

## Machine Id **2367** Component **Diesel Engine** Fluid **SHELL ROTELLA T 15W40 (--- GAL)**

RECOMMENDATION	Test	UOM	Method	Limit/Abn	Current	History1	History2
	Sample Number	UOIVI	Client Info	LITTICADI	WC0871357	1115101 y 1	
Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.	Sample Date		Client Info		27 Mar 2024		
	Machine Age	mls	Client Info		718000		
	Oil Age	mls	Client Info		20000		
	Filter Age	mls	Client Info		20000		
	Oil Changed		Client Info		Changed		
	Filter Changed		Client Info		Changed		
	Sample Status				ABNORMAL		
WEAR The aluminum level is abnormal. All other component wear rates are normal.	Iron	ppm	ASTM D5185m		63		
	Chromium	ppm	ASTM D5185m	>20	3		
	Nickel	ppm	ASTM D5185m	>4	1		
	Titanium	ppm	ASTM D5185m		<1		
	Silver	ppm	ASTM D5185m		<1		
	Aluminum	ppm	ASTM D5185m	>20	<b>4</b> 6		
	Lead	ppm	ASTM D5185m		3		
	Copper	ppm	ASTM D5185m		273		
	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	nom	ASTM D5185m	> 25	12		
CONTAMINATION	Potassium	ppm	ASTM D5185m		14		
There is no indication of any contamination in the oil.	Fuel	ppm %	ASTM D3183		<1.0		
	Water	70	WC Method		NEG		
	Glycol		WC Method	20.2	NEG		
	Soot %	%	*ASTM D7844	>3	1.5		
	Nitration	Abs/cm	*ASTM D7624		10.6		
	Sulfation	Abs/.1mm	*ASTM D7415		24.6		
	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		
FLUID CONDITION	Sodium	ppm	ASTM D5185m		2		
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.	Boron	ppm	ASTM D5185m	316	134		
	Barium	ppm	ASTM D5185m	0.0	<1		
	Molybdenum	ppm	ASTM D5185m	1.2	114		
	Manganese	ppm	ASTM D5185m		1		
	Magnesium	ppm	ASTM D5185m		531		
	Calcium	ppm	ASTM D5185m		1402		
	Phosphorus	ppm	ASTM D5185m	1064	750		
	Zinc	ppm	ASTM D5185m	1160	842		
	Sulfur	ppm	ASTM D5185m		2785		
	Oxidation	Abs/.1mm	*ASTM D7414	>25	18.0		
	<b>D N I I I I I I I I I I</b>	110111					

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ASTM D445 15.7

7.5

12.4

Base Number (BN) mg KOH/g ASTM D2896 10.1

Visc @ 100°C cSt



