

# **OIL ANALYSIS REPORT**

Sample Rating Trend







### Machine Id **2171** Component **Diesel Engine** Fluid VALVOLINE 15W40 (--- GAL)

#### DIAGNOSIS

# Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

#### Wear

Metal levels are typical for a new component breaking in.

## Contamination

Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is no indication of any contamination in the oil.

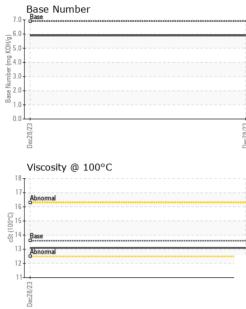
# Fluid Condition

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

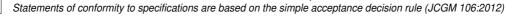
SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		IL0034240		
Sample Date		Client Info		28 Dec 2023		
Machine Age	mls	Client Info		66126		
Oil Age	mls	Client Info		0		
Oil Changed		Client Info		Not Changd		
Sample Status				NORMAL		
CONTAMINATION	٧	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0		
Water		WC Method	>0.2	NEG		
Glycol		WC Method		NEG		
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	59		
Chromium	ppm	ASTM D5185m	>20	4		
Nickel	ppm	ASTM D5185m	>4	0		
Titanium	ppm	ASTM D5185m		0		
Silver	ppm	ASTM D5185m	>3	0		
Aluminum	ppm	ASTM D5185m	>20	37		
Lead	ppm	ASTM D5185m	>40	8		
Copper	ppm	ASTM D5185m	>330	7		
Tin	ppm	ASTM D5185m	>15	<1		
Vanadium	ppm	ASTM D5185m		0		
Cadmium	ppm	ASTM D5185m		0		
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 39	current 40	history1	history2
	ppm ppm					
Boron		ASTM D5185m	39	40		
Boron Barium Molybdenum Manganese	ppm	ASTM D5185m ASTM D5185m	39 1	40 0		
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	39 1 49 1 616	40 0 65		
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	39 1 49 1	40 0 65 <1		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	39 1 49 1 616 1554 899	40 0 65 <1 748 1242 792		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	39 1 49 1 616 1554 899 1069	40 0 65 <1 748 1242 792 1030	  	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	39 1 49 1 616 1554 899	40 0 65 <1 748 1242 792	   	
Boron 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 ASTM D5185m	39 1 49 1 616 1554 899 1069	40 0 65 <1 748 1242 792 1030	    	
Boron 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	39 1 49 1 616 1554 899 1069 2624	40 0 65 <1 748 1242 792 1030 2506	     	
Boron 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	39 1 49 1 616 1554 899 1069 2624 <b>limit/base</b>	40 0 65 <1 748 1242 792 1030 2506 current	     history1	     history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	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	39 1 49 1 616 1554 899 1069 2624 <b>limit/base</b> >25	40 0 65 <1 748 1242 792 1030 2506 current 7	     history1	     history2
Boron 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 ASTM D5185m ASTM D5185m	39 1 49 1 616 1554 899 1069 2624 <b>limit/base</b> >25	40 0 65 <1 748 1242 792 1030 2506 current 7 2	      history1	      history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	39 1 49 1 616 1554 899 1069 2624 <b>limit/base</b> >25 >20	40 0 65 <1 748 1242 792 1030 2506 <i>current</i> 7 2 114 <i>current</i> 0.5	     history1  	     history2  
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	39 1 49 1 616 1554 899 1069 2624 2624 2624 25 >25	40 0 65 <1 748 1242 792 1030 2506 current 7 2 114 current 0.5 10.2	     history1   history1	     history2   history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m	39 1 49 1 616 1554 899 1069 2624 2624 2624 25 >25 >20 1imit/base >20	40 0 65 <1 748 1242 792 1030 2506 <i>current</i> 7 2 114 <i>current</i> 0.5	     history1   history1  history1	     history2   history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	39 1 49 1 616 1554 899 1069 2624 ////////////////////////////////////	40 0 65 <1 748 1242 792 1030 2506 current 7 2 114 current 0.5 10.2	      history1   history1  history1	      history2   history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	39 1 49 1 1554 899 1069 2624 2624 2624 20 20 20 320 3 3 20 3 3 20 20	40 0 65 <1 748 1242 792 1030 2506 Current 7 2 114 Current 0.5 10.2 23.2	      history1  history1  history1	      history2  history2  history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	39 1 49 1 616 1554 899 1069 2624 <b>imit/base</b> >25 -20 -33 >20 >30 <b>imit/base</b>	40 0 65 <1 748 1242 792 1030 2506 Current 7 2 114 0.5 10.2 23.2 Current	     history1  history1  history1	     history2  history2  history2  history2



