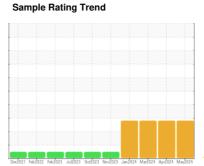


COOLANT REPORT

Louisville [Louisville] Coolant - Starboard Genset

Coolant

MOBIL 15W40 (--- GAL)





DIAGNOSIS

Recommendation

We recommend that you perform a partial drain and top off with straight antifreeze to increase level of glycol.

Corrosion

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

Contaminants

There is no indication of any contamination in the coolant.

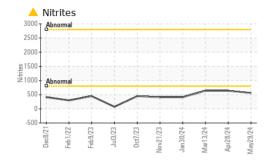
Coolant Condition

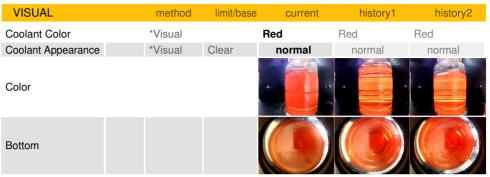
The glycol level is lower than acceptable. The nitrite level is acceptable. The pH level of this fluid is within the acceptable limits.

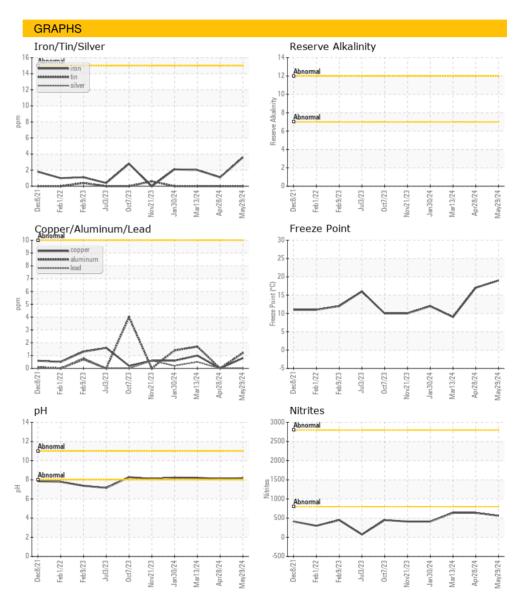
SAMPLE INFORMATION method limit/base current history1 history2 Sample Number Client Info WC0888525 WC0874765 WC0874804 Sample Date Client Info 29 May 2024 28 Apr 2024 13 Mar 2024 Machine Age hrs Client Info 7037 0 0 Oil Age hrs Client Info N/A N/A N/A Oil Changed Client Info N/A N/A N/A N/A Sample Status Babor Machine ABNORMAL ABNORMAL ABNORMAL ABNORMAL PHYSICAL TEST RESULTS method limit/base current history1 history2 Glycol Type FT-I-IR							
Sample Date Client Info 29 May 2024 28 Apr 2024 13 Mar 2024 Machine Age hrs Client Info 12742 12436 11980 Oil Age hrs Client Info 7037 0 0 Oil Changed Client Info N/A N/A N/A N/A Sample Status ABNORMAL ABNORMAL ABNORMAL ABNORMAL ABNORMAL PHYSICAL TEST RESULTS method limit/base current history1 history2 Glycol Type FT-IR Specific Gravity "ASTM D1287" 8.18 8.10 8.22 Nitrites ppm AP-053-2009 560 636 636 Reserve Alkalinity Scile 020" "ASTM D121" Percentage Glycol % ASTM D3321 19 17 9 17 9 Total Dissolved Solids 132.5 17.8 19.3 \$26.5 17 16 31	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 12742 12436 11980 Oil Age hrs Client Info 7037 0 0 Oil Changed Client Info N/A N/A N/A Sample Status ABNORMAL ABNORMAL ABNORMAL ABNORMAL PHYSICAL TEST RESULTS method limit/base current history1 history2 Glycol Type FT-IR Specific Gravity "ASTM D1287" 8.18 8.10 8.22 Nitrites ppm AP-053:2009 560 636 636 Reserve Alkalinity Scale 0:20" "ASTM D1212" Percentage Glycol % ASTM D3321 19 17 9 17 9 Total Dissolved Solids 132.5 179.0 182.5 181 179.0 182.5 Carboxylate fail fail fail fail fail fail fail <t< th=""><th>Sample Number</th><th></th><th>Client Info</th><th></th><th>WC0898525</th><th>WC0874765</th><th>WC0874804</th></t<>	Sample Number		Client Info		WC0898525	WC0874765	WC0874804
Oil Age hrs Client Info 7037 0 0 Oil Changed Client Info N/A N/A N/A N/A Sample Status ABNORMAL ABNORMAL ABNORMAL ABNORMAL ABNORMAL PHYSICAL TEST RESULTS method limit/base current history1 history2 Glycol Type FT-IR Specific Gravity *ASTM D1287 8.18 8.10 8.22 Nitrites ppm AP-053:2009 560 636 636 Reserve Alkalinity %aSTM D1291 Percentage Glycol %aSTM D3321 19 17 9 Percentage Glycol %aSTM D3321 19 17 9 Carboxylate *F ASTM D3321 19 17 9 Carboxylate *Berthod limit/base current history1 history2 Silicon ppm ASTM D6130 2 0 0	Sample Date		Client Info		29 May 2024	28 Apr 2024	13 Mar 2024
