

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id BUSCH L5 - FLOOR (S/N CHM122010119) Component Vacuum Pump

Fluid

USPI VAC 100 (--- GAL)

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil. The amount and size of particulates present in the system are acceptable.

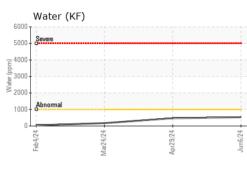
Fluid Condition

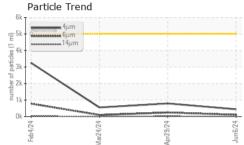
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

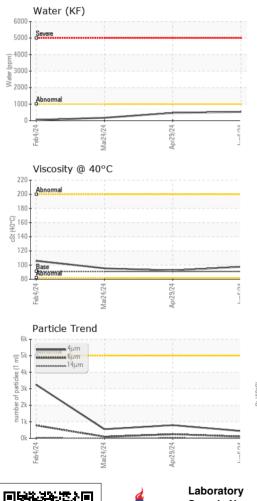
| Sample Date Client Info 06 Jun 2024 29 Apr 2024 24 Mar 2024 Machine Age hrs Client Info 0 0 0 Oil Age hrs Client Info 0 0 0 Oil Age hrs Client Info N/A N/A N/A Sample Status Client Info N/A N/A N/A N/A WEAR METALS method imit/base current history1 history2 Iron ppm ASTM D5185m >20 0 0 0 Nickel ppm ASTM D5185m >20 0 -1 -1 Nickel ppm ASTM D5185m >20 0 -1 0 Silver ppm ASTM D5185m >20 0 -1 0 Copper ppm ASTM D5185m >20 0 -1 0 Cadmium ppm ASTM D5185m >20 0 -1 0 Cadmium p | 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 Image NoRMAL ATTENTION NORMAL WEAR METALS method Imit/Dase current history1 history2 Iron ppm ASTM DS185m >20 0 0 0 Chromium ppm ASTM DS185m >20 0 <1 <1 Nickel ppm ASTM DS185m >20 0 <1 <1 Silver ppm ASTM DS185m >20 0 <1 0 0 Silver ppm ASTM DS185m >20 0 <1 0 | Sample Number | | Client Info | | USPM37531 | USPM36016 | USPM36904 |
| Oil Age hrs Client Info 0 0 0 Oil Changed Client Info N/A N/A N/A N/A Sample Status Imithod Imithod Imithod NORMAL ATTENTION NORMAL WEAR METALS ppm ASTM D5185m >20 0 0 0 Iron ppm ASTM D5185m >20 0 <1 <1 Nickel ppm ASTM D5185m >20 0 <1 <1 Nickel ppm ASTM D5185m >20 0 <1 <1 <1 Itanium ppm ASTM D5185m >20 0 <1 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 <th>Sample Date</th> <th></th> <th>Client Info</th> <th></th> <th>06 Jun 2024</th> <th>29 Apr 2024</th> <th>24 Mar 2024</th> | Sample Date | | Client Info | | 06 Jun 2024 | 29 Apr 2024 | 24 Mar 2024 |
| Oil Changed Client Info N/A N/A N/A N/A N/A Sample Status method Imil/base current history1 NormAL WEAR METALS method Imil/base current history1 history2 Iron ppm ASTM 05185m >20 <1 <1 <1 Nickel ppm ASTM 05185m >20 o <1 0 Silver ppm ASTM 05185m >20 0 <1 0 Gopper ppm ASTM 05185m >20 0 <1 0 Cadmium ppm ASTM 05185m 0 0 <1 0 Astm D5185m 0 0 0 0 0 <th>Machine Age</th> <th>hrs</th> <th>Client Info</th> <th></th> <th>0</th> <th>0</th> <th>0</th> | Machine Age | hrs | Client Info | | 0 | 0 | 0 |
| Sample Status nethod Imit/base current history1 history2 Iron ppm ASTM D5185m >20 0 0 0 Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >20 0 <1 <1 Titanium ppm ASTM D5185m 0 0 <1 <1 Silver ppm ASTM D5185m >20 0 <1 <1 Lead ppm ASTM D5185m >20 0 <1 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 <1 <1 <1 <1 <1 1 <1 <1 | • | hrs | Client Info | | 0 | 0 | 0 |
| WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >20 0 0 0 Chromium ppm ASTM D5185m >20 c1 <1 <1 Nickel ppm ASTM D5185m >20 0 <1 0 Silver ppm ASTM D5185m 20 0 <1 0 Aluminum ppm ASTM D5185m >20 0 <1 0 Copper ppm ASTM D5185m >20 0 <1 0 Cadmium ppm ASTM D5185m >20 0 <1 0 Cadmium ppm ASTM D5185m 0 <1 0 0 Cadmium ppm ASTM D5185m 0 0 <1 0 Cadmium ppm ASTM D5185m 0 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 | Oil Changed | | Client Info | | N/A | N/A | N/A |
