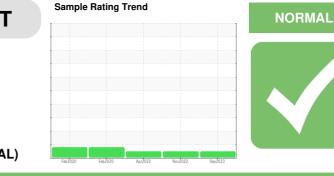


OIL ANALYSIS REPORT





CONSTRUCTORS, INC Machine Id MACK MP8 SCR 025069 Component

Diesel Engine MOBIL DELVAC 1300 SUPER 10W30 (--- GAL)

Fluid

DIAGNOSIS	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Recommendation	Sample Number		Client Info		SBP0004572	SBP0001355	SBP0000680
Resample at the next service interval to monitor.	Sample Date		Client Info		28 Sep 2023	08 Nov 2022	11 Apr 2022
Wear	Machine Age	hrs	Client Info		4156	3631	3145
All component wear rates are normal.	Oil Age	hrs	Client Info		525	486	514
Contamination	Oil Changed		Client Info		Changed	Changed	Changed
There is no indication of any contamination in the	Sample Status				NORMAL	NORMAL	NORMAL
oil.	CONTAMINATIO	N	method	limit/base	current	history1	history2
Fluid Condition	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.	Glycol		WC Method	>0.0	NEG	NEG	NEG
	-		WO WELLIOU		NEG	NEG	NEG
	WEAR METALS		method	limit/base	current	history1	history2
	Iron	ppm	ASTM D5185m		11	9	14
	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
	Nickel	ppm	ASTM D5185m		2	1	3
	Titanium	ppm	ASTM D5185m	>2	0	<1	<1
	Silver	ppm	ASTM D5185m	>2	0	<1	<1
	Aluminum	ppm	ASTM D5185m	>20	<1	3	5
	Lead	ppm	ASTM D5185m	>40	<1	2	1
	Copper	ppm	ASTM D5185m	>330	5	3	5
	Tin	ppm	ASTM D5185m	>15	<1	1	2
	Vanadium	ppm	ASTM D5185m		<1	<1	<1
	Cadmium	ppm	ASTM D5185m		0	0	0
	ADDITIVES		method	limit/base	current	history1	history2
	Boron	ppm	ASTM D5185m		2	20	28
		ppm					
	Barium	ppm	ASTM D5185m		0	0	0
	Barium	ppm	ASTM D5185m		0	0	0
	Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m		0 55	0 33	0 31
	Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m		0 55 <1	0 33 <1	0 31 <1
	Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		0 55 <1 913	0 33 <1 626	0 31 <1 624
	Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		0 55 <1 913 1149	0 33 <1 626 1432	0 31 <1 624 1677
	Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		0 55 <1 913 1149 982	0 33 <1 626 1432 835	0 31 <1 624 1677 824
	Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	0 55 <1 913 1149 982 1236 2979	0 33 <1 626 1432 835 960	0 31 <1 624 1677 824 969
	Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		0 55 <1 913 1149 982 1236 2979	0 33 <1 626 1432 835 960 3168	0 31 <1 624 1677 824 969 2630
	Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		0 55 <1 913 1149 982 1236 2979 current	0 33 <1 626 1432 835 960 3168 history1	0 31 <1 624 1677 824 969 2630 history2
	Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	>25	0 55 <1 913 1149 982 1236 2979 current 5	0 33 <1 626 1432 835 960 3168 history1 5	0 31 <1 624 1677 824 969 2630 history2 6
	Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	>25	0 55 <1 913 1149 982 1236 2979 current 5 5	0 33 <1 626 1432 835 960 3168 history1 5 6	0 31 <1 624 1677 824 969 2630 history2 6 6 6
	Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>25	0 55 <1 913 1149 982 1236 2979 current 5 5 5 5 5 	0 33 <1 626 1432 835 960 3168 history1 5 6 5	0 31 <1 624 1677 824 969 2630 history2 6 6 6 10
	Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Chlorine	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	>25 >20 limit/base	0 55 <1 913 1149 982 1236 2979 current 5 5 5 5 5 	0 33 <1 626 1432 835 960 3168 history1 5 6 5 5 	0 31 <1 624 1677 824 969 2630 history2 6 6 6 6 10
	Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Chlorine INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	>25 >20 limit/base >4	0 55 <1 913 1149 982 1236 2979 current 5 5 5 5 5 5 5 current	0 33 <1 626 1432 835 960 3168 history1 5 6 5 5 history1	0 31 <1 624 1677 824 969 2630 history2 6 6 6 10 history2
	Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Chlorine INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	>25 >20 limit/base >4 >20	0 55 <1 913 1149 982 1236 2979 current 5 5 5 5 5 5 	0 33 <1 626 1432 835 960 3168 history1 5 6 5 5 history1 0.3	0 31 <1 624 1677 824 969 2630 history2 6 6 6 6 10 history2 0.3
	Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Chlorine INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	>25 >20 limit/base >4 >20	0 55 <1 913 1149 982 1236 2979 Current 5 5 5 5 5 5 5	0 33 <1 626 1432 835 960 3168 history1 5 6 5 5 5 history1 0.3 9.9	0 31 <1 624 1677 824 969 2630 history2 6 6 6 6 10 history2 0.3 10.6
	Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Chlorine INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7615	>25 >20 limit/base >4 >20 >30 limit/base	0 55 <1 913 1149 982 1236 2979 current 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	0 33 <1 626 1432 835 960 3168 history1 5 6 5 5 history1 0.3 9.9 22.4 history1	0 31 <1 624 1677 824 969 2630 history2 6 6 6 10 history2 0.3 10.6 23.2 history2
	Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Chlorine INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	>25 >20 limit/base >4 >20 >30 limit/base >25	0 55 <1 913 1149 982 1236 2979 Current 5 5 5 5 5 5 5	0 33 <1 626 1432 835 960 3168 history1 5 6 5 5 history1 0.3 9.9 22.4	0 31 <1 624 1677 824 969 2630 history2 6 6 6 10 history2 0.3 10.6 23.2



Abnorma

Feb5/20

Feb5/20

OIL ANALYSIS REPORT

Base Number 12.0 Base 0.0 Apr11/22 Feb5/20 -Feb5/20. Viscosity @ 100°C 15 14 Abnorma 13 cSt (100°C) Base

	VISUAL		method	limit/base	current	history1	history2	
	White Metal	scalar	*Visual	NONE	NONE	NONE	NONE	
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE	
	Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE	
	Silt	scalar	*Visual	NONE	NONE	NONE	NONE	
	Debris	scalar	*Visual	NONE	NONE	NONE	NONE	
	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE	
v8/22 28/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML	
Sep	Odor	scalar	*Visual	NORML	NORML	NORML	NORML	
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG	
	Free Water	scalar	*Visual		NEG	NEG	NEG	
	FLUID PROPER	TIES	method	limit/base	current	history1	history2	
	Visc @ 100°C	cSt	ASTM D445	11.9	11.0	11.4	11.5	
	Ferrous Alloys							
v8/22 -	30 - iron							
	25							
	20-							
		and the second	Standard and an else of a set	N BREAK				
	0	/22	1/22	1/23				
	Feb 5	Apr11	Novê	Sep 28				
		als						
	copper							
	assessesses tin							
	50							
		127	/22 -	/23				
	Feb 5 Feb 5	Apr11	Nov8	Sep 28				
	Viscosity @ 100°	C		12.0	Base Number			
	14 - Abnormal				Base	1		
	13						-	
	2 12 Base			는 및 8.0· 문				
	E 11-			- in the second				
	i i i			J. 4.0				
	Abnormal			2.0				
	5/20	- 1/22	3/22 -	-0.0	5/20	- 1/22	3/22 -	
	Feb5/20 Feb5/20	Apr11/22	Nov8/22	Sep28/23	Feb5/20 Feb5/20	Apr11/22	Nov8/22	
		501 Madie	son Ave Ca	rv. NC 27513	Constructors Inc 6036			
Laboratory	: WearCheck HSA -		uu	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1815 Y Stre			
Laboratory Sample No.	: WearCheck USA - : SBP0004572	Received	d : 02 (Oct 2023				
Sample No. Lab Number	: SBP0004572 : 05966978	Received Diagnos	d : 02 (ed : 04 (Oct 2023 Oct 2023			Lincoln, 1	
Sample No.	: SBP0004572 : <mark>05966978</mark> : 10673529	Received	d : 02 (ed : 04 (Oct 2023		Conta		
		White Metal Yellow Metal Precipitate Silt Debris Sand/Dirt Appearance Odor Emulsified Water Free Water Fluid PROPER Visc @ 100°C GRAPHS Ferrous Alloys	White Metal scalar Yellow Metal scalar Precipitate scalar Sit scalar Debris scalar Sand/Dirt scalar Appearance scalar Emulsified Water scalar Free Water scalar Free Water scalar Free Water scalar Free Water scalar Free Water scalar Monorer Stalar Free Water scalar Free Water scalar Free Water scalar Monorer Stalar Sand/Dirt Stalar Scalar Stalar Stalar Scalar Stalar Scalar Stalar Scalar Scalar Stalar Scalar Scalar Stalar Scalar Stalar Scalar Scalar Scalar Scalar Scalar Stalar Scala	White Metal scalar *Visual Yellow Metal scalar *Visual Precipitate scalar *Visual Debris scalar *Visual Sand/Dirt scalar *Visual Appearance scalar *Visual Odor scalar *Visual Codor scalar *Visual Free Water scalar *Visual Monor ferrous Alloys Otop State Stat	White Metal scalar 'Visual NONE Precipitate scalar 'Visual NONE Silt scalar 'Visual NONE Debris scalar 'Visual NONE Sand/Dirit scalar 'Visual NONE Appearance scalar 'Visual NORML Emulsified Water scalar 'Visual NORML Mone Scalar '	White Metal scalar 'Visual NONE NONE Precipitate scalar 'Visual NONE NONE Sitt scalar 'Visual NONE NONE Sand/Dirt scalar 'Visual NONE NONE Sand/Dirt scalar 'Visual NONE NONE Sand/Dirt scalar 'Visual NORML NORML Odor scalar 'Visual NORML NORML Odor scalar 'Visual NORML NORML Codor scalar 'Visual NORML NORML MORML Debris scalar 'Visual NORML NORML NORML NORML Odor scalar 'Visual NORML NO	White Metal scalar 'Visual NONE NONE NONE NONE Precipitate scalar 'Visual NONE NONE NONE NONE Sili scalar 'Visual NONE NONE NONE NONE Appearance scalar 'Visual NONE NONE NONE NONE Codor scalar 'Visual NORML NORML NORML Odor scalar 'Visual NORML N	

Submitted By: Jack Linhart Page 2 of 2