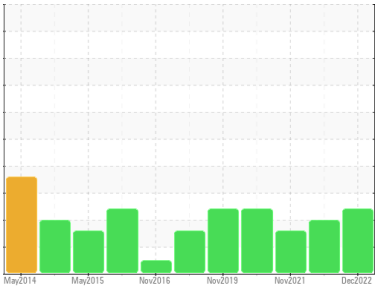
STAUFF FILTRATION TECHNOLOGY

# OIL ANALYSIS REPORT

Sample Rating Trend




ISO

Machine Id
## FORMAX MN04173
Component
**Hydraulic System**
Fluid
**ESSO NUTO H ISO 32 (30 GAL)**

## DIAGNOSIS

**▲ Recommendation**

We recommend you service the filters on this component. Resample at the next service interval to monitor. Due to an abnormal test result it is recommended to contact Stauff Corp at (201)-444-7800 for help resolving the issue.

**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 | | **ST44934** | ST37702 | ST42251 |
| Sample Date | | Client Info | | **10 Dec 2022** | 16 May 2022 | 20 Nov 2021 |
| 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** | ABNORMAL | ABNORMAL |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >20 | **2** | <1 | 1 |
| Chromium | ppm | ASTM D5185m | >20 | **0** | 0 | 0 |
| Nickel | ppm | ASTM D5185m | >20 | **0** | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185m | | **0** | <1 | <1 |
| Aluminum | ppm | ASTM D5185m | >20 | **0** | 0 | 0 |
| Lead | ppm | ASTM D5185m | >20 | **0** | 0 | <1 |
| Copper | ppm | ASTM D5185m | >20 | **2** | 1 | 1 |
| Tin | ppm | ASTM D5185m | >20 | **0** | 0 | <1 |
| Antimony | ppm | ASTM D5185m | | **---** | --- | 0 |
| Vanadium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | | **0** | 3 | 3 |
| Barium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | **2** | 4 | 2 |
| Manganese | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Magnesium | ppm | ASTM D5185m | | **26** | 15 | 18 |
| Calcium | ppm | ASTM D5185m | | **53** | 68 | 72 |
| Phosphorus | ppm | ASTM D5185m | | **273** | 262 | 287 |
| Zinc | ppm | ASTM D5185m | | **312** | 255 | 252 |
| Sulfur | ppm | ASTM D5185m | | **819** | 523 | 573 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >15 | **<1** | <1 | 0 |
| Sodium | ppm | ASTM D5185m | | **2** | 2 | 2 |
| Potassium | ppm | ASTM D5185m | >20 | **<1** | 2 | 2 |
| Water | % | ASTM D6304 | >0.05 | **0.009** | 0.011 | 0.006 |
| ppm Water | ppm | ASTM D6304 | >500 | **92.1** | 115.1 | 63.2 |

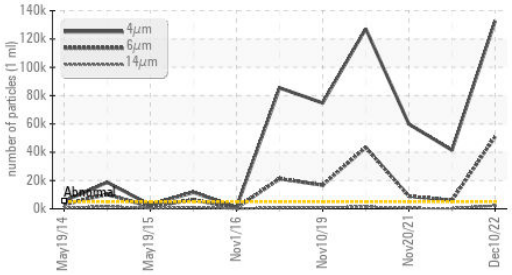
| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Particles >4µm | | ASTM D7647 | >5000 | ▲ **132657** | ▲ 41400 | ▲ 59873 |
| Particles >6µm | | ASTM D7647 | >1300 | ▲ **50913** | ▲ 5918 | ▲ 8851 |
| Particles >14µm | | ASTM D7647 | >160 | ▲ **2212** | ▲ 317 | ▲ 450 |
| Particles >21µm | | ASTM D7647 | >40 | ▲ **318** | ▲ 93 | ▲ 132 |
| Particles >38µm | | ASTM D7647 | >10 | ▲ **26** | 5 | 9 |
| Particles >71µm | | ASTM D7647 | >3 | **2** | 0 | 0 |
| Oil Cleanliness | | ISO 4406 (c) | >19/17/14 | ▲ **24/23/18** | ▲ 23/20/15 | ▲ 23/20/16 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D8045 | .40 | **0.40** | 0.31 | 0.3 |

