

# **OIL ANALYSIS REPORT**

## Area BARRIER DEPARTMENT SAMPLES Machine Id REIFENHAUSER WEB 15 C

Component Gearbox Eluid

# TEXACO MEROPA 220 (10 GAL)

### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

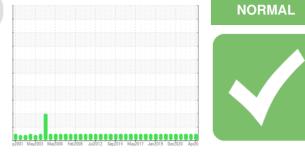
All component wear rates are normal.

#### 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 Rating Trend

Sample Date         Client Info         18 Apr 2024         20 Nov 2023         30 Oct 202           Machine Age         hrs         Client Info         0         0         0         0           Oil Age         hrs         Client Info         0         0         0         0           Oil Changed         Client Info         N/A         N/A         N/A         N/A           Sample Status          Nethod         Imit/base         current         History1         History1           Water         WC Method         >0.2         NEG         NEG         NEG           Wear         WC Method         >0.2         NEG         NEG         NEG           Wear         WC Method         >0.2         NEG         NEG         NEG           Wear         WC Method         >0.2         NEG         NEG         NEG           Nickel         ppm         ASTM D5185m         >200         6         7         6           Chromium         ppm         ASTM D5185m         >15         0         <1         0           Silver         ppm         ASTM D5185m         >25         0         2         0           Lead         ppm <th>SAMPLE INFORM</th> <th>IATION</th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Machine Age         hrs         Client Info         0         0         0           Oil Age         hrs         Client Info         N/A         N/A         N/A           Sample Status         Client Info         N/A         N/A         N/A         N/A           Sample Status         Image         Image         Current         NormAL         NORMAL           CONTAMINATION         method         Imit/base         current         history1         history1           Water         WC Method         >0.2         NEG         NEG         NEG           Iron         ppm         ASTM D5185m         >200         6         7         6           Chromium         ppm         ASTM D5185m         >15         0         <1         0           Nickel         ppm         ASTM D5185m         >15         0         <1         0           Silver         ppm         ASTM D5185m         >200         1         <1         <1           Lead         ppm         ASTM D5185m         >25         0         0         0           Copper         ppm         ASTM D5185m         >25         <1         0         0           Astm M5185m	Sample Number		Client Info		WC0913462	WC0869516	WC0682505
Oil Age         hrs         Client Info         0         0         0           Oil Changed         Client Info         N/A         N/A         N/A         N/A           Sample Status         Imathe Intro Intre Intro Intro Intro Intre Intre Intro Intro Intre Intro	Sample Date		Client Info		18 Apr 2024	20 Nov 2023	30 Oct 2022
Oil Changed         Client Info         N/A         N/A         N/A         N/A           Sample Status         Image Status         Image Status         Image Status         Normal	Machine Age	hrs	Client Info		0	0	0
Sample StatusNORMALNORMALNORMALNORMALCONTAMINATIONmethodlimit/basecurrenthistory1history1WaterWC Method>0.2NEGNEGNEGWEAR METALSmethodlimit/basecurrenthistory1history1IronppmASTM D5185m>200676ChromiumppmASTM D5185m>150<10NickelppmASTM D5185m>150<10SilverppmASTM D5185m0000AluminumppmASTM D5185m>2001<1<1IronppmASTM D5185m>2001<1<1CopperppmASTM D5185m>2001<1<1TinppmASTM D5185m>2001<1<1TinppmASTM D5185m>2001<1<1TinppmASTM D5185m>2001<1<1AntimonyppmASTM D5185m>5<VanadiumppmASTM D5185m00000CadmiumppmASTM D5185m3.27878BoronppmASTM D5185m0.17655GalciumppmASTM D5185m1.6201817PhosphorusppmASTM D5185m1.6201817	Oil Age	hrs	Client Info		0	0	0
CONTAMINATIONmethodlimit/basecurrenthistory1history1WaterWC Method>0.2NEGNEGNEGWEAR METALSmethodlimit/basecurrenthistory1history1IronppmASTM D5185m>200676ChromiumppmASTM D5185m>150<10NickelppmASTM D5185m>150<10NickelppmASTM D5185m0<100SilverppmASTM D5185m>25020LeadppmASTM D5185m>2001<1<1InnppmASTM D5185m>2001<1<1AntimonyppmASTM D5185m>2001<1<1NandiumppmASTM D5185m>25<1000CadmiumppmASTM D5185m>5VanadiumppmASTM D5185m00000ADDTIVESmethodlimit/basecurrenthistory1history1history1BoronppmASTM D5185m0.176500MolybdenumppmASTM D5185m0.17655CalciumppmASTM D5185m0.50005MaganeseppmASTM D5185m1.6201817Phosphorus<	Oil Changed		Client Info		N/A	N/A	N/A
