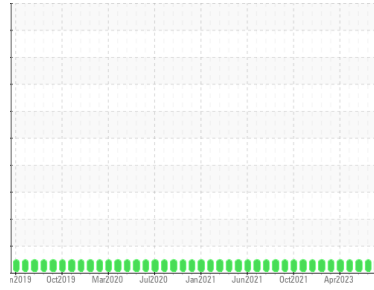


Area
Framo [450194797]
Machine Id
HPU Framo A Hyd. Power (S/N Sample Tag IH-65203-S1)
Component
Hydraulic System
Fluid
CASTROL HYSPIN AWH-M ISO 46 (27000 LTR)



DIAGNOSIS

Recommendation
Resample at the next service interval to monitor. Please contact your representative for information regarding the proper sampling kits for your service. NOTE: We recommend using MAR 3 test kits, this testkit includes Analytical Ferrography which provides a detailed morphological analysis of wear particles present in the fluid.

Wear
Component wear rates appear to be normal (unconfirmed).

Contamination
The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable.

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 | PC0052562 | PC0062020 | PC |
| Sample Date | Client Info | 31 Aug 2023 | 04 Aug 2023 | 10 Jun 2023 |
| Machine Age | hrs | 0 | 0 | 0 |
| Oil Age | hrs | 0 | 0 | 0 |
| Oil Changed | Client Info | N/A | N/A | N/A |
| Sample Status | | NORMAL | NORMAL | NORMAL |

WEAR METALS method limit/base current history1 history2

| | | | | | |
|-----------|-------------|-------------------|--------------|----|----|
| PQ | ASTM D8184* | | 0 | 0 | 0 |
| Iron | ppm | ASTM D5185(m) >20 | 2 | 2 | 2 |
| Chromium | ppm | ASTM D5185(m) >10 | 0 | 0 | 0 |
| Nickel | ppm | ASTM D5185(m) >10 | 0 | 0 | 0 |
| Titanium | ppm | ASTM D5185(m) | 0 | 0 | 0 |
| Silver | ppm | ASTM D5185(m) | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185(m) >10 | <1 | 0 | <1 |
| Lead | ppm | ASTM D5185(m) >20 | <1 | <1 | 0 |
| Copper | ppm | ASTM D5185(m) >20 | 4 | 4 | 4 |
| Tin | ppm | ASTM D5185(m) >10 | 0 | 0 | 0 |
| Antimony | ppm | ASTM D5185(m) | 0 | 0 | 0 |
| Vanadium | ppm | ASTM D5185(m) | 0 | 0 | 0 |
| Beryllium | ppm | ASTM D5185(m) | 0 | 0 | 0 |
| Cadmium | ppm | ASTM D5185(m) | 0 | 0 | 0 |

ADDITIVES method limit/base current history1 history2

| | | | | | |
|------------|-----|---------------|--------------|------|------|
| Boron | ppm | ASTM D5185(m) | <1 | <1 | <1 |
| Barium | ppm | ASTM D5185(m) | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185(m) | 0 | 0 | 0 |
| Manganese | ppm | ASTM D5185(m) | 0 | 0 | 0 |
| Magnesium | ppm | ASTM D5185(m) | <1 | 0 | <1 |
| Calcium | ppm | ASTM D5185(m) | 4 | 4 | 4 |
| Phosphorus | ppm | ASTM D5185(m) | 362 | 351 | 338 |
| Zinc | ppm | ASTM D5185(m) | 41 | 42 | 40 |
| Sulfur | ppm | ASTM D5185(m) | 3241 | 3199 | 3108 |
| Lithium | ppm | ASTM D5185(m) | <1 | <1 | <1 |

