

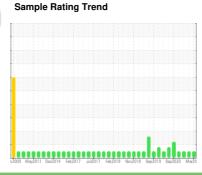
GREASE ANALYSIS

Turret [450292030]

Turret Swivel #3 - 12" Production Grease Sample (S/N Sample Tag: NC-21602)

Grease

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





DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Grease Condition

The condition of the grease is acceptable for the time in service.

Contaminants

There is no indication of any contamination in the grease.

Client Info	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age days Client Info 0 0 0 Grease Serviced Client Info 0 0 0 0 Grease Serviced Client Info N/A N/A N/A N/A Sample Status NORMAL NORMAL NORMAL NORMAL NORMAL CONTAMINATION method Imit/base current history1 history2 WEAR METALS method Imit/base current history1 history2 PQ ASTM D8184* >200 0 0 0 0 WEAR METALS method Imit/base current history1 history2 PQ ASTM D8186** >200 0 0 0 0 Iron ppm ASTM D8185(m) >10 0 0 0 Chromium ppm ASTM D8185(m) >5 0 <1	Sample Number		Client Info		PC	PC	PC
Grease Age days Client Info N/A N/A N/A N/A Sample Status Client Info N/A N/A N/A N/A N/A CONTAMINATION method limit/base current history1 history2 Water WC Method >0.1 NEG NEG NEG WEAR METALS method limit/base current history1 history2 PQ ASTM D5185/m >200 0 0 0 0 Iron ppm ASTM D5185/m >200 0 0 0 Vickel ppm ASTM D5185/m >5 0 <1 <1 Cadmium ppm ASTM D5185/m >5 0 <0 0 Titanium ppm ASTM D5185/m >2 0 0 0 Copper ppm ASTM D5185/m >5 0 0 0 Copper ppm ASTM D5185/m >5 0	Sample Date		Client Info		18 Mar 2024	23 Jan 2024	04 Jan 2024
Grease Serviced Sample Status Client Info N/A N/A N/A N/A CONTAMINATION method limit/base current history1 history2 Water WC Method >0.1 NEG NEG NEG WEAR METALS method limit/base current history1 history2 PQ ASTM DSISSIM ≥250 6 6 4 4 Chromium ppm ASTM DSISSIM >10 0 0 0 Nickel ppm ASTM DSISSIM >10 0 0 0 Cadmium ppm ASTM DSISSIM >5 0 <1	Machine Age	days	Client Info		0	0	0
NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 history2	Grease Age		Client Info		0	0	0
Water	Grease Serviced		Client Info		N/A	N/A	N/A
Water WC Method So.1 NEG NEG NEG	Sample Status				NORMAL	NORMAL	NORMAL
WEAR METALS method limit/base current history1 history2 PQ ASTM D8184* >200 0 0 0 0 Iron ppm ASTM D5185(m) >2250 6 6 4 Chromium ppm ASTM D5185(m) >10 0 0 0 Nickel ppm ASTM D5185(m) >5 0 <1 <1 <1 Cadmium ppm ASTM D5185(m) 0 <	CONTAMINATI	ION	method	limit/base	current	history1	history2
PQ	Water		WC Method	>0.1	NEG	NEG	NEG
Pron	WEAR METALS	S	method	limit/base	current	history1	history2
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Nickel	Iron	ppm	ASTM D5185(m)	>250	6	6	4
Cadmium ppm ASTM D5185(m) 0 0 0 Vanadium ppm ASTM D5185(m) 0 0 0 Vanadium ppm ASTM D5185(m) >25 0 0 0 Lead ppm ASTM D5185(m) >75 0 0 0 Copper ppm ASTM D5185(m) >5 0 0 0 Tin ppm ASTM D5185(m) >5 0 0 0 Silver ppm ASTM D5185(m) >5 0 0 0 Boron ppm ASTM D5185(m) 5 0 0 0 Manganesium ppm ASTM D5185(m) 6 3 6 4 Manganese ppm ASTM D5185(m) 0 0 0 0 Molybdenum ppm ASTM D5185(m) 0 0 0 0 Zinc ppm ASTM D5185(m) 18 27 25 Antimony<	Chromium	ppm	ASTM D5185(m)	>10	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 0 0 0 Tin ppm ASTM D5185(m) >5 0 0 0 Silver ppm ASTM D5185(m) >5 0 0 0 Boron ppm ASTM D5185(m) 5 0 0 0 Manganesium ppm ASTM D5185(m) 6 3 6 Manganese ppm ASTM D5185(m) 0 0 0 Molydenum ppm ASTM D5185(m) 0 0 0 Phosphorus ppm ASTM D5185(m) 0 0 0 Phosphorus ppm ASTM D5185(m) 18 27 25 Antimony ppm ASTM D5185(m) <td< td=""><th>Nickel</th><td>ppm</td><td>ASTM D5185(m)</td><td>>5</td><th>0</th><td><1</td><td><1</td></td<>	Nickel	ppm	ASTM D5185(m)	>5	0	<1	<1
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Lead		ppm	ASTM D5185(m)		0	0	0
Copper ppm ASTM D5185(m) >75 0 0 0 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 Boron ppm ASTM D5185(m) 174 67 147 Magnesium ppm ASTM D5185(m) 6 3 6 Manganese ppm ASTM D5185(m) 0 0 0 Molybdenum ppm ASTM D5185(m) 0 0 0 Molybdenum ppm ASTM D5185(m) 0 0 0 Phosphorus ppm ASTM D5185(m) 4 10 3 2 Zinc ppm ASTM D5185(m) 18 27 25 0 Antimony ppm ASTM D5185(m) 2 1 2 1 2 1 2 <	Vanadium	ppm	ASTM D5185(m)		0	0	0
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Silver	Copper	ppm	ASTM D5185(m)	>75	0	0	0
ADDITIVES	Tin	ppm	ASTM D5185(m)	>5	0	0	0
Boron	Silver	ppm	ASTM D5185(m)	>5	0	0	0
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Phosphorus ppm ASTM D5185(m) 4 10 3 Zinc ppm ASTM D5185(m) 18 27 25 Antimony ppm ASTM D5185(m) 0 0 0 THICKENER/SOAP method limit/base current history1 history2 Aluminum ppm ASTM D5185(m) 2 1 2 Barium ppm ASTM D5185(m) <1 0 0 Calcium ppm ASTM D5185(m) 4246 1746 3734 Sodium ppm ASTM D5185(m) 9 6 9 Lithium ppm ASTM D5185(m) 25 26 17 Sulfur ppm ASTM D5185(m) 762 680 763 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >150 23 20 23 Potassium ppm ASTM D5185(m) 3	Manganese		ACTM DE10E/m)		0	0	0
Zinc ppm ASTM D5185(m) 18 27 25 Antimony ppm ASTM D5185(m) 0 0 0 THICKENER/SOAP method limit/base current history1 history2 Aluminum ppm ASTM D5185(m) 2 1 2 Barium ppm ASTM D5185(m) <1		ppm	ASTIVI DSTOS(III)		•	U	0
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THICKENER/SOAP method limit/base current history1 history2 Aluminum ppm ASTM D5185(m) 2 1 2 Barium ppm ASTM D5185(m) <1	•	ppm	ASTM D5185(m)		0	0	0
Aluminum ppm ASTM D5185(m) 2 1 2 Barium ppm ASTM D5185(m) <1	Phosphorus	ppm ppm	ASTM D5185(m) ASTM D5185(m)		0	0	0
Barium ppm ASTM D5185(m) <1 0 0 Calcium ppm ASTM D5185(m) 4246 1746 3734 Sodium ppm ASTM D5185(m) 9 6 9 Lithium ppm ASTM D5185(m) 25 26 17 Sulfur ppm ASTM D5185(m) 762 680 763 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >150 23 20 23 Potassium ppm ASTM D5185(m) 3 2 4 GREASE CONDITION method limit/base current history1 history2 Grease Color Visual* Tan Brown Tan Beige	Phosphorus Zinc	ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)		0 4 18	0 10 27	0 3 25
Calcium ppm ASTM D5185(m) 4246 1746 3734 Sodium ppm ASTM D5185(m) 9 6 9 Lithium ppm ASTM D5185(m) 25 26 17 Sulfur ppm ASTM D5185(m) 762 680 763 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >150 23 20 23 Potassium ppm ASTM D5185(m) 3 2 4 GREASE CONDITION method limit/base current history1 history2 Grease Color Visual* Tan Brown Tan Beige	Phosphorus Zinc Antimony	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base	0 4 18 0	0 10 27 0	0 3 25 0