Oil Changed Sample Status Client Info Sample Status N/A ABNORMAL ABNORM	Machine Age	hrs	Client Info		12742	12436	11980
ABNORMAL ABNORMAL ABNORMAL ABNORMAL PHYSICAL TEST RESULTS method limit/base current history1 history2	Oil Age	hrs	Client Info		7037	0	0
PHYSICAL TEST RESULTS method limit/base current history1 history2 Glycol Type FT-IR	Oil Changed		Client Info		N/A	N/A	N/A
Specific Gravity "ASTM D1298 1.022 1.024 1.035 pH	Sample Status				ABNORMAL	ABNORMAL	ABNORMAL
Specific Gravity	PHYSICAL TEST R	ESULTS	method	limit/base	current	history1	history2
pH Scale 0-14 ASTM D1287 8.18 B.10 B.10 B.22 Nitrites ppm AP-053:2009 DF60 B.36 B.36 B.36 B.36 B.36 B.36 B.36 B.36	Glycol Type		FT-IR				
Nitrites ppm AP-053:2009 560 636 636 Reserve Alkalinity Scale 0:20 "ASTM D1121" Percentage Glycol % ASTM D3321 17.8 19.3 △ 26.5 Freezing Point °F ASTM D3321 19 17 9 Total Dissolved Solids 132.5 179.0 182.5 Carboxylate fail fail fail CORROSION INHIBITORS method limit/base current history1 history2 Silicon ppm ASTM D6130 4 4 4 Phosphorus ppm ASTM D6130 2 0 0 Boron ppm ASTM D6130 229 236 320 CORROSION method limit/base current history1 history2 Iron ppm ASTM D6130 >15 4 1 2 Aluminum ppm ASTM D6130 >10 1 0	Specific Gravity		*ASTM D1298		1.022	1.024	1.035
Reserve Alkalinity Scale 0-20 "ASTM D1121"	рН	Scale 0-14	ASTM D1287		8.18	8.10	8.22
Percentage Glycol % ASTM D3321 ▲ 17.8 ▲ 19.3 ▲ 26.5 Freezing Point °F ASTM D3321 19 17 9 Total Dissolved Solids 132.5 179.0 182.5 Carboxylate fail fail fail CORROSION INHIBITORS method limit/base current history1 history2 Silicon ppm ASTM D6130 4 4 4 4 Phosphorus ppm ASTM D6130 2 0 0 0 Boron ppm ASTM D6130 7 16 37 16 37 Molybdenum ppm ASTM D6130 229 236 320 320 CORROSION method limit/base current history1 history2 Iron pm ASTM D6130 >10 1 0 2 Copper ppm ASTM D6130 >10 0 0 <1	Nitrites	ppm	AP-053:2009		560	636	636
Freezing Point °F ASTM D3321 19 17 9 Total Dissolved Solids 132.5 179.0 182.5 Carboxylate fail fail fail CORROSION INHIBITORS method limit/base current history1 history2 Silicon ppm ASTM D6130 4 4 4 Phosphorus ppm ASTM D6130 7 16 37 Boron ppm ASTM D6130 7 16 37 Molybdenum ppm ASTM D6130 229 236 320 CORROSION method limit/base current history1 history2 Iron ppm ASTM D6130 >15 4 1 2 Aluminum ppm ASTM D6130 >10 1 0 2 Copper ppm ASTM D6130 >10 0 0 <1	Reserve Alkalinity	Scale 0-20	*ASTM D1121				
Total Dissolved Solids Total Dissolved Sol	Percentage Glycol	%	ASTM D3321		<u> </u>	▲ 19.3	△ 26.5
Carboxylate fail fail fail fail CORROSION INHIBITORS method limit/base current history1 history2 Silicon ppm ASTM D6130 4 4 4 4 Phosphorus ppm ASTM D6130 2 0 0 0 Boron ppm ASTM D6130 7 16 37 37 Molybdenum ppm ASTM D6130 229 236 320 CORROSION method limit/base current history1 history2 Iron ppm ASTM D6130 >15 4 1 2 Aluminum ppm ASTM D6130 >10 1 0 2 Copper ppm ASTM D6130 >10 <1	Freezing Point	°F	ASTM D3321		19	17	9
CORROSION INHIBITORS method limit/base current history1 history2	Total Dissolved Solids				132.5	179.0	182.5
Silicon ppm ASTM D6130 4 4 4 4 4 Phosphorus ppm ASTM D6130 2 0 1 0 0 2 2 0 0 0 1 0 0 2 2 0 0 1 0 2 2 2 0 0 1 0 2 2 2 0 0 1 1 0 2 2 2 2 1 0 1 1 0 2 1 1 0 2 1 1 0 2 1 0 0 0	Carboxylate				fail	fail	fail
Phosphorus ppm ASTM D6130 2 0 0 Boron ppm ASTM D6130 7 16 37 Molybdenum ppm ASTM D6130 229 236 320 CORROSION method limit/base current history1 history2 Iron ppm ASTM D6130 >15 4 1 2 Aluminum ppm ASTM D6130 >10 1 0 2 Copper ppm ASTM D6130 >10 <1 0 1 Lead ppm ASTM D6130 >10 0 0 <1 Tin ppm ASTM D6130 >1578 <1 0 <1 CONTAMINANTS method limit/base current history1 history2 Chlorine ppm ASTM D6130 27 28 22 CARRIER SALTS method limit/base current history1 history2 Sodium	CORROSION INH	IBITORS	method	limit/base	current	history1	history2
Boron	Silicon	ppm	ASTM D6130		4	4	4
Molybdenum ppm ASTM D6130 229 236 320 CORROSION method limit/base current history1 history2 Iron ppm ASTM D6130 >15 4 1 2 Aluminum ppm ASTM D6130 >10 1 0 2 Copper ppm ASTM D6130 >10 0 0 1 Lead ppm ASTM D6130 >10 0 0 0 Zinc ppm ASTM D6130 >1578 <1	Phosphorus	ppm	ASTM D6130		2	0	0
CORROSION method limit/base current history1 history2 Iron ppm ASTM D6130 >15 4 1 2 Aluminum ppm ASTM D6130 >10 1 0 2 Copper ppm ASTM D6130 >10 0 0 1 Lead ppm ASTM D6130 >10 0 0 0 Zinc ppm ASTM D6130 >10 0 0 0 Zinc ppm ASTM D6130 >1578 <1	Boron	ppm	ASTM D6130		7	16	37
Iron ppm ASTM D6130 >15 4 1 2 Aluminum ppm ASTM D6130 >10 1 0 2 Copper ppm ASTM D6130 >10 <1 0 1 Lead ppm ASTM D6130 >10 0 0 <1 Tin ppm ASTM D6130 >1578 <1 0 <1 CONTAMINANTS method limit/base current history1 history2 Chlorine ppm ASTM D6130 27 28 22 CARRIER SALTS method limit/base current history1 history2 Sodium ppm ASTM D6130 1659 1882 2530 Potassium ppm ASTM D6130 6 10 9 SCALE POTENTIAL method limit/base current history1 history2 Calcium ppm ASTM D6130 >3370 15 12 9	Molybdenum	ppm	ASTM D6130		229	236	320
Aluminum ppm ASTM D6130 >10 1 0 2 Copper ppm ASTM D6130 >10 <1	CORROSION		method	limit/base	current	history1	history2
Copper ppm ASTM D6130 > 10 <1 0 1 Lead ppm ASTM D6130 > 10 0 0 <1	Iron	ppm	ASTM D6130	>15	4	1	2
Lead ppm ASTM D6130 > 10 0 0 <1 Tin ppm ASTM D6130 > 10 0 0 0 Zinc ppm ASTM D6130 > 1578 <1	Aluminum	ppm	ASTM D6130	>10	1	0	2
Tin ppm ASTM D6130 >10 0 0 0 Zinc ppm ASTM D6130 >1578 <1 0 <1 CONTAMINANTS method limit/base current history1 history2 Chlorine ppm ASTM D6130 27 28 22 CARRIER SALTS method limit/base current history1 history2 Sodium ppm ASTM D6130 1659 1882 2530 Potassium ppm ASTM D6130 6 10 9 SCALE POTENTIAL method limit/base current history1 history2 Calcium ppm ASTM D6130 >3370 15 12 9	Copper	ppm	ASTM D6130	>10	<1	0	1
Zinc ppm ASTM D6130 >1578 <1 0 <1 CONTAMINANTS method limit/base current history1 history2 Chlorine ppm ASTM D6130 27 28 22 CARRIER SALTS method limit/base current history1 history2 Sodium ppm ASTM D6130 1659 1882 2530 Potassium ppm ASTM D6130 6 10 9 SCALE POTENTIAL method limit/base current history1 history2 Calcium ppm ASTM D6130 >3370 15 12 9	Lead	ppm	ASTM D6130	>10	0	0	<1
CONTAMINANTS method limit/base current history1 history2 Chlorine ppm ASTM D6130 27 28 22 CARRIER SALTS method limit/base current history1 history2 Sodium ppm ASTM D6130 1659 1882 2530 Potassium ppm ASTM D6130 6 10 9 SCALE POTENTIAL method limit/base current history1 history2 Calcium ppm ASTM D6130 >3370 15 12 9	Tin	ppm	ASTM D6130	>10	0	0	0
Chlorine ppm ASTM D6130 27 28 22 CARRIER SALTS method limit/base current history1 history2 Sodium ppm ASTM D6130 1659 1882 2530 Potassium ppm ASTM D6130 6 10 9 SCALE POTENTIAL method limit/base current history1 history2 Calcium ppm ASTM D6130 >3370 15 12 9	Zinc	ppm	ASTM D6130	>1578	<1	0	<1
CARRIER SALTS method limit/base current history1 history2 Sodium ppm ASTM D6130 1659 1882 2530 Potassium ppm ASTM D6130 6 10 9 SCALE POTENTIAL method limit/base current history1 history2 Calcium ppm ASTM D6130 >3370 15 12 9	CONTAMINANTS	i	method	limit/base	current	history1	history2
Sodium ppm ASTM D6130 1659 1882 2530 Potassium ppm ASTM D6130 6 10 9 SCALE POTENTIAL method limit/base current history1 history2 Calcium ppm ASTM D6130 >3370 15 12 9	Chlorine	ppm	ASTM D6130		27	28	22
Potassium ppm ASTM D6130 6 10 9 SCALE POTENTIAL method limit/base current history1 history2 Calcium ppm ASTM D6130 >3370 15 12 9	CARRIER SALTS		method	limit/base	current	history1	history2
Potassium ppm ASTM D6130 6 10 9 SCALE POTENTIAL method limit/base current history1 history2 Calcium ppm ASTM D6130 >3370 15 12 9	Sodium	ppm	ASTM D6130		1659	1882	2530
Calcium ppm ASTM D6130 >3370 15 12 9			ASTM D6130		6		
	SCALE POTENTI	AL	method	limit/base	current	history1	history2
	Calcium	ppm	ASTM D6130	>3370	15	12	9
	Magnesium	ppm			8	8	5



COOLANT REPORT











Laboratory

Sample No. Lab Number : 06201951 Unique Number : 11069412

: WC0898525

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received **Tested**

Diagnosed

: 11 Jun 2024 : 11 Jun 2024 - Jonathan Hester

: 06 Jun 2024

MARATHON PETROLEUM CO. 101 12TH ST CATLETTSBURG, KY US 41169

Test Package : COOL- (Additional Tests: BoilingPoint, COOL, GlycolType, ICP, KF) Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369.

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

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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