

## **OIL ANALYSIS REPORT**

CONSTRUCTORS, INC CATERPILLAR 131708 Sample Rating Trend



## Component **Diesel Engine** Fluid

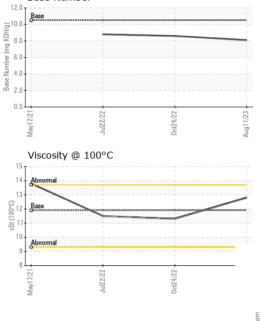
MOBIL DELVAC 1300 SUPER 10W30 (--- GAL)

DIAGNOSIS	SAMPLE INFORM	<b>/IATION</b>	method	limit/base	current	history1	history2
Recommendation	Sample Number		Client Info		SBP0004746	SBP0002100	SBP0001461
Resample at the next service interval to monitor.	Sample Date		Client Info		11 Aug 2023	24 Oct 2022	22 Jul 2022
Wear	Machine Age	hrs	Client Info		2831	2291	1717
All component wear rates are normal.	Oil Age	hrs	Client Info		540	574	573
Contamination	Oil Changed		Client Info		Not Changd	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	>5	<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		NEG	NEG	NEG
	WEAR METALS		method	limit/base		history1	history2
	Iron	ppm	ASTM D5185m		39	35	39
	Chromium	ppm	ASTM D5185m		<1	1	1
	Nickel		ASTM D5185m		<1	0	<1
	Titanium	ppm ppm	ASTM D5185m		<1	0	0
	Silver		ASTM D5185m		0	0	0
	Aluminum	ppm ppm	ASTM D5185m		9	7	12
	Lead		ASTM D5185m		9	0	<1
	Copper	ppm	ASTM D5185m		3	3	4
	Tin	ppm	ASTM D5185m		ح ا	<1	4 <1
	Vanadium	ppm	ASTM D5185m	>15	0	0	0
	Cadmium	ppm	ASTM D5185m		0	0	0
		ppm					
	ADDITIVES		method	limit/base	current	history1	history2
	_						
	Boron	ppm	ASTM D5185m		0	4	25
	Barium	ppm ppm	ASTM D5185m		0	<1	0
	Barium Molybdenum		ASTM D5185m ASTM D5185m		0 61	<1 51	0 29
	Barium Molybdenum Manganese	ppm	ASTM D5185m ASTM D5185m ASTM D5185m		0 61 <1	<1 51 <1	0 29 <1
	Barium Molybdenum Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		0 61 <1 1034	<1 51 <1 802	0 29 <1 593
	Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		0 61 <1 1034 1266	<1 51 <1 802 1221	0 29 <1 593 1719
	Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		0 61 <1 1034 1266 1081	<1 51 <1 802 1221 915	0 29 <1 593 1719 747
	Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		0 61 <1 1034 1266 1081 1386	<1 51 <1 802 1221 915 1133	0 29 <1 593 1719 747 928
	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 61 <1 1034 1266 1081	<1 51 <1 802 1221 915	0 29 <1 593 1719 747
	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 61 <1 1034 1266 1081 1386 3834	<1 51 <1 802 1221 915 1133	0 29 <1 593 1719 747 928
	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 61 <1 1034 1266 1081 1386 3834	<1 51 <1 802 1221 915 1133 2917	0 29 <1 593 1719 747 928 3269
	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		0 61 <1 1034 1266 1081 1386 3834 current	<1 51 <1 802 1221 915 1133 2917 history1	0 29 <1 593 1719 747 928 3269 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 ASTM D5185m	>25	0 61 <1 1034 1266 1081 1386 3834 current 5	<1 51 <1 802 1221 915 1133 2917 history1 5	0 29 <1 593 1719 747 928 3269 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 ASTM D5185m	>25	0 61 <1 1034 1266 1081 1386 3834 current 5 3	<1 51 <1 802 1221 915 1133 2917 history1 5 <1	0 29 <1 593 1719 747 928 3269 history2 6 4
	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 61 <1 1034 1266 1081 1386 3834 <u>current</u> 5 3 3 2 	<1 51 <1 802 1221 915 1133 2917 history1 5 <1 3	0 29 <1 593 1719 747 928 3269 history2 6 4 4
	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 ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>25 >20 limit/base	0 61 <1 1034 1266 1081 1386 3834 <u>current</u> 5 3 3 2 	<1 51 <1 802 1221 915 1133 2917 history1 5 <1 3 	0 29 <1 593 1719 747 928 3269 history2 6 4 4 4
	Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Chlorine INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	>25 >20 limit/base >3	0 61 <1 1034 1266 1081 1386 3834 current 5 3 3 2 2 	<1 51 <1 802 1221 915 1133 2917 history1 5 <11 3 history1	0 29 <1 593 1719 747 928 3269 history2 6 4 4 4 
	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 >3 >20	0 61 <1 1034 1266 1081 1386 3834 Current 5 3 3 2 2  Current 0.7	<1 51 <1 802 1221 915 1133 2917 history1 5 <11 3 history1 0.9	0 29 <1 593 1719 747 928 3269 history2 6 4 4 4 4  history2 0.7
	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 >3 >20	0 61 <1 1034 1266 1081 1386 3834 Current 5 3 2  Current 0.7 8.5 19.0	<1 51 <1 802 1221 915 1133 2917 history1 5 <1 3 history1 0.9 10.6	0 29 <1 593 1719 747 928 3269 history2 6 4 4 4 4  history2 0.7 11.4
	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 D5185m	>25 >20 limit/base >3 >20 >30 limit/base	0 61 <1 1034 1266 1081 1386 3834 <i>current</i> 5 3 2  <i>current</i> 0.7 8.5 19.0 <i>current</i>	<1 51 <1 802 1221 915 1133 2917 history1 5 <1 3 history1 0.9 10.6 21.9 history1	0 29 <1 593 1719 747 928 3269 history2 6 4 4 4  history2 0.7 11.4 23.5
	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 D7624	>25 >20 limit/base >3 >20 >30 limit/base >25	0 61 <1 1034 1266 1081 1386 3834 Current 5 3 2  Current 0.7 8.5 19.0	<1 51 <1 802 1221 915 1133 2917 history1 5 <1 3 history1 0.9 10.6 21.9	0 29 <1 593 1719 747 928 3269 history2 6 4 4 4  history2 0.7 11.4 23.5 history2



## **OIL ANALYSIS REPORT**

Base Number



		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		
	Uct24/22 Aug 11/23 -	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML		
Ċ	Ucto Aug 1	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	12.8	11.3	11.5		
		GRAPHS								
		Ferrous Alloys								
	- national	50-								
c c	nctz	40-								
		<u>특</u> 30 -								
		20								
		10-								
		lay17/21 Jul22/22		0ct24/22	Aug11/23					
		May17/2 Jul22/23		0ct2	Aug 1					
		Non-ferrous Meta	als							
		20 copper								
		nananananana lead								
		15 - tin								
		<u>ة</u> 10								
		5								
				5						
		May17/21 Jul22/22		0ct24/22	ug11/23					
		2	~	0	Au					
		Viscosity @ 100°	L		12.0	Base Number	-			
		14 - Abnormal			10.0	Base				
		13								
		212 Base			(D/HO) 8.0- 6.0- 9.0- 8 gase Number	1   				
		(2) 12 - Base (2) 12 - Base (3) 11 -			ے۔ 10.0 -					
		10-			N. 4.0					
		Abnormal		1	2.0					
		8								
		22		22	-0.0	71	22+			
		May17/21 Jul22/22		0ct24/22	Aug11/23	May17/2	Jul22/22 0ct24/22			
	l ala									
	Laboratory	: WearCheck USA - : SBP0004746	: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : SBP0004746 <b>Received</b> : 14 Aug 2023				Constructors Inc 6036 1815 Y Stre			
4	Sample No	. 001 0007/70								
	Sample No. Lab Number	: 05924024	Diagnos	ea :157	Aug 2023			LINCOIN, IN		
	Lab Number Unique Number	: 10603971	Diagnos		an Felton					
CARDENA CONTRACTOR	Lab Number Unique Number Test Package	: 10603971	Diagnos	tician : Sea	an Felton		Conta jackl@construc	Lincoln, N US 6850 ct: Jack Linha		