Water         WC Method         >0.2         NEG         NEG         NEG           WEAR METALS         method         imit/base         current         history1         history1           Iron         ppm         ASTM D5185m         >200         6         7         6           Chromium         ppm         ASTM D5185m         >15         0         <1         0           Nickel         ppm         ASTM D5185m         >15         0         <1         0           Silver         ppm         ASTM D5185m         >15         0         <1         0           Aluminum         ppm         ASTM D5185m         >25         0         2         0           Lead         ppm         ASTM D5185m         >200         1         <1         0           Antimony         ppm         ASTM D5185m         >25         <1         0         0           Appm         ASTM D5185m         >200         1         <1         1         1           Antimony         ppm         ASTM D5185m         >20         <1         0         0           Cadmium         ppm         ASTM D5185m         >25         <1         0         0	Sample Status				NORMAL	NORMAL	NORMAL
WEAR METALS         method         limit/base         current         history1         history1           Iron         ppm         ASTM D5185m<>200         6         7         6           Chromium         ppm         ASTM D5185m<>15         0         <1         0           Nickel         ppm         ASTM D5185m         >15         0         <1         0           Titanium         ppm         ASTM D5185m         0         <1         0         0           Silver         ppm         ASTM D5185m         0         0         0         0           Aluminum         ppm         ASTM D5185m         >200         1         <1         0           Copper         ppm         ASTM D5185m         >200         1         <1         <1         <1           Tin         ppm         ASTM D5185m         >200         1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         0         <1         0         0 <th>CONTAMINATION</th> <th>٧</th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	CONTAMINATION	٧	method	limit/base	current	history1	history2
Iron         ppm         ASTM D5185m         >200         6         7         6           Chromium         ppm         ASTM D5185m         >15         0         <1         0           Nickel         ppm         ASTM D5185m         >15         0         <1         0           Titanium         ppm         ASTM D5185m         >15         0         <1         0           Silver         ppm         ASTM D5185m         >25         0         2         0           Lead         ppm         ASTM D5185m         >200         1         <1         <1         <1           Tin         ppm         ASTM D5185m         >200         1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         <1         0         1         <1	Water		WC Method	>0.2	NEG	NEG	NEG
Chromium         ppm         ASTM D5185m         >15         0         <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel         ppm         ASTM D5185m         >15         0         <1	Iron	ppm	ASTM D5185m	>200	6	7	6
Titanium         ppm         ASTM D5185m         0         <1	Chromium	ppm	ASTM D5185m	>15	0	<1	0
Silver         ppm         ASTM D5185m         0         0         0           Aluminum         ppm         ASTM D5185m         >25         0         2         0           Lead         ppm         ASTM D5185m         >100         0         0         0           Copper         ppm         ASTM D5185m         >200         1         <1         <1           Tin         ppm         ASTM D5185m         >25         <1         0         <1           Antimony         ppm         ASTM D5185m         >5              Vanadium         ppm         ASTM D5185m         >5              Vanadium         ppm         ASTM D5185m         >5              Vanadium         ppm         ASTM D5185m         >5         0         0         0           Cadmium         ppm         ASTM D5185m         0.5         0         0         0           Boron         ppm         ASTM D5185m         3.2         7         8         7           Barium         ppm         ASTM D5185m         0.5         0         0         0 <th>Nickel</th> <th>ppm</th> <th>ASTM D5185m</th> <th>&gt;15</th> <th>0</th> <th>&lt;1</th> <th>0</th>	Nickel	ppm	ASTM D5185m	>15	0	<1	0
Aluminum         ppm         ASTM D5185m         >25         0         2         0           Lead         ppm         ASTM D5185m         >100         0         0         0           Copper         ppm         ASTM D5185m         >200         1         <1         <1           Tin         ppm         ASTM D5185m         >25         <1         0         <1           Antimony         ppm         ASTM D5185m         >25         <1         0         <1           Antimony         ppm         ASTM D5185m         >5              Vanadium         ppm         ASTM D5185m         >5              Vanadium         ppm         ASTM D5185m         0         0         0         0           Cadmium         ppm         ASTM D5185m         3.2         7         8         7         8           Boron         ppm         ASTM D5185m         3.2         7         8         7         8           Barium         ppm         ASTM D5185m         0.5         0         0         0           Manganese         ppm         ASTM D5185m	Titanium	ppm	ASTM D5185m		0	<1	0
