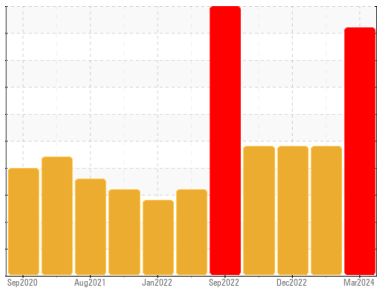
OIL DIAGNOSTICS

# PROBLEM SUMMARY

Sample Rating Trend

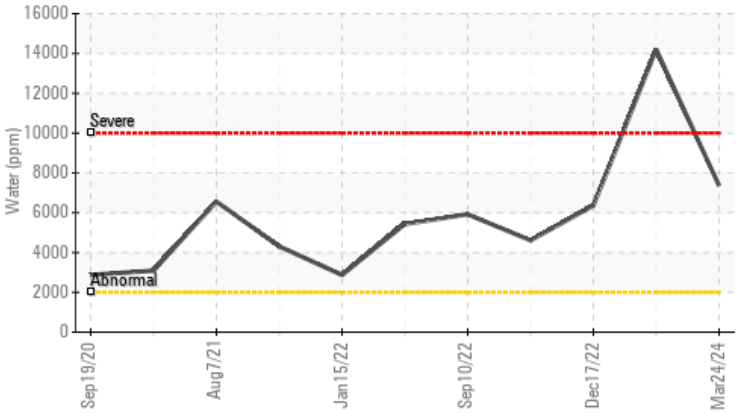



**WATER**

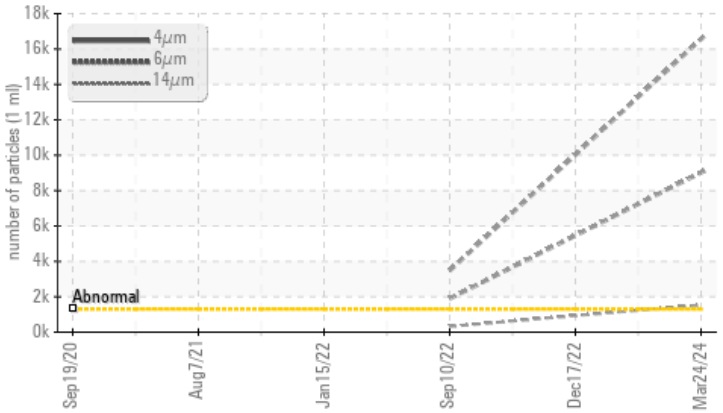
Area
## PROCESS CHEESE [98923824]
Machine Id
## COOKER 10
Component
**Gearbox**
Fluid
**GEAR OIL ISO 320 (--- GAL)**

## COMPONENT CONDITION SUMMARY

▲ Water (KF)




▲ Particle Trend




## RECOMMENDATION

The oil change at the time of sampling has been noted. We recommend you service the filters on this component if applicable. We recommend an early resample to monitor this condition.

## PROBLEMATIC TEST RESULTS

| Sample Status | | | | **SEVERE** | SEVERE | ABNORMAL |
|---|---|---|---|---|---|---|
| Water | % | ASTM D6304 | >0.2 | ▲ **0.737** | ▲ 1.42 | ▲ 0.636 |
| ppm Water | ppm | ASTM D6304 | >2000 | ▲ **7370** | ▲ 14200 | ▲ 6360 |
| Particles >4µm | | ASTM D7647 | >1300 | ▲ **16564** | --- | --- |
| Particles >6µm | | ASTM D7647 | >320 | ▲ **9023** | --- | --- |
| Particles >14µm | | ASTM D7647 | >80 | ▲ **1536** | --- | --- |
| Particles >21µm | | ASTM D7647 | >20 | ▲ **517** | --- | --- |
| Particles >38µm | | ASTM D7647 | >4 | ▲ **80** | --- | --- |
| Particles >71µm | | ASTM D7647 | >3 | ▲ **8** | --- | --- |
| Oil Cleanliness | | ISO 4406 (c) | >17/15/13 | ▲ **21/20/18** | --- | --- |
| Free Water | scalar | *Visual | | ▲ **2.0** | NEG | ▲ 1.0 |

**Customer Id:** KRASPRMO
**Sample No.:** PCA0120252
**Lab Number:** 06131999
**Test Package:** IND 2

*To manage this report scan the QR code*

*To discuss the diagnosis or test data:*
Jonathan Hester +1 919-379-4092 x4092
jhester@wearcheckusa.com

*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. |
| Resample | --- | --- | ? | We recommend an early resample to monitor this condition. |

## HISTORICAL DIAGNOSIS

WATER

**17 Jun 2023 Diag: Don Baldridge**

We advise that you check for the source of water entry. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition. There is too much water present in this sample to perform a particle count.All component wear rates are normal. There is a high concentration of water present in the oil. There is a high amount of visible silt present in the sample. The AN level is acceptable for this fluid.

view report

WATER

**17 Dec 2022 Diag: Doug Bogart**

We advise that you check for the source of water entry. The oil change at the time of sampling has been noted. Resample at the next service interval to monitor. There is too much water present in this sample to perform a particle count.Gear wear is indicated. There is a moderate concentration of water present in the oil. Free water present. The AN level is acceptable for this fluid.

view report

WATER

**05 Nov 2022 Diag: Don Baldridge**

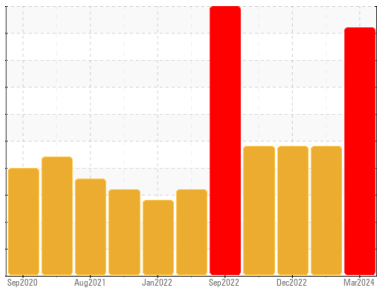
We advise that you check for the source of water entry. The oil change at the time of sampling has been noted. Resample at the next service interval to monitor. There is too much water present in this sample to perform a particle count.All component wear rates are normal. There is a moderate concentration of water present in the oil. Free water present. The AN level is acceptable for this fluid.

view report

OIL DIAGNOSTICS

# OIL ANALYSIS REPORT

Sample Rating Trend




**WATER**

Area
## PROCESS CHEESE [98923824]
Machine Id
## COOKER 10
Component
**Gearbox**
Fluid
**GEAR OIL ISO 320 (--- GAL)**

## DIAGNOSIS

**▲ Recommendation**
The oil change at the time of sampling has been noted. We recommend you service the filters on this component if applicable. We recommend an early resample to monitor this condition.

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

**▲ Contamination**
There is a high amount of particulates present in the oil. Free water present. There is a moderate concentration of water present in the oil.

**Fluid Condition**
The AN level is acceptable for this fluid.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **PCA0120252** | PCA0100128 | PCA0076157 |
| Sample Date | | Client Info | | **24 Mar 2024** | 17 Jun 2023 | 17 Dec 2022 |
| Machine Age | hrs | Client Info | | **0** | 0 | 0 |
| Oil Age | hrs | Client Info | | **0** | 0 | 0 |
| Oil Changed | | Client Info | | **Changed** | Changed | Changed |
| Sample Status | | | | **SEVERE** | SEVERE | ABNORMAL |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >200 | **136** | 92 | ▲ 289 |
| Chromium | ppm | ASTM D5185m | >15 | **<1** | <1 | 2 |
| Nickel | ppm | ASTM D5185m | >15 | **2** | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | **0** | <1 | 0 |
| Silver | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >25 | **1** | <1 | <1 |
| Lead | ppm | ASTM D5185m | >100 | **0** | 0 | 0 |
| Copper | ppm | ASTM D5185m | >200 | **<1** | 0 | <1 |
| Tin | ppm | ASTM D5185m | >25 | **<1** | <1 | 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 | 50 | **0** | 21 | 0 |
| Barium | ppm | ASTM D5185m | 15 | **0** | 16 | 0 |
| Molybdenum | ppm | ASTM D5185m | 15 | **0** | <1 | <1 |
| Manganese | ppm | ASTM D5185m | | **1** | 1 | 2 |
| Magnesium | ppm | ASTM D5185m | 50 | **3** | 16 | 1 |
| Calcium | ppm | ASTM D5185m | 50 | **3** | 26 | 5 |
| Phosphorus | ppm | ASTM D5185m | 350 | **491** | 316 | 546 |
| Zinc | ppm | ASTM D5185m | 100 | **0** | 123 | 0 |
| Sulfur | ppm | ASTM D5185m | 12500 | **1767** | 18017 | 1115 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >50 | **2** | 3 | 4 |
| Sodium | ppm | ASTM D5185m | | **4** | 29 | 15 |
| Potassium | ppm | ASTM D5185m | >20 | **2** | 4 | <1 |
| Water | % | ASTM D6304 | >0.2 | ▲ **0.737** | ▲ 1.42 | ▲ 0.636 |
| ppm Water | ppm | ASTM D6304 | >2000 | ▲ **7370** | ▲ 14200 | ▲ 6360 |

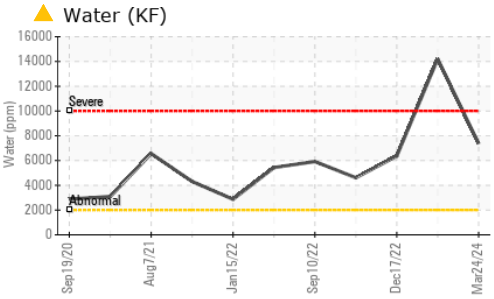
| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >1300 | ▲ **16564** | --- | --- |
| Particles >6µm | | ASTM D7647 | >320 | ▲ **9023** | --- | --- |
| Particles >14µm | | ASTM D7647 | >80 | ▲ **1536** | --- | --- |
| Particles >21µm | | ASTM D7647 | >20 | ▲ **517** | --- | --- |
| Particles >38µm | | ASTM D7647 | >4 | ▲ **80** | --- | --- |
| Particles >71µm | | ASTM D7647 | >3 | ▲ **8** | --- | --- |
| Oil Cleanliness | | ISO 4406 (c) | >17/15/13 | ▲ **21/20/18** | --- | --- |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D8045 | 0.85 | **0.20** | 1.20 | 0.36 |

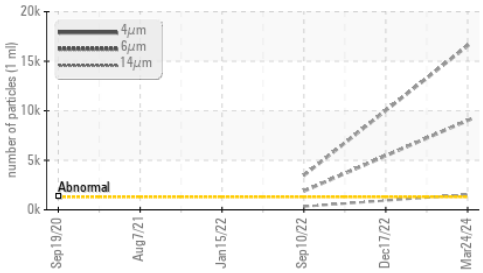
# OIL ANALYSIS REPORT

OIL DIAGNOSTICS

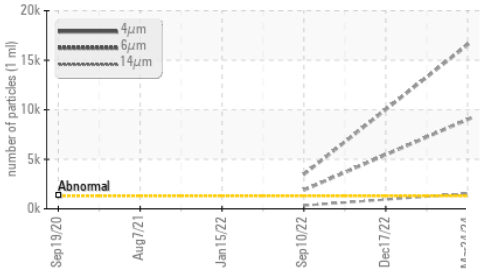
Water (KF)



