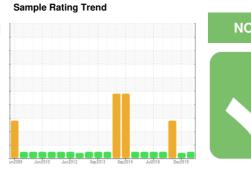


COOLANT REPORT

CRANES [450335854] MA-04002 - MIDSHIP CRANE

Coolant

DETROIT DIESEL POWER COOL PLUS (--- GAL)





DIAGNOSIS

Recommendation

The fluid is suitable for further service. Resample at the next service interval to monitor.

Corrosion

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

Contaminants

There is no indication of any contamination in the coolant.

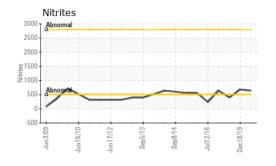
Coolant Condition

The pH level of this fluid is within the acceptable limits. The reserve alkalinity of this fluid is acceptable.

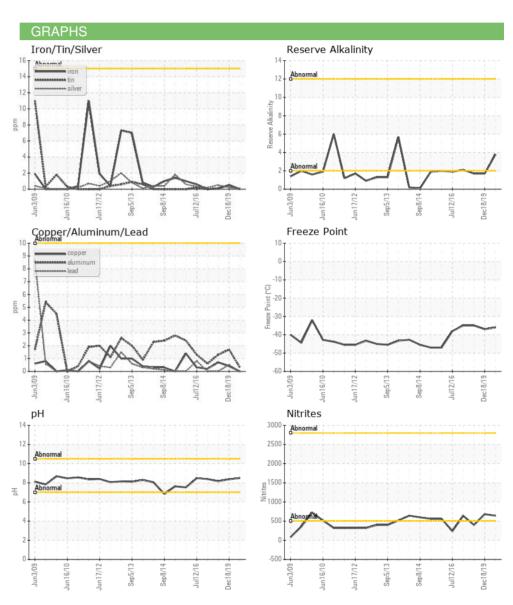
PHYSICAL TEST RESULTS method limit/base current history1 history2 Glycol Type FT-IR UNK	GAL)		un2009 Ju	in2010 Jun2012 Se	p2013 Sep2014 Jul2016	Dec2019	
Sample Date	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 0 0 0 0 Oil Age hrs Client Info 0 0 0 0 Oil Changed Client Info N/A N/A N/A N/A Sample Status Description Mistory NoRMAL ABNORMAL ABNORMAL PHYSICAL TEST RESULTS method limit/base current history1 history2 Glycol Type FT-IR UNK Specific Gravity ASTM D1287* 9.0 8.49 8.37 8.17 Nitrites ppm Alean Test Kit* 0 640 680 400 Reserve Alkalinity Scale 0:20 ASTM D1287* 50 49.4 50.0 49.0 Freezing Point °C ASTM D38321* 50 49.4 50.0 49.0 Freezing Point °C ASTM D3858(m) 6 13 10 Phosphorus ppm ASTM D5858(m) 11	Sample Number		Client Info		PC0080713	PC0016551	PC0009332
Oil Age hrs Client Info 0 0 0 Oil Changed Client Info N/A N/A N/A N/A Sample Status N/A NORMAL ABNORMAL ABNORMAL PHYSICAL TEST RESULTS method limit/base current history1 history2 Glycol Type FT-IR UNK Specific Gravity ASTM D1293* 1.067 1.067 1.066 pH Scale 0-14 ASTM D1297* 9.0 8.49 8.37 8.17 Nitrites ppm AGACT Test Kit 0 640 680 400 Reserve Alkalinity Scale 0-20 ASTM D1121* 3.8 1.7 1.7 Perceritage Glycol % ASTM D3321* 50 49.4 50.0 49.0 Freezing Point °C ASTM D3321* -40 -36 -37 -35 Carboxylate "T ASTM D585m 6	Sample Date		Client Info		29 May 2024	18 Dec 2019	22 Sep 2019
Oil Changed Sample Status Client Info N/A N/A N/A N/A N/A N/A SAMAL ABNORMAL ABNORMA	Machine Age	hrs	Client Info		0	0	0
Sample Status	Oil Age	hrs	Client Info		0	0	0
PHYSICAL TEST RESULTS	Oil Changed		Client Info		N/A	N/A	N/A
Sepacific Gravity	Sample Status				NORMAL	ABNORMAL	ABNORMAL