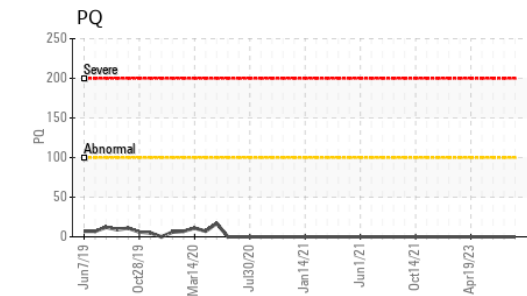
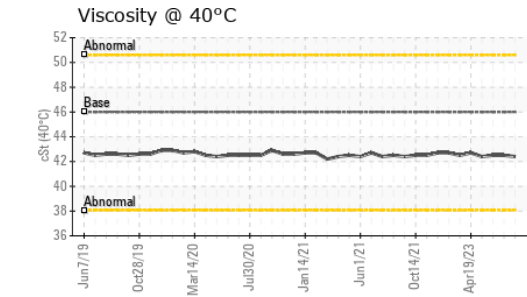
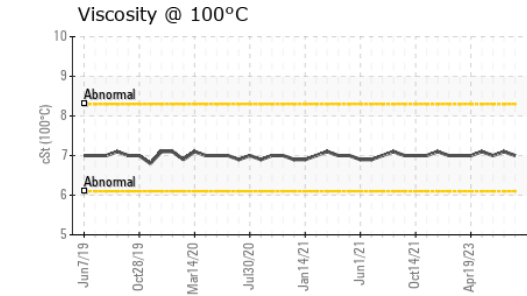
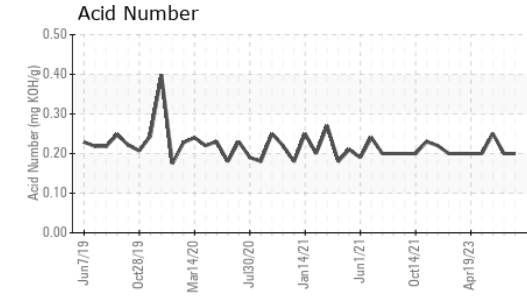
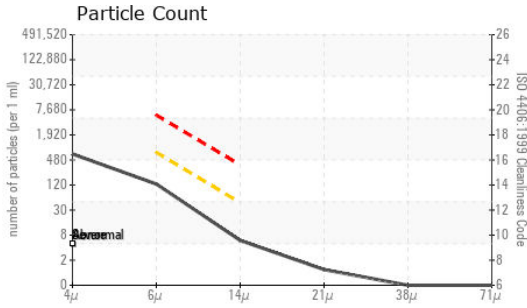
CONTAMINANTS method limit/base current history1 history2

| | | | | | |
|-----------|-----|-------------------|--------------|----|----|
| Silicon | ppm | ASTM D5185(m) >15 | <1 | <1 | <1 |
| Sodium | ppm | ASTM D5185(m) | 2 | <1 | <1 |
| Potassium | ppm | ASTM D5185(m) >20 | <1 | <1 | <1 |

FLUID CLEANLINESS method limit/base current history1 history2

| | | | | | |
|-----------------|--------------|-----------|-----------------|----------|----------|
| Particles >4µm | ASTM D7647 | | 588 | 530 | 1013 |
| Particles >6µm | ASTM D7647 | >640 | 112 | 72 | 200 |
| Particles >14µm | ASTM D7647 | >40 | 5 | 7 | 10 |
| Particles >21µm | ASTM D7647 | >10 | 1 | 2 | 2 |
| Particles >38µm | ASTM D7647 | >3 | 0 | 0 | 0 |
| Particles >71µm | ASTM D7647 | >3 | 0 | 0 | 0 |
| Oil Cleanliness | ISO 4406 (c) | >--/16/12 | 16/14/10 | 16/13/10 | 17/15/10 |

OIL ANALYSIS REPORT

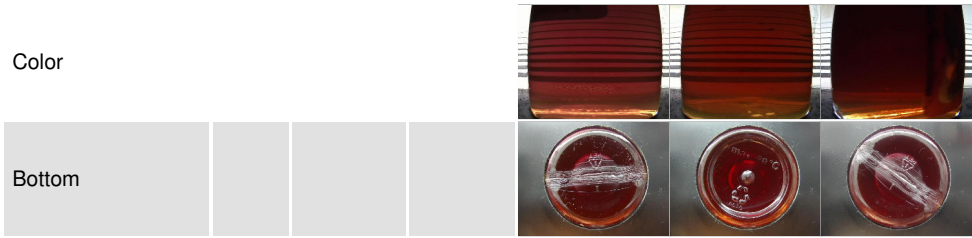


| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|-------------------|----------|------------|------------|-------------|----------|----------|
| Acid Number (AN) | mg KOH/g | ASTM D974* | | 0.20 | 0.20 | 0.25 |

| 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 | NONE | NONE |
| 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 D7279(m) | 46.0 | 42.4 | 42.5 | 42.5 |
| Visc @ 100°C | cSt | ASTM D7279(m) | | 7 | 7.1 | 7 |
| Viscosity Index (VI) | Scale | ASTM D2270* | 150 | 124 | 127 | 123 |

SAMPLE IMAGES



Color

Bottom



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC0052562 **Received** : 13 Sep 2023
Lab Number : **02582117** **Diagnosed** : 14 Sep 2023
Unique Number : 5643182 **Diagnostician** : Kevin Marson
Test Package : MAR 2 (Additional Tests: KV100, PQ, VI)

To discuss this sample report, contact Customer Service at 1-800-268-2131.
 Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
 Validity of results and interpretation are based on the sample and information as supplied.

Suncor - Terra Nova Projects
 Scotia Centre, 235 Water Strret
 St. John's, NL
 CA A1C 1B6
 Contact: Josh Hynes
 joshynes@suncor.com
 T: (709)778-3575
 F: (709)724-2835