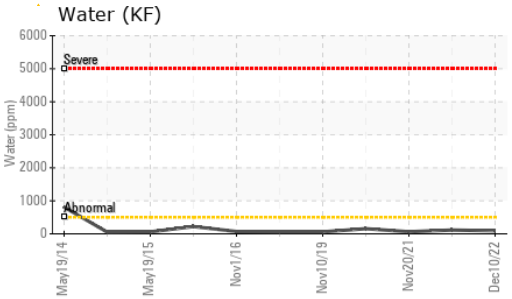
STAUFF FILTRATION TECHNOLOGY

# OIL ANALYSIS REPORT

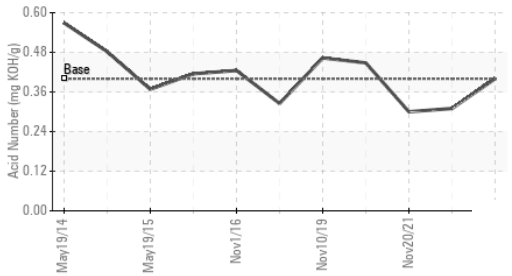
Particle Trend



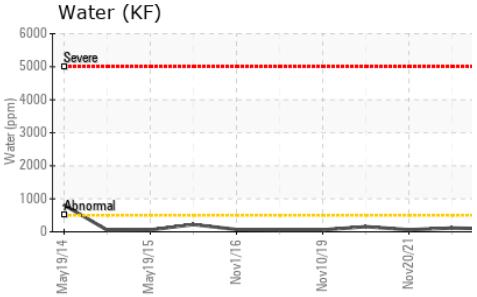

Water (KF)



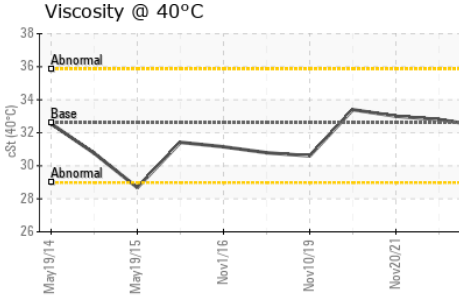

Acid Number




Water (KF)

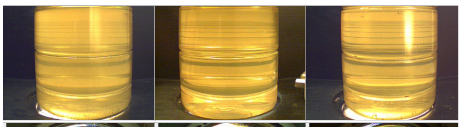



Viscosity @ 40°C



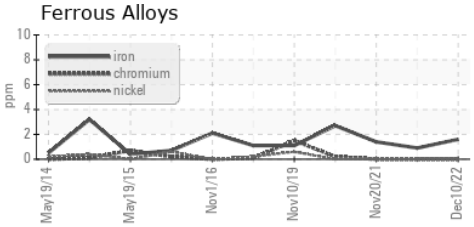

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Silt | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Debris | scalar | *Visual | NONE | **NONE** | VLITE | LIGHT |
| 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 | >0.05 | **NEG** | NEG | NEG |
| Free Water | scalar | *Visual | | **NEG** | NEG | NEG |

| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D445 | 32.6 | **32.4** | 32.8 | 33.0 |

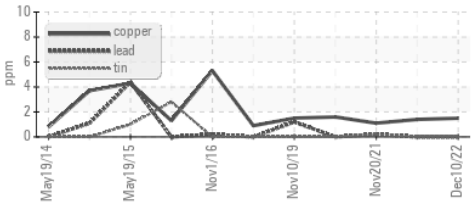
| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | |  | | |
| Bottom | | |  | | |

## GRAPHS

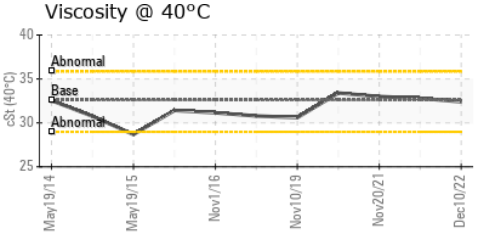
Ferrous Alloys



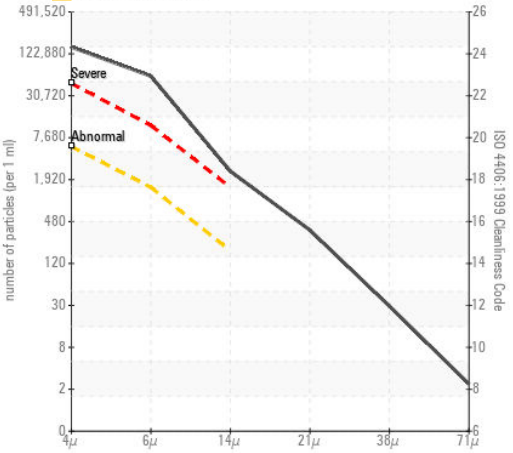

Non-ferrous Metals



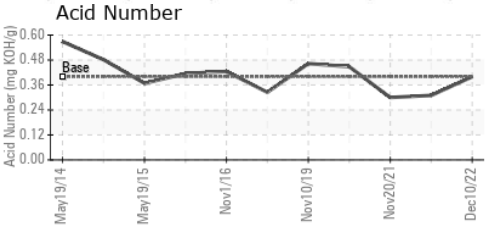

Viscosity @ 40°C




Particle Count




Acid Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : ST44934 **Recieved** : 12 Jan 2023
**Lab Number** : 05737796 **Diagnosed** : 14 Jan 2023
**Unique Number** : 10292395 **Diagnostician** : Don Baldridge
**Test Package** : IND 2 ( Additional Tests: KF )

*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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