Specific Gravity ASTM D1298* 1.067 1.067 1.066 pH Scale 0.14 ASTM D1287* 9.0 8.49 8.37 8.17 Nitrites ppm Alcan Test Kit* 0 640 680 400 Reserve Alkalinity Scale 0.20 ASTM D1121* 3.8 1.7 1.7 Percentage Glycol % ASTM D3321* 50 49.4 50.0 49.0 Freezing Point °C ASTM D3321* -40 -36 -37 -35 Carboxylate CORROSION INHIBITORS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) 6 13 10 Phosphorus ppm ASTM D5185(m) 0 9 54 34 Boron ppm ASTM D5185(m) 11 37 26 Molybdenum ppm ASTM D5185(m) 172 195 183 CORROSION method limit/base current	PHYSICAL TEST F	RESULTS	method	limit/base	current	history1	history2
pH Scale 0.14 ASTM D1287* 9.0 8.49 8.37 8.17 Nitrites ppm Alcan Test Kit* 0 640 680 ▲ 400 Reserve Alkalinity Scale 0.20 ASTM D1121* 3.8 ▲ 1.7 ▲ 1.7 Percentage Glycol % ASTM D3321* 50 49.4 50.0 49.0 Freezing Point °C ASTM D3321* -40 -36 -37 -35 Carboxylate CORROSION INHIBITORS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) 0 9 54 34 Boron ppm ASTM D5185(m) 11 37 26 Molybdenum ppm ASTM D5185(m) >15 0 <1	Glycol Type		FT-IR		UNK		
Nitrites ppm Alcan Test Kit* 0 640 680 ▲ 400 Reserve Alkalinity Scale 0-20 ASTM D1121* 3.8 ▲ 1.7 ▲ 1.7 Percentage Glycol % ASTM D3321* 50 49.4 50.0 49.0 Freezing Point °C ASTM D3321* -40 -36 -37 -35 Carboxylate CORROSION INHIBITORS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) 6 13 10 Phosphorus ppm ASTM D5185(m) 0 9 54 34 Boron ppm ASTM D5185(m) 10 9 54 34 Boron ppm ASTM D5185(m) 172 195 183 CORROSION method limit/base current history1 history2 All Colspan="2">ASTM D5185(m) >15 0 <1 <1 All Colspan="2">ASTM D5185(m) >10 <1 <1	Specific Gravity		ASTM D1298*		1.067	1.067	1.066
Reserve Alkalinity Scale 0-20 ASTM D1121* 3.8 1.7 1.7 Percentage Glycol % ASTM D3321* 50 49.4 50.0 49.0 Freezing Point °C ASTM D3321* -40 -36 -37 -35 Carboxylate CORROSION INHIBITORS method limit/base current bistory1 history2 Silicon ppm ASTM D5185(m) 6 13 10 Phosphorus ppm ASTM D5185(m) 0 9 54 34 Boron ppm ASTM D5185(m) 11 37 26 34 Molybdenum ppm ASTM D5185(m) 172 195 183 CORROSION method limit/base current bistory1 history2 Iron ppm ASTM D5185(m) >15 0 <1 <1 Aluminum ppm ASTM D5185(m) >10 <1 <1 <1 Copper ppm ASTM D5185(m) >10 0 <1 <1 Lead ppm ASTM D5185(m) <	рН	Scale 0-14	ASTM D1287*	9.0	8.49	8.37	8.17
Percentage Glycol %	Nitrites	ppm	Alcan Test Kit*	0	640	680	400
Freezing Point °C ASTM D3321* -40 -36 -37 -35 Carboxylate CORROSION INHIBITORS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) 0 9 54 34 Boron ppm ASTM D5185(m) 0 9 54 34 Boron ppm ASTM D5185(m) 1172 195 183 CORROSION method limit/base current history1 history2 Iron ppm ASTM D5185(m) >10 <1 <1 Aluminum ppm ASTM D5185(m) >10 <1 <1 Copper ppm ASTM D5185(m) >10 <1 <1 Lead ppm ASTM D5185(m) >10 0 <1 <1 Silver ppm ASTM D5185(m) >10 <1 <1 <1 <	Reserve Alkalinity	Scale 0-20	ASTM D1121*		3.8	▲ 1.7	<u> </u>
