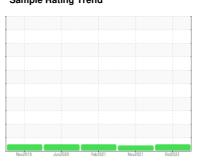


OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



VACPUMP-045 - EAST

Component

Pump Fluid

SHELL MORLINA S4 B 320 (--- GAL)

DIAGNOSIS

Recommendation

The oil change at the time of sampling has been noted. 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 AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

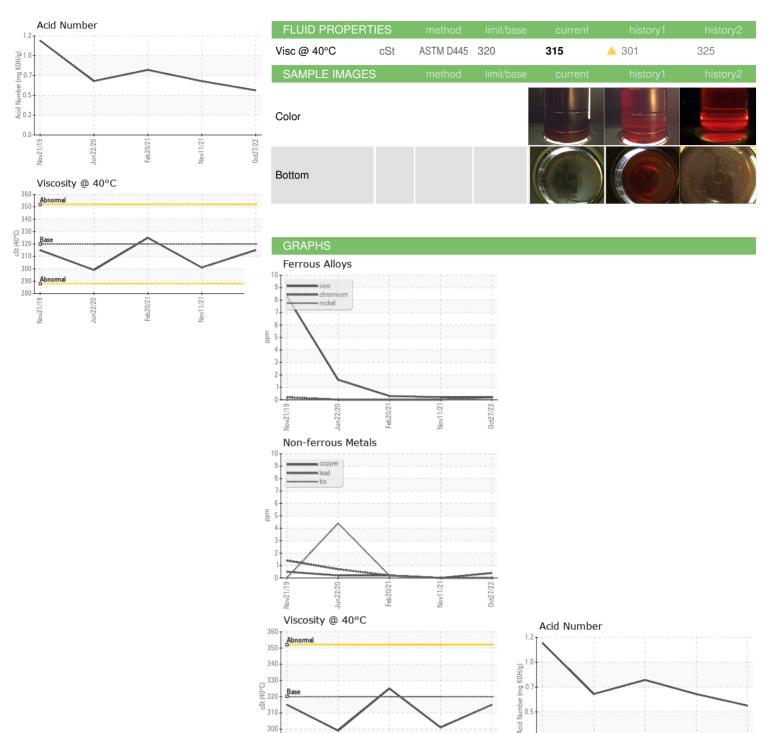
| Client Info WC0743378 WC0608965 WC0533788 Sample Date Client Info 27 Oct 2022 11 Nov 2021 20 Feb 2021 Machine Age hrs Client Info 17550 13247 9119 | | | Nov2019 | Jun2020 | Feb2021 Nov2021 | Oct2022 | |
|--|------------------|----------|-------------|--------------|-----------------|-------------|-------------|
| Client Info | SAMPLE INFORM | MATION | method | limit/base | current | history1 | history2 |
| Machine Age | Sample Number | | Client Info | | WC0743378 | WC0608965 | WC0533786 |
| Dil Age | Sample Date | | Client Info | | 27 Oct 2022 | 11 Nov 2021 | 20 Feb 2021 |
| Changed Changed Changed Changed NORMAL ATTENTION NORMAL | Machine Age | hrs | Client Info | | 17550 | 13247 | 9119 |
| NORMAL ATTENTION NORMAL | Oil Age | hrs | Client Info | | 2238 | 2063 | 2134 |
| WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >90 <1 | Oil Changed | | Client Info | | Changed | Changed | Changed |
| Chromium | Sample Status | | | | NORMAL | ATTENTION | NORMAL |
| Chromium ppm ASTM D5185m >5 <1 | WEAR METALS | | method | limit/base | current | history1 | history2 |
| Nickel | Iron | ppm | ASTM D5185m | >90 | <1 | <1 | <1 |
| Silver | Chromium | ppm | ASTM D5185m | >5 | <1 | 0 | 0 |
| Silver | Nickel | ppm | ASTM D5185m | >5 | 0 | 0 | 0 |
| Action A | Titanium | ppm | ASTM D5185m | >3 | <1 | 0 | 0 |
| Lead | Silver | ppm | ASTM D5185m | >3 | <1 | 0 | 2 |
| Copper | Aluminum | ppm | ASTM D5185m | >7 | 0 | 0 | 0 |
| Copper | Lead | ppm | ASTM D5185m | >12 | 0 | 0 | <1 |
| Antimony | | | | >30 | | 0 | <1 |
| Antimony | Tin | | ASTM D5185m | >9 | 0 | | |
| Vanadium ppm ASTM D5185m 1 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 2 <1 0 0 Barium ppm ASTM D5185m 0 0 <1 0 0 Molybdenum ppm ASTM D5185m 2 0 0 0 Manganese ppm ASTM D5185m 2 0 0 0 Manganesium ppm ASTM D5185m 0 0 0 0 Calcicium ppm ASTM D5185m 265 237 282 22 Zinc ppm ASTM D5185m 265 237 282 22 Zinc ppm ASTM D5185m 543 461 614 CONTAMINANTS method limit/base current history1 history2< | Antimony | | ASTM D5185m | | | 0 | 0 |
| ADDITIVES | • | | | | 1 | | |
| ADDITIVES | | | | | | | |
| Boron ppm ASTM D5185m 0 2 <1 | | Plesso | | limit/hase | | | |
| Description | | | | IIIIIII Dase | | | • |
| Molybdenum ppm ASTM D5185m <1 0 0 Manganese ppm ASTM D5185m 2 0 0 Magnesium ppm ASTM D5185m 0 0 0 Calcium ppm ASTM D5185m 0 0 0 Phosphorus ppm ASTM D5185m 265 237 282 Zinc ppm ASTM D5185m 0 0 0 Sulfur ppm ASTM D5185m 543 461 614 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >60 <1 0 <1 Sodium ppm ASTM D5185m 20 <1 0 <1 Sodium ppm ASTM D5185m 20 <1 0 <1 FLUID DEGRADATION method limit/base current history1 history2 Acid Number (AN) mg K0H/g ASTM D80 | | | | | | | |
| Manganese ppm ASTM D5185m 2 0 0 Magnesium ppm ASTM D5185m 0 0 <1 | | | | | | | |
| Magnesium ppm ASTM D5185m 0 0 <1 Calcium ppm ASTM D5185m 0 0 0 Phosphorus ppm ASTM D5185m 265 237 282 Zinc ppm ASTM D5185m 0 0 0 Sulfur ppm ASTM D5185m 543 461 614 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >60 <1 | | | | | | | |
| Calcium ppm ASTM D5185m 0 0 0 Phosphorus ppm ASTM D5185m 265 237 282 Zinc ppm ASTM D5185m 0 0 0 Sulfur ppm ASTM D5185m 543 461 614 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >60 <1 | | | | | | | - |
| Phosphorus ppm ASTM D5185m 265 237 282 Zinc ppm ASTM D5185m 0 0 0 Sulfur ppm ASTM D5185m 543 461 614 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >60 <1 0 <1 Sodium ppm ASTM D5185m >20 <1 0 0 Potassium ppm ASTM D5185m >20 <1 0 0 FLUID DEGRADATION method limit/base current history1 history2 Acid Number (AN) mg KOH/g ASTM D8045 0.54 0.651 0.788 VISUAL method limit/base current history1 history2 White Metal scalar *Visual NONE NONE NONE Yellow Metal scalar *Visual NONE NONE NONE NONE | | | | | | | |
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| Sulfur ppm ASTM D5185m 543 461 614 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >60 <1 0 <1 Sodium ppm ASTM D5185m >60 <1 0 0 Potassium ppm ASTM D5185m >20 <1 0 0 FLUID DEGRADATION method limit/base current history1 history2 Acid Number (AN) mg KOH/g ASTM D8045 0.54 0.651 0.788 VISUAL method limit/base current history1 history2 White Metal scalar *Visual NONE NONE NONE NONE NONE Yellow Metal scalar *Visual NONE NONE NONE NONE NONE Precipitate scalar *Visual NONE NONE NONE NONE NONE Silt scalar *Visual NONE NONE NONE NONE NONE Debris scalar *Visual NONE NONE NONE NONE NONE Sand/Dirt scalar *Visual NONE NONE NONE NONE Appearance scalar *Visual NONE NONE NONE NONE Appearance scalar *Visual NONE NONE NONE NONE Appearance scalar *Visual NONE NONE NONE NONE NONE Appearance scalar *Visual NONE NONE NONE NONE NONE Appearance scalar *Visual NORML NORML NORML NORML NORML NORML NORML NORML NORML NORML NORML | | | | | | | |
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| Solition | | | | | | | |
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| Potassium ppm ASTM D5185m >20 <1 0 0 FLUID DEGRADATION method limit/base current history1 history2 Acid Number (AN) mg KOH/g ASTM D8045 0.54 0.651 0.788 VISUAL method limit/base current history1 history2 White Metal scalar *Visual NONE NONE NONE NONE NONE NONE Precipitate scalar *Visual NONE NONE NONE NONE NONE NONE NONE Silt scalar *Visual NONE NONE NONE NONE NONE NONE Silt scalar *Visual NONE NONE NONE NONE NONE NONE NONE NON | | | | >60 | | | |
| FLUID DEGRADATION method limit/base current history1 history2 Acid Number (AN) mg KOH/g ASTM D8045 0.54 0.651 0.788 VISUAL method limit/base current history1 history2 White Metal scalar *Visual NONE NONE NONE NONE NONE Yellow Metal scalar *Visual NONE NONE NONE NONE NONE Precipitate scalar *Visual NONE NONE NONE NONE NONE Silt scalar *Visual NONE NONE NONE NONE NONE Debris scalar *Visual NONE VLITE NONE NONE Sand/Dirt scalar *Visual NONE NONE NONE NONE Appearance scalar *Visual NORML NORML NORML NORML Dodor scalar *Visual NORML NORML NORML NORML NORML NORML | | | | | _ | | |
| Acid Number (AN) mg KOH/g ASTM D8045 0.54 0.651 0.788 VISUAL method limit/base current history1 history2 White Metal scalar *Visual NONE NONE NONE NONE NONE Yellow Metal scalar *Visual NONE NONE NONE NONE NONE Precipitate scalar *Visual NONE NONE NONE NONE NONE Silt scalar *Visual NONE NONE NONE NONE NONE Debris scalar *Visual NONE VLITE NONE NONE Sand/Dirt scalar *Visual NONE NONE NONE NONE Appearance scalar *Visual NORML NORML NORML NORML Odor scalar *Visual NORML NORML NORML NORML | | | | | | | |
| VISUAL method limit/base current history1 history2 White Metal scalar *Visual NONE NONE NONE NONE NONE Yellow Metal scalar *Visual NONE NONE NONE NONE Precipitate scalar *Visual NONE NONE NONE NONE NONE Silt scalar *Visual NONE NONE NONE NONE NONE Debris scalar *Visual NONE VLITE NONE NONE Sand/Dirt scalar *Visual NONE NONE NONE NONE Appearance scalar *Visual NORML NORML NORML NORML Odor scalar *Visual NORML NORML NORML NORML | | | | limit/base | | | |
| 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 NONE Debris scalar *Visual NONE VLITE NONE NONE Sand/Dirt scalar *Visual NONE NONE NONE NONE Appearance scalar *Visual NORML NORML NORML NORML Odor scalar *Visual NORML NORML NORML NORML | , , | mg KOH/g | ASTM D8045 | | 0.54 | 0.651 | 0.788 |
| Yellow Metalscalar*VisualNONENONENONENONEPrecipitatescalar*VisualNONENONENONENONESiltscalar*VisualNONENONENONENONEDebrisscalar*VisualNONEVLITENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORML | VISUAL | | | | | | history2 |
| Precipitate scalar *Visual NONE NONE NONE NONE NONE Silt scalar *Visual NONE NONE NONE NONE Debris scalar *Visual NONE VLITE NONE NONE Sand/Dirt scalar *Visual NONE NONE NONE NONE Appearance scalar *Visual NORML NORML NORML NORML Odor scalar *Visual NORML NORML NORML NORML | White Metal | | | | | | |
| Silt scalar *Visual NONE NONE NONE NONE Debris scalar *Visual NONE VLITE NONE NONE Sand/Dirt scalar *Visual NONE NONE NONE NONE Appearance scalar *Visual NORML NORML NORML NORML Odor scalar *Visual NORML NORML NORML NORML | Yellow Metal | | *Visual | NONE | NONE | NONE | |
| Debrisscalar*VisualNONEVLITENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORML | Precipitate | scalar | *Visual | NONE | NONE | NONE | NONE |
| Sand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORML | Silt | scalar | *Visual | NONE | NONE | NONE | NONE |
| Appearancescalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORML | Debris | scalar | *Visual | NONE | VLITE | NONE | NONE |
| Odor scalar *Visual NORML NORML NORML NORML | Sand/Dirt | scalar | *Visual | NONE | NONE | NONE | NONE |
| | Appearance | scalar | *Visual | NORML | NORML | NORML | NORML |
| Emulsified Water scalar *Visual NEG NEG NEG | Odor | scalar | *Visual | NORML | NORML | NORML | NORML |
| | Emulsified Water | scalar | *Visual | | NEG | NEG | NEG |

NEG

1: KYNEGSPORTEL - METEPRIMN



OIL ANALYSIS REPORT







Certificate L2367

Laboratory Sample No. Lab Number

Unique Number : 10195173

290 280

> : WearCheck USA - 501 Madison Ave., Cary, NC 27513 : WC0743378 Received : 31 Oct 2022 : 05680602 Diagnosed : 02 Nov 2022

Nov11/21-

Diagnostician : Angela Borella Test Package : IND 2

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.

PRINSCO PO BOX 265 PRINSBURG, MN US 56281 Contact: KYLE SPORTEL

kyles@prinsco.com T: (320)978-4116

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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