

#### **Test Monitoring Center**

@ Carnegie Mellon University 6555 Penn Avenue, Pittsburgh, PA 15206, USA

http://astmtmc.cmu.edu 412-365-1000

MEMORANDUM: 13-066

DATE: November 18, 2013

TO: Yong-Li McFarland,

Chairwoman, Engine Oil Filterability Test Surveillance Panel

FROM: Michael T. Kasimirsky Michael J. Rasimisky

SUBJECT: EOWT Testing from April 1, 2013 through September 30, 2013

A total of 741 EOWT tests were reported to the Test Monitoring Center during the report period from April 1, 2013 through September 30, 2013.

Please find attached a summary of testing activity this period.

MTK/mtk/astm1013.doc/mem13-066.mtk.doc

cc: F. M. Farber J. A. Clark

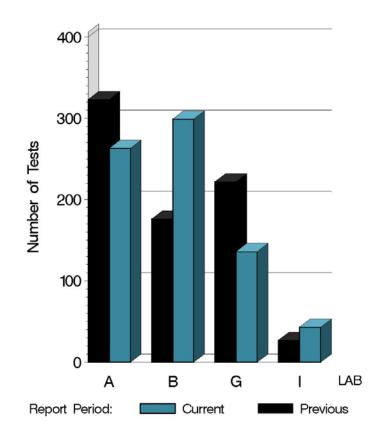
**EOWT Surveillance Panel** 

ftp://ftp.astmtmc.cmu.edu/docs/bench/eowt/semiannualreports/eowt-10-2013.pdf

Distribution: email

|                | Reporting Data |
|----------------|----------------|
| Number of Labs | 4              |

#### NUMBER OF TESTS REPORTED BY LAB AND REPORT PERIOD





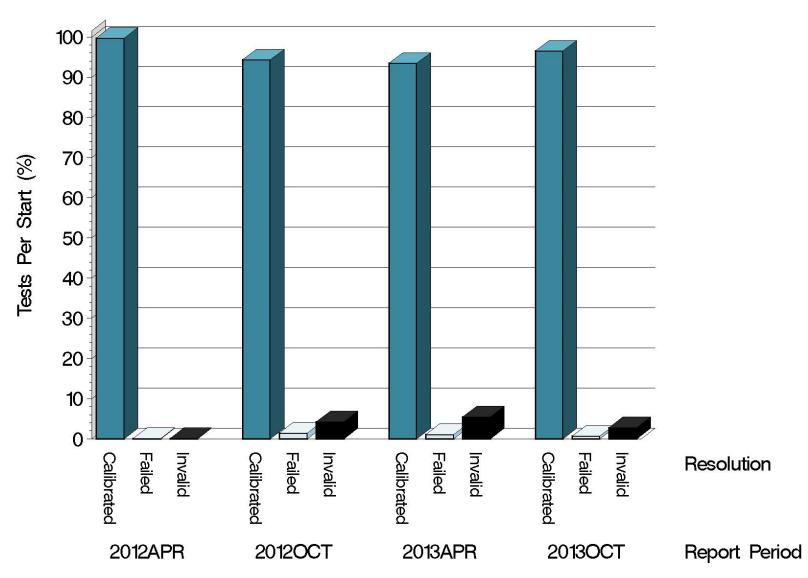


**Test Distribution by Oil and Validity** 

|                                 |    |      | Ву   | Oil  | By Treat Level |     |     | Totals |     |                |                |
|---------------------------------|----|------|------|------|----------------|-----|-----|--------|-----|----------------|----------------|
|                                 |    | 77-1 | 77-2 | 78-1 | 78-2           | 0.6 | 1.0 | 2.0    | 3.0 | This<br>Period | Last<br>Period |
| Accepted for Calibration        | AC | 285  | 164  | 8    | 258            | 178 | 180 | 179    | 178 | 715            | 699            |
| Acceptable Donated Tests        | NI | 16   | 0    | 0    | 0              | 4   | 4   | 4      | 4   | 16             | 39             |
| Unacceptable Donated<br>Tests   | MI | 0    | 0    | 0    | 0              | 0   | 0   | 0      | 0   | 0              | 1              |
| Rejected Tests                  | ОС | 1    | 0    | 0    | 4              | 1   | 0   | 3      | 1   | 5              | 8              |
| Operationally Invalid (lab)     | LC | 1    | 0    | 0    | 1              | 1   | 0   | 0      | 1   | 2              | 0              |
| Operationally Invalid (lab/TMC) | RC | 0    | 0    | 0    | 0              | 0   | 0   | 0      | 0   | 0              | 0              |
| Aborted Calibration             | XC | 0    | 3    | 0    | 0              | 2   | 1   | 0      | 0   | 3              | 1              |
| Total                           | •  | 303  | 167  | 8    | 263            | 186 | 185 | 186    | 184 | 741            | 748            |



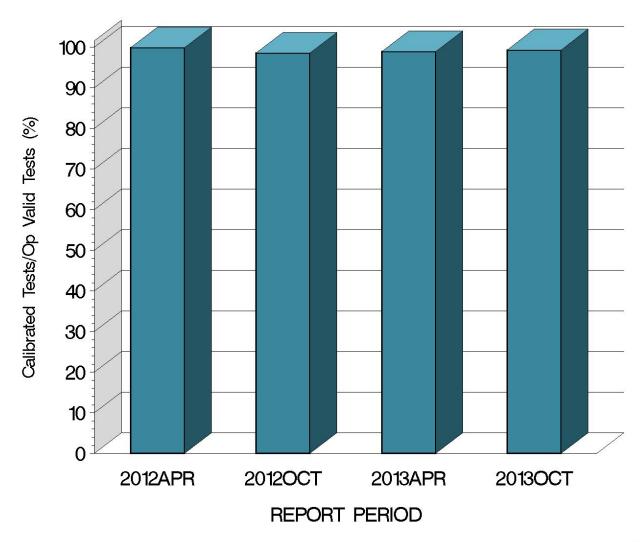
#### CALIBRATION ATTEMPT SUMMARY







## OPERATIONALLY VALID TESTS MEETING ACCEPTANCE CRITERIA







#### **CAUSES FOR LOST TESTS**

|     |           |        | Oil  |      |      | Validity |     |     | Loss Rate |      |        |   |
|-----|-----------|--------|------|------|------|----------|-----|-----|-----------|------|--------|---|
| Lab | Cause     |        | 77-1 | 77-2 | 78-1 | 78-2     | LC  | RC  | XC        | Lost | Starts | % |
| Α   | Sample S  | Spill  | 1    | 1    | 0    | 1        | 2   | 0   | 1         | 3    | 725    |   |
| Α   | Mixing Er | ror    | 0    | 2    | 0    | 0        | 0   | 0   | 2         | 2    | 725    |   |
|     |           | Lost   | 1    | 3    | 0    | 1        | 2   | 0   | 3         |      |        |   |
|     |           | Starts | 303  | 167  | 8    | 263      | 725 | 725 | 725       |      |        |   |
|     |           | %      | 0.3% | 2%   | 0%   | 0.4%     | 0%  | 0%  | 0%        |      |        |   |

Lost tests are calibration attempts that were either aborted or operationally invalid





| Average Δ/s By Laboratory |          |     |        |  |  |  |
|---------------------------|----------|-----|--------|--|--|--|
| Treat Level               | Lab      | n   | CFAYI  |  |  |  |
| 0.6                       | Α        | 64  | -0.216 |  |  |  |
|                           | В        | 70  | 0.080  |  |  |  |
|                           | G        | 34  | 0.463  |  |  |  |
|                           | I        | 11  | 0.367  |  |  |  |
|                           | Industry | 179 | 0.064  |  |  |  |
| 1.0                       | Α        | 64  | -0.216 |  |  |  |
|                           | В        | 71  | -0.229 |  |  |  |
|                           | G        | 34  | 0.206  |  |  |  |
|                           | I        | 11  | 0.820  |  |  |  |
|                           | Industry | 180 | -0.078 |  |  |  |
| 2.0                       | Α        | 66  | -0.082 |  |  |  |
|                           | В        | 71  | -0.404 |  |  |  |
|                           | G        | 34  | 0.619  |  |  |  |
|                           | I        | 11  | 1.166  |  |  |  |
|                           | Industry | 182 | -0.001 |  |  |  |
| 3.0                       | Α        | 64  | -0.114 |  |  |  |
|                           | В        | 71  | -0.963 |  |  |  |
|                           | G        | 34  | 0.481  |  |  |  |
|                           | I        | 10  | 1.086  |  |  |  |
|                           | Industry | 179 | -0.271 |  |  |  |



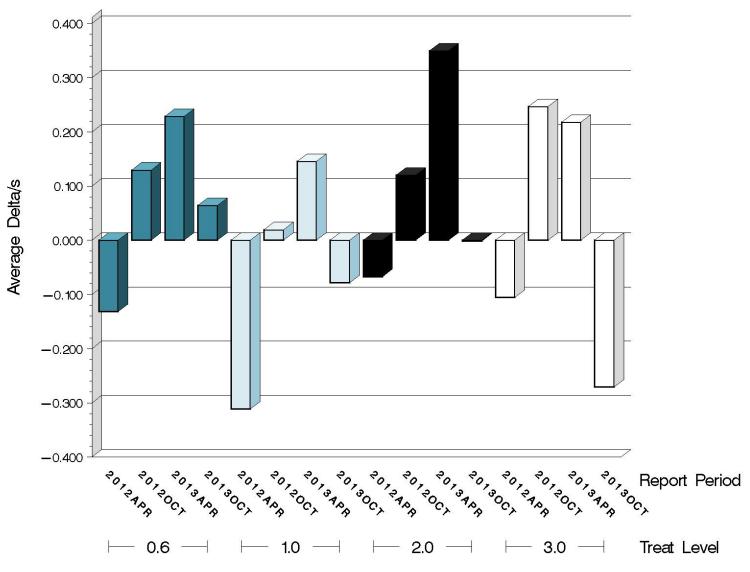
Individual test results can be found on the TMC Web Page at the following link:

ftp://ftp.astmtmc.cmu.edu/refdata/bench/eowt/data/





#### AVERAGE DELTA/S





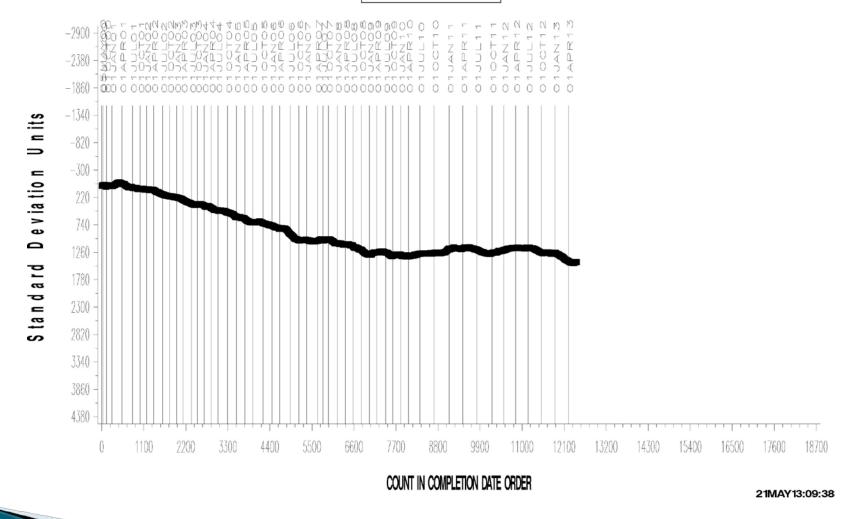


#### **EOWT INDUSTRY OPERATIONALLY VALID DATA**



20 - 25 ML CHANGE IN FLOWRATE AVG.

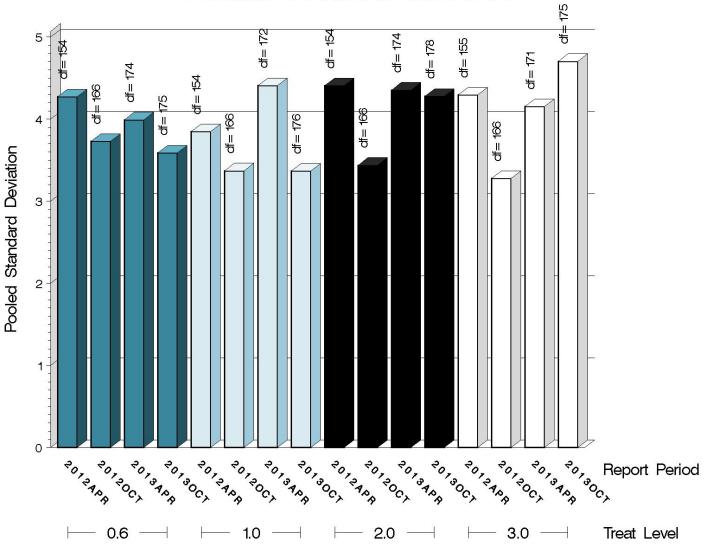
CUSUM Severity Analysis







#### POOLED STANDARD DEVIATION







# EOWT (D 6794) SUMMARY OF SEVERITY & PRECISION

#### **Severity**

Over the course of this report period, CIFA severity, as measured by CUSUM plotting, is trending slightly severe.

#### **Precision**

Pooled s values for this period are 3.59 (0.6%), 3.37 (1.0%), 4.28 (2.0%), and 4.70 (3.0%).

Precision, as measured by pooled standard deviation, is still comparable to historical performance.





#### **INFORMATION LETTERS**

EOWT Information Letter 13-1, Sequence No. 1, dated September 18, 2013.

• Revision of Water Amounts used in Sample Blending Procedures



#### STATUS OF REFERENCE OIL SUPPLY

|       |                | @ TMC               |         |  |  |  |
|-------|----------------|---------------------|---------|--|--|--|
| Oil   | Samples @ Labs | Samples<br>(290 mL) | Gallons |  |  |  |
| 77-1  | 41             | 0                   | 0       |  |  |  |
| 77-2  | 75             | 3163                | 243.6   |  |  |  |
| 78-1  | 0              | 0                   | 0       |  |  |  |
| 78-2  | 83             | 1406                | 108.3   |  |  |  |
| Total | 199            | 4569                | 351.9   |  |  |  |

The TMC supply of reference oil 77-1 has been depleted.