Carboxylate	Percentage Glycol	%	ASTM D3321*	50	49.4	50.0	49.0
CORROSION INHIBITORS method limit/base current history1 history2	Freezing Point	°C	ASTM D3321*	-40	-36	-37	-35
Silicon	Carboxylate						
Phosphorus ppm ASTM D5185(m) 0 9 54 34 Boron ppm ASTM D5185(m) 11 37 26 Molybdenum ppm ASTM D5185(m) 172 195 183 CORROSION method limit/base current history1 history2 Iron ppm ASTM D5185(m) >15 0 <1 <1 Aluminum ppm ASTM D5185(m) >10 <1 2 1 Copper ppm ASTM D5185(m) >10 0 <1 <1 Lead ppm ASTM D5185(m) >10 0 <1 <1 Lead ppm ASTM D5185(m) >10 0 <1 <1 Silver ppm ASTM D5185(m) >10 <1 <1 <1 Zinc ppm ASTM D5185(m) 10 <1 <1 <1 CARRIER SALTS method limit/base current history1	CORROSION INH	IBITORS	method	limit/base	current	history1	history2
Boron	Silicon	ppm	ASTM D5185(m)		6	13	10
Molybdenum ppm ASTM D5185(m) 172 195 183 CORROSION method limit/base current history1 history2 Iron ppm ASTM D5185(m) >15 0 <1 <1 Aluminum ppm ASTM D5185(m) >10 <1 2 1 Copper ppm ASTM D5185(m) >10 0 <1 <1 Lead ppm ASTM D5185(m) >10 0 <1 <1 Tin ppm ASTM D5185(m) >10 0 <1 <1 Silver ppm ASTM D5185(m) >10 <1 <1 <1 Zinc ppm ASTM D5185(m) 1 2 0 0 CARRIER SALTS method limit/base current history1 history2 Sodium ppm ASTM D5185(m) 4970 2672 2603 Potassium ppm ASTM D5185(m) >100 6 7	Phosphorus	ppm	ASTM D5185(m)	0	9	54	34
CORROSION method limit/base current history1 history2 Iron ppm ASTM D5185(m) >15 0 <1 <1 Aluminum ppm ASTM D5185(m) >10 <1 2 1 Copper ppm ASTM D5185(m) >10 0 <1 <1 Lead ppm ASTM D5185(m) >10 0 <1 <1 Tin ppm ASTM D5185(m) >10 0 <1 <1 Silver ppm ASTM D5185(m) >10 <1 <1 <1 Zinc ppm ASTM D5185(m) 1 2 0 0 CARRIER SALTS method limit/base current history1 history2 Sodium ppm ASTM D5185(m) 4970 2672 2603 Potassium ppm ASTM D5185(m) 4526 3430 3141 SCALE POTENTIAL method limit/base current history1	Boron	ppm	ASTM D5185(m)		11	37	26
Iron ppm ASTM D5185(m) >15 0 <1	Molybdenum	ppm	ASTM D5185(m)		172	195	183
Aluminum ppm ASTM D5185(m) >10 <1	CORROSION		method	limit/base	current	history1	history2
Copper ppm ASTM D5185(m) >10 0 <1	Iron	ppm	ASTM D5185(m)	>15	0	<1	<1
Lead ppm ASTM D5185(m) >10 0 <1	Aluminum	ppm	ASTM D5185(m)	>10	<1	2	1
Tin ppm ASTM D5185(m) >10 0 <1	Copper	ppm	ASTM D5185(m)	>10	0	<1	<1
Silver ppm ASTM D5185(m) >10 <1	Lead	ppm	ASTM D5185(m)	>10	0	<1	0
Zinc ppm ASTM D5185(m) 1 2 0 CARRIER SALTS method limit/base current history1 history2 Sodium ppm ASTM D5185(m) 4970 2672 2603 Potassium ppm ASTM D5185(m) 4526 3430 3141 SCALE POTENTIAL method limit/base current history1 history2 Calcium ppm ASTM D5185(m) >100 6 7 4 Magnesium ppm ASTM D5185(m) >40 4 4 3	Tin	ppm	ASTM D5185(m)	>10	0	<1	<1