Sodium ppm ASTM D5185(m) 9 6 9 Lithium ppm ASTM D5185(m) 25 26 17 Sulfur ppm ASTM D5185(m) 762 680 763 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >150 23 20 23 Potassium ppm ASTM D5185(m) 3 2 4 GREASE CONDITION method limit/base current history1 history2 Grease Color Visual* Tan Brown Tan Beige	Phosphorus Zinc Antimony THICKENER/S	ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) method	limit/base	0 4 18 0	0 10 27 0 history1	0 3 25 0 history2
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Sulfur ppm ASTM D5185(m) 762 680 763 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >150 23 20 23 Potassium ppm ASTM D5185(m) 3 2 4 GREASE CONDITION method limit/base current history1 history2 Grease Color Visual* Tan Brown Tan Beige	Phosphorus Zinc Antimony THICKENER/S Aluminum Barium	ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) METHOD ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base	0 4 18 0 current 2 <1	0 10 27 0 history1	0 3 25 0 history2 2
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Silicon ppm ASTM D5185(m) >150 23 20 23 Potassium ppm ASTM D5185(m) 3 2 4 GREASE CONDITION method limit/base current history1 history2 Grease Color Visual* Tan Brown Tan Beige	Phosphorus Zinc Antimony THICKENER/S Aluminum Barium Calcium Sodium	ppm ppm ppm ppm OAP ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base	0 4 18 0 current 2 <1 4246 9	0 10 27 0 history1 1 0 1746	0 3 25 0 history2 2 0 3734
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Grease Color Visual* Tan Brown Tan Beige	Phosphorus Zinc Antimony THICKENER/S Aluminum Barium Calcium Sodium Lithium Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) Method ASTM D5185(m)	limit/base	0 4 18 0 current 2 <1 4246 9 25 762 current	0 10 27 0 history1 1 0 1746 6 26 680 history1	0 3 25 0 history2 2 0 3734 9 17 763
	Phosphorus Zinc Antimony THICKENER/S Aluminum Barium Calcium Sodium Lithium Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) Method ASTM D5185(m)	limit/base	0 4 18 0 current 2 <1 4246 9 25 762 current 23	0 10 27 0 history1 1 0 1746 6 26 680 history1 20	0 3 25 0 history2 2 0 3734 9 17 763 history2 23
	Phosphorus Zinc Antimony THICKENER/S Aluminum Barium Calcium Sodium Lithium Sulfur CONTAMINAN Silicon Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) Method ASTM D5185(m)	limit/base >150	0 4 18 0 current 2 <1 4246 9 25 762 current 23 3	0 10 27 0 history1 1 0 1746 6 26 680 history1 20 2	0 3 25 0 history2 2 0 3734 9 17 763 history2 23 4
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NLGI Consistency

NLGI Scale SKF Method* 1

1

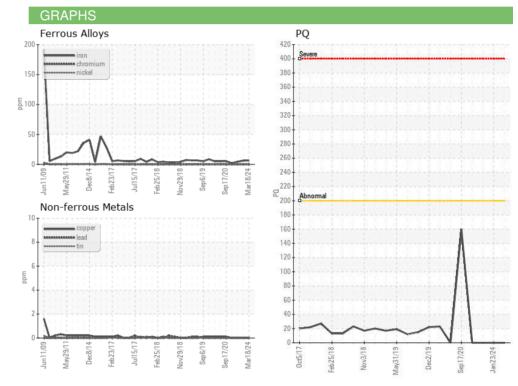
1-2

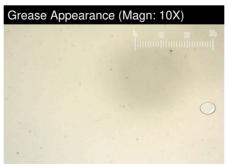
1-2



GREASE ANALYSIS









ISO 17025:2017
Accredited
Laboratory

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

Lab Number : 02626286 Tested : 04 Apr 2024

Unique Number : 5759418 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.

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