



## Test Monitoring Center

@ Carnegie Mellon University  
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<http://astmtmc.cmu.edu>  
412-365-1000

MEMORANDUM: 15-035  
DATE: November 9, 2015  
TO: Gil Reinhard, Chairman, CBT Surveillance Panel  
FROM: Michael T. Kasimirsky *Michael T. Kasimirsky*  
SUBJECT: HTCBT Testing from April 1, 2015 through September 30, 2015

A total of 283 HTCBT tests were reported to the Test Monitoring Center during the report period from April 1, 2015 through September 30, 2015.

Please find attached a summary of testing activity this period.

MTK/mtk/astm1015.doc/mem15-035.mtk.doc

cc: F. M. Farber

J. A. Clark

CBT Surveillance Panel

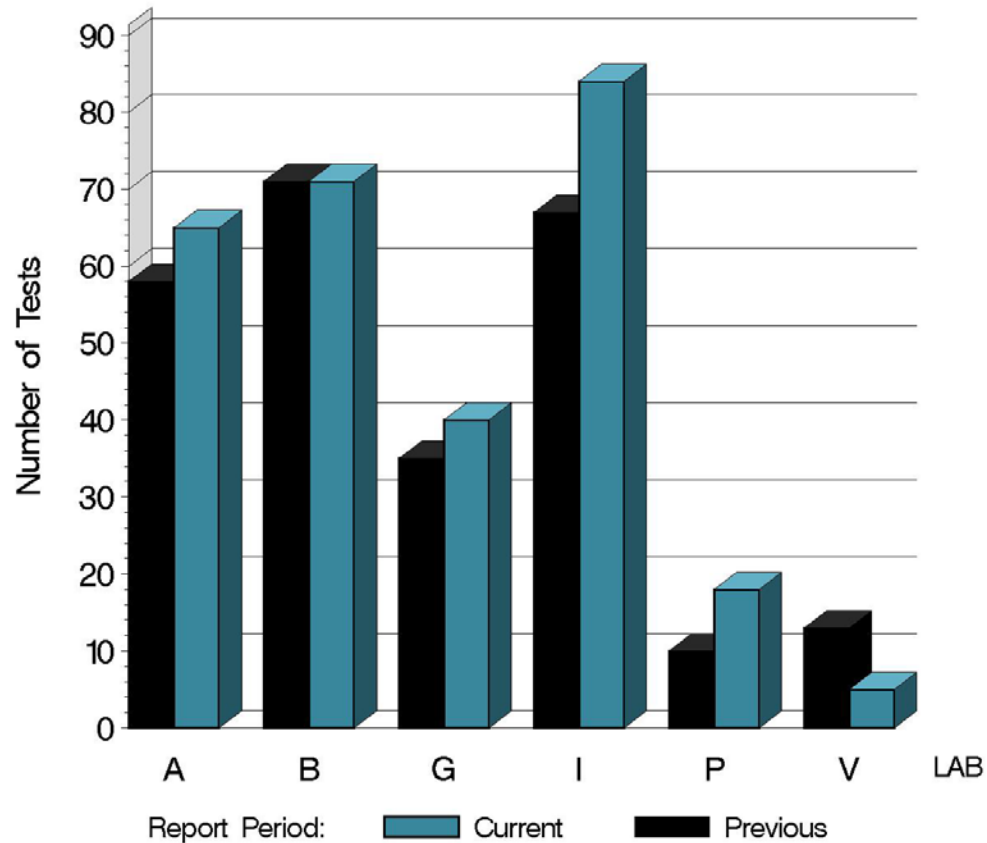
<ftp://ftp.astmtmc.cmu.edu/docs/bench/htcibt/semiannualreports/htcibt-10-2015.pdf>

Distribution: email

# HTCBT (D 6594)

Reporting Data	
Number of Labs	6

NUMBER OF TESTS REPORTED  
BY LAB AND REPORT PERIOD



15:15:51 06NOV2015

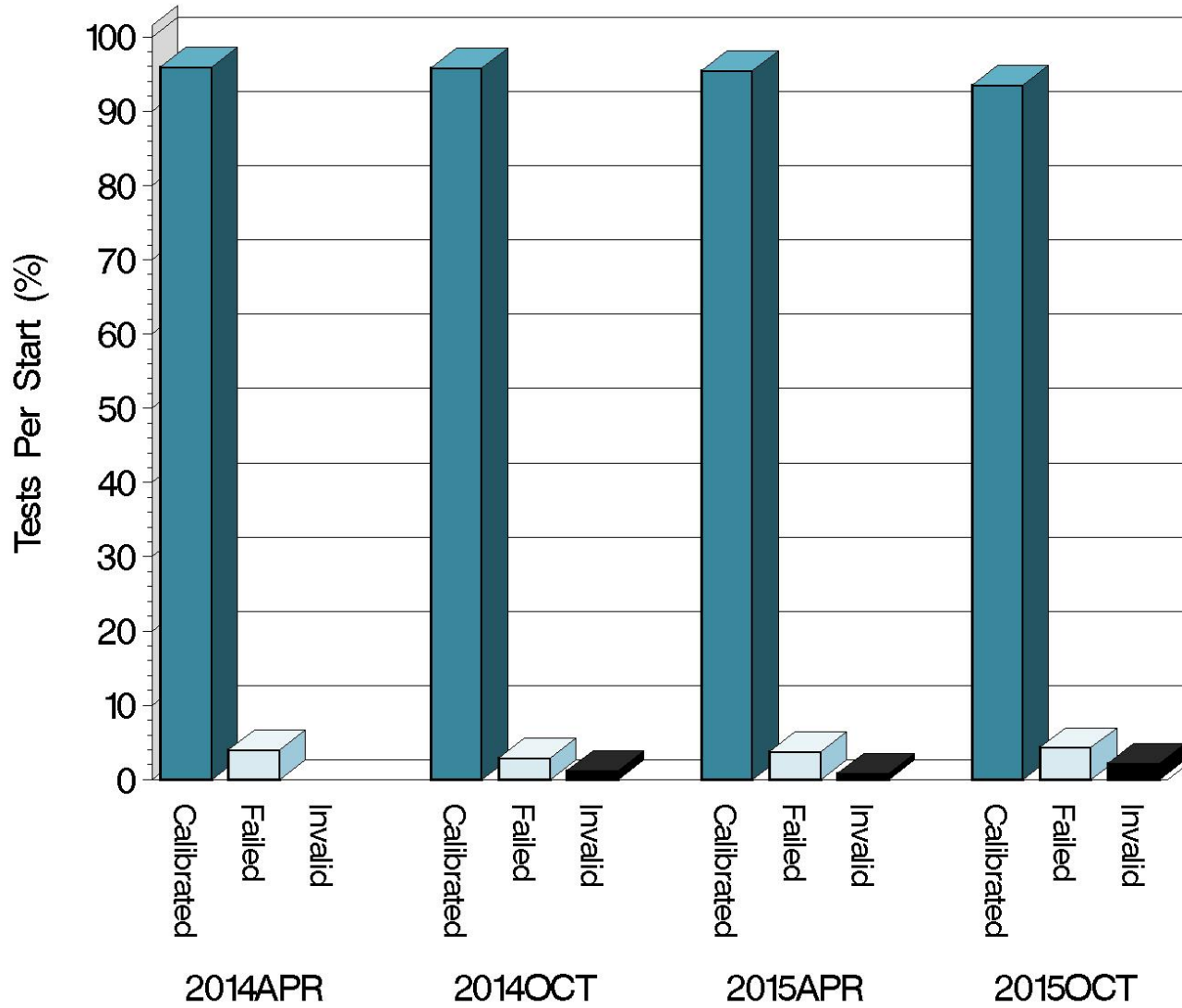
# HTCBT (D 6594)

## Test Distribution by Validity

		Number of Tests
Accepted for calibration	AC	260
Rejected	OC	12
Invalidated	LC	4
Aborted	XC	2
Acceptable Shakedown Run	AG	3
Unacceptable Shakedown Run	OG	2
Invalid Shakedown Run	LG	0
Aborted Shakedown Run	XG	0
Total		283

# HTCBT (D 6594)

## CALIBRATION ATTEMPT SUMMARY



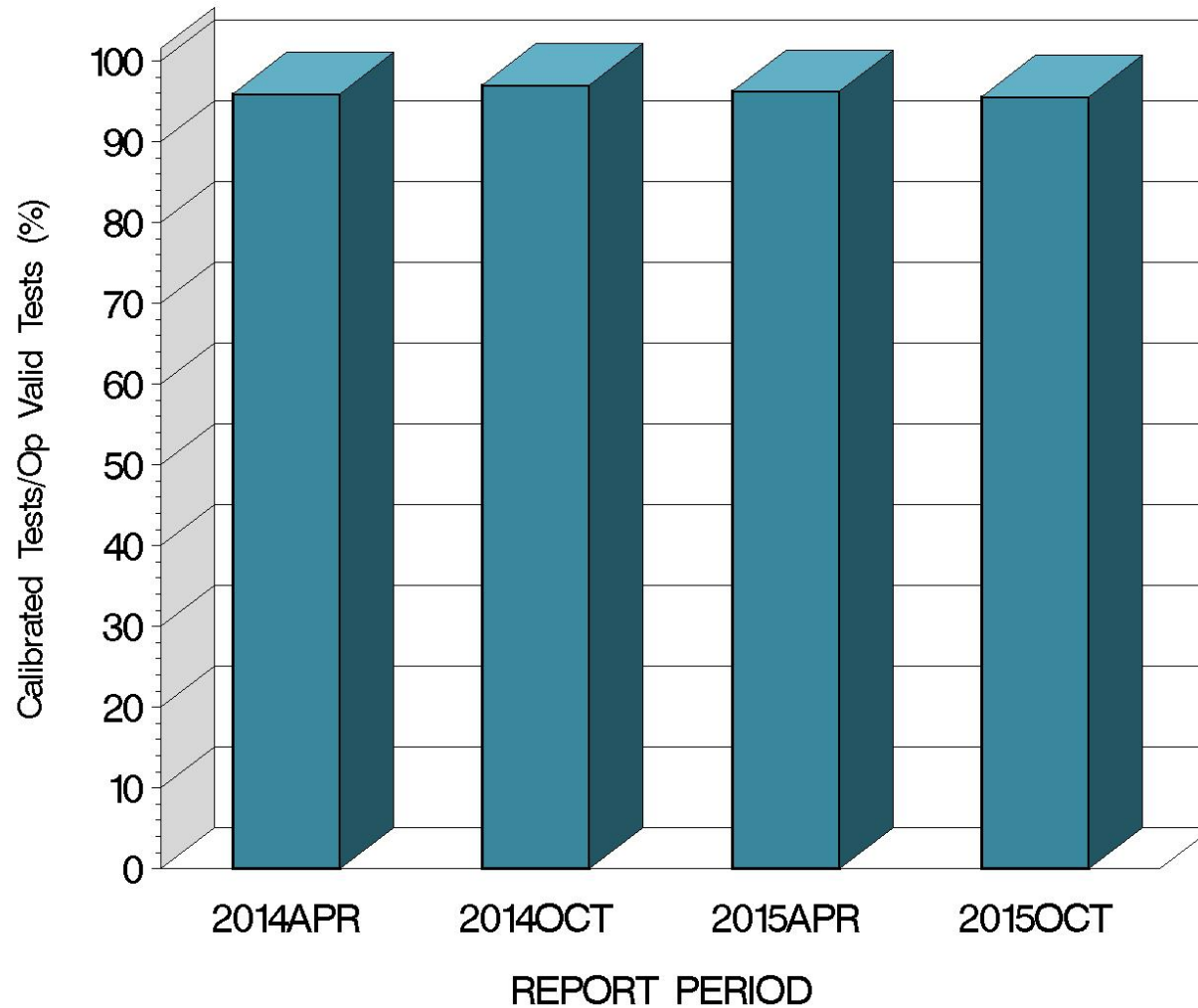
Resolution

Report Period

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# HTCBT (D 6594)

OPERATIONALLY VALID TESTS  
MEETING ACCEPTANCE CRITERIA



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# HTCBT (D 6594)

## CAUSES FOR LOST TESTS

Summary of Reasons for Failed Tests	No. of Tests
Copper, severe	3
Copper, mild	0
Lead, severe	2
Lead, mild	1
Copper, mild, & Lead, severe	1
Copper & Lead, severe	5

# HTCBT (D 6594)

## CAUSES FOR LOST TESTS (CONTINUED)

Summary of Reasons for Invalid Tests	No. of Tests
Heater Failure	1
Airflow Problem	2
Mechanical Failure	1

# HTCBT (D 6594)

## CAUSES FOR LOST TESTS (CONTINUED)

Summary of Reasons for Aborted Tests	No. of Tests
Airflow Problem	1
Power Failure	1



# HTCBT (D 6594)

Average $\Delta/s$ By Laboratory			
Lab	n	CUC	PBC
A	64	1.065	1.075
B	70	1.030	-0.332
G	31	1.429	1.290
I	84	0.450	0.321
P	18	0.883	-0.080
V	5	1.001	0.651
Industry	272	0.894	0.421

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

<ftp://ftp.astmtmc.cmu.edu/refdata/bench/htcbt/data/>

# HTCBT (D 6594)

HIGH TEMP CBT INDUSTRY OPERATIONALLY VALID DATA



COPPER CHANGE (ppm)

CUSUM Severity Analysis



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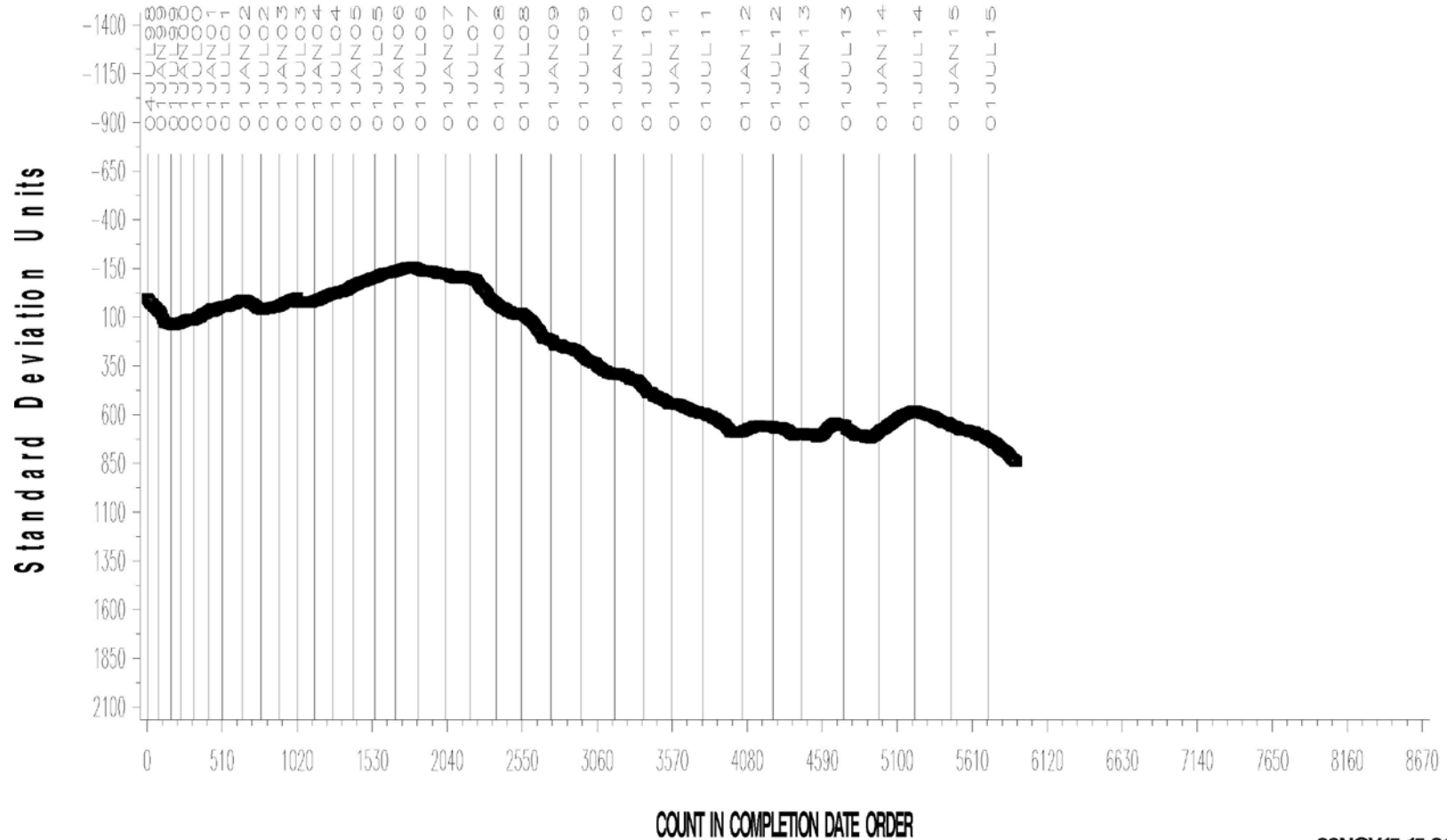
# HTCBT (D 6594)

HIGH TEMP CBT INDUSTRY OPERATIONALLY VALID DATA



LEAD CHANGE (ppm)

CUSUM Severity Analysis



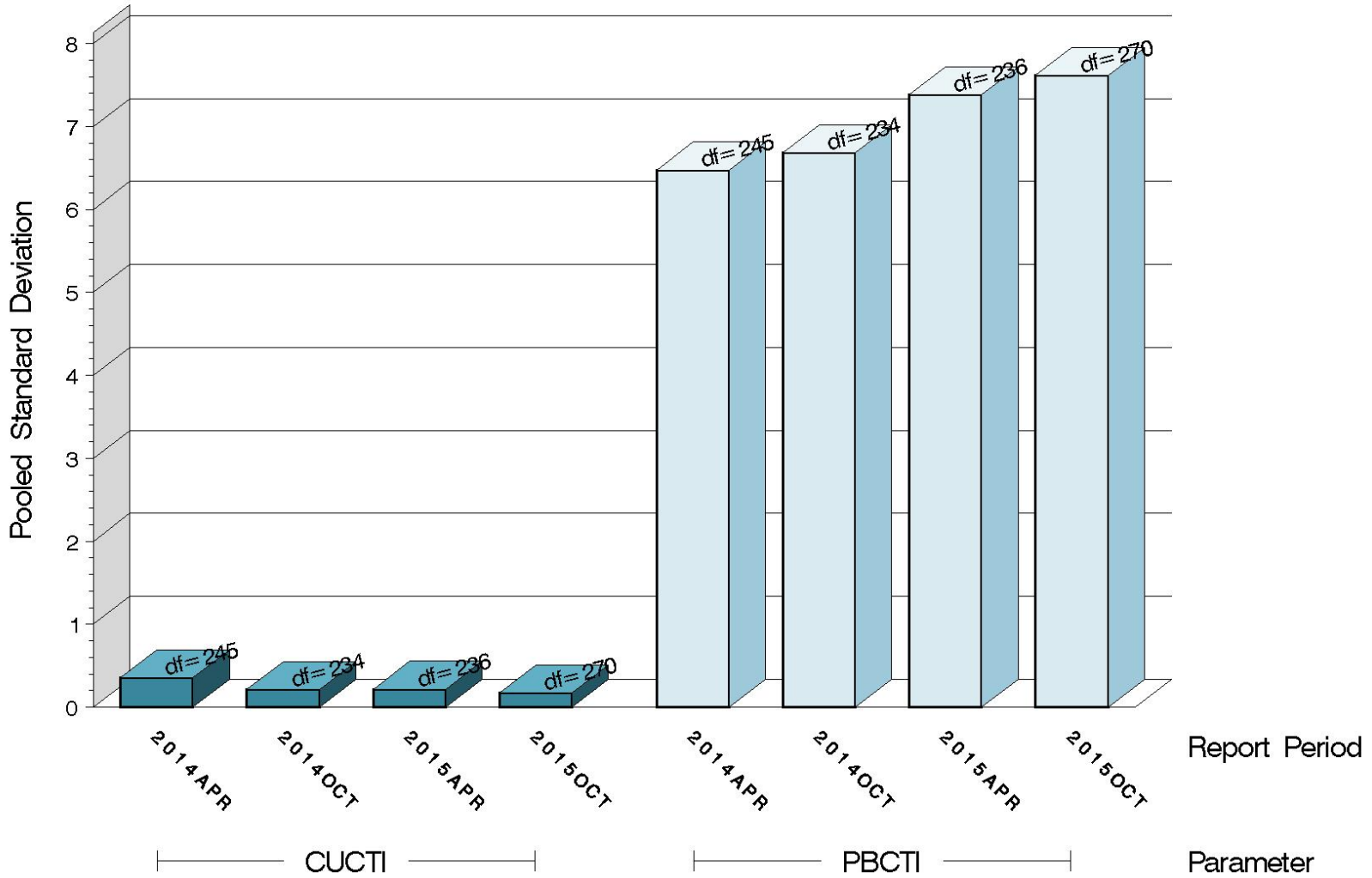
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# HTCBT (D 6594)

## TEST PRECISION

POOLED STANDARD DEVIATION  
BY SIX-MONTH ASTM REPORT PERIOD



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# HTCBT (D 6594)

## SUMMARY OF SEVERITY & PRECISION

### Severity

Over the course of this report period, copper severity, as measured by cusum plotting, was severe.

Over the course of this report period, lead severity, as measured by cusum plotting, was severe.

### Precision

Pooled  $s$  for this period is 0.17 for copper and 7.61 for lead.

Over the course of this report period, Precision, as measured by pooled standard deviation, is slightly better than last period for copper and is slightly worse than the previous period for lead, but is still within historical levels.

# HTCBT (D 6594)

## INFORMATION LETTERS

No HTCBT Information Letters were issued this period.

# HTCBT (D 6594)

## STATUS OF REFERENCE OIL SUPPLY

Reference Oil	Samples @ Labs	@ TMC	
		Samples (4 oz)	Gallons
44-1	0	0	0.0
44-2	0	0	0.0
44-3	131	115	3.6
44-4	6	1721	53.8
1005-1	0	0	0.0
1005-3	52	0	0.0
1005-5	110	1603	50.1
Total	299	3439	107.5

A reblend of 1005-3, reference oil 1005-5, is available at the TMC, and has been introduced into HTCBT testing (after the end of the period).

A reblend of 44-3, reference oil 44-4, is available at the TMC, but has not yet been introduced into HTCBT testing.