

# **OIL ANALYSIS REPORT**

# Sample Rating Trend

# **NORMAL**

# OUT STANDING (S/N 46325061)

**Port Main Engine** 

**VALVOLINE PREMIUM BLUE 2000 15W40** 

# DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

### Contamination

There is no indication of any contamination in the

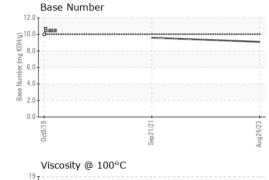
# **Fluid Condition**

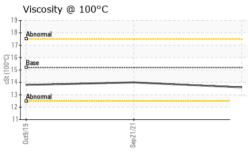
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Date	( GAL)						
Sample Date	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age         hrs         Client Info         630         550         474           Oil Age         hrs         Client Info         60         100         0           Oil Changed         Client Info         Not Changd         Not Changd         NA           Sample Status         VE         NoRMAL         NORMAL         NORMAL         NORMAL           CONTAMINATION         method         limit/bass         current         history1         history2           Fuel         WC Method         >4.0         <1.0	Sample Number		Client Info		WC0850538	WC0622725	WC04819552
Dil Age	Sample Date		Client Info		24 Aug 2023	21 Sep 2021	09 Oct 2019
Dil Changed   Client Info   Not Changd   NORMAL   NORMAL   NORMAL   NORMAL   NORMAL	Machine Age	hrs	Client Info		630	550	474
NORMAL   NORMAL   NORMAL   CONTAMINATION   method   minit/base   current   history1   history2	Oil Age	hrs	Client Info		60	100	0
CONTAMINATION   method   limit/base   current   history1   history2	Oil Changed		Client Info		Not Changd	Not Changd	N/A
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
WC Method   NEG NEG NEG NEG   NEG   WEAR METALS   method   limit/base   current   history1   history2   history2   necessaria   neces	CONTAMINATIO	N	method	limit/base	current	history1	history2
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >75         36         45         25           Chromium         ppm         ASTM D5185m         >8         <1	Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Chromium	Glycol		WC Method		NEG	NEG	NEG
Description	WEAR METALS		method	limit/base	current	history1	history2
Chromium	ron	ppm	ASTM D5185m	>75	36	45	25
Nickel	Chromium		ASTM D5185m	>8	<1	1	<1
Silver	Nickel					2	<1
Silver	Titanium		ASTM D5185m	>3	7	7	24
Aluminum	Silver		ASTM D5185m	>2	0	<1	0
December   December	Aluminum		ASTM D5185m	>15	4	7	2
Description	_ead		ASTM D5185m	>18	0	<1	0
Continuity	Copper		ASTM D5185m	>80	15	36	7
Antimony	• •				<1		0
Anadium         ppm         ASTM D5185m         0         <1         0           Cadmium         ppm         ASTM D5185m         0         <1         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         48         38         4           Barium         ppm         ASTM D5185m         0         0         0           Molybdenum         ppm         ASTM D5185m         49         56         46           Manganese         ppm         ASTM D5185m         716         706         893           Calcium         ppm         ASTM D5185m         1624         1517         1220           Phosphorus         ppm         ASTM D5185m         1095         1019         989           Zinc         ppm         ASTM D5185m         1335         1194         1142           Bulfur         ppm         ASTM D5185m         >20         8         7         5           CONTAMINANTS         method         limit/base         current         history1         history2           Solicon         ppm         ASTM D5185m         >20         8 </td <td>Antimony</td> <td></td> <td></td> <td></td> <th></th> <td></td> <td>1</td>	Antimony						1
Cadmium         ppm         ASTM D5185m         0         <1         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         48         38         4           Barium         ppm         ASTM D5185m         0         0         0           Molybdenum         ppm         ASTM D5185m         49         56         46           Manganese         ppm         ASTM D5185m         <1	•		ASTM D5185m		0	<1	0
ASTM D5185m   ASTM D5185m   ASTM D5185m   ASTM D5185m   Do	Cadmium		ASTM D5185m				0
Barium	ADDITIVES		method	limit/base	current	history1	history2
Description	Boron	ppm	ASTM D5185m		48	38	4
Molybdenum         ppm         ASTM D5185m         49         56         46           Manganese         ppm         ASTM D5185m         <1	Barium		ASTM D5185m		0	0	0
Manganese         ppm         ASTM D5185m         <1         <1         <1           Magnesium         ppm         ASTM D5185m         716         706         893           Calcium         ppm         ASTM D5185m         1624         1517         1220           Phosphorus         ppm         ASTM D5185m         1019         989           Zinc         ppm         ASTM D5185m         1335         1194         1142           Sulfur         ppm         ASTM D5185m         4074         2550         1906           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         8         7         5           Godium         ppm         ASTM D5185m         >75         4         4         5           Potassium         ppm         ASTM D5185m         >20         <1	Molvbdenum		ASTM D5185m		49	56	46
Magnesium         ppm         ASTM D5185m         716         706         893           Calcium         ppm         ASTM D5185m         1624         1517         1220           Phosphorus         ppm         ASTM D5185m         1095         1019         989           Zinc         ppm         ASTM D5185m         1335         1194         1142           Sulfur         ppm         ASTM D5185m         4074         2550         1906           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         8         7         5           Sodium         ppm         ASTM D5185m         >75         4         4         5           Potassium         ppm         ASTM D5185m         >20         <1	•		ASTM D5185m		<1	<1	<1
Calcium         ppm         ASTM D5185m         1624         1517         1220           Phosphorus         ppm         ASTM D5185m         1095         1019         989           Zinc         ppm         ASTM D5185m         1335         1194         1142           Sulfur         ppm         ASTM D5185m         4074         2550         1906           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         8         7         5           Sodium         ppm         ASTM D5185m         >75         4         4         5           Potassium         ppm         ASTM D5185m         >20         <1	•		ASTM D5185m			706	893
Phosphorus         ppm         ASTM D5185m         1095         1019         989           Zinc         ppm         ASTM D5185m         1335         1194         1142           Sulfur         ppm         ASTM D5185m         4074         2550         1906           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         8         7         5           Sodium         ppm         ASTM D5185m         >75         4         4         5           Potassium         ppm         ASTM D5185m         >20         <1	-		ASTM D5185m		1624	1517	1220
Table   Tabl	Phosphorus		ASTM D5185m		1095	1019	989
Sulfur         ppm         ASTM D5185m         4074         2550         1906           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         8         7         5           Sodium         ppm         ASTM D5185m         >75         4         4         5           Potassium         ppm         ASTM D5185m         >20         <1         <1         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         0.2         0.4         0.1           Nitration         Abs/cm         *ASTM D7624         >20         7.6         9.1         6.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.3         19.7         15.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.5         16.4         11.7			ASTM D5185m		1335	1194	1142
Soliticon         ppm         ASTM D5185m         >20         8         7         5           Sodium         ppm         ASTM D5185m         >75         4         4         5           Potassium         ppm         ASTM D5185m         >20         <1         <1         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         0.2         0.4         0.1           Nitration         Abs/cm         *ASTM D7624         >20         7.6         9.1         6.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.3         19.7         15.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.5         16.4         11.7	Sulfur		ASTM D5185m		4074	2550	1906
Sodium         ppm         ASTM D5185m         >75         4         4         5           Potassium         ppm         ASTM D5185m         >20         <1         <1         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         0.2         0.4         0.1           Nitration         Abs/cm         *ASTM D7624         >20         7.6         9.1         6.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.3         19.7         15.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.5         16.4         11.7	CONTAMINANTS	5	method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         <1         <1         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         0.2         0.4         0.1           Nitration         Abs/cm         *ASTM D7624         >20         7.6         9.1         6.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.3         19.7         15.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.5         16.4         11.7	Silicon	ppm	ASTM D5185m	>20	8	7	5
INFRA-RED	Sodium	ppm	ASTM D5185m	>75	4	4	5
Soot %         %         *ASTM D7844         0.2         0.4         0.1           Nitration         Abs/cm         *ASTM D7624         >20         7.6         9.1         6.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.3         19.7         15.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.5         16.4         11.7	Potassium	ppm	ASTM D5185m	>20	<1	<1	<1
Nitration         Abs/cm         *ASTM D7624         >20         7.6         9.1         6.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.3         19.7         15.3           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.5         16.4         11.7	INFRA-RED		method	limit/base	current	history1	history2
Nitration         Abs/cm         *ASTM D7624         >20         7.6         9.1         6.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.3         19.7         15.3           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.5         16.4         11.7	Soot %	%	*ASTM D7844		0.2	0.4	0.1
Sulfation         Abs/.1mm         *ASTM D7415         >30         18.3         19.7         15.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.5         16.4         11.7		Abs/cm	*ASTM D7624	>20			
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30			
	FLUID DEGRADA	ATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	15.5	16.4	11.7
	Base Number (BN)	mg KOH/g	ASTM D2896	10.0	9.1	9.6	



