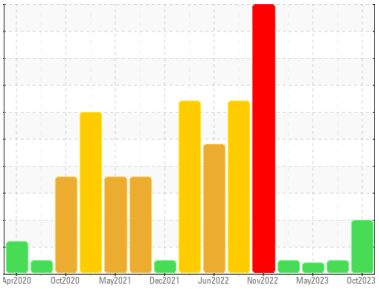
OIL DIAGNOSTICS

# PROBLEM SUMMARY

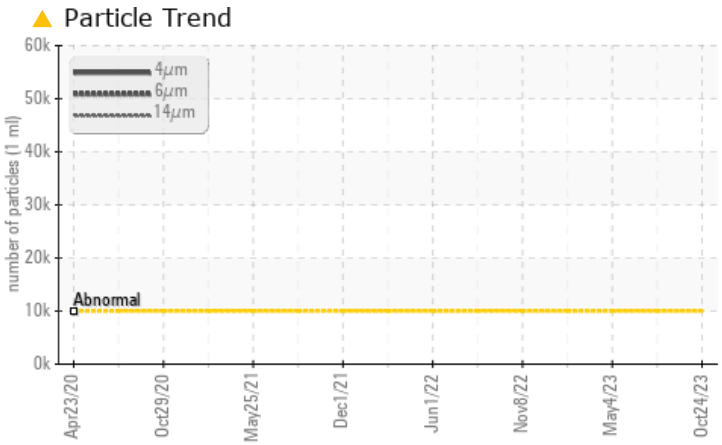
Sample Rating Trend




ISO

Area
**[98498084]**
Machine Id
**KR-GR-002930 - GRINDER A1 (EAST) (S/N GRIND A - 11513021)**
Component
**Gearbox**
Fluid
**GEAR OIL ISO 220 (6 QTS)**

## COMPONENT CONDITION SUMMARY




## RECOMMENDATION

We recommend you service the filters on this component if applicable. Resample at the next service interval to monitor.

## PROBLEMATIC TEST RESULTS

| Sample Status | | | | ABNORMAL | NORMAL | ABNORMAL |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >10000 | ▲ **51614** | --- | --- |
| Particles >6µm | | ASTM D7647 | >2500 | ▲ **12325** | --- | --- |
| Particles >14µm | | ASTM D7647 | >640 | ▲ **730** | --- | --- |
| Particles >21µm | | ASTM D7647 | >160 | ▲ **180** | --- | --- |
| Oil Cleanliness | | ISO 4406 (c) | >20/18/16 | ▲ **23/21/17** | --- | --- |

**Customer Id:** KRAKIR
**Sample No.:** PCA0106043
**Lab Number:** 05994324
**Test Package:** IND 2

*To manage this report scan the QR code*

*To discuss the diagnosis or test data:*
Don Baldridge +1
don.b505@comcast.net

*To change component or sample information:*
Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

## RECOMMENDED ACTIONS

| Action | Status | Date | Done By | Description |
|---|---|---|---|---|
| Change Filter | --- | --- | ? | We recommend you service the filters on this component if applicable. |

## HISTORICAL DIAGNOSIS

**31 Jul 2023 Diag: Doug Bogart**

NORMAL

Resample at the next service interval to monitor.All component wear rates are normal. There is no indication of any contamination in the oil. The AN level is acceptable for this fluid. The condition of the oil is acceptable for the time in service.

view report

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**04 May 2023 Diag: Jonathan Hester**

VIS DEBRIS

We suspect abnormal contamination may be due to sampling method. No corrective action is recommended at this time. Resample at the next service interval to monitor.All component wear rates are normal. Moderate concentration of visible dirt/debris present in the oil. The condition of the oil is acceptable for the time in service.

view report

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**07 Feb 2023 Diag: Doug Bogart**

NORMAL

Resample at the next service interval to monitor.All component wear rates are normal. There is no indication of any contamination in the oil. The condition of the oil is acceptable for the time in service.

view report

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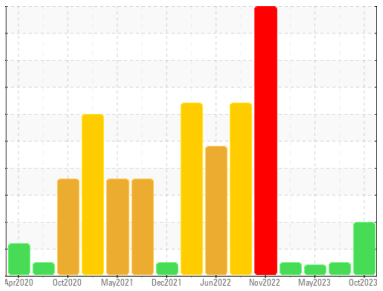
OIL DIAGNOSTICS

# OIL ANALYSIS REPORT

Sample Rating Trend




ISO

Area
**[98498084]**
Machine Id
**KR-GR-002930 - GRINDER A1 (EAST) (S/N GRIND A - 11513021)**
Component
**Gearbox**
Fluid
**GEAR OIL ISO 220 (6 QTS)**

## DIAGNOSIS

**Recommendation**
We recommend you service the filters on this component if applicable. Resample at the next service interval to monitor.

**Wear**
All component wear rates are normal.

**Contamination**
There is a high amount of particulates present in the oil.

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

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **PCA0106043** | PCA0101722 | PCA0093106 |
| Sample Date | | Client Info | | **24 Oct 2023** | 31 Jul 2023 | 04 May 2023 |
| Machine Age | hrs | Client Info | | **0** | 0 | 0 |
| Oil Age | hrs | Client Info | | **0** | 0 | 0 |
| Oil Changed | | Client Info | | **N/A** | N/A | N/A |
| Sample Status | | | | **ABNORMAL** | NORMAL | ABNORMAL |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >200 | **5** | <1 | 16 |
| Chromium | ppm | ASTM D5185m | >15 | **<1** | 1 | 2 |
| Nickel | ppm | ASTM D5185m | >15 | **0** | 1 | 0 |
| Titanium | ppm | ASTM D5185m | | **0** | 1 | 0 |
| Silver | ppm | ASTM D5185m | | **0** | 3 | 0 |
| Aluminum | ppm | ASTM D5185m | >25 | **<1** | 0 | 0 |
| Lead | ppm | ASTM D5185m | >100 | **0** | 8 | 0 |
| Copper | ppm | ASTM D5185m | >200 | **<1** | 2 | <1 |
| Tin | ppm | ASTM D5185m | >25 | **<1** | 3 | 0 |
| Vanadium | ppm | ASTM D5185m | | **0** | 2 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | <1 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 50 | **<1** | 2 | 0 |
| Barium | ppm | ASTM D5185m | 15 | **19** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 15 | **5** | 1 | 0 |
| Manganese | ppm | ASTM D5185m | | **<1** | <1 | 0 |
| Magnesium | ppm | ASTM D5185m | 50 | **0** | 20 | <1 |
| Calcium | ppm | ASTM D5185m | 50 | **1** | 0 | 0 |
| Phosphorus | ppm | ASTM D5185m | 350 | **512** | 193 | 370 |
| Zinc | ppm | ASTM D5185m | 100 | **23** | 0 | 0 |
| Sulfur | ppm | ASTM D5185m | 12500 | **1981** | 1876 | 2005 |

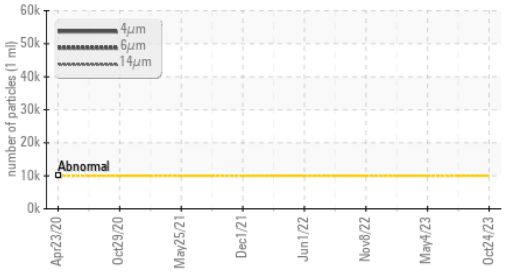
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >50 | **4** | 3 | 2 |
| Sodium | ppm | ASTM D5185m | | **2** | 44 | 0 |
| Potassium | ppm | ASTM D5185m | >20 | **0** | 102 | <1 |

| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >10000 | ▲ **51614** | --- | --- |
| Particles >6µm | | ASTM D7647 | >2500 | ▲ **12325** | --- | --- |
| Particles >14µm | | ASTM D7647 | >640 | ▲ **730** | --- | --- |
| Particles >21µm | | ASTM D7647 | >160 | ▲ **180** | --- | --- |
| Particles >38µm | | ASTM D7647 | >40 | **3** | --- | --- |
| Particles >71µm | | ASTM D7647 | >10 | **0** | --- | --- |
| Oil Cleanliness | | ISO 4406 (c) | >20/18/16 | ▲ **23/21/17** | --- | --- |

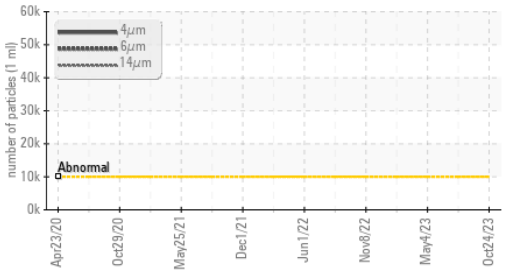
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D8045 | 0.85 | **0.51** | 0.48 | --- |

# OIL ANALYSIS REPORT

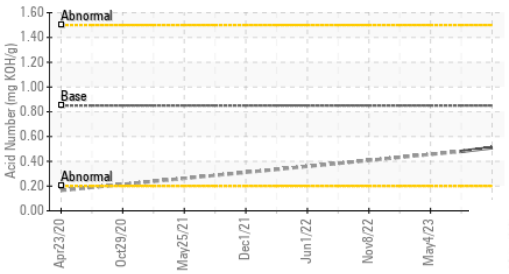
Particle Trend



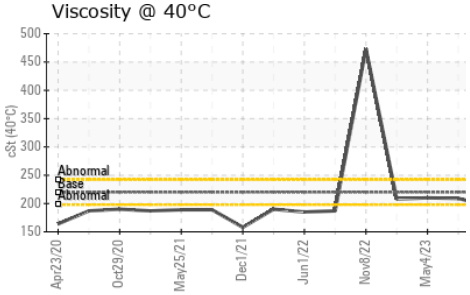

Particle Trend




Acid Number

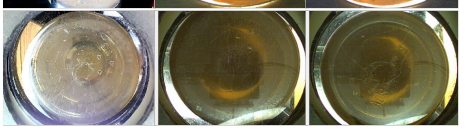



Viscosity @ 40°C



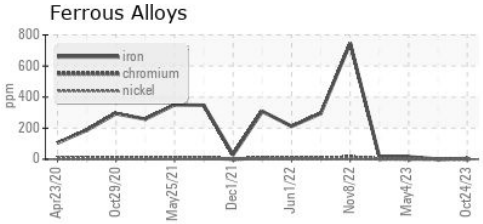

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | MODER |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Silt | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Debris | scalar | *Visual | NONE | **NONE** | NONE | ▲ MODER |
| 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 | >0.2 | **NEG** | NEG | NEG |
| Free Water | scalar | *Visual | | **NEG** | NEG | NEG |

| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D445 | 220 | **196** | 209 | 210 |

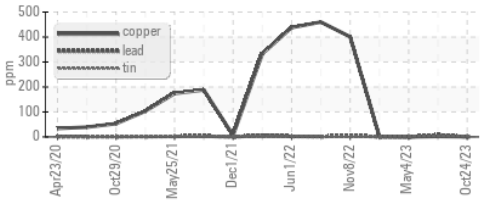
| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | |  | | |
| Bottom | | |  | | |

## GRAPHS

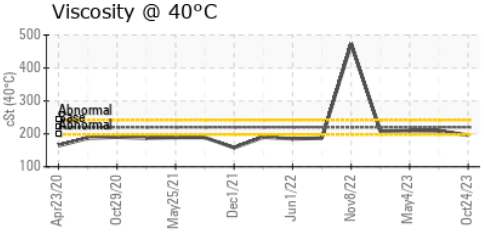
Ferrous Alloys



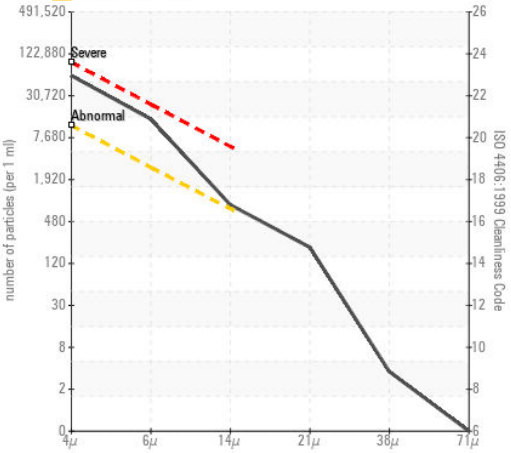

Non-ferrous Metals



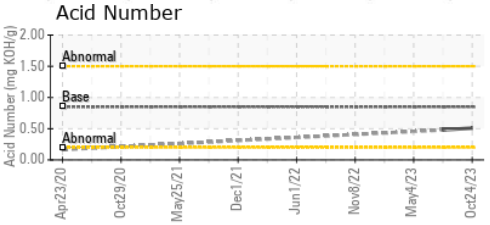

Viscosity @ 40°C




Particle Count




Acid Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : PCA0106043 **Received** : 31 Oct 2023
**Lab Number** : 05994324 **Diagnosed** : 01 Nov 2023
**Unique Number** : 10722684 **Diagnostician** : Don Baldridge
**Test Package** : IND 2 ( Additional Tests: PrtCount )

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

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