

# **OIL ANALYSIS REPORT**

### Sample Rating Trend





#### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

#### Contamination

The water content is negligible. There is no indication of any contamination in the oil.

## Fluid Condition

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

Sample Number    Client Info    RP0032079    RP003334       Sample Date    Client Info    31 Jul 2023    21 Apr 2023       Machine Age    hrs    Client Info    0    0       Oil Age    hrs    Client Info    0    0       Oil Age    hrs    Client Info    N/A    N/A       Sample Status    Imit Method    Imit/base    current    history1    history1      VEAR METALS    method    Imit/base    current    history1    history1      Chromium    ppm    ASTM 05185n    >5    0    0       Nickel    ppm    ASTM 05185n    >3    -1    0       Aluminum    ppm    ASTM 05185n    >3    0    0       Adadium    ppm    ASTM 05185n    >2    1    -1       Cadmium    ppm    ASTM 05185n    >0    0       Cadmium    pm				Apr2023	Jul2023		
Sample Date    Client Info    S1 Jul 2023    21 Apr 2023       Machine Age    hrs    Client Info    0    0       Oil Age    hrs    Client Info    0    0       Sample Status    Client Info    N/A    N/A       WEAR METALS    method    imil/base    current    history1    history1      Iron    ppm    ASTM D518m    >50    0    0       Nickel    ppm    ASTM D518m    >5    0    0       Nickel    ppm    ASTM D518m    >3    0    0       Auminum    ppm    ASTM D518m    >3    0    0       Lead    ppm    ASTM D518m    >7    <-1    <-1       Capper    ppm    ASTM D518m    9    4    4       Capper    ppm    ASTM D518m    0    0        Cadmium    ppm	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Machine Age    hrs    Client Info    0    0       Oil Age    irrs    Client Info    0    0       Sample Status    I    Immubbas    current    history1       WEAR METALS    method    immubbas    current    history1       WEAR METALS    method    immubbas    current    history1       Tron    ppm    ASTM D5185m    >50    0    0       Nickel    ppm    ASTM D5185m    >55    0    0       Silver    ppm    ASTM D5185m    >3    -1    0       Copper    ppm    ASTM D5185m    >12    -1    0       Vanadium    ppm    ASTM D5185m    >12    -1    0       Cadmium    ppm    ASTM D5185m    >20    0       ASTM D5185m    >12    -1    -1       Cadmium    ppm	Sample Number		Client Info		RP0032079	RP0033384	
Oil Age    hrs    Client Info    0	Sample Date		Client Info		31 Jul 2023	21 Apr 2023	
Oil Changed    Client Info    N/A    N/A       Sample Status    method    imit/base    current.    Nistory1    Nistory1      WEAR METALS    method    imit/base    current.    history1    history1      Iron    ppm    ASTM D5185m    >5    0    0       Nickel    ppm    ASTM D5185m    >3    <1	Machine Age	hrs	Client Info		0	0	
Sample Status    method    Imit/base    current    history1    history1      Iron    ppm    ASTM D5185m    >90    9    9       Chromium    ppm    ASTM D5185m    >5    0    0       Nickel    ppm    ASTM D5185m    >3    <1	Oil Age	hrs	Client Info		0	0	
WEAR METALS    method    limit/base    current    history1    history1      Iron    ppm    ASTM 05185m    >90    9	Oil Changed		Client Info		N/A	N/A	
Iron    ppm    ASTM D5185m    >90    9    9       Nickel    ppm    ASTM D5185m    >5    0    0       Nickel    ppm    ASTM D5185m    >5    0    0       Silver    ppm    ASTM D5185m    >3    <1	Sample Status				NORMAL	NORMAL	
Dromium    ppm    ASTM D5185m    >5    0    0	WEAR METALS		method	limit/base	current	history1	history2
Dromium    ppm    ASTM D5185m    >5    0    0	Iron	maa	ASTM D5185m	>90	9	9	
Nickel    ppm    ASTM D5185n    >5    0    0       Titanium    ppm    ASTM D5185n    >3    0    0       Silver    ppm    ASTM D5185n    >7    <1	Chromium			>5	-	0	
