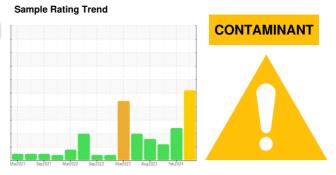


OIL ANALYSIS REPORT

PELLET MILL MEZENINE P0315 PELLET MILL (S/N 1997-00763A11)

Component **Gearbox**

USPI FG GEAR 220 (30 GAL)



DIAGNOSIS

Recommendation

We advise an early resample to confirm this situation.

Wear

All component wear rates are normal.

Contamination

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

Fluid Condition

The oil viscosity is higher than normal. This plus the additive levels indicates the addition of a different brand or type of oil. Confirmed. The AN level is acceptable for this fluid.

| Client Info | SAMPLE INFORM | MATION | method | limit/base | current | history1 | history2 |
|--|------------------|----------|--------------|------------|-----------------|-----------------|-------------|
| Machine Age hrs | Sample Number | | Client Info | | USPM36327 | USPM27617 | USPM27616 |
| Dil Changed | Sample Date | | Client Info | | 30 May 2024 | 29 Feb 2024 | 27 Nov 2023 |
| Dil Changed Client Info N/A ABNORMAL ABNORMAL ABNORMAL ABNORMAL ABNORMAL ATTENTION ABNORMAL ABNORMAL ATTENTION ABNORMAL | Machine Age | hrs | Client Info | | 0 | 0 | 0 |
| Sample Status ABNORMAL ABNORMAL ABNORMAL ATTENTION WEAR METALS method limit/base current history1 history2 ron ppm ASTM D5185m >200 6 0 <1 | Oil Age | hrs | Client Info | | 0 | 0 | 0 |
| WEAR METALS method limit/base current history1 history2 ron ppm ASTM D5185m >200 6 0 <1 | Oil Changed | | Client Info | | N/A | N/A | Not Changd |
| Chromium ppm ASTM D5185m >200 6 | Sample Status | | | | ABNORMAL | ABNORMAL | ATTENTION |
| Chromium ppm ASTM D5185m >15 0 0 <1 Nickel ppm ASTM D5185m >15 0 0 <1 | WEAR METALS | | method | limit/base | current | history1 | history2 |
| Nickel ppm ASTM D5185m >15 0 0 0 <1 Fitanium ppm ASTM D5185m 0 0 0 0 0 Numinum ppm ASTM D5185m 0 0 0 0 0 Numinum ppm ASTM D5185m >25 2 0 0 2 Lead ppm ASTM D5185m >25 0 2 0 0 0 Copper ppm ASTM D5185m >20 0 0 0 0 Nanadium ppm ASTM D5185m >25 0 0 0 0 0 Nanadium ppm ASTM D5185m 0 0 0 0 0 0 Nanadium ppm ASTM D5185m 0 0 0 0 0 0 ADDITIVES method limit/base current history1 history3 Malphotenum ppm ASTM D5185m 0 0 0 0 0 0 ADDITIVES method limit/base current history1 history4 Manganese ppm ASTM D5185m 0 0 0 0 0 0 0 Malphotenum ppm ASTM D5185m 0 0 0 0 0 0 0 Manganesium ppm ASTM D5185m 0 0 0 0 0 0 0 0 Manganesium ppm ASTM D5185m 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | ron | ppm | ASTM D5185m | >200 | 6 | 0 | <1 |
| Description | Chromium | ppm | ASTM D5185m | >15 | 0 | 0 | <1 |
| Silver | Nickel | ppm | ASTM D5185m | >15 | 0 | 0 | <1 |
| According Acco | Titanium | ppm | ASTM D5185m | | 0 | 0 | <1 |
| Aluminum | Silver | | ASTM D5185m | | 0 | 0 | 0 |
| Lead ppm ASTM D5185m >100 0 0 0 Copper ppm ASTM D5185m >200 <1 0 <1 Zanadium ppm ASTM D5185m 0 0 <1 Zandium ppm ASTM D5185m 0 0 <1 ADDITIVES method limit/base current history1 history1 ADDITIVES method limit/base current history1 history2 Barium ppm ASTM D5185m 0 0 0 0 Barium ppm ASTM D5185m 0 0 0 0 Magnesium ppm ASTM D5185m 18 0 <1 0 Magnesium ppm ASTM D5185m 988 572 511 0 Calcium ppm ASTM D5185m 988 572 511 0 Contacium ppm ASTM D5185m 0 0 0 <td>Aluminum</td> <td>ppm</td> <td>ASTM D5185m</td> <td>>25</td> <td>2</td> <td>0</td> <td>2</td> | Aluminum | ppm | ASTM D5185m | >25 | 2 | 0 | 2 |