CARRIER SALTS method limit/base current history1 history2 Sodium ppm ASTM D5185(m) 4970 2672 2603 Potassium ppm ASTM D5185(m) 4526 3430 3141 SCALE POTENTIAL method limit/base current history1 history2 Calcium ppm ASTM D5185(m) >100 6 7 4 Magnesium ppm ASTM D5185(m) >40 4 4 3	Silver	ppm	ASTM D5185(m)	>10	<1	<1	<1
Sodium ppm ASTM D5185(m) 4970 2672 2603 Potassium ppm ASTM D5185(m) 4526 3430 3141 SCALE POTENTIAL method limit/base current history1 history2 Calcium ppm ASTM D5185(m) >100 6 7 4 Magnesium ppm ASTM D5185(m) >40 4 4 3	Zinc	ppm	ASTM D5185(m)		1	2	0
Potassium ppm ASTM D5185(m) 4526 3430 3141 SCALE POTENTIAL method limit/base current history1 history2 Calcium ppm ASTM D5185(m) >100 6 7 4 Magnesium ppm ASTM D5185(m) >40 4 4 3	CARRIER SAL	TS	method	limit/base	current	history1	history2
SCALE POTENTIAL method limit/base current history1 history2 Calcium ppm ASTM D5185(m) >100 6 7 4 Magnesium ppm ASTM D5185(m) >40 4 4 3	Sodium	ppm	ASTM D5185(m)		4970	2672	2603
Calcium ppm ASTM D5185(m) >100 6 7 4 Magnesium ppm ASTM D5185(m) >40 4 4 3	Potassium	ppm	ASTM D5185(m)		4526	3430	3141
Magnesium ppm ASTM D5185(m) >40 4 4 3	SCALE POTEN	ITIAL	method	limit/base	current	history1	history2
Magnesium ppm ASTM D5185(m) >40 4 4 3	Calcium	ppm	ASTM D5185(m)	>100	6	7	4
	Magnesium		. ,	>40	4	4	3
	Hardness	mg/L CaCO3	In-house*	<75	30		



COOLANT REPORT



VISUAL	method	limit/base	current	history1	history2
Coolant Color	Visual*	Red	Red	Red	Red
Coolant Appearance	Visual*	Clear	Clear	Clear	Clear
Color					
Bottom					





CALA ISO 17025:2017 Accredited Laboratory

Sample No.

Laboratory

Lab Number : 02638972 Unique Number : 5788134

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 : PC0080713

Received **Tested** Diagnosed

: 30 May 2024 : 30 May 2024

: 31 May 2024 - Kevin Marson

Test Package : COOL (Additional Tests: GlycolType)

To discuss this sample report, contact Customer Service at 1-800-268-2131.

Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab. Validity of results and interpretation are based on the sample and information as supplied.

Suncor - Terra Nova Projects

Scotia Centre, 235 Water Strret St. John's, NL CA A1C 1B6

Contact: Josh Hynes joshynes@suncor.com T: (709)778-3575

F: (709)724-2835

Report Id: TERHAM [WCAMIS] 02638972 (Generated: 05/31/2024 07:57:25) Rev: 1

Contact/Location: Josh Hynes - TERHAM