Titanium    ppm    ASTM D5185m    >3    <1    0       Silver    ppm    ASTM D5185m    >3    0    0       Aluminum    ppm    ASTM D5185m    >7    <1					-		
Silver    ppm    ASTM D5185m    >3    0    0       Aluminum    ppm    ASTM D5185m    >7    <1							
Auminum    ppm    ASTM D5185m    >7    <1    <1       Lead    ppm    ASTM D5185m    >12    <1							
Lead    ppm    ASTM D5185m    >12    <1    0       Copper    ppm    ASTM D5185m    >30    6    5       Vanadium    ppm    ASTM D5185m    >9    4    4       Cadmium    ppm    ASTM D5185m    >9    4    4       ADDITIVES    method    limit/base    current    history1    history1      Boron    ppm    ASTM D5185m    0    0       Maganese    ppm    ASTM D5185m    0    0       Magnesium    ppm    ASTM D5185m    0    0       Phosphorus    ppm    ASTM D5185m    50    56       ContAMINANTS    method    limit/base    current    history1    history1      Solicon    ppm    ASTM D5185m    >20    2    0       Solicon    ppm    ASTM D5185m    >20    2    0       So	Aluminum			>7	-	<1	
Copper    ppm    ASTM D5185m    >30    6    5       Tin    ppm    ASTM D5185m    >9    4    4       Vanadium    ppm    ASTM D5185m    0    0       Cadmium    ppm    ASTM D5185m    0    0       ADDITIVES    method    limit/base    current    history1    history1      Boron    ppm    ASTM D5185m    0    0       Magnesium    ppm    ASTM D5185m    0    0       Magnese    ppm    ASTM D5185m    50    56       Calcium    ppm    ASTM D5185m    10    -1       Calcium    ppm    ASTM D5185m    10        Solicon    ppm    ASTM D5185m    >60    <1	Lead			>12	<1		
Tin    ppm    ASTM D5185m    >9    4    4							
Vanadium    ppm    ASTM D5188m    <1    <1       Cadmium    ppm    ASTM D5188m    0    0       ADDITIVES    method    limit/base    current    history1    history1      Boron    ppm    ASTM D5188m    0    0       Barium    ppm    ASTM D5188m    0    0       Maganese    ppm    ASTM D5188m    0    0       Magnesium    ppm    ASTM D5188m    50    56       Calcium    ppm    ASTM D5188m    0    0       Zinc    ppm    ASTM D5188m    0    0       Solicon    ppm    ASTM D5188m    2    0       Solicon    ppm    ASTM D5188m    22    0       Solicon    ppm    ASTM D5188m    22    0       Solicon    ppm    ASTM D5188m    22    0       Solium<	••				-		
CadmiumppmASTM D5185m00ADDITIVESmethodlimit/basecurrenthistory1history1BoronppmASTM D5185m00BariumppmASTM D5185m00ManganeseppmASTM D5185m00MagnesiumppmASTM D5185m5056CalciumppmASTM D5185m00PhosphorusppmASTM D5185m00ZincppmASTM D5185m00CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m20SodiumppmASTM D5185m220SodiumppmASTM D5185m220PotassiumppmASTM D5185m220SodiumppmASTM D5185m220PotassiumppmASTM D5041190.8150.0FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2White Metalscalar*VisualNONENONENONEYISUALmethodlimit/basecurrenthistory1history2White Metalscalar*VisualNONENONEYellow Metalscalar*VisualNONENONESilt<	Vanadium				<1	<1	
Baron    ppm    ASTM D5185m    0    0	Cadmium				0	0	
Barium    ppm    ASTM D5185m    0    0       Manganese    ppm    ASTM D5185m    0    0       Magnesium    ppm    ASTM D5185m    50    56       Calcium    ppm    ASTM D5185m    50    56       Calcium    ppm    ASTM D5185m    0    0       Phosphorus    ppm    ASTM D5185m    0    0    0       Zinc    ppm    ASTM D5185m    0    0    0	ADDITIVES		method	limit/base	current	history1	history2
Barium    ppm    ASTM D5185m    0    0       Molybdenum    ppm    ASTM D5185m    0    0       Manganese    ppm    ASTM D5185m    50    56       Magnesium    ppm    ASTM D5185m    50    56       Calcium    ppm    ASTM D5185m    0    0       Calcium    ppm    ASTM D5185m    0    0       Zinc    ppm    ASTM D5185m    0    0	Boron	ppm	ASTM D5185m		0	0	