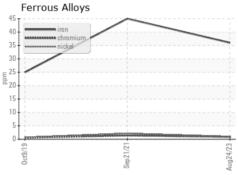
# **OIL ANALYSIS REPORT**

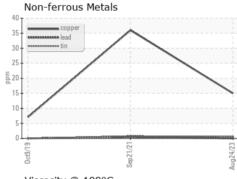


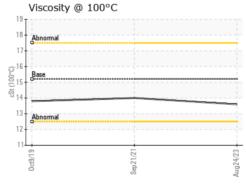


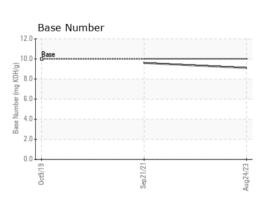
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
<b>Emulsified Water</b>	scalar	*Visual	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

FLUID PROPERTIES		method	iimit/base		nistory i	nistory2	
Visc @ 100°C	cSt	ASTM D445	15.2	13.6	14.0	13.8	













Laboratory Sample No. Lab Number Test Package : MAR 2

Unique Number : 10620466

: WC0850538 : 05935195

To discuss this sample report, contact Customer Service at 1-800-237-1369.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 25 Aug 2023 Diagnosed : 28 Aug 2023 Diagnostician : Don Baldridge

**JOSEPH DIDONATO** 1401 PARK LANE ROAD SWARTHMORE, PA US 19081

Contact: JOSEPH DIDONATO

jdidonato333@gmail.com T: (610)742-1336

\* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)