

## **OIL ANALYSIS REPORT**

### UTILITIES [500298242] CUMMINS RIVER HOUSE PUMP (S/N DIESEL-ENGINE-12) Component

Genset

#### Fluic VALVOLINE 15W40 (9 GAL)

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

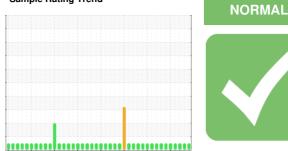
All component wear rates are normal.

#### Contamination

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.





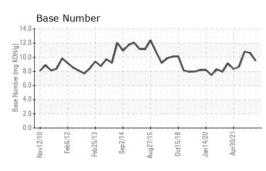
### **..........**

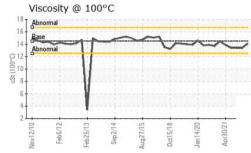
Sample Rating Trend

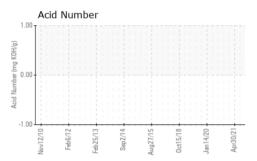
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m<>25         3         7         6           Chromium         ppm         ASTM D5185m         >5         0         <11         <1           Nickel         ppm         ASTM D5185m         >5         0         0         <1           Titanium         ppm         ASTM D5185m         >5         0         0         0           Silver         ppm         ASTM D5185m         >5         <1         0         0           Aluminum         ppm         ASTM D5185m         >10         1         1         5           Lead         ppm         ASTM D5185m         >10         0         <1         1           Copper         ppm         ASTM D5185m         >20         <1         19         1           Tin         ppm         ASTM D5185m         >5         0         0         <1           Vanadium         ppm         ASTM D5185m         >5         0         0         0           Cadmium         ppm         ASTM D5185m         <50         29         31	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Machine Age         hrs         Client Info         0         0         0           Oil Age         hrs         Client Info         N/A         N/A         N/A           Oil Changed         Client Info         N/A         N/A         N/A         N/A           Sample Status         Imit/base         current         history1         history2           Fuel         WC Method         >4.0         <1.0         <1.0           Glycol         WC Method         >4.0         <1.0         <1.0           MEAR METALS         method         imit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >25         3         7         6           Thanium         ppm         ASTM D5185m         >55         0         <1         <1           Nickel         ppm         ASTM D5185m         >5         0         0         0           Silver         ppm         ASTM D5185m         >5         0         <1         1         1           Cadmium         ppm         ASTM D5185m         >5         0         0         0         0           Cadmium         ppm         ASTM D5185m	Sample Number		Client Info		WC0810158	WC0780997	WC0742575
Oil Age         hrs         Client Info         N/A         N/A         N/A         N/A           Sample Status         Image         Client Info         N/A         NORMAL         NORMAL         NORMAL           CONTAMINATION         method         imit/base         current         historyl         historyl           Fuel         WC Method         >4.0         <1.0         <1.0         <1.0           Glycol         WC Method         >4.0         NEG         NEG         NEG           WEAR METALS         method         Imit/base         current         historyl         historyl           Iron         ppm         ASTM D5185m         >25         3         7         6           Chromium         ppm         ASTM D5185m         >5         0         0         <1           Transium         ppm         ASTM D5185m         >5         0         0         0           Silver         ppm         ASTM D5185m         >10         0         0         0         0           Copper         ppm         ASTM D5185m         >20         <1         19         1           Tin         ppm         ASTM D5185m         >20         <1	Sample Date		Client Info		29 Jun 2023	03 Mar 2023	15 Nov 2022
Oil Changed Sample Status         Client Info         N/A         N/A         N/A         N/A           Sample Status         Image Status         Image Status         NoRMAL         NORMAL         NORMAL         NORMAL         NORMAL           CONTAMINATION         method         imil/base         current         history1         history2           Fuel         WC Method         >4.0         <1.0         <1.0         <1.0           Glycol         WC Method         >4.0         <1.0         <1.0         <1.0           MCAR METALS         method         Imil/base         current         history1         history2           Iron         ppm         ASTM D5185m         >5         0         <1         <1           Nickel         ppm         ASTM D5185m         >5         0         0         <1           Auminum         ppm         ASTM D5185m         >5         0         0         <1           Auminum         ppm         ASTM D5185m         >20         <1         19         1           Transium         ppm         ASTM D5185m         >20         <1         0         0           Copper         ppm         ASTM D5185m         >20	Machine Age	hrs	Client Info		0	0	0
