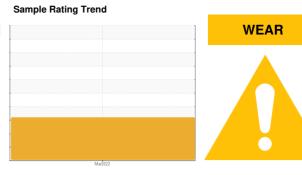


OIL ANALYSIS REPORT

HOTLINE/CRANES 99 CRANE TROLLEY DRIVE 1406-099-0620

Gearbox

CITGO COMPOUND EP 320 (--- GAL)



DIAGNOSIS

Recommendation

We recommend you service the filters on this component if applicable. Resample at the next service interval to monitor.

Gear wear is indicated.

Contamination

There is a high amount of particulates present in the oil.

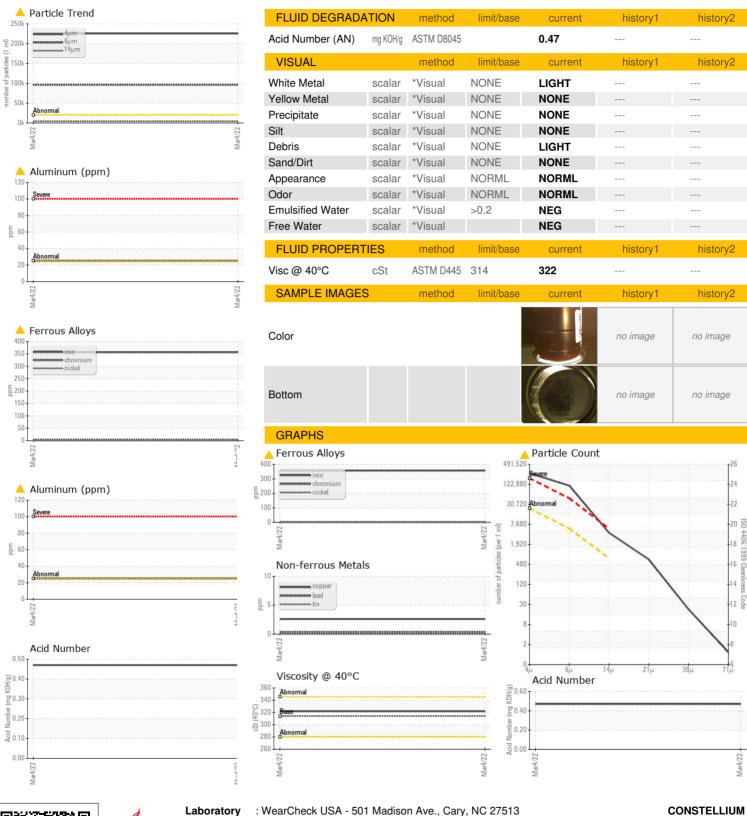
Fluid Condition

The AN level is acceptable for this fluid.

CAMPLE INFOR	MATION	and the seal	11		folia ta mod	la la La ma O
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		KFS0000150		
Sample Date		Client Info		04 Mar 2022		
Machine Age	hrs	Client Info		0		
Oil Age	hrs	Client Info		0		
Oil Changed		Client Info		N/A		
Sample Status				ABNORMAL		
CONTAMINATIO	N	method	limit/base	current	history1	history2
Water		WC Method	>0.2	NEG		
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>200	4 357		
Chromium	ppm	ASTM D5185m	>15	2		
Nickel	ppm	ASTM D5185m	>15	0		
Titanium	ppm	ASTM D5185m		<1		
Silver	ppm	ASTM D5185m		0		
Aluminum	ppm	ASTM D5185m	>25	<u>^</u> 25		
Lead	ppm	ASTM D5185m	>100	<1		
Copper	ppm	ASTM D5185m	>200	3		
Tin	ppm	ASTM D5185m	>25	0		
Antimony	ppm	ASTM D5185m		0		
Vanadium	ppm	ASTM D5185m		0		
Cadmium	ppm	ASTM D5185m				
	ppiii	AOTIVI DOTOSIII		0		
ADDITIVES	ррш	method	limit/base	current	history1	history2
	ррт		limit/base			
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 6	history1	history2
ADDITIVES Boron Barium Molybdenum	ppm	method ASTM D5185m ASTM D5185m	limit/base	current 6 0	history1	history2
ADDITIVES Boron Barium Molybdenum	ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current 6 0 2	history1	history2
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current 6 0 2 4	history1	history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current 6 0 2 4 5	history1	history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current 6 0 2 4 5 13	history1	history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base	current 6 0 2 4 5 13 259	history1	history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base	current 6 0 2 4 5 13 259 31	history1	history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m		current 6 0 2 4 5 13 259 31 4865	history1	history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base	current 6 0 2 4 5 13 259 31 4865 current	history1	history2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base	current 6 0 2 4 5 13 259 31 4865 current 4	history1 history1	history2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm	method ASTM D5185m	limit/base >50	current 6 0 2 4 5 13 259 31 4865 current 4 <1	history1 history1	history2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm	method ASTM D5185m	limit/base >50 >20	current 6 0 2 4 5 13 259 31 4865 current 4 <1 2	history1 history1	history2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN	ppm	method ASTM D5185m	limit/base >50 >20 limit/base >20000	current 6 0 2 4 5 13 259 31 4865 current 4 <1 2 current	history1 history1 history1	history2 history2 history2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm	ppm	method ASTM D5185m method ASTM D5185m	limit/base >50 >20 limit/base >20000	current 6 0 2 4 5 13 259 31 4865 current 4 <1 2 current ▲ 225634	history1 history1 history1	history2 history2 history2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >6µm	ppm	method ASTM D5185m method ASTM D5185m	limit/base >50 >20 limit/base >20000 >5000 >640	current 6 0 2 4 5 13 259 31 4865 current 4 <1 2 current ▲ 225634 ▲ 96098	history1 history1 history1	history2 history2 history2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >6µm Particles >14µm	ppm	method ASTM D5185m method ASTM D5185m ASTM D7647 ASTM D7647	limit/base >50 >20 limit/base >20000 >5000 >640	current 6 0 2 4 5 13 259 31 4865 current 4 <1 2 current ▲ 225634 ▲ 96098 ▲ 3734	history1 history1 history1	history2 history2 history2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium FLUID CLEANLIN Particles >4µm Particles >6µm Particles >14µm Particles >21µm	ppm	method ASTM D5185m method ASTM D5185m ASTM D7647 ASTM D7647 ASTM D7647	limit/base >50 >20 limit/base >20000 >5000 >640 >160 >40	current 6 0 2 4 5 13 259 31 4865 current 4 <1 2 current ▲ 225634 ▲ 96098 ▲ 3734 ▲ 590	history1 history1 history1	history2 history2 history2



OIL ANALYSIS REPORT





Laboratory Sample No.

: KFS0000150 Lab Number

: 05487795 Unique Number : 9882014

Received **Tested** Diagnosed

: 09 Mar 2022 : 13 Mar 2022

: 14 Mar 2022 - Doug Bogart

MUSCLE SHOALS, AL

Contact: Joel Even joel.even@constellium.com T: (256)740-7490

4805 SECOND STREET

Certificate 12367

Test Package : IND 2 (Additional Tests: PrtCount) 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) US 35661