Molybdenum    ppm    ASTM D5185m    0    0       Manganese    ppm    ASTM D5185m    50    56       Magnesium    ppm    ASTM D5185m    50    56       Calcium    ppm    ASTM D5185m    0    0       Calcium    ppm    ASTM D5185m    10    -1       Zinc    ppm    ASTM D5185m    0    0    0       Zinc    ppm    ASTM D5185m    60    <1	Barium		ASTM D5185m			0	
ManganeseppmASTM D5185m<1<1<1MagnesiumppmASTM D5185m50560CalciumppmASTM D5185m000PhosphorusppmASTM D5185m10<1	Molybdenum		ASTM D5185m		0	0	
MagnesiumppmASTM D5185m5056CalciumppmASTM D5185m00PhosphorusppmASTM D5185m10<1	,		ASTM D5185m		<1	<1	
CalciumppmASTM D5185m00PhosphorusppmASTM D5185m10<1	0		ASTM D5185m		50	56	
ZincppmASTM D5185m00CONTAMINANTSmethodlimit/basecurrenthistory1history1SiliconppmASTM D5185m>60<1	Calcium		ASTM D5185m		0	0	
ZincppmASTM D5185m00CONTAMINANTSmethodlimit/basecurrenthistory1history1SiliconppmASTM D5185m>60<1	Phosphorus	ppm	ASTM D5185m		10	<1	
SiliconppmASTM D5185m>60<10SodiumppmASTM D5185m20PotassiumppmASTM D5185m>2020Water%ASTM D63040.0190.015ppm WaterppmASTM D6304>.1190.8150.0FLUID DEGRADATIONmethodlimit/basecurrenthistory1history1Acid Number (AN)mg KOHgASTM D80450.370.37VISUALmethodlimit/basecurrenthistory1history1White Metalscalar*VisualNONENONENONEYellow Metalscalar*VisualNONENONENONESiltscalar*VisualNONENONENONEDebrisscalar*VisualNONENONENONESand/Dirtscalar*VisualNORMLNORMLNORMLAppearancescalar*VisualNORMLNORMLNORMLCodorscalar*VisualNORMLNORMLNORMLMapearancescalar*VisualNORMLNORMLNORMLCodorscalar*VisualNORMLNORMLNORMLCodorscalar*VisualNORMLNORMLNORMLCodorscalar*VisualNORMLNORMLNORML <td>Zinc</td> <td>ppm</td> <td>ASTM D5185m</td> <td></td> <th>0</th> <td>0</td> <td></td>	Zinc	ppm	ASTM D5185m		0	0	
SodiumppmASTM D5185m20PotassiumppmASTM D5185m>2020Water%ASTM D63040.0190.015Water%ASTM D6304>.1190.8150.0ppm WaterppmASTM D6304>.1190.8150.0FLUID DEGRADATIONmethodlimit/basecurrenthistory1historyAcid Number (AN)mg KOH/gASTM D80450.370.37VISUALmethodlimit/basecurrenthistory1historyWhite Metalscalar*VisualNONENONENONEYellow Metalscalar*VisualNONENONENONESiltscalar*VisualNONENONENONEDebrisscalar*VisualNONENONENONESand/Dirtscalar*VisualNORMLNORMLNORMLAppearancescalar*VisualNORMLNORMLNORMLCodorscalar*VisualNORMLNORMLNORMLEmulsified Waterscalar*VisualNORMLNEG	CONTAMINANTS		method	limit/base	current	history1	history2
PotassiumppmASTM D5185m>2020Water%ASTM D63040.0190.015ppmWaterppmASTM D6304>.1190.8150.0FLUID DEGRADATIONmethodlimit/basecurrenthistory1history1Acid Number (AN)mg KOHgASTM D80450.370.37VISUALmethodlimit/basecurrenthistory1history1White Metalscalar*VisualNONENONENONEYellow Metalscalar*VisualNONENONENONEPrecipitatescalar*VisualNONENONENONESiltscalar*VisualNONENONENONEDebrisscalar*VisualNONENONENONEAppearancescalar*VisualNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLEmulsified Waterscalar*VisualNORMLNEGNEG	Silicon	ppm	ASTM D5185m	>60	<1	0	
Water%ASTM D63040.0190.015ppm WaterppmASTM D6304>.1190.8150.0FLUID DEGRADATIONmethodlimit/basecurrenthistory1history1Acid Number (AN)mg KOH/gASTM D80450.370.37VISUALmethodlimit/basecurrenthistory1history1White Metalscalar*VisualNONENONENONEYellow Metalscalar*VisualNONENONENONEPrecipitatescalar*VisualNONENONENONESiltscalar*VisualNONENONENONEDebrisscalar*VisualNONENONENONESand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLEmulsified Waterscalar*VisualNORMLNEG	Sodium	ppm	ASTM D5185m		2	0	
oppm WaterppmASTM D6304>.1190.8150.0FLUID DEGRADATIONmethodlimit/basecurrenthistory1history1Acid Number (AN)mg KOH/gASTM D80450.370.37VISUALmethodlimit/basecurrenthistory1history1White Metalscalar*VisualNONENONENONEYellow Metalscalar*VisualNONENONENONEPrecipitatescalar*VisualNONENONENONESiltscalar*VisualNONENONENONEDebrisscalar*VisualNONENONENONESand/Dirtscalar*VisualNORMLNORMLNORMLAppearancescalar*VisualNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLEmulsified Waterscalar*VisualNORMLNEG	Potassium	ppm	ASTM D5185m	>20	2	0	
FLUID DEGRADATIONmethodlimit/basecurrenthistory1history1Acid Number (AN)mg KOH/gASTM D80450.370.37VISUALmethodlimit/basecurrenthistory1history1White Metalscalar*VisualNONENONENONEYellow Metalscalar*VisualNONENONENONEPrecipitatescalar*VisualNONENONENONESiltscalar*VisualNONENONENONEDebrisscalar*VisualNONENONENONESand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLEmulsified Waterscalar*VisualNORMLNEG	Water	%	ASTM D6304		0.019	0.015	
Acid Number (AN)mg KOH/gASTM D80450.370.37VISUALmethodlimit/basecurrenthistory1history1White Metalscalar*VisualNONENONENONEYellow Metalscalar*VisualNONENONENONEPrecipitatescalar*VisualNONENONENONESiltscalar*VisualNONENONENONEDebrisscalar*VisualNONENONENONESand/Dirtscalar*VisualNONENONENONEAppearancescalar*VisualNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLEmulsified Waterscalar*VisualNORMLNEG	ppm Water	ppm	ASTM D6304	>.1	190.8	150.0	
VISUALmethodlimit/basecurrenthistory1historyWhite Metalscalar*VisualNONENONENONEYellow Metalscalar*VisualNONENONENONEPrecipitatescalar*VisualNONENONENONESiltscalar*VisualNONENONENONEDebrisscalar*VisualNONENONENONESand/Dirtscalar*VisualNONENONENONEAppearancescalar*VisualNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLEmulsified Waterscalar*VisualNORMLNEG	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
White Metal  scalar  *Visual  NONE  NONE  NONE     Yellow Metal  scalar  *Visual  NONE  NONE  NONE     Precipitate  scalar  *Visual  NONE  NONE  NONE     Silt  scalar  *Visual  NONE  NONE  NONE     Debris  scalar  *Visual  NONE  NONE  NONE     Sand/Dirt  scalar  *Visual  NONE  NONE  NONE     Appearance  scalar  *Visual  NORML  NORML  NORML     Odor  scalar  *Visual  NORML  NORML  NORML     Emulsified Water  scalar  *Visual  NORML  NEG	Acid Number (AN)	mg KOH/g	ASTM D8045		0.37	0.37	
Yellow Metalscalar*VisualNONENONENONENONEPrecipitatescalar*VisualNONENONENONENONESiltscalar*VisualNONENONENONENONEDebrisscalar*VisualNONENONENONESand/Dirtscalar*VisualNONENONENONEAppearancescalar*VisualNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLEmulsified Waterscalar*VisualNEGNEG	VISUAL		method	limit/base	current	history1	history2
Precipitatescalar*VisualNONENONENONENONESiltscalar*VisualNONENONENONEDebrisscalar*VisualNONENONENONESand/Dirtscalar*VisualNONENONENONEAppearancescalar*VisualNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLEmulsified Waterscalar*VisualNORMLNEGNEG	White Metal	scalar	*Visual	NONE	NONE	NONE	
Siltscalar*VisualNONENONENONEDebrisscalar*VisualNONENONENONESand/Dirtscalar*VisualNONENONENONEAppearancescalar*VisualNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLEmulsified Waterscalar*VisualNORMLNEG		scalar	*Visual	NONE	NONE	NONE	
Debrisscalar*VisualNONENONENONESand/Dirtscalar*VisualNONENONENONEAppearancescalar*VisualNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLEmulsified Waterscalar*VisualVisualNEGNEG		scalar	*Visual	NONE		NONE	
Sand/Dirtscalar*VisualNONENONENONEAppearancescalar*VisualNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLEmulsified Waterscalar*VisualNEGNEG	Silt	scalar	*Visual				
Appearancescalar*VisualNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLEmulsified Waterscalar*VisualNEGNEG	Debris	scalar	*Visual	NONE	NONE	NONE	
Odor    scalar    *Visual    NORML    NORML    NORML       Emulsified Water    scalar    *Visual    NEG    NEG	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
Emulsified Water scalar *Visual NEG NEG	Appearance	scalar	*Visual	NORML	NORML	NORML	
	Odor	scalar	*Visual	NORML	NORML	NORML	
Free Water scalar *Visual NEG on: Ster @ce Manager.~ ENER	Emulsified Water	scalar	*Visual		NEG		
	Free Water	scalar	*Visual		NEG	on: Ster Oce Man	agerENEKAF



# **OIL ANALYSIS REPORT**



Contact/Location: Service Manager - ENEKAR