

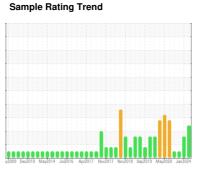
GREASE ANALYSIS

Turret

Turret Swivel #1 - 16 (S/N Sample Tag: NC-21604)

Grease

PETRO CANADA GREASE OG-1 (--- GAL)





DIAGNOSIS

Recommendation

We advise that you check all areas where dirt can enter the system. We recommend an early resample to monitor this condition.

All component wear rates are normal.

Grease Condition

Grease consistency has changed by 2 NLGI grades from NLGI 1 to 3. The grease is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

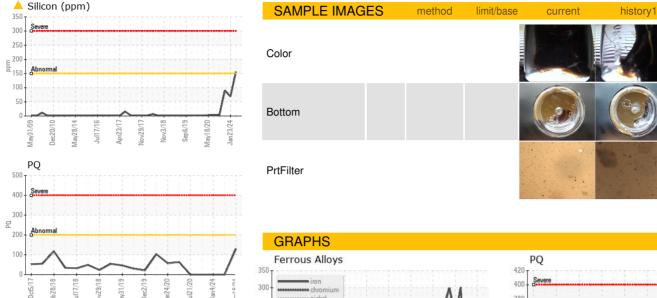
Contaminants

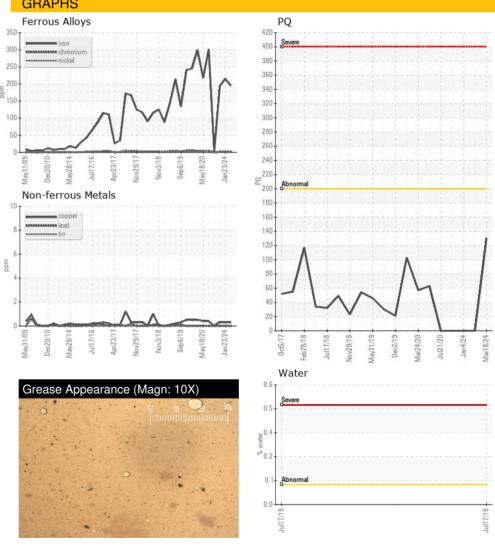
There is a moderate concentration of dirt present in the grease.

| | | ,, | , | 7 Nov2017 Nov2018 Sep2019 May | | |
|---|--|---|---------------------------------------|---|---|--|
| SAMPLE INFOR | MATION | method | limit/base | current | history1 | history2 |
| Sample Number | | Client Info | | PC | PC | PC |
| Sample Date | | Client Info | | 18 Mar 2024 | 23 Jan 2024 | 04 Jan 2024 |
| Machine Age | days | Client Info | | 0 | 0 | 0 |
| Grease Age | days | Client Info | | 0 | 0 | 0 |
| Grease Serviced | | Client Info | | N/A | N/A | N/A |
| Sample Status | | | | ABNORMAL | SEVERE | NORMAL |
| CONTAMINAT | ION | method | limit/base | current | history1 | history2 |
| Water | | WC Method | >0.1 | NEG | NEG | NEG |
| WEAR METAL | S | method | limit/base | current | history1 | history2 |
| PQ | | ASTM D8184* | >200 | 130 | 0 | 0 |
| Iron | ppm | ASTM D5185(m) | >250 | 195 | 215 | 194 |
| Chromium | ppm | ASTM D5185(m) | >10 | 2 | 2 | 2 |
| Nickel | ppm | ASTM D5185(m) | >5 | 2 | 2 | 1 |
| Cadmium | ppm | ASTM D5185(m) | | 0 | 0 | 0 |
| Titanium | ppm | ASTM D5185(m) | | 0 | 0 | 0 |
| Vanadium | ppm | ASTM D5185(m) | | 0 | 0 | 0 |
| Lead | ppm | ASTM D5185(m) | >25 | 0 | 0 | 0 |
| Copper | ppm | ASTM D5185(m) | >75 | <1 | <1 | <1 |
| Tin | ppm | ASTM D5185(m) | >5 | 0 | 0 | 0 |
| Silver | ppm | ASTM D5185(m) | >5 | 0 | 0 | 0 |
| ADDITIVES | | method | limit/base | current | history1 | history2 |
| ADDITIVEO | | method | III III Dase | Current | HISTORY | Thotory 2 |
| Boron | ppm | ASTM D5185(m) | IIIII/Dase | 179 | 147 | 144 |
| | ppm | | iiiiii/base | | | |
| Boron | | ASTM D5185(m) | IIIIII Dase | 179 | 147 | 144 |
| Boron Magnesium | ppm | ASTM D5185(m) ASTM D5185(m) | IIIIII/ Dase | 179 8 | 147 7 | 144 7 |
| Boron Magnesium Manganese | ppm ppm | ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) | iiiiii/base | 179 8 <1 | 147 7 1 | 144 7 1 |
| Boron Magnesium Manganese Molybdenum | ppm ppm | ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) | illill/base | 179 8 <1 0 | 147 7 1 | 144 7 1 |
| Boron Magnesium Manganese Molybdenum Phosphorus | ppm ppm ppm | ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) | illill/base | 179 8 <1 0 7 | 147 7 1 0 6 | 144 7 1 0 5 |
| Boron Magnesium Manganese Molybdenum Phosphorus Zinc | ppm ppm ppm ppm ppm | ASTM D5185(m) | limit/base | 179 8 <1 0 7 17 | 147 7 1 0 6 | 144 7 1 0 5 |
| Boron Magnesium Manganese Molybdenum Phosphorus Zinc Antimony | ppm ppm ppm ppm ppm | ASTM D5185(m) | | 179 8 <1 0 7 17 | 147 7 1 0 6 14 | 144 7 1 0 5 13 <1 |
| Boron Magnesium Manganese Molybdenum Phosphorus Zinc Antimony THICKENER/S | ppm ppm ppm ppm ppm ppm | ASTM D5185(m) | | 179 8 <1 0 7 17 0 | 147 7 1 0 6 14 0 | 144 7 1 0 5 13 <1 |
| Boron Magnesium Manganese Molybdenum Phosphorus Zinc Antimony THICKENER/S Aluminum | ppm ppm ppm ppm ppm ppm | ASTM D5185(m) | | 179 8 <1 0 7 17 0 current | 147 7 1 0 6 14 0 history1 2 | 144 7 1 0 5 13 <1 history2 |
| Boron Magnesium Manganese Molybdenum Phosphorus Zinc Antimony THICKENER/S Aluminum Barium | ppm ppm ppm ppm ppm ppm ppm | ASTM D5185(m) Method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) | | 179 8 <1 0 7 17 0 current 3 <1 | 147 7 1 0 6 14 0 history1 2 | 144 7 1 0 5 13 <1 history2 2 |
| Boron Magnesium Manganese Molybdenum Phosphorus Zinc Antimony THICKENER/S Aluminum Barium Calcium | ppm ppm ppm ppm ppm ppm ppm | ASTM D5185(m) | | 179 8 <1 0 7 17 0 current 3 <1 4269 | 147 7 1 0 6 14 0 history1 2 0 4001 | 144 7 1 0 5 13 <1 history2 2 0 3867 |
| Boron Magnesium Manganese Molybdenum Phosphorus Zinc Antimony THICKENER/S Aluminum Barium Calcium Sodium | ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185(m) | | 179 8 <1 0 7 17 0 current 3 <1 4269 17 | 147 7 1 0 6 14 0 history1 2 0 4001 16 | 144 7 1 0 5 13 <1 history2 2 0 3867 17 |
| Boron Magnesium Manganese Molybdenum Phosphorus Zinc Antimony THICKENER/S Aluminum Barium Calcium Sodium Lithium | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185(m) | | 179 8 <1 0 7 17 0 current 3 <1 4269 17 21 | 147 7 1 0 6 14 0 history1 2 0 4001 16 26 | 144 7 1 0 5 13 <1 history2 2 0 3867 17 24 |
| Boron Magnesium Manganese Molybdenum Phosphorus Zinc Antimony THICKENER/S Aluminum Barium Calcium Sodium Lithium Sulfur | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185(m) | limit/base | 179 8 <1 0 7 17 0 current 3 <1 4269 17 21 821 | 147 7 1 0 6 14 0 history1 2 0 4001 16 26 945 | 144 7 1 0 5 13 <1 history2 2 0 3867 17 24 839 |
| Boron Magnesium Manganese Molybdenum Phosphorus Zinc Antimony THICKENER/S Aluminum Barium Calcium Sodium Lithium Sulfur CONTAMINAN | ppm | ASTM D5185(m) | limit/base | 179 8 <1 0 7 17 0 current 3 <1 4269 17 21 821 current | 147 7 1 0 6 14 0 history1 2 0 4001 16 26 945 history1 | 144 7 1 0 5 13 <1 history2 2 0 3867 17 24 839 history2 |
| Boron Magnesium Manganese Molybdenum Phosphorus Zinc Antimony THICKENER/S Aluminum Barium Calcium Sodium Lithium Sulfur CONTAMINAN Silicon | ppm | ASTM D5185(m) | limit/base | 179 8 <1 0 7 17 0 current 3 <1 4269 17 21 821 current 155 | 147 7 1 0 6 14 0 history1 2 0 4001 16 26 945 history1 69 | 144 7 1 0 5 13 <1 history2 2 0 3867 17 24 839 history2 90 |
| Boron Magnesium Manganese Molybdenum Phosphorus Zinc Antimony THICKENER/S Aluminum Barium Calcium Sodium Lithium Sulfur CONTAMINAN Silicon Potassium | ppm | ASTM D5185(m) | limit/base limit/base >150 | 179 8 <1 0 7 17 0 current 3 <1 4269 17 21 821 current 155 4 | 147 7 1 0 6 14 0 history1 2 0 4001 16 26 945 history1 69 3 | 144 7 1 0 5 13 <1 history2 2 0 3867 17 24 839 history2 90 4 |
| Boron Magnesium Manganese Molybdenum Phosphorus Zinc Antimony THICKENER/S Aluminum Barium Calcium Sodium Lithium Sulfur CONTAMINAN Silicon Potassium GREASE CON | ppm | ASTM D5185(m) METHOD METHOD ASTM D5185(m) METHOD METHOD ASTM D5185(m) METHOD | limit/base limit/base >150 limit/base | 179 8 <1 0 7 17 0 current 3 <1 4269 17 21 821 current ▲ 155 4 current | 147 7 1 0 6 14 0 history1 2 0 4001 16 26 945 history1 69 3 history1 | 144 7 1 0 5 13 <1 history2 2 0 3867 17 24 839 history2 90 4 history2 |



GREASE ANALYSIS







ISO 17025:2017
Accredited
Laboratory

Laboratory: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 **Sample No.**: PC **Received**: 02 Apr 2024

 Sample No.
 : PC
 Received
 : 02 Apr 2024

 Lab Number
 : 02626284
 Tested
 : 04 Apr 2024

 Unique Number
 : 5759416
 Diagnosed
 : 04 Apr 2024 - Bill Quesnel

Test Package: GRS 1 (Additional Tests: BottomAnalysis)

To discuss this sample report, contact Customer Service at 1-800-268-2131.

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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

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history2