

WEAR	
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id 28 Component **Diesel Engine** DIESEL ENGINE OIL SAE 15W40 (--- GAL)

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RECOMMENDATION	Test	UOM	Method	Limit/Abn	Current	History1	History2
The oil change at the time of sampling has been noted. Resample at the next service interval to monitor. No other corrective action is recommended at this time. Please specify the component make and model with your next sample.	Sample Number		Client Info		DC0035154		
	Sample Date		Client Info		22 Mar 2024		
	Machine Age	hrs	Client Info		9841		
	Oil Age	hrs	Client Info		0		
	Filter Age	hrs	Client Info		0		
	Oil Changed		Client Info		Changed		
	Filter Changed		Client Info		Changed		
	Sample Status				NORMAL		
WEAR	Iron	ppm	ASTM D5185m		4		
All component wear rates are normal.	Chromium	ppm	ASTM D5185m		<1		
	Nickel	ppm	ASTM D5185m	>4	<1		
	Titanium	ppm	ASTM D5185m		<1		
	Silver	ppm	ASTM D5185m	>3	0		
	Aluminum	ppm	ASTM D5185m	>20	3		
	Lead	ppm	ASTM D5185m	>40	<1		
	Copper	ppm	ASTM D5185m	>330	2		
	Tin	ppm	ASTM D5185m	>15	<1		
	Vanadium	ppm	ASTM D5185m		<1		
	White Metal	scalar	*Visual	NONE	NONE		
	Yellow Metal	scalar	*Visual	NONE	NONE		
CONTAMINATION				~-			
	Silicon	ppm	ASTM D5185m		4		
Light fuel dilution occurring. No other contaminants were detected in the oil.	Potassium	ppm	ASTM D5185m		3		
	Fuel	%	ASTM D3524		1.9		
	Water		WC Method	>0.2	NEG		
	Glycol		WC Method		NEG		
	Soot %	%	*ASTM D7844	>3	0.2		
	Nitration	Abs/cm	*ASTM D7624		7.0		
	Sulfation	Abs/.1mm	*ASTM D7415	>30	16.5		
	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		
				450			
FLUID CONDITION	Sodium	ppm	ASTM D5185m		1		
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.	Boron	ppm	ASTM D5185m		12		
	Barium	ppm	ASTM D5185m		0		
	Molybdenum	ppm	ASTM D5185m	100	5		
	Manganese	ppm	ASTM D5185m		<1		
	Magnesium	ppm	ASTM D5185m		68		
	Calcium	ppm	ASTM D5185m		2269		
	Phosphorus	ppm	ASTM D5185m		871		
	Zinc	ppm	ASTM D5185m		1044		
	Sulfur	ppm	ASTM D5185m	4250	3717		
	Outstat	Alexandre	****	05		1	

Oxidation

Visc @ 100°C cSt

9.7

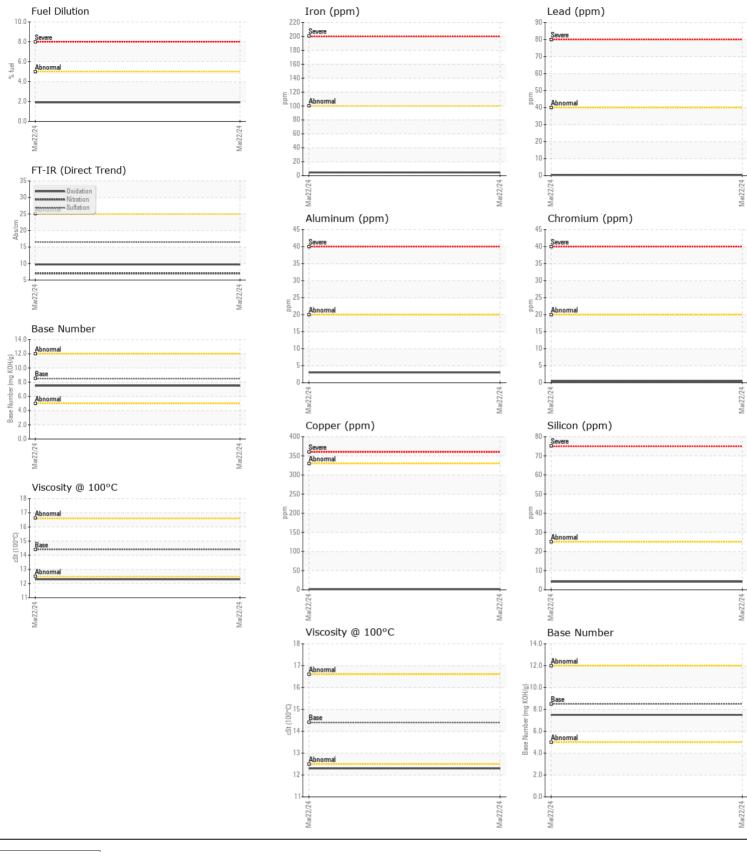
7.5

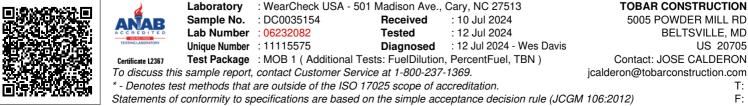
12.3

Abs/.1mm *ASTM D7414 >25

ASTM D445 14.4

Base Number (BN) mg KOH/g ASTM D2896 8.5





Contact/Location: JOSE CALDERON - TOBBELMD Page 2 of 2