

OIL ANALYSIS REPORT

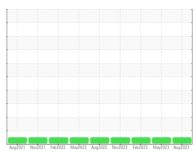
Sample Rating Trend

NORMAL



Gearbox

PETRO CANADA ENDURATEX EP 220 (--- GAL)





DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

Fluid Condition

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

SAMPLE INFORMATION	GAL)		Aug2021 No	v2021 Feb2022 May2022	Aug2022 Nov2022 Feb2023 May20	23 Aug2023	
Sample Date	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Date	Sample Number		Client Info		PCA0101452	PCA0095468	PCA0089503
Machine Age hrs Client Info 0 0 0 0 Oil Age hrs Client Info N/A Not Changd Not Changd	·						
Oil Age hrs Client Info N/A Not Changd Not Changd NormAL Not Changd NormAL Sample Status method limit/base current history1 NormAL WEAR METALS method limit/base current history1 history2 PQ ASTM D5185m 200 5 30 63 Chromium ppm ASTM D5185m >200 5 30 63 Chromium ppm ASTM D5185m >15 0 <1		hrs			•		
Oil Changed Sample Status							
NORMAL NORMAL NORMAL	•	0					
PQ	-					_	_
Iron	WEAR METAL	S	method	limit/base	current	history1	history2
Chromium	PQ		ASTM D8184		12	12	54
Chromium	Iron	ppm	ASTM D5185m	>200	5	30	63
Nickel	Chromium		ASTM D5185m	>15	0	<1	<1
Titanium	Nickel		ASTM D5185m	>15	0	<1	3
Silver	Titanium		ASTM D5185m		0	0	<1
Aluminum ppm ASTM D5185m >25 <1	Silver		ASTM D5185m		0	0	
Lead				>25		<1	
Copper ppm ASTM D5185m >200 <1				>100			
Tin ppm ASTM D5185m >25 0 0 0 Vanadium ppm ASTM D5185m <1							
Vanadium ppm ASTM D5185m <1				>25	0	0	0
ADDITIVES							
Boron	Cadmium						0
Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 <1 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 0 1 <1 1 Calcium ppm ASTM D5185m 0 2 2 74 Phosphorus ppm ASTM D5185m 270 284 129 263 Zinc ppm ASTM D5185m 0 0 2 25 Sulfur ppm ASTM D5185m 1200 8167 8031 7365 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >50 5 6 41 Sodium ppm ASTM D5185m >20 1 2 <1 FLUID DEGRADATION method limit/base current<	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 0 0 0 <1	Boron	ppm	ASTM D5185m	60	73	5	49
Manganese ppm ASTM D5185m 0 <1	Barium	ppm	ASTM D5185m	0	0	0	0
Manganese ppm ASTM D5185m 0 <1	Molybdenum	ppm			0	0	<1
Calcium ppm ASTM D5185m 0 2 2 74 Phosphorus ppm ASTM D5185m 270 284 129 263 Zinc ppm ASTM D5185m 0 0 2 25 Sulfur ppm ASTM D5185m 11200 8167 8031 7365 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >50 5 6 41 Sodium ppm ASTM D5185m >20 1 2 <1 FLUID DEGRADATION method limit/base current history1 history2 ASTM D8045 0.40 0.44 0.27 0.46 VISUAL method limit/base current history1 history2 White Metal scalar *Visual NONE NONE NONE NONE Visual NONE	Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Phosphorus ppm ASTM D5185m 270 284 129 263 Zinc ppm ASTM D5185m 0 0 2 25 Sulfur ppm ASTM D5185m 11200 8167 8031 7365 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >50 5 6 41 Sodium ppm ASTM D5185m >50 5 6 41 Potassium ppm ASTM D5185m >20 1 2 <1 FLUID DEGRADATION method limit/base current history1 history2 Acid Number (AN) mg KOH/g ASTM D8045 0.40 0.44 0.27 0.46 VISUAL method limit/base current history1 history2 White Metal scalar *Visual NONE NONE NONE Yellow Metal scalar *Visual	Magnesium	ppm	ASTM D5185m	0	1	<1	1
Zinc ppm ASTM D5185m 0 0 2 25 Sulfur ppm ASTM D5185m 11200 8167 8031 7365 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >50 5 6 41 Sodium ppm ASTM D5185m >20 1 2 <1 Potassium ppm ASTM D5185m >20 1 2 <1 FLUID DEGRADATION method limit/base current history1 history2 Acid Number (AN) mg KOH/g ASTM D8045 0.40 0.44 0.27 0.46 VISUAL method limit/base current history1 history2 White Metal scalar *Visual NONE NONE NONE Visual NONE NONE NONE NONE Visual NONE N	Calcium	ppm	ASTM D5185m	0	2	2	74
Sulfur ppm ASTM D5185m 11200 8167 8031 7365 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >50 5 6 41 Sodium ppm ASTM D5185m >20 1 2 <1 Potassium ppm ASTM D5185m >20 1 2 <1 FLUID DEGRADATION method limit/base current history1 history2 Acid Number (AN) mg KOH/g ASTM D8045 0.40 0.44 0.27 0.46 VISUAL method limit/base current history1 history2 White Metal scalar *Visual NONE NONE NONE Yellow Metal scalar *Visual NONE NONE NONE Precipitate scalar *Visual NONE NONE NONE Silt scalar *Visual NONE NONE	Phosphorus	ppm	ASTM D5185m	270	284	129	263
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >50 5 6 41 Sodium ppm ASTM D5185m >20 1 2 <1 FLUID DEGRADATION method limit/base current history1 history2 Acid Number (AN) mg KOH/g ASTM D8045 0.40 0.44 0.27 0.46 VISUAL method limit/base current history1 history2 White Metal scalar *Visual NONE NONE NONE NONE NONE Yellow Metal scalar *Visual NONE NONE NONE NONE NONE NONE Silt scalar *Visual NONE NONE NONE NONE NONE Sand/Dirt scalar *Visual NONE NONE NONE NONE NONE NONE Sand/Dirt scalar *Visual NONE NONE NONE NONE NONE NONE Sand/Dirt scalar *Visual NONE NONE NONE NONE NONE NONE NONE NON	Zinc	ppm	ASTM D5185m	0	0	2	25
Silicon ppm ASTM D5185m >50 5 6 41 Sodium ppm ASTM D5185m >20 1 2 <1 FLUID DEGRADATION method limit/base current history1 history2 Acid Number (AN) mg KOH/g ASTM D8045 0.40 0.44 0.27 0.46 VISUAL method limit/base current history1 history2 White Metal scalar *Visual NONE NONE NONE NONE NONE Precipitate scalar *Visual NONE NONE NONE NONE NONE Silt scalar *Visual NONE NONE NONE NONE NONE Silt scalar *Visual NONE NONE NONE NONE NONE Silt scalar *Visual NONE NONE NONE NONE NONE NONE Sand/Dirt scalar *Visual NONE NONE NONE NONE NONE NONE NONE NON	Sulfur	ppm	ASTM D5185m	11200	8167	8031	7365
Sodium ppm ASTM D5185m <1 <1 1 Potassium ppm ASTM D5185m >20 1 2 <1 FLUID DEGRADATION method limit/base current history1 history2 Acid Number (AN) mg KOH/g ASTM D8045 0.40 0.44 0.27 0.46 VISUAL method limit/base current history1 history2 White Metal scalar *Visual NONE NONE NONE NONE NONE Yellow Metal scalar *Visual NONE NONE NONE NONE NONE Precipitate scalar *Visual NONE NONE NONE NONE NONE Silt scalar *Visual NONE NONE NONE NONE NONE Silt scalar *Visual NONE NONE NONE NONE NONE Sand/Dirt scalar *Visual NONE NONE NONE NONE NONE NONE Sand/Dirt scalar *Visual NONE NONE NONE NONE NONE NONE NONE Sand/Dirt scalar *Visual NONE NONE NONE NONE NONE NONE NONE NON	CONTAMINAN	TS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 1 2 <1 FLUID DEGRADATION method limit/base current history1 history2 Acid Number (AN) mg KOH/g ASTM D8045 0.40 0.44 0.27 0.46 VISUAL method limit/base current history1 history2 White Metal scalar *Visual NONE NONE NONE NONE NONE Yellow Metal scalar *Visual NONE NONE NONE NONE NONE Precipitate scalar *Visual NONE NONE NONE NONE NONE Silt scalar *Visual NONE NONE NONE NONE NONE Silt scalar *Visual NONE NONE NONE NONE NONE Sand/Dirt scalar *Visual NONE NONE NONE NONE NONE Appearance scalar *Visual NORML NORML NORML NORML Odor scalar *Visual NORML NORML NORML NORML	Silicon	ppm	ASTM D5185m	>50	5	6	41
FLUID DEGRADATION method limit/base current history1 history2 Acid Number (AN) mg KOH/g ASTM D8045 0.40 0.44 0.27 0.46 VISUAL method limit/base current history1 history2 White Metal scalar *Visual NONE NONE NONE NONE NONE Yellow Metal scalar *Visual NONE NONE NONE NONE NONE Precipitate scalar *Visual NONE NONE NONE NONE NONE Silt scalar *Visual NONE NONE NONE NONE NONE Debris scalar *Visual NONE 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	Sodium	ppm	ASTM D5185m		<1	<1	1
Acid Number (AN) mg KOH/g ASTM D8045 0.40 0.44 0.27 0.46 VISUAL method limit/base current history1 history2 White Metal scalar *Visual NONE NONE NONE NONE NONE Yellow Metal scalar *Visual NONE NONE NONE NONE NONE Precipitate scalar *Visual NONE NONE NONE NONE NONE Silt scalar *Visual NONE NONE NONE NONE NONE Debris scalar *Visual NONE NONE NONE NONE NONE Sand/Dirt scalar *Visual NONE NONE NONE NONE NONE Appearance scalar *Visual NORML NORML NORML NORML Odor scalar *Visual NORML NORML NORML NORML	Potassium	ppm	ASTM D5185m	>20	1	2	<1
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 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 NORML	FLUID DEGRAI	AOITAC	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	Acid Number (AN)	mg KOH/g	ASTM D8045	0.40	0.44	0.27	0.46
Yellow Metalscalar*VisualNONENONENONENONEPrecipitatescalar*VisualNONENONENONENONESiltscalar*VisualNONENONENONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORML	VISUAL		method	limit/base	current	history1	history2
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		scalar					
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	Yellow Metal	scalar	*Visual	NONE	NONE		NONE
Debrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORML	Precipitate	scalar		NONE	NONE	NONE	NONE
Sand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORML	Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearancescalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORML	Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Odor scalar *Visual NORML NORML NORML NORML	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water scalar *Visual >0.2 NEG NEG NEG	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG

scalar *Visual

ocative BRAD ELLINESDITER

NEG



OIL ANALYSIS REPORT





Certificate L2367

Laboratory Sample No. Lab Number **Unique Number**

: PCA0101452 : 05932892 : 10618163 Test Package : PLANT

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 23 Aug 2023

: 24 Aug 2023 Diagnosed : Wes Davis Diagnostician

SDI - Steel DynamicsInc. - Heartland

455 West Industrial Drive Terre Haute, IN US 47802

Contact: BRAD ELLIS brad.ellis@steeldynamics.com

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)

Report Id: SDITER [WUSCAR] 05932892 (Generated: 08/24/2023 15:44:14) Rev: 1

Contact/Location: BRAD ELLIS - SDITER

T:

F: