

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id

MH-PO-COMP (S/N 84928)

Component Refrigeration Compressor Fluid

USPI 1009-68 SC (--- GAL)

DIAGNOSIS

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

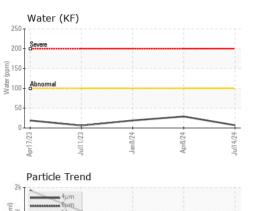
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

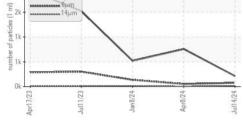
| Sample Number Client Info USP0012382 USP007844 USP00078191 Sample Date Client Info 14 Jul 2024 08 Apr 2024 08 Jan 2024 Machine Age hrs Client Info 245 202 199 Oil Age hrs Client Info 0 0 0 Oil Changed Client Info N/A N/A N/A Sample Status method imit/base core history1 VeCAR METALS method imit/base 0 -1 0 Nickel ppm ASTM 05155n -2 0 -1 0 Nickel ppm ASTM 05155n -2 0 0 -1 1 Silver ppm ASTM 05155n -3 0 1 -1 1 Cadmium ppm ASTM 05155n -34 0 -1 1 1 Cadmium ppm ASTM 05155n -4 0 1 1 1 Van | SAMPLE INFORM | IATION | method | limit/base | current | history1 | history2 |
|--|------------------|----------|--------------|------------|-------------|-------------|-------------|
| Machine Age hrs Client Info 245 202 199 Oil Age hrs Client Info 0 0 0 Oil Changed Client Info N/A N/A N/A Sample Status method Imm/base current history1 history2 Iron ppm ASTM D585m >8 0 <1 0 Nickel ppm ASTM D585m >2 0 <1 0 Titanium ppm ASTM D585m >2 0 0 0 Lead ppm ASTM D585m >2 0 1 0 Copper ppm ASTM D585m >2 0 1 0 Cadmium ppm ASTM D585m >4 0 1 1 1 Vanadium ppm ASTM D585m 0 <1 0 0 0 Cadmium ppm ASTM D585m 0 <1 0 0 0 | Sample Number | | Client Info | | USP0012382 | USP0007844 | USP0005191 |
| Oil Age hrs Client Info 0 0 0 Oil Changed Client Info N/A N/A N/A N/A Sample Status method imit/base current history1 history2 Iron ppm ASTM 05185m >8 0 <1 0 Chromium ppm ASTM 05185m >2 0 <1 0 Nickel ppm ASTM 05185m >2 0 <1 0 Aluminum ppm ASTM 05185m >2 0 0 0 Aluminum ppm ASTM 05185m >2 0 1 0 Capper ppm ASTM 05185m >2 0 1 0 Cadmium ppm ASTM 05185m >4 0 1 1 1 Vanadium ppm ASTM 05185m 0 <1 0 0 Cadmium ppm ASTM 05185m 0 0 1 0 | Sample Date | | Client Info | | 14 Jul 2024 | 08 Apr 2024 | 08 Jan 2024 |
| Oil Changed Sample Status Client Info N/A N/A N/A N/A WEAR METALS method Imit/base current history1 history2 Iron ppm ASTM D5185m >8 0 <1 0 Chromium ppm ASTM D5185m >2 0 <1 0 Nickel ppm ASTM D5185m >2 0 <1 0 Numinum ppm ASTM D5185m >2 0 0 0 Auroninum ppm ASTM D5185m >2 0 1 0 Lead ppm ASTM D5185m >2 0 1 0 Capper ppm ASTM D5185m 0 <1 <1 1 Vanadium ppm ASTM D5185m 0 <1 <1 1 Cademium ppm ASTM D5185m 0 <1 0 0 ASTM D5185m 0 <1 0 <1 0 0 <th>Machine Age</th> <th>hrs</th> <th>Client Info</th> <th></th> <th>245</th> <th>202</th> <th>199</th> | Machine Age | hrs | Client Info | | 245 | 202 | 199 |
| Sample Status method Imit/base current NORMAL NORMAL NORMAL WEAR METALS method Imit/base current history1 history2 Iron ppm ASTM D5185m >8 0 <1 0 Nickel ppm ASTM D5185m 2 0 <1 0 Nickel ppm ASTM D5185m >2 0 <1 0 Silver ppm ASTM D5185m >2 0 0 0 Auminium ppm ASTM D5185m >2 0 1 0 Lead ppm ASTM D5185m >2 0 1 <1 Copper ppm ASTM D5185m 0 <1 <1 <1 Vanadium ppm ASTM D5185m 0 0 0 0 0 Boron ppm ASTM D5185m 0 <1 0 0 0 Barium ppm ASTM D5185m 0 <th>Oil Age</th> <th>hrs</th> <th>Client Info</th> <th></th> <th>0</th> <th>0</th> <th>0</th> | Oil Age | hrs | Client Info | | 0 | 0 | 0 |
| WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >8 0 <1 0 Nickel ppm ASTM D5185m 0 <1 0 Nickel ppm ASTM D5185m 0 <1 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >2 0 1 0 Lead ppm ASTM D5185m >2 0 1 0 Copper ppm ASTM D5185m 0 <1 <1 1 Vanadium ppm ASTM D5185m 0 <1 0 0 Acadium ppm ASTM D5185m 0 <1 0 0 Acadium ppm ASTM D5185m 0 <1 0 0 Boron ppm ASTM D5185m 0 <1 0 0 Marganese </th <th>Oil Changed</th> <th></th> <th>Client Info</th> <th></th> <th>N/A</th> <th>N/A</th> <th>N/A</th> | Oil Changed | | Client Info | | N/A | N/A | N/A |
| Iron ppm ASTM D5185m >8 0 <1 | Sample Status | | | | NORMAL | NORMAL | NORMAL |
| Chromium ppm ASTM D5185m >2 0 <1 | WEAR METALS | | method | limit/base | current | history1 | history2 |
| Nickel ppm ASTM D5185m 0 <1 | Iron | ppm | ASTM D5185m | >8 | 0 | <1 | 0 |
| Titanium ppm ASTM D5185m 0 <1 | Chromium | ppm | ASTM D5185m | >2 | 0 | <1 | 0 |
| Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >3 0 1 0 Lead ppm ASTM D5185m >2 0 1 0 Copper ppm ASTM D5185m >2 0 1 <1 Vanadium ppm ASTM D5185m 0 <1 <1 <1 Cadmium ppm ASTM D5185m 0 <1 <1 <1 Cadmium ppm ASTM D5185m 0 <1 0 <1 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 <1 0 0 Malydeenum ppm ASTM D5185m 0 <1 0 0 Galcium ppm ASTM D5185m 0 0 0 0 0 Calcium ppm ASTM D5185m 0 0 | Nickel | ppm | ASTM D5185m | | 0 | <1 | 0 |
| Aluminum ppm ASTM D5185m >3 0 1 0 Lead ppm ASTM D5185m >2 0 1 0 Copper ppm ASTM D5185m >8 0 <1 <1 Tin ppm ASTM D5185m >4 0 1 <1 Vanadium ppm ASTM D5185m 0 1 0 <1 Cadmium ppm ASTM D5185m 0 0 0 0 Boron ppm ASTM D5185m 0 0 0 0 Barium ppm ASTM D5185m 0 <1 0 0 Magnaese ppm ASTM D5185m 0 <1 0 0 Magnaesium ppm ASTM D5185m 0 0 0 0 Calcium ppm ASTM D5185m 0 0 0 0 Suffur ppm ASTM D5185m 0 0 0 0 < | Titanium | ppm | ASTM D5185m | | 0 | <1 | <1 |
| Lead ppm ASTM D5185m >2 0 1 0 Copper ppm ASTM D5185m >8 0 <1 <1 Tin ppm ASTM D5185m >4 0 1 <1 Vanadium ppm ASTM D5185m 0 <1 <1 <1 Cadmium ppm ASTM D5185m 0 0 <1 <1 <1 Cadmium ppm ASTM D5185m 0 0 0 0 0 Boron ppm ASTM D5185m 0 0 <1 0 0 Malybdenum ppm ASTM D5185m 0 <1 0 | Silver | ppm | ASTM D5185m | >2 | 0 | 0 | 0 |
| Copper ppm ASTM D5185m >8 0 <1 | Aluminum | ppm | ASTM D5185m | >3 | 0 | 1 | 0 |
| Copper ppm ASTM D5185m >8 0 <1 | Lead | | ASTM D5185m | >2 | 0 | 1 | 0 |
| Tin ppm ASTM D5185m >4 0 1 <1 | Copper | | ASTM D5185m | >8 | 0 | <1 | <1 |
| Vanadium ppm ASTM D5185m 0 <1 | | | ASTM D5185m | >4 | 0 | 1 | <1 |
| Cadmium ppm ASTM D5185m 0 1 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 Barium ppm ASTM D5185m 0 <1 | Vanadium | | ASTM D5185m | | 0 | <1 | <1 |
| Boron ppm ASTM D5185m 0 0 0 Barium ppm ASTM D5185m 1 2 1 Molybdenum ppm ASTM D5185m 0 <1 0 Manganese ppm ASTM D5185m 0 <1 0 Magnesium ppm ASTM D5185m 0 <1 0 Calcium ppm ASTM D5185m 0 0 0 0 Calcium ppm ASTM D5185m 0 0 0 0 Zinc ppm ASTM D5185m 50 0 0 0 Sulfur ppm ASTM D5185m 50 0 0 0 Sulfur ppm ASTM D5185m 50 0 <1 1 Sodium ppm ASTM D5185m >15 <1 <1 <1 Sodium ppm ASTM D5185m >20 0 <1 0 Water % ASTM D5185m | Cadmium | | ASTM D5185m | | 0 | 1 | 0 |
| Barium ppm ASTM D5185m 1 2 1 Molybdenum ppm ASTM D5185m 0 <1 0 Manganese ppm ASTM D5185m 0 <1 0 Magnesium ppm ASTM D5185m 0 <1 0 Calcium ppm ASTM D5185m 0 0 0 0 Calcium ppm ASTM D5185m 0 0 0 0 Zinc ppm ASTM D5185m 0 0 0 0 Sulfur ppm ASTM D5185m 50 0 0 0 Sulfur ppm ASTM D5185m 50 0 0 <1 Sodium ppm ASTM D5185m >15 <1 <1 <1 <1 Potassium ppm ASTM D5185m >20 0 <1 0 <002 Water % ASTM D6304 >0.01 0.001 0.003 0.002 29 | ADDITIVES | | method | limit/base | current | history1 | history2 |
| Molybdenum ppm ASTM D5185m 0 <1 | Boron | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Manganese ppm ASTM D5185m 0 <1 | Barium | ppm | ASTM D5185m | | 1 | 2 | 1 |
| Magnesium ppm ASTM D5185m 0 <1 | Molybdenum | ppm | ASTM D5185m | | 0 | <1 | 0 |
| Calcium ppm ASTM D5185m 0 0 0 0 Phosphorus ppm ASTM D5185m 0 0 0 0 Zinc ppm ASTM D5185m 0 0 0 0 Sulfur ppm ASTM D5185m 50 0 0 0 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 <1 <1 <1 Sodium ppm ASTM D5185m >15 <1 <1 <1 <1 Potassium ppm ASTM D5185m >20 0 <1 0 <1 Vater % ASTM D5304 >0.01 0.001 0.003 0.002 ppm Water ppm ASTM D7647 213 757 520 Particles >4µm ASTM D7647 >2500 75 54 135 Particles >14µm ASTM D7647 >20 0 < | Manganese | ppm | ASTM D5185m | | 0 | <1 | 0 |
| Phosphorus ppm ASTM D5185m 0 0 0 Zinc ppm ASTM D5185m 0 0 0 0 Sulfur ppm ASTM D5185m 50 0 0 0 6 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 <1 <1 <1 Sodium ppm ASTM D5185m >15 <1 0 <1 Potassium ppm ASTM D5185m >20 0 <1 0 Water % ASTM D6304 >0.01 0.001 0.003 0.002 ppm Water ppm ASTM D7647 213 757 520 Particles >4µm ASTM D7647 >200 75 54 135 Particles >6µm ASTM D7647 >20 75 54 15 Particles >14µm ASTM D7647 >20 0 0 0 | Magnesium | ppm | ASTM D5185m | | 0 | <1 | 0 |
| Zinc ppm ASTM D5185m 0 0 0 0 Sulfur ppm ASTM D5185m 50 0 0 6 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 <1 <1 <1 Sodium ppm ASTM D5185m >15 <1 <1 <1 Potassium ppm ASTM D5185m >20 0 <1 0 Water % ASTM D5185m >20 0 <1 0 Water % ASTM D6304 >0.01 0.001 0.003 0.002 ppm Water ppm ASTM D7647 213 757 520 Particles >4µm ASTM D7647 >2500 75 54 135 Particles >6µm ASTM D7647 >20 75 54 15 Particles >1µm ASTM D7647 >20 0 0 0 | Calcium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Sulfur ppm ASTM D5185m 50 0 0 6 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 <1 <1 <1 Sodium ppm ASTM D5185m >15 <1 0 <1 Potassium ppm ASTM D5185m >20 0 <1 0 Water % ASTM D50304 >0.01 0.001 0.003 0.002 ppm Water ppm ASTM D6304 >100 7 29 19 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >2500 75 54 135 Particles >6µm ASTM D7647 >320 16 4 15 Particles >14µm ASTM D7647 >20 0 0 0 Particles >38µm ASTM D7647 >20 0 0 0 | Phosphorus | ppm | ASTM D5185m | | 0 | 0 | 0 |
| CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >15 <1 <1 <1 Sodium ppm ASTM D5185m >15 <1 0 <1 Potassium ppm ASTM D5185m >20 0 <1 0 Water % ASTM D50304 >0.01 0.001 0.003 0.002 ppm Water ppm ASTM D6304 >100 7 29 19 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 213 757 520 Particles >6µm ASTM D7647 >2500 75 54 135 Particles >14µm ASTM D7647 >320 16 4 15 Particles >38µm ASTM D7647 >20 0 0 0 Particles >71µm ASTM D7647 >4 0 0 0 0 | Zinc | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Silicon ppm ASTM D5185m >15 <1 | Sulfur | ppm | ASTM D5185m | 50 | 0 | 0 | 6 |
| Sodium ppm ASTM D5185m 1 0 <1 | CONTAMINANTS | | method | limit/base | current | history1 | history2 |
| Potassium ppm ASTM D5185m >20 0 <1 | Silicon | ppm | ASTM D5185m | >15 | <1 | <1 | <1 |
| Water % ASTM D6304 >0.01 0.001 0.003 0.002 ppm Water ppm ASTM D6304 >100 7 29 19 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 213 757 520 Particles >6µm ASTM D7647 >2500 75 54 135 Particles >6µm ASTM D7647 >320 16 4 15 Particles >14µm ASTM D7647 >80 5 1 4 Particles >21µm ASTM D7647 >20 0 0 0 Particles >38µm ASTM D7647 >20 0 0 0 Particles >71µm ASTM D7647 >4 0 0 0 0 Oil Cleanliness ISO 4406 (c) >/18/15 15/13/11 17/13/9 16/14/11 FLUID DEGRADATION method limit/base current history1 history2 | Sodium | ppm | ASTM D5185m | | 1 | 0 | <1 |
| ppm Water ppm ASTM D6304 >100 7 29 19 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 213 757 520 Particles >6µm ASTM D7647 >2500 75 54 135 Particles >14µm ASTM D7647 >320 16 4 15 Particles >14µm ASTM D7647 >80 5 1 4 Particles >21µm ASTM D7647 >20 0 0 0 Particles >38µm ASTM D7647 >4 0 0 0 Particles >71µm ASTM D7647 >4 0 0 0 Oil Cleanliness ISO 4406 (c) >/18/15 15/13/11 17/13/9 16/14/11 FLUID DEGRADATION method limit/base current history1 history2 | Potassium | ppm | ASTM D5185m | >20 | 0 | <1 | 0 |
| FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 213 757 520 Particles >6µm ASTM D7647 >2500 75 54 135 Particles >6µm ASTM D7647 >320 16 4 15 Particles >14µm ASTM D7647 >80 5 1 4 Particles >21µm ASTM D7647 >80 5 1 4 Particles >38µm ASTM D7647 >20 0 0 0 Particles >71µm ASTM D7647 >4 0 0 0 Oil Cleanliness ISO 4406 (c) >/18/15 15/13/11 17/13/9 16/14/11 FLUID DEGRADATION method limit/base current history1 history2 | Water | % | ASTM D6304 | >0.01 | 0.001 | 0.003 | 0.002 |
| Particles >4μm ASTM D7647 213 757 520 Particles >6μm ASTM D7647 >2500 75 54 135 Particles >14μm ASTM D7647 >320 16 4 15 Particles >21μm ASTM D7647 >80 5 1 4 Particles >21μm ASTM D7647 >20 0 0 0 Particles >38μm ASTM D7647 >20 0 0 0 Particles >71μm ASTM D7647 >4 0 0 0 Oil Cleanliness ISO 4406 (c) >/18/15 15/13/11 17/13/9 16/14/11 FLUID DEGRADATION method limit/base current history1 history2 | ppm Water | ppm | ASTM D6304 | >100 | 7 | 29 | 19 |
| Particles >6μm ASTM D7647 >2500 75 54 135 Particles >14μm ASTM D7647 >320 16 4 15 Particles >21μm ASTM D7647 >80 5 1 4 Particles >21μm ASTM D7647 >80 5 1 4 Particles >38μm ASTM D7647 >20 0 0 0 Particles >71μm ASTM D7647 >4 0 0 0 Oil Cleanliness ISO 4406 (c) >/18/15 15/13/11 17/13/9 16/14/11 FLUID DEGRADATION method limit/base current history1 history2 | FLUID CLEANLIN | ESS | method | limit/base | current | history1 | history2 |
| Particles >14μm ASTM D7647 >320 16 4 15 Particles >21μm ASTM D7647 >80 5 1 4 Particles >21μm ASTM D7647 >20 0 0 0 Particles >38μm ASTM D7647 >20 0 0 0 Particles >71μm ASTM D7647 >4 0 0 0 Oil Cleanliness ISO 4406 (c) >/18/15 15/13/11 17/13/9 16/14/11 FLUID DEGRADATION method limit/base current history1 history2 | · · | | | | | | 520 |
| Particles >21μm ASTM D7647 >80 5 1 4 Particles >38μm ASTM D7647 >20 0 0 0 Particles >37μm ASTM D7647 >20 0 0 0 Particles >71μm ASTM D7647 >4 0 0 0 Oil Cleanliness ISO 4406 (c) >/18/15 15/13/11 17/13/9 16/14/11 FLUID DEGRADATION method limit/base current history1 history2 | Particles >6µm | | ASTM D7647 | >2500 | 75 | 54 | 135 |
| Particles >38μm ASTM D7647 >20 0 0 0 Particles >71μm ASTM D7647 >4 0 0 0 Oil Cleanliness ISO 4406 (c) >/18/15 15/13/11 17/13/9 16/14/11 FLUID DEGRADATION method limit/base current history1 history2 | | | ASTM D7647 | >320 | | 4 | |
| Particles >71μm ASTM D7647 >4 0 0 0 Oil Cleanliness ISO 4406 (c) >/18/15 15/13/11 17/13/9 16/14/11 FLUID DEGRADATION method limit/base current history1 history2 | Particles >21µm | | ASTM D7647 | >80 | 5 | 1 | 4 |
| Oil Cleanliness ISO 4406 (c) >/18/15 15/13/11 17/13/9 16/14/11 FLUID DEGRADATION method limit/base current history1 history2 | Particles >38µm | | ASTM D7647 | >20 | | | |
| FLUID DEGRADATION method limit/base current history1 history2 | Particles >71µm | | ASTM D7647 | >4 | 0 | 0 | 0 |
| | Oil Cleanliness | | ISO 4406 (c) | >/18/15 | 15/13/11 | 17/13/9 | 16/14/11 |
| Acid Number (AN) mg KOH/g ASTM D974 0.005 0.014 0.014 | FLUID DEGRADA | TION | method | limit/base | current | history1 | history2 |
| | Acid Number (AN) | mg KOH/g | ASTM D974 | 0.005 | 0.014 | 0.014 | 0.014 |

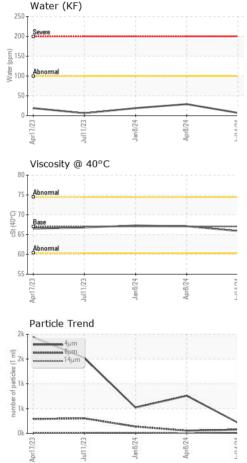
Contact/Location: Service Manager - TYSJOSFRE Page 1 of 2



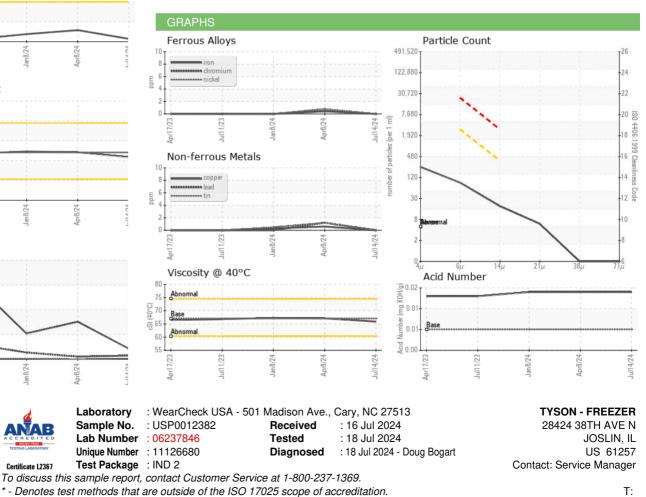
OIL ANALYSIS REPORT







| 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 | >0.01 | 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 | 67 | 65.9 | 67.1 | 67.3 |
| SAMPLE IMAGES | 3 | method | limit/base | current | history1 | history2 |
| Color | | | | | | |
| Bottom | | | | \bigcirc | • | |



Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Report Id: TYSJOSFRE [WUSCAR] 06237846 (Generated: 07/18/2024 10:28:11) Rev: 1

Certificate 12367

Contact/Location: Service Manager - TYSJOSFRE

F: (402)423-6661