Lead         ppm         ASTM D5185m         >100         0         0         0           Copper         ppm         ASTM D5185m         >200         1         <1         <1           Tin         ppm         ASTM D5185m         >25         <1         0         <1           Antimony         ppm         ASTM D5185m         >5              Vanadium         ppm         ASTM D5185m         0         0         0         0           Cadmium         ppm         ASTM D5185m         3.2         7         8         7           Boron         ppm         ASTM D5185m         3.2         7         8         7           Barium         ppm         ASTM D5185m         0.5         0         0         0           Manganese         ppm         ASTM D5185m         1.1         3	Silver	ppm	ASTM D5185m		0		
Copper         ppm         ASTM D5185m         >200         1         <1	Aluminum	ppm	ASTM D5185m	>25	0	2	0
Tin         ppm         ASTM D5185m         >25         <1	Lead	ppm	ASTM D5185m	>100	0	0	0
Antimony         ppm         ASTM D5185m         >5              Vanadium         ppm         ASTM D5185m         0         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         <1         0           ADDITIVES         method         limit/base         current         history1         history           Boron         ppm         ASTM D5185m         3.2         7         8         7           Barium         ppm         ASTM D5185m         0.5         0         0         0           Molybdenum         ppm         ASTM D5185m         1.1         3         4         3           Manganese         ppm         ASTM D5185m         0.1         7         6         5           Calcium         ppm         ASTM D5185m         1.6         20         18         17           Phosphorus         ppm         ASTM D5185m         1.6         20         18         17           Phosphorus         ppm         ASTM D5185m         1.6         20         18         17           Phosphorus         ppm         ASTM D5185m         0.5         0	Copper	ppm	ASTM D5185m	>200	1	<1	
Vanadium         ppm         ASTM D5185m         0         0         0           Cadmium         ppm         ASTM D5185m         I         0         <1	Tin	ppm	ASTM D5185m	>25	<1	0	<1
Cadmium         ppm         ASTM D5185m         0         <1	Antimony	ppm	ASTM D5185m	>5			
ADDITIVES         method         limit/base         current         history1         history1           Boron         ppm         ASTM D5185m         3.2         7         8         7           Barium         ppm         ASTM D5185m         0.5         0         0         0           Molybdenum         ppm         ASTM D5185m         1.1         3         4         3           Manganese         ppm         ASTM D5185m         1.1         3         4         3           Magnesium         ppm         ASTM D5185m         0.1         7         6         5           Calcium         ppm         ASTM D5185m         1.6         20         18         17           Phosphorus         ppm         ASTM D5185m         1.59         230         230         199           Zinc         ppm         ASTM D5185m         0.5         0         0         5           Sulfur         ppm         ASTM D5185m         10342         14445         12652         12459           CONTAMINANTS         method         limit/base         current         history1         history1	Vanadium	ppm	ASTM D5185m		0		0
Boron         ppm         ASTM D5185m         3.2         7         8         7           Barium         ppm         ASTM D5185m         0.5         0         0         0           Molybdenum         ppm         ASTM D5185m         1.1         3         4         3           Manganese         ppm         ASTM D5185m         1.1         3         4         3           Manganese         ppm         ASTM D5185m         1.1         7         6         5           Calcium         ppm         ASTM D5185m         0.1         7         6         5           Calcium         ppm         ASTM D5185m         1.6         20         18         17           Phosphorus         ppm         ASTM D5185m         159         230         230         199           Zinc         ppm         ASTM D5185m         0.5         0         0         5           Sulfur         ppm         ASTM D5185m         10342         14445         12652         12459           CONTAMINANTS         method         limit/base         current         history1         history1           Silicon         ppm         ASTM D5185m         >50         2 </th <th>Cadmium</th> <th>ppm</th> <th>ASTM D5185m</th> <th></th> <th>0</th> <th>&lt;1</th> <th>0</th>	Cadmium	ppm	ASTM D5185m		0	<1	0