Sample Status         Imit base         NORMAL         NORMAL         NORMAL           CONTAMINATION         method         limit/base         current         history1         history2           Fuel         WC Method         >4.0         <1.0         <1.0         <1.0           Glycol         WC Method         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5165m         >25         3         7         6           Chromium         ppm         ASTM D5165m         >5         0         <1         1           Nickel         ppm         ASTM D5185m         >5         0         0         0           Sliver         ppm         ASTM D5185m         >10         1         1         5           Lead         ppm         ASTM D5185m         >10         0         <1         1           Tin         ppm         ASTM D5185m         >0         0         0         0           Copper         ppm         ASTM D5185m         50         29         31           Bariou         ppm         ASTM D5185m	Oil Age	hrs	Client Info		0	0	0
CONTAMINATION         method         imit/base         current         history1         history2           Fuel         WC Method         >4.0         <1.0         <1.0         <1.0           Glycol         WC Method         >4.0         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >5         0         <1         <1           Nickel         ppm         ASTM D5185m         >5         0         0         0           Silver         ppm         ASTM D5185m         >5         0         0         0           Silver         ppm         ASTM D5185m         >10         0         <1         <1           Copper         ppm         ASTM D5185m         >20         <1         19         1           Tin         ppm         ASTM D5185m         >0         0         0         0           Vanadium         ppm         ASTM D5185m         0         0         0         0           Boron         ppm         ASTM D5185m         50         29         31      Barium	Oil Changed		Client Info		N/A	N/A	N/A
Fuel         WC Method         >4.0         <1.0	Sample Status				NORMAL	NORMAL	NORMAL
Glycol         WC Method         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >5         0         <1         <1           Nickel         ppm         ASTM D5185m         >5         0         0         <1           Nickel         ppm         ASTM D5185m         >5         0         0         0           Silver         ppm         ASTM D5185m         >5         <1         0         0           Aluminum         ppm         ASTM D5185m         >10         1         1         5           Lead         ppm         ASTM D5185m         >10         0         <1         0           Vanadium         ppm         ASTM D5185m         >5         0         0         <1           Vanadium         ppm         ASTM D5185m         0         0         0         0           Cadmium         ppm         ASTM D5185m         50         29         31           Barium         ppm         ASTM D5185m         780         769         788           Calcium         ppmX	CONTAMINATION	١	method	limit/base	current	history1	history2
WEAR METALS         method         imit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >25         3         7         6           Chromium         ppm         ASTM D5185m         >5         0         <1         <1           Nickel         ppm         ASTM D5185m         >5         0         0         0           Silver         ppm         ASTM D5185m         >5         <1         0         0           Aluminum         ppm         ASTM D5185m         >10         1         1         5           Lead         ppm         ASTM D5185m         >10         0         <1         1           Copper         ppm         ASTM D5185m         >20         <1         19         1           Tin         ppm         ASTM D5185m         >20         <1         19         1           Tin         ppm         ASTM D5185m         >0         0         0         0           Cadadium         ppm         ASTM D5185m         50         29         31           Barium         ppm         ASTM D5185m         47         49         46           Ma	Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Iron         ppm         ASTM D5185m         >25         3         7         6           Chromium         ppm         ASTM D5185m         >5         0         <1         <1           Nickel         ppm         ASTM D5185m         >5         0         0         <1           Silver         ppm         ASTM D5185m         >5         <1         0         0           Aluminum         ppm         ASTM D5185m         >10         1         1         5           Lead         ppm         ASTM D5185m         >10         0         <1         1           Copper         ppm         ASTM D5185m         >20         <1         19         1           Tin         ppm         ASTM D5185m         >20         <1         19         1           Tin         ppm         ASTM D5185m         >0         0         0         0           Cadmium         ppm         ASTM D5185m         S0         29         31           Boron         ppm         ASTM D5185m         47         49         46           Magnesium         ppm         ASTM D5185m         780         789         788      Calcium         ppm	Glycol		WC Method		NEG	NEG	NEG
Chromium         ppm         ASTM D5185m         >5         0         <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel         ppm         ASTM D5185m         >5         0         0         <1           Titanium         ppm         ASTM D5185m         >5         <1	Iron	ppm	ASTM D5185m	>25	3	7	6
Titanium         ppm         ASTM D5185m $>5$ $<1$ $0$ $0$ Silver         ppm         ASTM D5185m         >5 $<1$ $0$ $0$ Aluminum         ppm         ASTM D5185m         >10 $1$ $1$ $5$ Lead         ppm         ASTM D5185m         >20 $<1$ $19$ $1$ Copper         ppm         ASTM D5185m         >20 $<1$ $19$ $1$ Tin         ppm         ASTM D5185m         >5 $0$ $0$ $<1$ Vanadium         ppm         ASTM D5185m $0$ $0$ $0$ $0$ Cadmium         ppm         ASTM D5185m $0$ $0$ $0$ $0$ Molybedenum         ppm         ASTM D5185m $<1$ $0$ $0$ Molybedenum         ppm         ASTM D5185m $<780$ $769$ $788$ Calcium         ppm         ASTM D5185m $736$ $766$ $718$ Sulfur         ppm         ASTM D5185m $20$ $11$	Chromium	ppm	ASTM D5185m	>5	0	<1	<1
Silver         ppm         ASTM D5185m         >5         <1         0         0           Aluminum         ppm         ASTM D5185m         >10         1         1         5           Lead         ppm         ASTM D5185m         >10         0         <1	Nickel	ppm	ASTM D5185m	>5	0	0	<1
Aluminum         ppm         ASTM D5185m         >10         1         1         5           Lead         ppm         ASTM D5185m         >10         0         <1	Titanium	ppm	ASTM D5185m		0	0	0
Lead         ppm         ASTM D5185m         >10         0         <1         <1           Copper         ppm         ASTM D5185m         >20         <1	Silver	ppm	ASTM D5185m	>5	<1	0	0
Copper         ppm         ASTM D5185m         >20         <1         19         1           Tin         ppm         ASTM D5185m         >5         0         0         <1	Aluminum	ppm	ASTM D5185m	>10	1	1	5
Tin         ppm         ASTM D5185m         >5         0         0         <1           Vanadium         ppm         ASTM D5185m         0         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         50         29         31           Barium         ppm         ASTM D5185m         50         29         31           Barium         ppm         ASTM D5185m         47         49         46           Magnese         ppm         ASTM D5185m         780         769         788           Calcium         ppm         ASTM D5185m         736         766         718           Zinc         ppm         ASTM D5185m         3013         2616         2477           Sulfur         ppm         ASTM D5185m         25         7         6         5           Sodium         ppm         ASTM D5185m         20         1         1         1           Silicon         ppm         ASTM D5185m	Lead	ppm	ASTM D5185m	>10	0	<1	<1
Vanadium         ppm         ASTM D5185m         0         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         50         29         31           Barium         ppm         ASTM D5185m         <1	Copper	ppm	ASTM D5185m	>20	<1	19	1
Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         50         29         31           Barium         ppm         ASTM D5185m         50         29         31           Barium         ppm         ASTM D5185m         50         29         31           Magnesium         ppm         ASTM D5185m         47         49         46           Magnesium         ppm         ASTM D5185m         47         49         46           Magnesium         ppm         ASTM D5185m         780         769         788           Calcium         ppm         ASTM D5185m         736         766         718           Zinc         ppm         ASTM D5185m         906         933         907           Sulfur         ppm         ASTM D5185m         >25         7         6         5           Sodium         ppm         ASTM D5185m         >25         7         6         5           Sodium         ppm         ASTM D5185m         >20         1         1	Tin	ppm	ASTM D5185m	>5	0	0	<1
ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185m502931BariumppmASTM D5185m<1	Vanadium	ppm	ASTM D5185m		0	0	0
Boron         ppm         ASTM D5185m         50         29         31           Barium         ppm         ASTM D5185m         <1         0         0           Molybdenum         ppm         ASTM D5185m         47         49         46           Manganese         ppm         ASTM D5185m         47         49         46           Magnesium         ppm         ASTM D5185m         47         1         41         49           Calcium         ppm         ASTM D5185m         780         769         788         780         718           Zinc         ppm         ASTM D5185m         736         766         718         2477           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         1         1         <1           INFRA-RED         method	Cadmium	ppm	ASTM D5185m		0	0	0
Barium         ppm         ASTM D5185m         <1							
Molybdenum         ppm         ASTM D5185m         47         49         46           Manganese         ppm         ASTM D5185m         <1         <1         <1           Magnesium         ppm         ASTM D5185m         780         769         788           Calcium         ppm         ASTM D5185m         780         769         788           Calcium         ppm         ASTM D5185m         780         766         718           Phosphorus         ppm         ASTM D5185m         736         766         718           Zinc         ppm         ASTM D5185m         906         933         907           Sulfur         ppm         ASTM D5185m         906         933         907           Sulfur         ppm         ASTM D5185m         3013         2616         2477           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         1         1         <1           Potassium         ppm         ASTM D7845         20         1         0.1         0.1           Nitration         Abs/cm         *ASTM D7624         2	ADDITIVES		method	limit/base	current	history1	history2
Manganese         ppm         ASTM D5185m         <1		ppm		limit/base			
Magnesium         ppm         ASTM D5185m         780         769         788           Calcium         ppm         ASTM D5185m         1189         1363         1257           Phosphorus         ppm         ASTM D5185m         736         766         718           Zinc         ppm         ASTM D5185m         906         933         907           Sulfur         ppm         ASTM D5185m         3013         2616         2477           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         7         6         5           Sodium         ppm         ASTM D5185m         >20         1         1         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844	Boron		ASTM D5185m	limit/base	50	29	31
Calcium         ppm         ASTM D5185m         1189         1363         1257           Phosphorus         ppm         ASTM D5185m         736         766         718           Zinc         ppm         ASTM D5185m         906         933         907           Sulfur         ppm         ASTM D5185m         906         933         907           Sulfur         ppm         ASTM D5185m         3013         2616         2477           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         7         6         5           Sodium         ppm         ASTM D5185m         >20         1         1         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         0.1         0.1         0.1         9.7           Sulfation         Abs/.tmm         *ASTM D7624         >20         6.4         9.1         9.7           Sulfation         Abs/.tmm         *ASTM D7415         >30         19.9         19.9         21.3	Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	50 <1	29 0	31 0
Phosphorus         ppm         ASTM D5185m         736         766         718           Zinc         ppm         ASTM D5185m         906         933         907           Sulfur         ppm         ASTM D5185m         3013         2616         2477           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         7         6         5           Sodium         ppm         ASTM D5185m         >25         7         6         5           Sodium         ppm         ASTM D5185m         >20         1         1         <1	Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	50 <1 47	29 0 49	31 0 46
Zinc         ppm         ASTM D5185m         906         933         907           Sulfur         ppm         ASTM D5185m         3013         2616         2477           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         7         6         5           Sodium         ppm         ASTM D5185m         >25         7         6         5           Sodium         ppm         ASTM D5185m         >20         1         1         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         0.1         0.1         0.1           Nitration         Abs/cm         *ASTM D7624         >20         6.4         9.1         9.7           Sulfation         Abs/.tim         *ASTM D7415         >30         19.9         19.9         21.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.tim         *ASTM D7414         >25         16.9         17.8	Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	50 <1 47 <1	29 0 49 <1	31 0 46 <1
Sulfur         ppm         ASTM D5185m         3013         2616         2477           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         7         6         5           Sodium         ppm         ASTM D5185m         >25         7         6         5           Sodium         ppm         ASTM D5185m         >20         1         1         <1	Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	50 <1 47 <1 780	29 0 49 <1 769	31 0 46 <1 788
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>25765SodiumppmASTM D5185m>20302PotassiumppmASTM D5185m>2011<1INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D78440.10.10.1NitrationAbs/cm*ASTM D7624>206.49.19.7SulfationAbs/.1mm*ASTM D7415>3019.919.921.3FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2516.917.819.2	Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	50 <1 47 <1 780 1189 736	29 0 49 <1 769 1363	31 0 46 <1 788 1257
Silicon         ppm         ASTM D5185m         >25         7         6         5           Sodium         ppm         ASTM D5185m         3         0         2           Potassium         ppm         ASTM D5185m         >20         1         1         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         0.1         0.1         0.1           Nitration         Abs/cm         *ASTM D7624         >20         6.4         9.1         9.7           Sulfation         Abs/.tmm         *ASTM D7415         >30         19.9         19.9         21.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.tmm         *ASTM D7414         >25         16.9         17.8         19.2	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	50 <1 47 <1 780 1189 736	29 0 49 <1 769 1363 766	31 0 46 <1 788 1257 718
Sodium         ppm         ASTM D5185m         3         0         2           Potassium         ppm         ASTM D5185m<>20         1         1         <1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         0.1         0.1         0.1         0.1           Nitration         Abs/cm         *ASTM D7624         >20         6.4         9.1         9.7           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.9         19.9         21.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.9         17.8         19.2	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	50 <1 47 <1 780 1189 736 906	29 0 49 <1 769 1363 766 933	31 0 46 <1 788 1257 718 907
Potassium         ppm         ASTM D5185m         >20         1         1         <1	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		50 <1 47 <1 780 1189 736 906 3013	29 0 49 <1 769 1363 766 933 2616	31 0 46 <1 788 1257 718 907 2477
INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         0.1         0.1         0.1           Nitration         Abs/cm         *ASTM D7624         >20         6.4         9.1         9.7           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.9         19.9         21.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.9         17.8         19.2	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	limit/base	50 <1 47 <1 780 1189 736 906 3013 current	29 0 49 <1 769 1363 766 933 2616 history1	31 0 46 <1 788 1257 718 907 2477 history2
Soot %         %         *ASTM D7844         0.1         0.1         0.1           Nitration         Abs/cm         *ASTM D7624         >20         6.4         9.1         9.7           Sulfation         Abs/.1mm         *ASTM D7615         >30         19.9         19.9         21.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.9         17.8         19.2	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 <b>method</b>	limit/base	50 <1 47 <1 780 1189 736 906 3013 current 7	29 0 49 <1 769 1363 766 933 2616 history1 6	31 0 46 <1 788 1257 718 907 2477 2477 history2 5
Nitration         Abs/cm         *ASTM D7624         >20         6.4         9.1         9.7           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.9         19.9         21.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.9         17.8         19.2	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	limit/base	50 <1 47 <1 780 1189 736 906 3013 <u>current</u> 7 3	29 0 49 <1 769 1363 766 933 2616 history1 6 0	31 0 46 <1 788 1257 718 907 2477 2477 history2 5 2
Sulfation         Abs/.1mm         *ASTM D7415         >30         19.9         19.9         21.3           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         16.9         17.8         19.2	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20	50 <1 47 <1 780 1189 736 906 3013 <i>current</i> 7 3 1	29 0 49 <1 769 1363 766 933 2616 history1 6 0 1	31 0 46 <1 788 1257 718 907 2477 history2 5 2 2 <1
FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     16.9     17.8     19.2	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20	50 <1 47 <1 780 1189 736 906 3013 <b>current</b> 7 3 1 1	29 0 49 <1 769 1363 766 933 2616 history1 6 0 1 1 history1	31 0 46 <1 788 1257 718 907 2477 <b>history2</b> 5 2 2 <1 <b>history2</b>
Oxidation Abs/.1mm *ASTM D7414 >25 16.9 17.8 19.2	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base	50 <1 47 <1 780 1189 736 906 3013 <b>current</b> 7 3 1 1 <b>current</b> 0.1	29 0 49 <1 769 1363 766 933 2616 history1 6 0 1 1 history1 0.1	31 0 46 <1 788 1257 718 907 2477 <b>history2</b> 5 2 2 <1 <b>history2</b> 0.1
	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	limit/base >25 >20 limit/base	50 <1 47 <1 780 1189 736 906 3013 <i>current</i> 7 3 1 <i>current</i> 0.1 6.4	29 0 49 <1 769 1363 766 933 2616 history1 6 0 1 history1 0.1 9.1	31 0 46 <1 788 1257 718 907 2477 history2 5 2 2 4 7 history2 0.1 9.7
Base Number (BN) mg KOH/g ASTM D2896 9.5 10.58 10.79	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	limit/base >25 >20 limit/base >20 >20	50 <1 47 <1 780 1189 736 906 3013 <b>current</b> 7 3 1 <b>current</b> 0.1 6.4 19.9	29 0 49 <1 769 1363 766 933 2616 history1 6 0 1 history1 0.1 9.1 19.9	31 0 46 <1 788 1257 718 907 2477 <b>history2</b> 5 2 4 7 <b>history2</b> 0.1 9.7 21.3
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624	limit/base >25 >20 limit/base >20 >30 limit/base	50 <1 47 <1 780 1189 736 906 3013 <i>current</i> 7 3 1 <i>current</i> 0.1 6.4 19.9	29 0 49 <1 769 1363 766 933 2616 history1 6 0 1 history1 0.1 9.1 19.9 history1	31 0 46 <1 788 1257 718 907 2477 history2 5 2 477 history2 0.1 9.7 21.3 history2



# **OIL ANALYSIS REPORT**

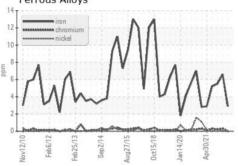




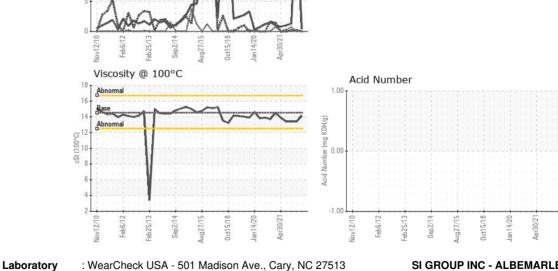


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.5	14.1	13.4	13.4
GRAPHS						

Ferrous Alloys







: 21 Jul 2023

: 27 Jul 2023

Diagnostician : Doug Bogart



SI GROUP INC - ALBEMARLE 725 CANNON BRIDGE RD ORANGEBURG, SC US 29115 Contact: ERIC PROVEAUX eric.proveaux@contractors.siigroup.com T: (803)539-5228 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F: (803)539-5426

Certificate L2367

Sample No.

Lab Number

Unique Number

Test Package : IND 2

: WC0810158

: 05904987

: 10566343

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

\* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Received

Diagnosed

Submitted By: KIRK WILLIAMS

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