| Iron ppm ASTM D5185m >20 0 0 0 Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >20 0 <1 0 Silver ppm ASTM D5185m >20 0 <1 0 Auminum ppm ASTM D5185m >20 0 <1 0 Lead ppm ASTM D5185m >20 0 <1 0 Copper ppm ASTM D5185m >20 0 <1 0 Vanadium ppm ASTM D5185m >20 0 <1 0 Cadmium ppm ASTM D5185m 0 0 <1 0 Cadmium ppm ASTM D5185m 0 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 0 Magnesium ppm ASTM D5185m 0 <td< th=""><th>0</th><th></th><th></th><th></th><th>NORMAL</th><th>ATTENTION</th><th>NORMAL</th></td<> | 0 | | | | NORMAL | ATTENTION | NORMAL |
| Chromium ppm ASTM D5185m >20 <1 | WEAR METALS | | method | limit/base | current | history1 | history2 |
| Chromium ppm ASTM D5185m >20 <1 | Iron | ppm | ASTM D5185m | >20 | 0 | 0 | 0 |
| Titanium ppm ASTM D5185m 0 <1 | Chromium | ppm | ASTM D5185m | >20 | <1 | <1 | <1 |
| Titanium ppm ASTM D5185m 0 <1 | Nickel | ppm | ASTM D5185m | >20 | 0 | <1 | <1 |
| Silver ppm ASTM D5185m 0 0 0 Aluminum ppm ASTM D5185m >20 0 <1 <1 Lead ppm ASTM D5185m >20 0 0 0 0 Copper ppm ASTM D5185m >20 0 0 0 0 Tin ppm ASTM D5185m >20 <1 <1 <1 0 Cadmium ppm ASTM D5185m >20 <1 <1 0 0 Cadmium ppm ASTM D5185m 0 0 <1 0 0 ADDITVES method Imit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 0 Magnaese ppm ASTM D5185m 0 0 0 0 0 0 Magnaesium ppm ASTM D5185m 0 32 667 69 0 | Titanium | | ASTM D5185m | | 0 | <1 | 0 |
| Aluminum ppm ASTM D5185m >20 0 <1 | | | | | 0 | | |
| Lead ppm ASTM D5185m >20 0 <1 | | | | >20 | | | |
| Copper ppm ASTM D5185m >20 0 0 0 Tin ppm ASTM D5185m >20 <1 <1 <1 Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 <1 0 ADDITIVES method Imit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 Magnaese ppm ASTM D5185m 0 0 0 0 Magnesium ppm ASTM D5185m 0 0 0 0 Magnesium ppm ASTM D5185m 0 0 0 0 0 Phosphorus ppm ASTM D5185m 0 0 0 0 0 0 Sulfur ppm ASTM D5185m 1800 817 585 17 Zinc ppm ASTM D5185m 0 0 0< | | | | | - | | |
| Tin ppm ASTM D5185m >20 <1 | | | | | | | |
| Vanadium ppm ASTM D5185m 0 <1 | | | | | - | | |
| Cadmium ppm ASTM D5185m 0 <1 | | | | 220 | | | |
| ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 0 Barium ppm ASTM D5185m 0 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 0 Magnesium ppm ASTM D5185m 0 0 0 0 0 Calcium ppm ASTM D5185m 0 0 0 0 0 Phosphorus ppm ASTM D5185m 0 0 0 0 0 Sulfur ppm ASTM D5185m 1800 817 585 17 Zinc ppm ASTM D5185m 0 0 0 0 0 Sulfur ppm ASTM D5185m 0 0 0 <1 1 Sodium ppm ASTM D5185m >20 0 1 <1 0 <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> | | | | | | | |
| Boron ppm ASTM D5185m 0 0 0 0 0 Barium ppm ASTM D5185m 0 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 0 Magnese ppm ASTM D5185m 0 0 -<1 0 Magnesium ppm ASTM D5185m 0 0 0 0 0 Calcium ppm ASTM D5185m 0 0 0 0 0 Phosphorus ppm ASTM D5185m 1800 817 585 17 Zinc ppm ASTM D5185m 1800 817 585 17 Zinc ppm ASTM D5185m 0 0 0 0 0 Sulfur ppm ASTM D5185m >15 2 3 4 Sodium ppm ASTM D5185m >20 0 1 <1 Vater | ADDITIVES | I- I- | | limit/base | | historv1 | historv2 |
| Barium ppm ASTM D5185m 0 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 Magnese ppm ASTM D5185m 0 0 0 0 Magnesium ppm ASTM D5185m 0 0 0 0 Calcium ppm ASTM D5185m 0 0 0 0 Phosphorus ppm ASTM D5185m 0 0 0 0 Sulfur ppm ASTM D5185m 0 32 6677 69 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m 0 32 6677 69 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 2 3 4 Sodium ppm ASTM D5185m >20 0 <th></th> <th>nnm</th> <th></th> <th></th> <th></th> <th></th> <th></th> | | nnm | | | | | |
| Molybdenum ppm ASTM D5185m 0 0 0 0 Manganese ppm ASTM D5185m 0 0 0 0 0 Magnesium ppm ASTM D5185m 0 0 0 0 0 Calcium ppm ASTM D5185m 0 0 0 0 0 Phosphorus ppm ASTM D5185m 1800 817 585 17 Zinc ppm ASTM D5185m 0 0 0 0 0 0 Sulfur ppm ASTM D5185m 0 32 6677 69 CONTAMINANTS method limit/base current history1 history2 Solium ppm ASTM D5185m >15 2 3 4 Sodium ppm ASTM D5185m >20 0 1 1 Vater % ASTM D6304 >1 0.053 0.046 0.017 ppm <th< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th></th<> | | | | | | | |
| Marganese ppm ASTM D5185m 0 <1 | | | | | | | |
| Magnesium ppm ASTM D5185m 0 0 0 0 0 Calcium ppm ASTM D5185m 0 0 0 0 0 Phosphorus ppm ASTM D5185m 1800 817 585 17 Zinc ppm ASTM D5185m 0 0 0 0 0 Sulfur ppm ASTM D5185m 0 32 667 69 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 2 3 4 Sodium ppm ASTM D5185m >20 0 1 <1 Potassium ppm ASTM D5185m >20 0 1 <1 Water % ASTM D6304 >.1 0.053 0.046 0.017 ppm Water ppm ASTM D7647 >5000 441 793 550 Particles >4µm ASTM D7647 <th>,</th> <th></th> <th></th> <th>0</th> <th></th> <th></th> <th></th> | , | | | 0 | | | |
| Calcium ppm ASTM D5185m 0 0 0 0 Phosphorus ppm ASTM D5185m 1800 817 585 17 Zinc ppm ASTM D5185m 0 0 0 0 Sulfur ppm ASTM D5185m 0 32 667 69 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 2 3 4 Sodium ppm ASTM D5185m >15 2 3 4 Sodium ppm ASTM D5185m >20 0 1 <1 Potassium ppm ASTM D5185m >20 0 1 <1 Water % ASTM D50304 >.1 0.0533 0.046 0.017 ppm Water ppm ASTM D6304 >1000 532 469 175 FLUID CLEANLINESS method limit/base current | • | | | 0 | - | | |
| Phosphorus ppm ASTM D5185m 1800 817 585 17 Zinc ppm ASTM D5185m 0 0 0 0 0 0 Sulfur ppm ASTM D5185m 0 32 667 69 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 2 3 4 Sodium ppm ASTM D5185m >15 2 3 4 Sodium ppm ASTM D5185m >20 0 1 <1 | - | | | | | | |
| Zinc ppm ASTM D5185m 0 0 0 0 0 Sulfur ppm ASTM D5185m 0 32 667 69 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 2 3 4 Sodium ppm ASTM D5185m >15 2 3 4 Sodium ppm ASTM D5185m >20 0 1 <1 Potassium ppm ASTM D6304 >.1 0.053 0.046 0.017 ppm Water ppm ASTM D6304 >.1000 532 469 175 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >5000 441 793 550 Particles >6µm ASTM D7647 >1300 108 246 95 Particles >14µm ASTM D7647 160 8 | | | | | - | | |
| Sulfur ppm ASTM D5185m 0 32 667 69 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 2 3 4 Sodium ppm ASTM D5185m >15 2 3 4 Potassium ppm ASTM D5185m >20 0 1 <1 Potassium ppm ASTM D6304 >.1 0.053 0.046 0.017 ppm Water ppm ASTM D6304 >.1000 532 469 175 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >5000 441 793 550 Particles >6µm ASTM D7647 >1300 108 246 95 Particles >14µm ASTM D7647 >160 8 20 8 Particles >38µm ASTM D7647 10 1 1 | | | | | | | |
| CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 2 3 4 Sodium ppm ASTM D5185m >15 2 3 4 Potassium ppm ASTM D5185m >20 0 1 <1 Water % ASTM D6304 >.1 0.053 0.046 0.017 ppm Water ppm ASTM D6304 >.1 0.053 0.046 0.017 ppm Water ppm ASTM D6304 >.1000 532 469 175 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >5000 441 793 550 Particles >6µm ASTM D7647 >1300 108 246 95 Particles >14µm ASTM D7647 >160 8 20 8 Particles >38µm ASTM D7647 >10 1 1 | - | | | | - | | |
| Silicon ppm ASTM D5185m >15 2 3 4 Sodium ppm ASTM D5185m >15 0 0 <1 | | | ASTM D5185m | - | 32 | | |
| Sodium ppm ASTM D5185m 0 0 <1 | | | | | | | |
| Potassium ppm ASTM D5185m >20 0 1 <1 | Silicon | ppm | | >15 | | | |
| Water % ASTM D6304 >.1 0.053 0.046 0.017 ppm Water ppm ASTM D6304 >.1 0.053 0.046 0.017 Ppm Water ppm ASTM D6304 >.1000 532 469 175 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >5000 441 793 550 Particles >6µm ASTM D7647 >1300 108 246 95 Particles >14µm ASTM D7647 >160 8 20 8 Particles >21µm ASTM D7647 >40 2 4 3 Particles >38µm ASTM D7647 >10 1 1 0 Particles >71µm ASTM D7647 >3 0 0 0 | Sodium | ppm | ASTM D5185m | | 0 | 0 | <1 |
| ppm Water ppm ASTM D6304 >1000 532 469 175 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >5000 441 793 550 Particles >6µm ASTM D7647 >1300 108 246 95 Particles >6µm ASTM D7647 >160 8 20 8 Particles >14µm ASTM D7647 >40 2 4 3 Particles >38µm ASTM D7647 >10 1 1 0 Particles >71µm ASTM D7647 >3 0 0 0 | Potassium | ppm | ASTM D5185m | >20 | 0 | | |
| FLUID CLEANLINESS method limit/base current history1 history2 Particles >4μm ASTM D7647 >5000 441 793 550 Particles >6μm ASTM D7647 >1300 108 246 95 Particles >14μm ASTM D7647 >160 8 20 8 Particles >21μm ASTM D7647 >40 2 4 3 Particles >38μm ASTM D7647 >10 1 1 0 Particles >71μm ASTM D7647 >3 0 0 0 | Water | % | ASTM D6304 | >.1 | 0.053 | 0.046 | 0.017 |
| Particles >4μm ASTM D7647 >5000 441 793 550 Particles >6μm ASTM D7647 >1300 108 246 95 Particles >14μm ASTM D7647 >160 8 20 8 Particles >14μm ASTM D7647 >40 2 4 3 Particles >21μm ASTM D7647 >10 1 1 0 Particles >38μm ASTM D7647 >3 0 0 0 | ppm Water | ppm | ASTM D6304 | >1000 | 532 | 469 | 175 |
| Particles >6μm ASTM D7647 >1300 108 246 95 Particles >14μm ASTM D7647 >160 8 20 8 Particles >21μm ASTM D7647 >40 2 4 3 Particles >38μm ASTM D7647 >10 1 1 0 Particles >71μm ASTM D7647 >3 0 0 0 | FLUID CLEANLIN | IESS | method | limit/base | current | history1 | history2 |
| Particles >14μm ASTM D7647 >160 8 20 8 Particles >21μm ASTM D7647 >40 2 4 3 Particles >38μm ASTM D7647 >10 1 1 0 Particles >71μm ASTM D7647 >3 0 0 0 | • | | | | | | |
| Particles >21μm ASTM D7647 >40 2 4 3 Particles >38μm ASTM D7647 >10 1 1 0 Particles >71μm ASTM D7647 >3 0 0 0 | • | | | | | | |
| Particles >38μm ASTM D7647 >10 1 0 Particles >71μm ASTM D7647 >3 0 0 0 | • | | | | | | |
| Particles >71µm ASTM D7647 >3 0 0 0 | | | | | | 4 | |
| | • | | | | | 1 | 0 |
| Oil Cleanliness ISO 4406 (c) >19/17/14 16/14/10 17/15/11 16/14/10 | Particles >71µm | | ASTM D7647 | >3 | 0 | 0 | 0 |
| | Oil Cleanliness | | ISO 4406 (c) | >19/17/14 | 16/14/10 | 17/15/11 | 16/14/10 |
| FLUID DEGRADATION method limit/base current history1 history2 | FLUID DEGRADA | TION | method | limit/base | current | history1 | history2 |
| Acid Number (AN) mg KOH/g ASTM D8045 0.05 0.071 0.044 0.062 | Acid Number (AN) | mg KOH/g | ASTM D8045 | 0.05 | 0.071 | 0.044 | 0.062 |



OIL ANALYSIS REPORT







| 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 | >.1 | NEG | NEG | NEG |
| Free Water | scalar | *Visual | | NEG | NEG | NEG |
| | | | | | | |
| FLUID PROPERT | IES | method | limit/base | current | history1 | history2 |
| FLUID PROPERT Visc @ 40°C | IES cSt | method ASTM D445 | limit/base 91 | current 97.6 | history1 92.4 | history2 95.4 |
| | cSt | | | | | |
| Visc @ 40°C | cSt | ASTM D445 | 91 | 97.6 | 92.4 | 95.4 |

Ferrous Alloys Particle Count 10 491 520 122,88 licke 30.72 20 28 Jun6/24 Feb4/24 Aar24/7/ upr29/24 4406 (per 1 1,920 19999 C G Non-ferrous Metals 480 6 10 120 30 Feb4/24 Mar24/24 or29/24 21 14 Viscosity @ 40°C Acid Number 250 00.8 (mg KOH/g) per (mg KOH/g) 4.00 200 ()200 ()-0+)150 100 2.00 🚽 0.00 G 50 Feb4/24 Apr29/24 Mar24/24 un6/74 Feb4/24 Mar24/24 Apr29/24 **TYSON -HOUSTON -USP - TYSHOUPOR** : WearCheck USA - 501 Madison Ave., Cary, NC 27513 Sample No. : USPM37531 Received : 07 Jun 2024 300 PORTWELL RD. Lab Number : 06202770 Tested : 11 Jun 2024 HOUSTON, TX Unique Number : 11070231 Diagnosed : 11 Jun 2024 - Doug Bogart US 77029 Test Package : IND 2 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:

Certificate 12367

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Contact/Location: SERVICE MANAGER - TYSHOU