| Copper | _ead | | ASTM D5185m | >100 | 0 | 0 | 0 |
| Fin | Copper | | ASTM D5185m | >200 | <1 | 0 | <1 |
| Vanadium ppm ASTM D5185m 0 0 <1 Cadmium ppm ASTM D5185m 0 0 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 Barium ppm ASTM D5185m 0 0 0 0 Manganese ppm ASTM D5185m 0 0 <1 0 <1 Manganesium ppm ASTM D5185m 18 0 <1 <1 0 <1 Calcium ppm ASTM D5185m 18 0 <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< | Tin | | ASTM D5185m | >25 | 0 | | <1 |
| Cadmium ppm ASTM D5185m 0 0 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 Barium ppm ASTM D5185m 0 0 0 Wanganese ppm ASTM D5185m 0 1 0 <1 Wanganesium ppm ASTM D5185m 18 0 <1 Wagnesium ppm ASTM D5185m 988 572 511 Calcium ppm ASTM D5185m 988 572 511 Zinc ppm ASTM D5185m 0 0 0 Zinc ppm ASTM D5185m 0 0 0 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m 20 7 <1 <1 Contassium ppm ASTM D5185m 20 0 <td>Vanadium</td> <td></td> <td>ASTM D5185m</td> <td></td> <td>0</td> <td>0</td> <td><1</td> | Vanadium | | ASTM D5185m | | 0 | 0 | <1 |
| Boron ppm ASTM D5185m 0 0 0 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 0 0 <1 Manganese ppm ASTM D5185m <1 0 <1 Magnesium ppm ASTM D5185m 18 0 <1 Calcium ppm ASTM D5185m 988 572 511 Calcium ppm ASTM D5185m 988 572 511 Zinc ppm ASTM D5185m 0 0 0 Obusture ppm ASTM D5185m 0 666 656 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m 20 7 <1 <1 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m 20 7 | Cadmium | | | | - | | |
| ### Barium | ADDITIVES | | method | limit/base | current | history1 | history2 |
| ### Barium | Boron | maa | ASTM D5185m | | 0 | 0 | 0 |
| Molybdenum ppm ASTM D5185m 0 0 <1 Manganese ppm ASTM D5185m <1 0 <1 Magnesium ppm ASTM D5185m 18 0 <1 Calcium ppm ASTM D5185m 988 572 511 Zinc ppm ASTM D5185m 0 0 0 Zinc ppm ASTM D5185m 0 0 0 Zinc ppm ASTM D5185m 0 0 0 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >50 7 <1 <1 Sodium ppm ASTM D5185m 20 4 0 1 Water % ASTM D6185m >20 4 0 1 Water % ASTM D6304 >0.2 0.016 0.001 0.004 Particles >4µm ASTM D7647 >20000 40 | Barium | | ASTM D5185m | | | | 0 |
| Manganese ppm ASTM D5185m <1 0 <1 Magnesium ppm ASTM D5185m 18 0 <1 Calcium ppm ASTM D5185m 4125 2 3 Phosphorus ppm ASTM D5185m 988 572 511 Zinc ppm ASTM D5185m 0 0 0 Sulfur ppm ASTM D5185m 0 0 0 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >50 7 <1 <1 Godium ppm ASTM D5185m >50 7 <1 <1 Solicon ppm ASTM D5185m ≥20 4 0 1 Water % ASTM D5185m ≥20 4 0 1 Water % ASTM D6304 >0.2 0.016 0.001 0.004 Particles >4µm ASTM D7647 | | | | | - | | |
| Magnesium ppm ASTM D5185m ■ 18 0 <1 Calcium ppm ASTM D5185m ■ 4125 2 3 Phosphorus ppm ASTM D5185m ■ 988 572 5111 Zinc ppm ASTM D5185m ■ 0 0 0 0 Gulfur ppm ASTM D5185m ■ 1653 686 656 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >50 7 <1 <1 Godium ppm ASTM D5185m >20 4 0 1 Vater % ASTM D6304 >0.2 0.016 0.001 0.004 Open Water ppm ASTM D6304 >2000 168 11 49 PLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >20000 404802 25739 8962 | - | | | | - | | |
| Calcium ppm ASTM D5185m 4125 2 3 Phosphorus ppm ASTM D5185m 988 572 511 Zinc ppm ASTM D5185m 0 0 0 Sulfur ppm ASTM D5185m 0 686 656 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >50 7 <1 <1 <1 Godium ppm ASTM D5185m >50 7 <1 <1 <1 Potassium ppm ASTM D5185m >20 4 0 1 Water % ASTM D6304 >0.2 0.016 0.001 0.001 | - | | | | | | |
| Phosphorus ppm ASTM D5185m ● 988 572 511 Zinc ppm ASTM D5185m ● 0 0 0 Gulfur ppm ASTM D5185m ● 1653 686 656 CONTAMINANTS method limit/base current history1 history2 Gilicon ppm ASTM D5185m >50 7 <1 <1 Godium ppm ASTM D5185m >20 4 0 1 Potassium ppm ASTM D5185m >20 4 0 1 Water % ASTM D5185m >20 4 0 1 Particles >4m ASTM D6304 >0.2 0.016 0.001 0.001 0.001 | • | | | | | | |
| Description | | | | | - | | |
| CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >50 7 <1 | | | | | | | |
| CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >50 7 <1 | - | | | | _ | | |
| Soliticon ppm ASTM D5185m >50 7 <1 <1 <1 <1 <1 <1 <1 | | | | 11 11 11 | • | | |
| Sodium ppm ASTM D5185m 2 0 0 0 | | | | | | | |
| Potassium ppm ASTM D5185m >20 4 0 1 Water % ASTM D6304 >0.2 0.016 0.001 0.004 opm Water ppm ASTM D6304 >2000 168 11 49 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4μm ASTM D7647 >20000 Δ404802 Δ25739 8962 Particles >6μm ASTM D7647 >5000 Δ329665 Δ18849 4160 Particles >14μm ASTM D7647 >640 Δ49006 Δ8825 1122 Particles >21μm ASTM D7647 >40 Δ53 Δ72 11 Particles >71μm ASTM D7647 >10 1 6 1 Particles >71μm ASTM D7647 >10 1 6 1 Dil Cleanliness ISO 4406 (c) >21/19/16 Δ26/26/23 Δ22/21/20 20/19/17 | Silicon | ppm | ASTM D5185m | >50 | | | |
| Water % ASTM D6304 by 2000 >0.2 0.016 by 2001 0.001 by 2001 0.004 by 2001 | Sodium | ppm | ASTM D5185m | | 2 | 0 | 0 |
| Opm Water ppm ASTM D6304 >2000 168 11 49 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4μm ASTM D7647 >20000 404802 25739 8962 Particles >6μm ASTM D7647 >5000 329665 18849 4160 Particles >14μm ASTM D7647 >640 49006 8825 1122 Particles >21μm ASTM D7647 >160 2783 3127 295 Particles >38μm ASTM D7647 >40 53 72 11 Particles >71μm ASTM D7647 >10 1 6 1 Dil Cleanliness ISO 4406 (c) >21/19/16 26/26/23 22/21/20 20/19/17 FLUID DEGRADATION method limit/base current history1 history2 | Potassium | | ASTM D5185m | >20 | 4 | 0 | 1 |
| FLUID CLEANLINESS method limit/base current history1 history2 Particles >4μm ASTM D7647 >20000 Δ 404802 Δ 25739 8962 Particles >6μm ASTM D7647 >5000 Δ 329665 Δ 18849 4160 Particles >14μm ASTM D7647 >640 Δ 49006 Δ 8825 1122 Particles >21μm ASTM D7647 >160 Δ 2783 Δ 3127 295 Particles >38μm ASTM D7647 >40 Δ 53 Δ 72 11 Particles >71μm ASTM D7647 >10 1 6 1 Particles >71μm <t< td=""><td>Water</td><td>%</td><td>ASTM D6304</td><td>>0.2</td><td>0.016</td><td>0.001</td><td>0.004</td></t<> | Water | % | ASTM D6304 | >0.2 | 0.016 | 0.001 | 0.004 |
| Particles >4μm ASTM D7647 >20000 404802 ≥25739 8962 Particles >6μm ASTM D7647 >5000 329665 18849 4160 Particles >14μm ASTM D7647 >640 49006 8825 1122 Particles >21μm ASTM D7647 >160 2783 3127 295 Particles >38μm ASTM D7647 >40 53 72 11 Particles >71μm ASTM D7647 >10 1 6 1 Dil Cleanliness ISO 4406 (c) >21/19/16 26/26/23 22/21/20 20/19/17 FLUID DEGRADATION method limit/base current history1 history2 | opm Water | ppm | ASTM D6304 | >2000 | 168 | 11 | 49 |
| Particles >6μm ASTM D7647 >5000 A 329665 A 18849 4160 Particles >14μm ASTM D7647 >640 A 49006 A 8825 1122 Particles >21μm ASTM D7647 >160 A 2783 A 3127 295 Particles >38μm ASTM D7647 >40 53 72 11 Particles >71μm ASTM D7647 >10 1 6 1 Dil Cleanliness ISO 4406 (c) >21/19/16 A 26/26/23 A 22/21/20 20/19/17 FLUID DEGRADATION method limit/base current history1 history2 | FLUID CLEANLIN | IESS | method | limit/base | current | history1 | history2 |
| Particles >14μm ASTM D7647 >640 ▲ 49006 ▲ 8825 ■ 1122 Particles >21μm ASTM D7647 >160 ▲ 2783 ▲ 3127 ■ 295 Particles >38μm ASTM D7647 >40 ▲ 53 ▲ 72 11 Particles >71μm ASTM D7647 >10 1 6 1 Dil Cleanliness ISO 4406 (c) >21/19/16 ▲ 26/26/23 ▲ 22/21/20 ■ 20/19/17 FLUID DEGRADATION method limit/base current history1 history2 | Particles >4µm | | | | | | |
| Particles >21μm ASTM D7647 >160 ▲ 2783 ▲ 3127 ≥95 Particles >38μm ASTM D7647 >40 ▲ 53 ▲ 72 11 Particles >71μm ASTM D7647 >10 1 6 1 Dil Cleanliness ISO 4406 (c) >21/19/16 ▲ 26/26/23 ▲ 22/21/20 ● 20/19/17 FLUID DEGRADATION method limit/base current history1 history2 | Particles >6µm | | | | | <u>▲</u> 18849 | 4160 |
| Particles >38μm ASTM D7647 >40 ▲ 53 ▲ 72 11 Particles >71μm ASTM D7647 >10 1 6 1 Dil Cleanliness ISO 4406 (c) >21/19/16 ▲ 26/26/23 ▲ 22/21/20 ● 20/19/17 FLUID DEGRADATION method limit/base current history1 history2 | Particles >14µm | | | | | | |
| Particles >71μm ASTM D7647 >10 1 6 1 Dil Cleanliness ISO 4406 (c) >21/19/16 ▲ 26/26/23 ▲ 22/21/20 ● 20/19/17 FLUID DEGRADATION method limit/base current history1 history2 | Particles >21µm | | | >160 | | <u>▲</u> 3127 | 295 |
| Dil Cleanliness ISO 4406 (c) >21/19/16 ▲ 26/26/23 ▲ 22/21/20 ● 20/19/17 FLUID DEGRADATION method limit/base current history1 history2 | Particles >38μm | | ASTM D7647 | >40 | <u>▲</u> 53 | <u> </u> | 11 |
| FLUID DEGRADATION method limit/base current history1 history2 | Particles >71μm | | ASTM D7647 | >10 | 1 | 6 | 1 |
| | Oil Cleanliness | | ISO 4406 (c) | >21/19/16 | 26/26/23 | <u>22/21/20</u> | 0 20/19/17 |
| Acid Number (AN) mg KOH/g ASTM D8045 0.40 0.34 0.31 | FLUID DEGRADA | ATION | method | limit/base | current | history1 | history2 |
| | Acid Number (AN) | mg KOH/g | ASTM D8045 | | 0.40 | 0.34 | 0.31 |



OIL ANALYSIS REPORT





Certificate 12367

Sample No.

Laboratory Lab Number

: USPM36327 : 06197709 Unique Number : 11059832 Test Package : IND 2

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 03 Jun 2024 **Tested** : 10 Jun 2024

Diagnosed : 10 Jun 2024 - Doug Bogart **CARGILL CFN** 70 AGWAY LN WINFIELD, PA US 17889

Contact: Service Manager

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)

T:

F: