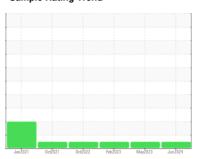


# **OIL ANALYSIS REPORT**

Sample Rating Trend



**NORMAL** 



Machine Id

# **KENWORTH 201424**

Diesel Engine

PETRO CANADA DURON SHP 10W30 (--- GAL)

## DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

### Contamination

There is no indication of any contamination in the

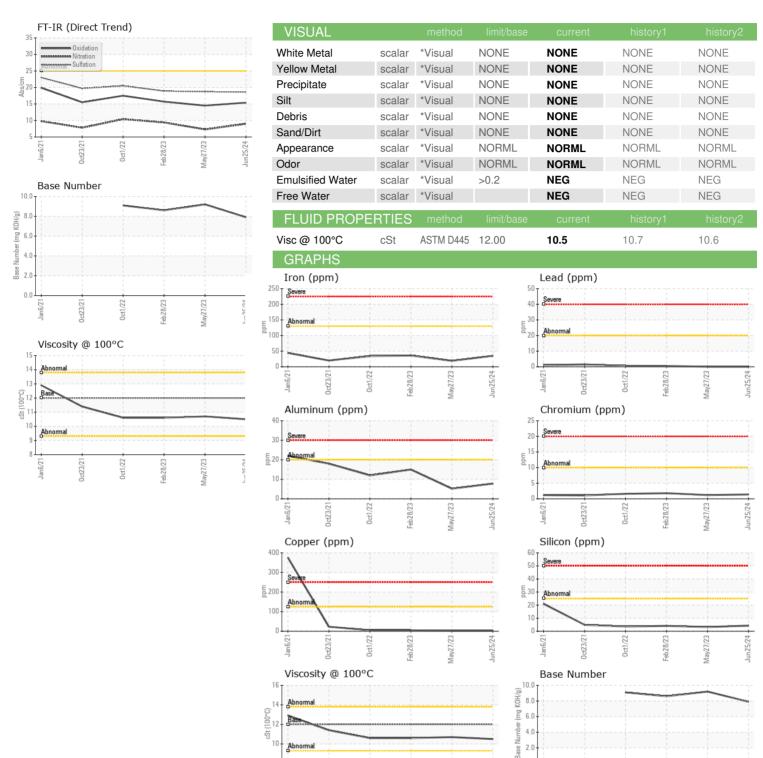
## **Fluid Condition**

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

| SAMPLE INFORMATION   method   limit/base   current   history1   history2   | āAL)             |          | Jan 2021    | Oct2021 Oct2022 | ! Feb2023 May2023 | Jun 2024    |             |
|--|------------------|----------|-------------|-----------------|-------------------|-------------|-------------|
| Sample Date  | SAMPLE INFOR     | MATION   | method      | limit/base      | current           | history1    | history2    |
| Sample Date         Client Info         25 Jun 2024         27 May 2023         28 Feb 2023           Machine Age         mis         Client Info         0         5784         0           Oil Age         mis         Client Info         0         0         0           Oil Changed         Client Info         Changed   | Sample Number    |          | Client Info |                 | PCA0101977        | PCA0093139  | PCA0089901  |
| Machine Age         mls         Client Info         0         5784         0           Oil Age         mls         Client Info         0         0         0           Oil Changed         Client Info         Changed |                  |          | Client Info |                 | 25 Jun 2024       | 27 May 2023 | 28 Feb 2023 |
| Oil Age         mls         Client Info         Changed         Changed <t< td=""><td></td><td>mls</td><td></td><td></td><th></th><td>,</td><td>0</td></t<>  |                  | mls      |             |                 |                   | ,           | 0           |
| Oil Changed<br>Sample Status         Client Info<br>MoRMAL         Changed<br>NORMAL<br>NORMAL         Changed<br>NORMAL         Changed<br>NORMAL<br>NORMAL         Changed<br>NORMAL         Changed<br>NoRMAG         Changed<br>NoRMAG         Changed<br>NoRMAG         Change<br>NEG         Change  |                  | mls      | Client Info |                 | 0                 | 0           | 0           |
| NORMAL   NORMAL   NORMAL   |                  |          | Client Info |                 |                   | Changed     | Changed     |
| Fuel   | _                |          |             |                 |                   | Ü           | _           |
| Water Glycol         WC Method         >0.2         NEG NEG         NEG NEG         NEG NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >130         35         19         36           Chromium         ppm         ASTM D5185m         >10         1         1         2           Nickel         ppm         ASTM D5185m         >2         0         0         0           Silver         ppm         ASTM D5185m         >2         0         0         0           Sliver         ppm         ASTM D5185m         >2         0         0         -1           Aluminum         ppm         ASTM D5185m         >2         0         0         -1           Lead         ppm         ASTM D5185m         >2         0         0         -1           Copper         ppm         ASTM D5185m         >2         0         0         -1           Vanadium         ppm         ASTM D5185m         0         0         0         -1           Vanadium         ppm         ASTM D5185m         0         0         0 <th>CONTAMINAT</th> <th>ION</th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>   | CONTAMINAT       | ION      | method      | limit/base      | current           | history1    | history2    |
| Second   WC Method   NEG   NEG   NEG   | Fuel             |          | WC Method   | >3.0            | <1.0              | <1.0        | <1.0        |
| WEAR METALS  | Water            |          | WC Method   | >0.2            | NEG               | NEG         | NEG         |
| Iron   | Glycol           |          | WC Method   |                 | NEG               | NEG         | NEG         |
| Chromium         ppm         ASTM D5185m         >10         1         1         2           Nickel         ppm         ASTM D5185m         >4         <1  | WEAR METAL       | .S       | method      | limit/base      | current           | history1    | history2    |
| Chromium         ppm         ASTM D5185m         >10         1         1         2           Nickel         ppm         ASTM D5185m         >4         <1         <1         <1           Titanium         ppm         ASTM D5185m         >2         0         0         0           Silver         ppm         ASTM D5185m         >2         <1         <1         1           Aluminum         ppm         ASTM D5185m         >2         <1         <1         1           Aluminum         ppm         ASTM D5185m         >2         <1         <1         1           Lead         ppm         ASTM D5185m         >2         0         0         <1           Copper         ppm         ASTM D5185m         >2         3         2         5           Tin         ppm         ASTM D5185m         >4         <1         0         <1           Vanadium         ppm         ASTM D5185m         >4         <1         0         <1            ADDITIVES         method         limit/base         current         history1         history1         history2           Boron         ppm         ASTM D5185m         0  | Iron             | mqq      | ASTM D5185m | >130            | 35                | 19          | 36          |
| Titanium         ppm         ASTM D5185m         >2         0         0         0           Silver         ppm         ASTM D5185m         >2         <1   | Chromium         |          | ASTM D5185m | >10             | 1                 | 1           | 2           |
| Titanium         ppm         ASTM D5185m         >2         0         0         0           Silver         ppm         ASTM D5185m         >2         <1   |                  |          |             |                 | <1                | <1          | <1          |
| Silver         ppm         ASTM D5185m         >2         <1         <1         1           Aluminum         ppm         ASTM D5185m         >20         8         5         15           Lead         ppm         ASTM D5185m         >20         0         0         <1           Copper         ppm         ASTM D5185m         >125         3         2         5           Tin         ppm         ASTM D5185m         >4         <1         0         <1           Vanadium         ppm         ASTM D5185m         0         0         0         <1           Cadmium         ppm         ASTM D5185m         0         0         0         <1           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         0         2           Molybdenum         ppm         ASTM D5185m         50         60         63 <th< td=""><td>Titanium</td><td></td><td>ASTM D5185m</td><td>&gt;2</td><th>0</th><td>0</td><td>0</td></th<>  | Titanium         |          | ASTM D5185m | >2              | 0                 | 0           | 0           |
| Lead         ppm         ASTM D5185m         >20         0         0         <1           Copper         ppm         ASTM D5185m         >12.5         3         2         5           Tin         ppm         ASTM D5185m         >4         <1         0         <1           Vanadium         ppm         ASTM D5185m         0         0         0         <1           Cadmium         ppm         ASTM D5185m         0         0         0         <1           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         2         8         18         8           Barium         ppm         ASTM D5185m         0         0         0         0         2           Molybdenum         ppm         ASTM D5185m         50         60         63         58           Manganese         ppm         ASTM D5185m         950         862         <  | Silver           |          |             |                 | <1                | <1          | 1           |
| Lead         ppm         ASTM D5185m         >20         0         0         <1           Copper         ppm         ASTM D5185m         >125         3         2         5           Tin         ppm         ASTM D5185m         >4         <1         0         <1           Vanadium         ppm         ASTM D5185m         0         0         0         <1           Cadmium         ppm         ASTM D5185m         0         0         0         <1           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         2         8         18         8           Barium         ppm         ASTM D5185m         0         0         0         2           Barium         ppm         ASTM D5185m         50         60         63         58           Barium         ppm         ASTM D5185m         50         60         63         58           Manganese         ppm         ASTM D5185m         950         862         928         855           Calcium         ppm         ASTM D5185m         995         1052         1001  | Aluminum         | ppm      | ASTM D5185m | >20             | 8                 | 5           | 15          |
| Tin         ppm         ASTM D5185m         >4         <1         0         <1           Vanadium         ppm         ASTM D5185m         0         0         <1           Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         2         8         18         8           Barium         ppm         ASTM D5185m         0         0         0         2           Molybdenum         ppm         ASTM D5185m         50         60         63         58           Manganese         ppm         ASTM D5185m         0         <1   | Lead             |          | ASTM D5185m | >20             | 0                 | 0           | <1          |
| Vanadium         ppm         ASTM D5185m         0         0         <1           Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         2         8         18         8           Barium         ppm         ASTM D5185m         0         0         0         2           Molybdenum         ppm         ASTM D5185m         50         60         63         58           Manganese         ppm         ASTM D5185m         0         <1         <1         <1           Magnesium         ppm         ASTM D5185m         950         862         928         855           Calcium         ppm         ASTM D5185m         950         1048         1079         1054           Phosphorus         ppm         ASTM D5185m         995         1052         1001         949           Sulfur         ppm         ASTM D5185m         2600         3437         3746         2946           CONTAMINANTS         method         limit/base         current         history1   | Copper           | ppm      | ASTM D5185m | >125            | 3                 | 2           | 5           |
| Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         2         8         18         8           Barium         ppm         ASTM D5185m         0         0         0         0         2           Molybdenum         ppm         ASTM D5185m         50         60         63         58           Manganese         ppm         ASTM D5185m         50         60         63         58           Manganesium         ppm         ASTM D5185m         950         862         928         855           Calcium         ppm         ASTM D5185m         950         1048         1079         1054           Phosphorus         ppm         ASTM D5185m         995         1052         1001         949           Zinc         ppm         ASTM D5185m         2600         3437         3746         2946           CONTAMINANTS         method         limit/base         current <th< td=""><td>Tin</td><td>ppm</td><td>ASTM D5185m</td><td>&gt;4</td><th>&lt;1</th><td>0</td><td>&lt;1</td></th<>   | Tin              | ppm      | ASTM D5185m | >4              | <1                | 0           | <1          |
| Boron  | Vanadium         | ppm      | ASTM D5185m |                 | 0                 | 0           | <1          |
| Boron  | Cadmium          | ppm      | ASTM D5185m |                 | 0                 | 0           | 0           |
| Barium         ppm         ASTM D5185m         0         0         0         2           Molybdenum         ppm         ASTM D5185m         50         60         63         58           Manganese         ppm         ASTM D5185m         0         <1   | ADDITIVES        |          | method      | limit/base      | current           | history1    | history2    |
| Molybdenum         ppm         ASTM D5185m         50         60         63         58           Manganese         ppm         ASTM D5185m         0         <1         <1         <1           Magnesium         ppm         ASTM D5185m         950         862         928         855           Calcium         ppm         ASTM D5185m         1050         1048         1079         1054           Phosphorus         ppm         ASTM D5185m         1050         1048         1079         1054           Zinc         ppm         ASTM D5185m         995         1052         1001         949           Zinc         ppm         ASTM D5185m         1180         1203         1251         1160           Sulfur         ppm         ASTM D5185m         2600         3437         3746         2946           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         3         4           Sodium         ppm         ASTM D5185m         >20         18         11         39           INFRA-RED         method  | Boron            | ppm      | ASTM D5185m | 2               | 8                 | 18          | 8           |
| Manganese         ppm         ASTM D5185m         0         <1         <1         <1           Magnesium         ppm         ASTM D5185m         950         862         928         855           Calcium         ppm         ASTM D5185m         1050         1048         1079         1054           Phosphorus         ppm         ASTM D5185m         995         1052         1001         949           Zinc         ppm         ASTM D5185m         1180         1203         1251         1160           Sulfur         ppm         ASTM D5185m         2600         3437         3746         2946           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         3         4           Sodium         ppm         ASTM D5185m         >20         18         11         39           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.4         0.3         0.5           Nitration         Abs/cm         *ASTM D  | Barium           | ppm      | ASTM D5185m | 0               | 0                 | 0           | 2           |
| Magnesium         ppm         ASTM D5185m         950         862         928         855           Calcium         ppm         ASTM D5185m         1050         1048         1079         1054           Phosphorus         ppm         ASTM D5185m         1050         1048         1079         1054           Phosphorus         ppm         ASTM D5185m         995         1052         1001         949           Zinc         ppm         ASTM D5185m         1180         1203         1251         1160           Sulfur         ppm         ASTM D5185m         2600         3437         3746         2946           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         3         4           Sodium         ppm         ASTM D5185m         >20         18         11         39           INFRA-RED         method         limit/base         current         history1         history2           Soot %         *ASTM D7624         >20         9.0         7.3         9.4           Sulfation         Abs/.1mm         *ASTM D7415   | Molybdenum       | ppm      |             |                 | 60                | 63          | 58          |
| Calcium         ppm         ASTM D5185m         1050         1048         1079         1054           Phosphorus         ppm         ASTM D5185m         995         1052         1001         949           Zinc         ppm         ASTM D5185m         1180         1203         1251         1160           Sulfur         ppm         ASTM D5185m         2600         3437         3746         2946           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         3         4           Sodium         ppm         ASTM D5185m         >20         18         11         39           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.4         0.3         0.5           Nitration         Abs/cm         *ASTM D7415         >30         18.6         18.7         18.9           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.  | Manganese        | ppm      | ASTM D5185m | 0               | <1                | <1          | <1          |
| Phosphorus         ppm         ASTM D5185m         995         1052         1001         949           Zinc         ppm         ASTM D5185m         1180         1203         1251         1160           Sulfur         ppm         ASTM D5185m         2600         3437         3746         2946           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         3         4           Sodium         ppm         ASTM D5185m         >20         18         11         39           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.4         0.3         0.5           Nitration         Abs/cm         *ASTM D7624         >20         9.0         7.3         9.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.6         18.7         18.9           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Ab  | Magnesium        | ppm      | ASTM D5185m | 950             | 862               | 928         | 855         |
| Zinc         ppm         ASTM D5185m         1180         1203         1251         1160           Sulfur         ppm         ASTM D5185m         2600         3437         3746         2946           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         3         4           Sodium         ppm         ASTM D5185m         >20         18         11         39           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.4         0.3         0.5           Nitration         Abs/cm         *ASTM D7624         >20         9.0         7.3         9.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.6         18.7         18.9           FLUID DEGRADATION method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.4         14.5         15.7  | Calcium          | ppm      | ASTM D5185m | 1050            | 1048              | 1079        | 1054        |
| Sulfur         ppm         ASTM D5185m         2600         3437         3746         2946           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         3         4           Sodium         ppm         ASTM D5185m         >20         18         11         39           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.4         0.3         0.5           Nitration         Abs/cm         *ASTM D7624         >20         9.0         7.3         9.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.6         18.7         18.9           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.4         14.5         15.7   | Phosphorus       | ppm      | ASTM D5185m | 995             | 1052              | 1001        | 949         |
| CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         3         4           Sodium         ppm         ASTM D5185m         3         <1   | Zinc             | ppm      | ASTM D5185m | 1180            | 1203              | 1251        | 1160        |
| Silicon         ppm         ASTM D5185m         >25         4         3         4           Sodium         ppm         ASTM D5185m         3         <1         1           Potassium         ppm         ASTM D5185m         >20         18         11         39           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.4         0.3         0.5           Nitration         Abs/cm         *ASTM D7624         >20         9.0         7.3         9.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.6         18.7         18.9           FLUID DEGRADATION method limit/base current         bistory1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.4         14.5         15.7  |                  |          | ASTM D5185m | 2600            | 3437              | 3746        | 2946        |
| Sodium         ppm         ASTM D5185m         3         <1         1           Potassium         ppm         ASTM D5185m         >20         18         11         39           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.4         0.3         0.5           Nitration         Abs/cm         *ASTM D7624         >20         9.0         7.3         9.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.6         18.7         18.9           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.4         14.5         15.7  | CONTAMINAN       | ITS      | method      | limit/base      | current           | history1    | history2    |
| Potassium         ppm         ASTM D5185m         >20         18         11         39           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.4         0.3         0.5           Nitration         Abs/cm         *ASTM D7624         >20         9.0         7.3         9.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.6         18.7         18.9           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.4         14.5         15.7  | Silicon          | ppm      | ASTM D5185m | >25             | 4                 | 3           | 4           |
| INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.4         0.3         0.5           Nitration         Abs/cm         *ASTM D7624         >20         9.0         7.3         9.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.6         18.7         18.9           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.4         14.5         15.7   | Sodium           | ppm      | ASTM D5185m |                 | 3                 | <1          | 1           |
| Soot %         %         *ASTM D7844 >6         0.4         0.3         0.5           Nitration         Abs/cm   *ASTM D7624 >20         9.0         7.3         9.4           Sulfation         Abs/.1mm   *ASTM D7415 >30         18.6         18.7         18.9           FLUID DEGRADATION   method   limit/base   current   history1   history2           Oxidation         Abs/.1mm   *ASTM D7414 >25         15.4         14.5         15.7   | Potassium        | ppm      | ASTM D5185m | >20             | 18                | 11          | 39          |
| Nitration         Abs/cm         *ASTM D7624         >20         9.0         7.3         9.4           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.6         18.7         18.9           FLUID DEGRADATION method limit/base current         bistory1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.4         14.5         15.7   | INFRA-RED        |          | method      | limit/base      | current           | history1    | history2    |
| Sulfation         Abs/.1mm         *ASTM D7415         >30         18.6         18.7         18.9           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         15.4         14.5         15.7  | Soot %           | %        | *ASTM D7844 | >6              | 0.4               | 0.3         | 0.5         |
| FLUID DEGRADATION method limit/base current history1 history2  Oxidation Abs/.1mm *ASTM D7414 >25 15.4 14.5 15.7   | Nitration        | Abs/cm   | *ASTM D7624 | >20             | 9.0               | 7.3         | 9.4         |
| Oxidation Abs/.1mm *ASTM D7414 >25 <b>15.4</b> 14.5 15.7   | Sulfation        | Abs/.1mm | *ASTM D7415 | >30             | 18.6              | 18.7        | 18.9        |
|  | FLUID DEGRAI     | DATION   | method      | limit/base      | current           | history1    | history2    |
|  | Oxidation        | Abs/.1mm | *ASTM D7414 | >25             | 15.4              | 14.5        | 15.7        |
|  | Base Number (BN) | mg KOH/g | ASTM D2896  |                 | 7.9               | 9.2         | 8.6         |



## **OIL ANALYSIS REPORT**



Feb28/23

Received

**Tested** 





Certificate 12367

Laboratory Sample No.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : PCA0101977

Lab Number : 06231969 Unique Number : 11115462

Diagnosed Test Package : MOB 1 ( Additional Tests: TBN )

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. **MILLER TRUCK LEASING #112** 

0.0

: 10 Jul 2024

: 10 Jul 2024

: 10 Jul 2024 - Wes Davis

1504 MAINLINE DR CINNAMINSON, NJ

US 08077 Contact: Rob Powell rpowell@millertransgroup.com

T: F: (856)663-4898

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) Report Id: MILPEN [WUSCAR] 06231969 (Generated: 07/10/2024 15:41:17) Rev: 1

Contact/Location: Rob Powell - MILPEN