

OIL ANALYSIS REPORT

Sample Rating Trend

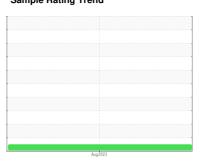
NORMAL



Closter MACK 2413 Component

Diesel Engine

GIBRALTAR 15W/40 SUPER S-3 LX (11)





Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

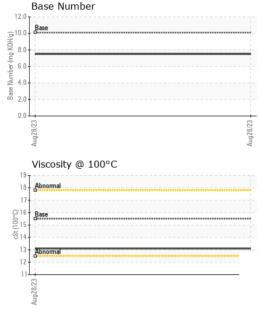
Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number Client Info WC0830967 Sample Date Client Info 28 Aug 2023 Sample Date Client Info 0 Sample Date Price Client Info 0 Sample Status	UPER 5-3 LX (I	1)			Aug2023		
Sample Date	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 0 Client Info 0 Client Info 0 Client Info 0 Client Info N/A Client Info N/A Client Info N/A Client Info N/	Sample Number		Client Info		WC0830967		
Machine Age hrs Client Info 0 Client Info 0 Client Info 0 Client Info 0 Client Info N/A Client Info N/A Client Info N/A Client Info N/	Sample Date		Client Info		28 Aug 2023		
Oil Age hrs Client Info N/A	Machine Age	hrs	Client Info		_		
Oil Changed Client Info N/A NORMAL Sample Status Sample Stat	Oil Age	hrs	Client Info		0		
NORMAL	-		Client Info		N/A		
Fuel	Sample Status				NORMAL		
WEAR METALS	CONTAMINATIO	N	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>3.0	<1.0		
	Glycol		WC Method		NEG		
Chromium	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>120	5		
Silver	Chromium	ppm	ASTM D5185m	>20	0		
Silver	Nickel	ppm	ASTM D5185m	>5	0		
Aluminum	Titanium	ppm	ASTM D5185m	>2	0		
Lead	Silver	ppm	ASTM D5185m	>2	0		
Lead	Aluminum	ppm	ASTM D5185m	>20	6		
Copper ppm ASTM D5185m >330 2 Tin ppm ASTM D5185m >15 <1	Lead	ppm	ASTM D5185m	>40	<1		
Name	Copper	ppm	ASTM D5185m	>330	2		
Vanadium ppm ASTM D5185m 0 Cadmium ppm ASTM D5185m 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 6 Barium ppm ASTM D5185m 0 Molybdenum ppm ASTM D5185m 66 62 Manganese ppm ASTM D5185m 1000 713 Magnesium ppm ASTM D5185m 1050 1175 Calcium ppm ASTM D5185m 1050 1175 Phosphorus ppm ASTM D5185m 1270 1172 Zinc ppm ASTM D5185m 1270 1172 CONTAMINANTS method limit/base current history1 history2			ASTM D5185m	>15	<1		
ADDITIVES	Vanadium	ppm	ASTM D5185m		0		
Boron	Cadmium	ppm	ASTM D5185m		0		
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 66 62 Manganese ppm ASTM D5185m 1000 713 Calcium ppm ASTM D5185m 1050 1175 Phosphorus ppm ASTM D5185m 1150 965 Zinc ppm ASTM D5185m 1270 1172 Sulfur ppm ASTM D5185m 3484 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 Sodium ppm ASTM D5185m >20 1 Potassium ppm ASTM D5185m >20 1 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7844 >4 0.2	Boron	ppm	ASTM D5185m		6		
Manganese ppm ASTM D5185m <1 Magnesium ppm ASTM D5185m 1000 713 Calcium ppm ASTM D5185m 1050 1175 Phosphorus ppm ASTM D5185m 1150 965 Zinc ppm ASTM D5185m 1270 1172 Sulfur ppm ASTM D5185m 3484 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 Sodium ppm ASTM D5185m >20 1 Potassium ppm ASTM D5185m >20 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2	Barium	ppm	ASTM D5185m		0		
Magnesium ppm ASTM D5185m 1000 713 Calcium ppm ASTM D5185m 1050 1175 Phosphorus ppm ASTM D5185m 1150 965 Zinc ppm ASTM D5185m 1270 1172 Sulfur ppm ASTM D5185m 3484 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 Sodium ppm ASTM D5185m >20 1 Potassium ppm ASTM D5185m >20 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 8.6 Sulfation Abs/.1mm *ASTM D7414 >25 <td>Molybdenum</td> <td>ppm</td> <td>ASTM D5185m</td> <td>66</td> <td>62</td> <td></td> <td></td>	Molybdenum	ppm	ASTM D5185m	66	62		
Calcium ppm ASTM D5185m 1050 1175 Phosphorus ppm ASTM D5185m 1150 965 Zinc ppm ASTM D5185m 1270 1172 Sulfur ppm ASTM D5185m 3484 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 Sodium ppm ASTM D5185m >25 3 Potassium ppm ASTM D5185m >20 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 Nitration Abs/.1mm *ASTM D7415 >30 18.2 FLUID DEGRADATION method limit/base <t< td=""><td>Manganese</td><td>ppm</td><td>ASTM D5185m</td><td></td><td><1</td><td></td><td></td></t<>	Manganese	ppm	ASTM D5185m		<1		
Phosphorus ppm ASTM D5185m 1150 965 Zinc ppm ASTM D5185m 1270 1172 Sulfur ppm ASTM D5185m 3484 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 Sodium ppm ASTM D5185m >20 1 Potassium ppm ASTM D5185m >20 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 Nitration Abs/.mm *ASTM D7415 >30 18.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >	Magnesium	ppm	ASTM D5185m	1000	713		
Zinc	Calcium	ppm	ASTM D5185m	1050	1175		
Zinc ppm ASTM D5185m 1270 1172 Sulfur ppm ASTM D5185m 3484 Sulfur ppm ASTM D5185m 3484 Sulfur history2 Silicon ppm ASTM D5185m >25 3 Sodium ppm ASTM D5185m <1 Sulfur Potassium ppm ASTM D5185m >20 1 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7844 >4 0.2 Sulfation Abs/cm *ASTM D7624 >20 8.6 Sulfation Abs/.1mm *ASTM D7415 >30 18.2 Sulfation Abs/.1mm *ASTM D7414 >25 14.3 Sulfation Abs/.1mm *ASTM D7414 >25 14.3 Sulfation Abs/.1mm *ASTM D7414 >25 14.3	Phosphorus		ASTM D5185m	1150	965		
Sulfur ppm ASTM D5185m 3484 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 Sodium ppm ASTM D5185m <1	Zinc		ASTM D5185m		1172		
Silicon ppm ASTM D5185m >25 3 Sodium ppm ASTM D5185m <1 Potassium ppm ASTM D5185m >20 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 Nitration Abs/cm *ASTM D7624 >20 8.6 Sulfation Abs/.1mm *ASTM D7415 >30 18.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.3	Sulfur						
Sodium	CONTAMINANTS	3	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.2 Nitration Abs/cm *ASTM D7624 >20 8.6 Sulfation Abs/.1mm *ASTM D7415 >30 18.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.3	Silicon	ppm	ASTM D5185m	>25	3		
INFRA-RED	Sodium	ppm	ASTM D5185m		<1		
Soot % % *ASTM D7844 >4 0.2 Nitration Abs/cm *ASTM D7624 >20 8.6 Sulfation Abs/.1mm *ASTM D7415 >30 18.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.3	Potassium	ppm	ASTM D5185m	>20	1		
Nitration Abs/cm *ASTM D7624 >20 8.6 Sulfation Abs/.1mm *ASTM D7415 >30 18.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.3	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 18.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.3	Soot %	%	*ASTM D7844	>4	0.2		
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 14.3	Nitration	Abs/cm	*ASTM D7624	>20	8.6		
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	18.2		
	FLUID DEGRADA	ATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 10.1 7.5	Oxidation	Abs/.1mm	*ASTM D7414	>25	14.3		
	Base Number (BN)	mg KOH/q	ASTM D2896	10.1	7.5		



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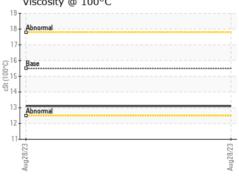
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE		
Yellow Metal	scalar	*Visual	NONE	NONE		
Precipitate	scalar	*Visual	NONE	NONE		
Silt	scalar	*Visual	NONE	NONE		
Debris	scalar	*Visual	NONE	NONE		
Sand/Dirt	scalar	*Visual	NONE	NONE		
Appearance	scalar	*Visual	NORML	NORML		
Odor	scalar	*Visual	NORML	NORML		
Emulsified Water	scalar	*Visual	>0.2	NEG		
Free Water	scalar	*Visual		NEG		
	FILID PROPERTIES			current	hietory1	hietory2

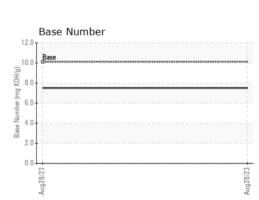
Visc @ 100°C	cSt	ASTM D445	15.5	13.1	

GRAPHS



10 T L	Ion-ferrous Metals	
8 4	copper lead	
6		
4		
2 -		
الله الله		
Aug28/23		Aug 28/23
V	iscosity @ 100°C	







Certificate L2367

Laboratory Sample No. Lab Number Unique Number : 10670957 Test Package : FLEET

: WC0830967 : 05964406

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

: 29 Sep 2023 : 29 Sep 2023 Diagnostician : Wes Davis

INTERSTATE WASTE-CLOSTER 77 RAILROAD AVENUE

CLOSTER, NJ US 07624

Contact: Tony Gagliano tgagliano@interstatewaste.com

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.

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

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