# **OIL ANALYSIS REPORT**



	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		
5 C C C C C C C C C C C C C C C C C C C	Appearance	scalar	*Visual	NORML	NORML		
	Odor	scalar	*Visual	NORML	NORML		
	Emulsified Water	scalar	*Visual	>0.2	NEG		
	Free Water	scalar	*Visual		NEG		
	FLUID PROPER	TIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	13.6	13.1		
	GRAPHS						
	Ferrous Alloys						
	<sup>60</sup> T						
	50 - iron						
	40						
	<u>5</u> 30 -						
	20-						
	10-						
	*****		*****	******			
			*******	/23			
	Dec28/23			Dec28/23			
	Non-ferrous Meta	alc					
	<sup>10</sup> T						
	copper						
	been encountered						
	8						
	been encountered						
	8						
	8						
	8 +						
	8 +						
	8 +						
	B + bbm bbm bbm bbm bbm bbm bbm bbm			Dec28/23			
	8 +			Dec28/23	Base Number		
	e e viscosity @ 100°			Dec28/23	Base Number		
	8 +				Base Number		
	8 +				Base Number		
	8 +				Base Number		
	8 +				Base Number		
	8 Image: Second se				Base Number		
	8			Dec28/23	Base Number		
	8 Image: Second se			EZ/822290 (D)HOX bu) Jack Monte (D)HOX bu) J	Base Number		
	Viscosity @ 100° Viscosity @ 100° 18 17 Abnomal 12 11 14 Base			С2/82290 7.0 (ЛНОХ БШ) Jaguna 4.0- улити 9.2.0- 1.0- 1.0- 0.0			
	8			EZ/822290 (0,000 (0,000) (0,00	Base Number		
	Uiscosity @ 100°	C		0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0			
Laboratory	Viscosity @ 100° Viscosity @ 100° 16 10 15 14 12 11 12 12 11 12 12 11 12 12 11 12 12	C 501 Madi	son Ave., Ca	С/822-90 1.0- 1			A IDEALEAS
Sample No.	Viscosity @ 100° Viscosity @ 100° 16 10 10 10 10 10 10 10 10 10 10 10 10 10	C 501 Madia Recieved	son Ave., Ca d : 10 v	ту, NC 27513 Jan 2024			A IDEALEAS DRIENT ROA TAMPA F
Sample No. Lab Number	Viscosity @ 100° Viscosity @ 100° Viscosity @ 100° 10 10 10 10 10 10 10 10 10 10 10 10 10	C 501 Madi Recieved Diagnos	son Ave., Ca d : 10 v ed : 11 v	С/822-90 1.0- 1		5951 (	<b>A IDEALEAS</b> ORIENT ROA TAMPA, F
Sample No. Lab Number Unique Numbe Test Package	Viscosity @ 100° Viscosity @ 100° Viscosity @ 100° isonali	C 501 Madi Recieved Diagnos Diagnos	son Ave., Ca d : 10, ed : 11, tician : We	rry, NC 27513 Jan 2024 Jan 2024 s Davis		5951 ( L Cont	A IDEALEAS DRIENT ROA TAMPA, F IS 33610-956 act: Russ Coc
Sample No. Lab Number Unique Number Test Packages this sample report	Viscosity @ 100° Viscosity @ 100° Viscosity @ 100° isonali	C 501 Madia Recieved Diagnos Diagnos	son Ave., Ca d : 10, ed : 11, tician : We	7.0 (Hoy Bul) 2.0 (Hoy Bul) 2.0 1.0 0.0 0 0.0 0 0 0 0 0 0 0 0 0 0 0 0		5951 ( L Cont russcook@	A IDEALEAS



Contact/Location: Russ Cook - IDETAMFL