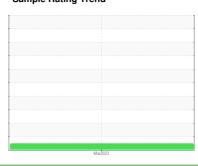


## **OIL ANALYSIS REPORT**

Sample Rating Trend







Machine Id B54497 Component Bulk Fluid Tank Fluid ISO 46 (--- QTS)

## DIAGNOSIS

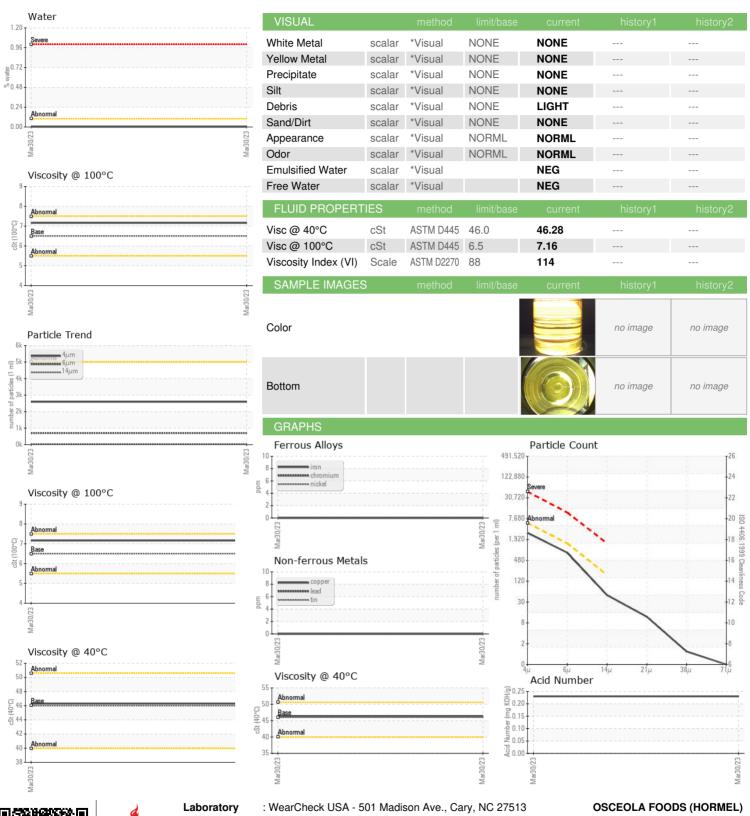
## Recommendation

This is a baseline read-out on the submitted sample.

SAMPLE INFORMATION					Mar2023		
Sample Date   Client Info   30 Mar 2023	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Machine Age   hrs   Client Info   0	Sample Number		Client Info		WC0802291		
Oil Changed   Dil Changed   Client Info   N/A	Sample Date		Client Info		30 Mar 2023		
Colic Changed Sample Status	Machine Age	hrs	Client Info		0		
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         0             Chromium         ppm         ASTM D5185m         0             Nickel         ppm         ASTM D5185m         0             Titanium         ppm         ASTM D5185m         0             Silver         ppm         ASTM D5185m         0             Aluminum         ppm         ASTM D5185m         0             Capper         ppm         ASTM D5185m         0             Copper         ppm         ASTM D5185m         0             Cadmium         ppm         ASTM D5185m         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0             Barium         ppm         ASTM D5185m         0	Oil Age	hrs	Client Info		0		
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         0             Chromium         ppm         ASTM D5185m         0             Nickel         ppm         ASTM D5185m         0             Silver         ppm         ASTM D5185m         0             Aluminum         ppm         ASTM D5185m         0             Aluminum         ppm         ASTM D5185m         0             Lead         ppm         ASTM D5185m         0             Copper         ppm         ASTM D5185m         0             Vanadium         ppm         ASTM D5185m         0             Vanadium         ppm         ASTM D5185m         0             Vanadium         ppm         ASTM D5185m         0             Boron         ppm         ASTM D5185m         0	Oil Changed		Client Info		N/A		
Chromium	Sample Status				NORMAL		
Chromium         ppm         ASTM D5185m         0	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m		0		
Description	Chromium	ppm	ASTM D5185m		0		
Astronomic   Silver	Nickel	ppm	ASTM D5185m		0		
Aluminum	Titanium	ppm	ASTM D5185m		0		
Lead	Silver	ppm	ASTM D5185m		0		
Copper         ppm         ASTM D5185m         0             Tin         ppm         ASTM D5185m         0             Vanadium         ppm         ASTM D5185m         0             Cadmium         ppm         ASTM D5185m         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0             Barium         ppm         ASTM D5185m         0             Molybdenum         ppm         ASTM D5185m         <1             Magnesium         ppm         ASTM D5185m         0             Magnesium         ppm         ASTM D5185m         0             Phosphorus         ppm         ASTM D5185m         0             Zinc         ppm         ASTM D5185m         0             Zinc         ppm         ASTM D5185m         0	Aluminum	ppm	ASTM D5185m		0		
Vanadium	Lead	ppm	ASTM D5185m		0		
Vanadium         ppm         ASTM D5185m         0             Cadmium         ppm         ASTM D5185m         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0             Barium         ppm         ASTM D5185m         0             Molybdenum         ppm         ASTM D5185m         <1	Copper	ppm	ASTM D5185m		0		
Cadmium         ppm         ASTM D5185m         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0             Barium         ppm         ASTM D5185m         <1             Molybdenum         ppm         ASTM D5185m         <1             Magnesium         ppm         ASTM D5185m         0             Magnesium         ppm         ASTM D5185m         0             Calcium         ppm         ASTM D5185m         0             Phosphorus         ppm         ASTM D5185m         0             Zinc         ppm         ASTM D5185m         0             Zinc         ppm         ASTM D5185m         0             Sulfur         ppm         ASTM D5185m         2             CONTAMINANTS         method         limit/base         current         history1         history	Tin	ppm	ASTM D5185m		0		
ADDITIVES	Vanadium	ppm	ASTM D5185m		0		
Boron   ppm   ASTM D5185m   Q	Cadmium	ppm	ASTM D5185m		0		
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum   ppm   ASTM D5185m   <1           Manganese   ppm   ASTM D5185m   <1         Magnesium   ppm   ASTM D5185m   0         Phosphorus   ppm   ASTM D5185m   0         Phosphorus   ppm   ASTM D5185m   0         Sulfur   ppm   ASTM D5185m   664         CONTAMINANTS   method   limit/base   current   history1   history2     Silicon   ppm   ASTM D5185m   0         Sodium   ppm   ASTM D5185m   0         Potassium   ppm   ASTM D5185m   0         Water   %   ASTM D6185m   0         Potassium   ppm   ASTM D6185m   0         Particles >4μm   ASTM D6304   0.002         Particles >4μm   ASTM D7647   >5000   2594         Particles >21μm   ASTM D7647   >1300   702       Particles >21μm   ASTM D7647   >160   42         Particles >21μm   ASTM D7647   >40   10         Particles >38μm   ASTM D7647   >40   10         Particles >71μm   ASTM D7647   >3   0         Particles >71μm   ASTM D7647   >3   0         FLUID DEGRADATION   method   limit/base   current   history1   history2     FLUID DEGRADATION   method   limit/base   current   history1   history2     FLUID DEGRADATION   history2   history3   history4   history4	Boron	ppm	ASTM D5185m		0		
Manganese         ppm         ASTM D5185m         <1	Barium	ppm	ASTM D5185m		0		
Magnesium         ppm         ASTM D5185m         0             Calcium         ppm         ASTM D5185m         0             Phosphorus         ppm         ASTM D5185m         483             Zinc         ppm         ASTM D5185m         0             Sulfur         ppm         ASTM D5185m         664             Sulfur         ppm         ASTM D5185m         2             CONTAMINANTS         method         limit/base         current         history1         history2           Solium         ppm         ASTM D5185m         2             Sodium         ppm         ASTM D5185m         0             Potassium         ppm         ASTM D5185m         >20         0             Water         %         ASTM D6304         0.002             Particles >4μm         ASTM D6304         22.7             Particles >50μm         ASTM D7647         >5000         2594	Molybdenum	ppm	ASTM D5185m		<1		
Calcium         ppm         ASTM D5185m         0             Phosphorus         ppm         ASTM D5185m         483             Zinc         ppm         ASTM D5185m         0             Sulfur         ppm         ASTM D5185m         664             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         2             Sodium         ppm         ASTM D5185m         0             Potassium         ppm         ASTM D5185m         >20         0             Water         %         ASTM D5185m         >20         0             Water         %         ASTM D5185m         >20         0             Water         %         ASTM D5185m         >20         0             Particles >4         math         664         0.002              Water         % <t< th=""><td>Manganese</td><td>ppm</td><td>ASTM D5185m</td><td></td><td>&lt;1</td><td></td><td></td></t<>	Manganese	ppm	ASTM D5185m		<1		
Phosphorus         ppm         ASTM D5185m         483             Sulfur         ppm         ASTM D5185m         0             Sulfur         ppm         ASTM D5185m         664             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         2             Sodium         ppm         ASTM D5185m         0             Potassium         ppm         ASTM D5185m         >20         0             Water         %         ASTM D5185m         >20         0             Water         %         ASTM D6304         0.002             Ppm Water         ppm         ASTM D6304         22.7             FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4µm         ASTM D7647         >1300         702             Particles >21µm         ASTM D7647	Magnesium	ppm	ASTM D5185m		0		
Zinc   ppm   ASTM D5185m   0       Sulfur   ppm   ASTM D5185m   664       Sulfur   ppm   ASTM D5185m   664       Sulfur   ppm   ASTM D5185m   2       Sodium   ppm   ASTM D5185m   0         Sodium   ppm   ASTM D5185m   20   0         Sodium   ppm   ASTM D5185m   >20   0         Sodium   ppm   ASTM D6304   0.002         Putter   Sodium   ppm   ASTM D6304   22.7       Putter   Sodium   ASTM D6304   22.7       Putter   Sodium   ASTM D7647   >5000   2594       Putter   Sodium   ASTM D7647   >1300   702       Putter   Sodium   ASTM D7647   >160   42       Putter   Sodium   ASTM D7647   >40   10       Putter   Sodium   ASTM D7647   >10   1       Putter   Sodium   ASTM D7647   >10   1       Putter   Sodium   ASTM D7647   >3   0         Putter   Sodium   ASTM D7647   >3   0           FLUID DEGRADATION   method   limit/base   current   history1   history2   Sodium	Calcium	ppm	ASTM D5185m		0		
Sulfur         ppm         ASTM D5185m         664             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         2             Sodium         ppm         ASTM D5185m         0             Potassium         ppm         ASTM D5185m         >20         0             Water         %         ASTM D6304         20.002              Particles > 4µm         ASTM D7647         >5000         2594             Particles > 21µm         ASTM D7647         >160         42             Parti	Phosphorus	ppm	ASTM D5185m		483		
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         2             Sodium         ppm         ASTM D5185m         0             Potassium         ppm         ASTM D5185m         >20         0             Water         %         ASTM D6304         0.002              ppm Water         ppm         ASTM D6304         22.7              FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4μm         ASTM D7647         >5000         2594             Particles >6μm         ASTM D7647         >1300         702             Particles >14μm         ASTM D7647         >160         42             Particles >21μm         ASTM D7647         >10         1             Particles >71μm         ASTM D7647         >3         0             O	Zinc	ppm	ASTM D5185m		0		
Silicon ppm ASTM D5185m 2 Sodium ppm ASTM D5185m 0 Sodium ppm ASTM D5185m 0 Sodium ppm ASTM D5185m >20 0 Sodium ppm ASTM D5185m >20 0 Sodium ppm ASTM D6304 0.002 Sodium ppm ASTM D6304 22.7 Sodium ppm ASTM D6304 22.7 Sodium ppm ASTM D6304 22.7 Sodium ppm ASTM D7647 >5000 2594 Sodium Particles >4µm ASTM D7647 >1300 702 Sodium Particles >14µm ASTM D7647 >160 42 Sodium Particles >21µm ASTM D7647 >40 10 Sodium Particles >38µm ASTM D7647 >10 1 Sodium Particles >71µm ASTM D7647 >3 0 Sodium Sodium Particles >71µm ASTM D7647 >3 0 Sodium Sod	Sulfur	ppm	ASTM D5185m		664		
Sodium	CONTAMINANTS		method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         0             Water         %         ASTM D6304         0.002             ppm Water         ppm         ASTM D6304         22.7             FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4μm         ASTM D7647         >5000         2594             Particles >6μm         ASTM D7647         >1300         702             Particles >14μm         ASTM D7647         >160         42             Particles >21μm         ASTM D7647         >40         10             Particles >38μm         ASTM D7647         >3         0             Particles >71μm         ASTM D7647         >3         0             Oil Cleanliness         ISO 4406 (c)         >19/17/14         19/17/13             FLUID DEGRADATION         method         limit/base         current         history1         history2	Silicon	ppm	ASTM D5185m		2		
Water         %         ASTM D6304         0.002             ppm Water         ppm ASTM D6304         22.7             FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4μm         ASTM D7647         >5000         2594             Particles >6μm         ASTM D7647         >1300         702             Particles >14μm         ASTM D7647         >160         42             Particles >21μm         ASTM D7647         >40         10             Particles >38μm         ASTM D7647         >10         1             Particles >71μm         ASTM D7647         >3         0             Oil Cleanliness         ISO 4406 (c)         >19/17/14         19/17/13             FLUID DEGRADATION         method         limit/base         current         history1         history2	Sodium	ppm	ASTM D5185m		0		
ppm Water         ppm         ASTM D6304         22.7             FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4μm         ASTM D7647         >5000         2594             Particles >6μm         ASTM D7647         >1300         702             Particles >14μm         ASTM D7647         >160         42             Particles >21μm         ASTM D7647         >40         10             Particles >38μm         ASTM D7647         >10         1             Particles >71μm         ASTM D7647         >3         0             Oil Cleanliness         ISO 4406 (c)         >19/17/14         19/17/13             FLUID DEGRADATION         method         limit/base         current         history1         history2	Potassium	ppm	ASTM D5185m	>20	0		
FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4μm         ASTM D7647         >5000         2594             Particles >6μm         ASTM D7647         >1300         702             Particles >14μm         ASTM D7647         >160         42             Particles >21μm         ASTM D7647         >40         10             Particles >38μm         ASTM D7647         >10         1             Particles >71μm         ASTM D7647         >3         0             Oil Cleanliness         ISO 4406 (c)         >19/17/14         19/17/13             FLUID DEGRADATION         method         limit/base         current         history1         history2	Water	%	ASTM D6304		0.002		
Particles >4μm       ASTM D7647       >5000       2594           Particles >6μm       ASTM D7647       >1300       702           Particles >14μm       ASTM D7647       >160       42           Particles >21μm       ASTM D7647       >40       10           Particles >38μm       ASTM D7647       >10       1           Particles >71μm       ASTM D7647       >3       0           Oil Cleanliness       ISO 4406 (c)       >19/17/14       19/17/13           FLUID DEGRADATION       method       limit/base       current       history1       history2	ppm Water	ppm	ASTM D6304		22.7		
Particles >6μm         ASTM D7647         >1300         702             Particles >14μm         ASTM D7647         >160         42             Particles >21μm         ASTM D7647         >40         10             Particles >38μm         ASTM D7647         >10         1             Particles >71μm         ASTM D7647         >3         0             Oil Cleanliness         ISO 4406 (c)         >19/17/14         19/17/13             FLUID DEGRADATION         method         limit/base         current         history1         history2	FLUID CLEANLIN	ESS	method	limit/base	current	history1	history2
Particles >14μm         ASTM D7647         >160         42             Particles >21μm         ASTM D7647         >40         10             Particles >38μm         ASTM D7647         >10         1             Particles >71μm         ASTM D7647         >3         0             Oil Cleanliness         ISO 4406 (c)         >19/17/14         19/17/13             FLUID DEGRADATION         method         limit/base         current         history1         history2	Particles >4µm		ASTM D7647	>5000	2594		
Particles >21μm         ASTM D7647         >40         10             Particles >38μm         ASTM D7647         >10         1             Particles >71μm         ASTM D7647         >3         0             Oil Cleanliness         ISO 4406 (c)         >19/17/14         19/17/13             FLUID DEGRADATION         method         limit/base         current         history1         history2	Particles >6µm		ASTM D7647	>1300	702		
Particles >38μm         ASTM D7647         >10         1             Particles >71μm         ASTM D7647         >3         0             Oil Cleanliness         ISO 4406 (c)         >19/17/14         19/17/13             FLUID DEGRADATION         method         limit/base         current         history1         history2	Particles >14µm		ASTM D7647	>160	42		
Particles >71µm         ASTM D7647         >3         0             Oil Cleanliness         ISO 4406 (c)         >19/17/14         19/17/13             FLUID DEGRADATION         method         limit/base         current         history1         history2	Particles >21μm		ASTM D7647	>40	10		
Oil Cleanliness ISO 4406 (c) >19/17/14 19/17/13  FLUID DEGRADATION method limit/base current history1 history2	Particles >38µm		ASTM D7647	>10	1		
FLUID DEGRADATION method limit/base current history1 history2	Particles >71µm		ASTM D7647	>3	0		
	Oil Cleanliness		ISO 4406 (c)	>19/17/14	19/17/13		
Acid Number (AN)         mg KOH/g         ASTM D8045         0.23	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
	Acid Number (AN)	mg KOH/g	ASTM D8045		0.23		



## **OIL ANALYSIS REPORT**







Certificate L2367

Sample No. Lab Number **Unique Number** 

: WC0802291 : 05817903 : 10425986

Received : 12 Apr 2023 Diagnosed

: 15 Apr 2023 Diagnostician : Doug Bogart Test Package : IND 2 (Additional Tests: KF, KV100, PrtCount, VI)

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)

1027 WARREN AVE OSCEOLA, IA US 50213 Contact: WADE MYERS

wlmyers@hormel.com T: (641)342-8043

Contact/Location: WADE MYERS - OSCOSC

F: (641)342-8047