1	2	0
CONTAMINANTS method limit/base current history1 history2 Chlorine ppm ASTM D6130 24 124 34 CARRIER SALTS method limit/base current history1 history2 Sodium ppm ASTM D6130 3327 4056 4786 Potassium ppm ASTM D6130 6 186 12 SCALE POTENTIAL method limit/base current history1 history2 Calcium ppm ASTM D6130 23 85 43	Tin	ppm	ASTM D6130	>10	<1		
Chlorine ppm ASTM D6130 24 124 34 CARRIER SALTS method limit/base current history1 history2 Sodium ppm ASTM D6130 3327 4056 4786 Potassium ppm ASTM D6130 6 186 12 SCALE POTENTIAL method limit/base current history1 history2 Calcium ppm ASTM D6130 23 85 43	Zinc	ppm	ASTM D6130		0	1	0
CARRIER SALTS method limit/base current history1 history2 Sodium ppm ASTM D6130 3327 4056 4786 Potassium ppm ASTM D6130 6 186 12 SCALE POTENTIAL method limit/base current history1 history2 Calcium ppm ASTM D6130 23 85 43	CONTAMINANTS		method	limit/base	current	history1	history2
Sodium ppm ASTM D6130 3327 4056 4786 Potassium ppm ASTM D6130 6 186 12 SCALE POTENTIAL method limit/base current history1 history2 Calcium ppm ASTM D6130 23 85 43	Chlorine	ppm	ASTM D6130		24	124	34
Potassium ppm ASTM D6130 6 186 12 SCALE POTENTIAL method limit/base current history1 history2 Calcium ppm ASTM D6130 23 85 43	CARRIER SALTS		method	limit/base	current	history1	history2
SCALE POTENTIAL method limit/base current history1 history2 Calcium ppm ASTM D6130 23 85 43	Sodium	ppm	ASTM D6130		3327	4056	4786
Calcium ppm ASTM D6130 23 85 43	Potassium	ppm	ASTM D6130		6	186	12
	SCALE POTENTI	AL	method	limit/base	current	history1	history2
Magnesium ppm ASTM D6130 4 3 5	Calcium	ppm	ASTM D6130		23	85	43
	Magnesium	ppm	ASTM D6130		4	3	5



COOLANT REPORT











Laboratory Sample No.

: WC0804775 Lab Number : 06140422 Unique Number : 10965230

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 05 Apr 2024 **Tested** Diagnosed

: 10 Apr 2024 : 10 Apr 2024 - Jonathan Hester MARATHON PETROLEUM CO. 101 12TH ST CATLETTSBURG, KY US 41169

Certificate 12367

Report Id: MARCAT [WUSCAR] 06140422 (Generated: 04/10/2024 11:26:26) Rev: 2

Test Package : COOL- (Additional Tests: BoilingPoint, COOL, GlycolType, ICP, KF) To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Contact: CORY GUMBERT cagumbert@marathonpetroleum.com T: (606)585-3950

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Submitted By: M/V DETROIT

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