Barium         ppm         ASTM D5185m         0.5         0         0         0           Molybdenum         ppm         ASTM D5185m         1.1         3         4         3           Manganese         ppm         ASTM D5185m         1.1         3         4         3           Magnesium         ppm         ASTM D5185m         0.1         7         6         5           Calcium         ppm         ASTM D5185m         1.6         20         18         17           Phosphorus         ppm         ASTM D5185m         1.6         20         230         199           Zinc         ppm         ASTM D5185m         0.5         0         0         5           Sulfur         ppm         ASTM D5185m         10342         14445         12652         12459           CONTAMINANTS         method         limit/base         current         history1         history1           Silicon         ppm         ASTM D5185m         >50         2         2         2	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         1.1         3         4         3           Manganese         ppm         ASTM D5185m         0         <1	Boron	ppm	ASTM D5185m	3.2	7	8	7
Marganese         ppm         ASTM D5185m         <1	Barium	ppm	ASTM D5185m	0.5	0	0	0
Magnesium         ppm         ASTM D5185m         0.1         7         6         5           Calcium         ppm         ASTM D5185m         1.6         20         18         17           Phosphorus         ppm         ASTM D5185m         1.6         20         18         17           Phosphorus         ppm         ASTM D5185m         159         230         230         199           Zinc         ppm         ASTM D5185m         0.5         0         0         5           Sulfur         ppm         ASTM D5185m         10342         14445         12652         12459           CONTAMINANTS         method         limit/base         current         history1         history           Silicon         ppm         ASTM D5185m         >50         2         2         2	Molybdenum	ppm	ASTM D5185m	1.1	3	4	3
Calcium         ppm         ASTM D5185m         1.6         20         18         17           Phosphorus         ppm         ASTM D5185m         159         230         230         199           Zinc         ppm         ASTM D5185m         0.5         0         0         5           Sulfur         ppm         ASTM D5185m         10342         14445         12652         12459           CONTAMINANTS         method         limit/base         current         history1         history           Silicon         ppm         ASTM D5185m         >50         2         2         2	Manganese	ppm	ASTM D5185m		<1	0	0
Phosphorus         ppm         ASTM D5185m         159         230         230         199           Zinc         ppm         ASTM D5185m         0.5         0         0         5           Sulfur         ppm         ASTM D5185m         10342         14445         12652         12459           CONTAMINANTS         method         limit/base         current         history1         history           Silicon         ppm         ASTM D5185m         >50         2         2         2	Magnesium	ppm	ASTM D5185m	0.1	7	6	5
Zinc         ppm         ASTM D5185m         0.5         0         0         5           Sulfur         ppm         ASTM D5185m         10342         14445         12652         12459           CONTAMINANTS         method         limit/base         current         history1         history           Silicon         ppm         ASTM D5185m         >50         2         2         2	Calcium	ppm	ASTM D5185m	1.6	20	18	17
Sulfur         ppm         ASTM D5185m         10342         14445         12652         12459           CONTAMINANTS         method         limit/base         current         history1         history           Silicon         ppm         ASTM D5185m         >50         2         2         2	Phosphorus	ppm	ASTM D5185m	159	230	230	199
CONTAMINANTS     method     limit/base     current     history1     history       Silicon     ppm     ASTM D5185m     >50     2     2     2	Zinc	ppm	ASTM D5185m	0.5	0	0	5
Silicon         ppm         ASTM D5185m         >50         2         2         2	Sulfur	ppm	ASTM D5185m	10342	14445	12652	12459
	CONTAMINANTS		method	limit/base	current	history1	history2
	Silicon	ppm	ASTM D5185m	>50		2	2
	Sodium	ppm	ASTM D5185m		2	0	<1
Potassium         ppm         ASTM D5185m         >20         1         <1	Potassium	ppm	ASTM D5185m	>20	1	<1	0
FLUID CLEANLINESS method limit/base current history1 history	FLUID CLEANLIN	ESS	method	limit/base	current	history1	history2
Particles >4μm         ASTM D7647         27225         23864         32725	Particles >4µm		ASTM D7647		27225	23864	32725
Particles >6μm         ASTM D7647         >5000         1613         2412         2524	Particles >6µm		ASTM D7647	>5000	1613	2412	2524
Particles >14μm         ASTM D7647         >640         52         76         47	Particles >14µm		ASTM D7647	>640	52	76	47

ASTM D7647 >160

ASTM D7647 >40

ASTM D7647 >10

ISO 4406 (c) >--/19/16

12

1

0

22/18/13

Particles >21µm

Particles >38µm

Particles >71µm

**Oil Cleanliness** 

15

0

0

22/18/13

5

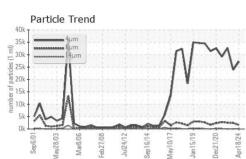
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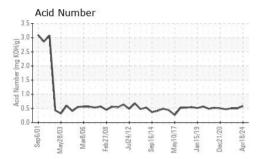
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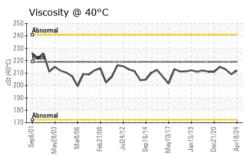
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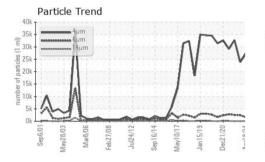


# **OIL ANALYSIS REPORT**







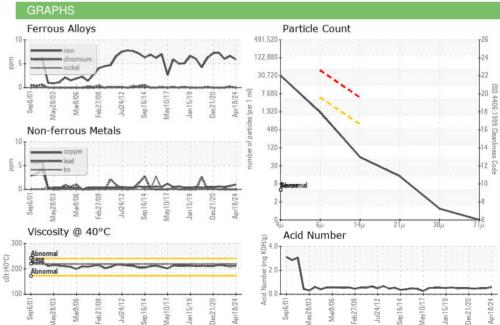


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		0.58	0.50	0.50
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	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	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	219	212	209	213
SAMPLE IMAGES		method	limit/base	current	history1	history2

Color

Bottom





**SEALED AIR CORP - CRYOVAC DIVISION** Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 Sample No. 1301 WEST MAGNOLIA AVE : WC0913462 Received : 19 Apr 2024 Lab Number : 06154327 Tested : 22 Apr 2024 IOWA PARK, TX Unique Number : 10989750 Diagnosed : 22 Apr 2024 - Wes Davis US 76367 Test Package : IND 2 (Additional Tests: PrtCount) Contact: KEVIN KETCHERSID Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. kevin.a.ketchersid@sealedair.com \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (940)592-2111 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F: (940)592-2513

Report Id: CRYIOW [WUSCAR] 06154327 (Generated: 04/22/2024 08:07:29) Rev: 1

Contact/Location: KEVIN KETCHERSID - CRYIOW

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