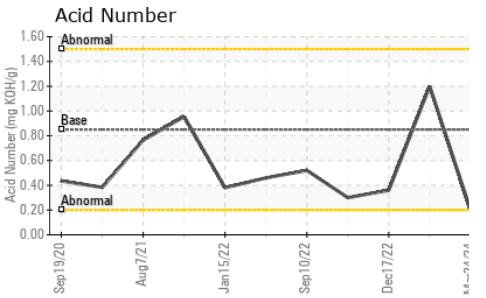

Particle Trend



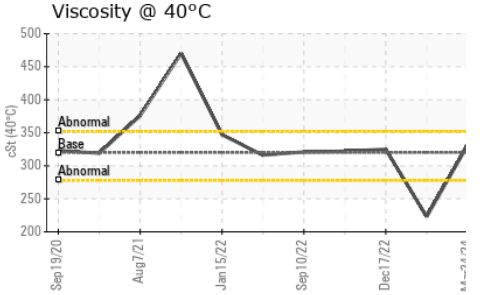

Particle Trend




Acid Number

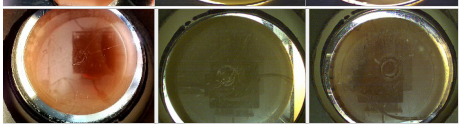



Viscosity @ 40°C



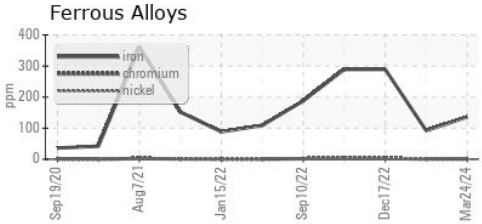

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Silt | scalar | *Visual | NONE | **NONE** | ▲ HEAVY | NONE |
| Debris | scalar | *Visual | NONE | **NONE** | NONE | LIGHT |
| Sand/Dirt | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Appearance | scalar | *Visual | NORML | **NORML** | ● MILKY | ● MILKY |
| Odor | scalar | *Visual | NORML | **NORML** | NORML | NORML |
| Emulsified Water | scalar | *Visual | >0.2 | **0.2%** | ▲ 0.2% | ▲ 0.2% |
| Free Water | scalar | *Visual | | ▲ **2.0** | NEG | ▲ 1.0 |

| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D445 | 320 | **331** | 223 | 325 |

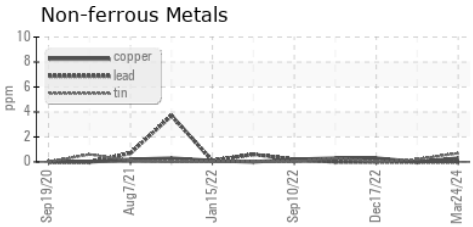
| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | |  | | |
| Bottom | | |  | | |

## GRAPHS

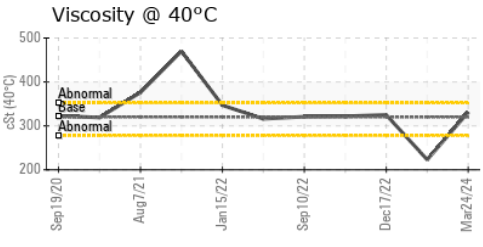
Ferrous Alloys



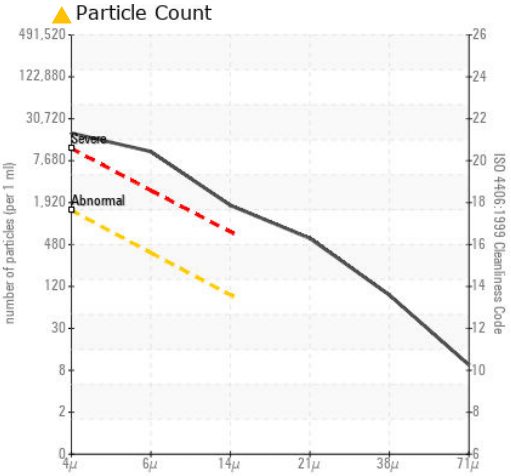

Non-ferrous Metals



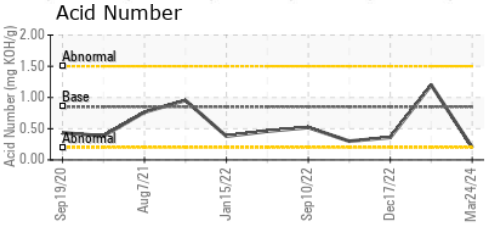

Viscosity @ 40°C




Particle Count




Acid Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : PCA0120252
**Lab Number** : 06131999
**Unique Number** : 10951464
**Test Package** : IND 2 ( Additional Tests: KF, PrtCount )

**Received** : 28 Mar 2024
**Tested** : 04 Apr 2024
**Diagnosed** : 04 Apr 2024 - Jonathan Hester

**KraftHeinz - Springfield - Plant 8311 PCA**
2035 E BENNETT
SPRINGFIELD, MO
US 65804
Contact: Service Manager

*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)*

T:
F: