A Program of ASTM International

Test Monitoring Center

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

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

MEMORANDUM: 09-025

DATE: April 29, 2009

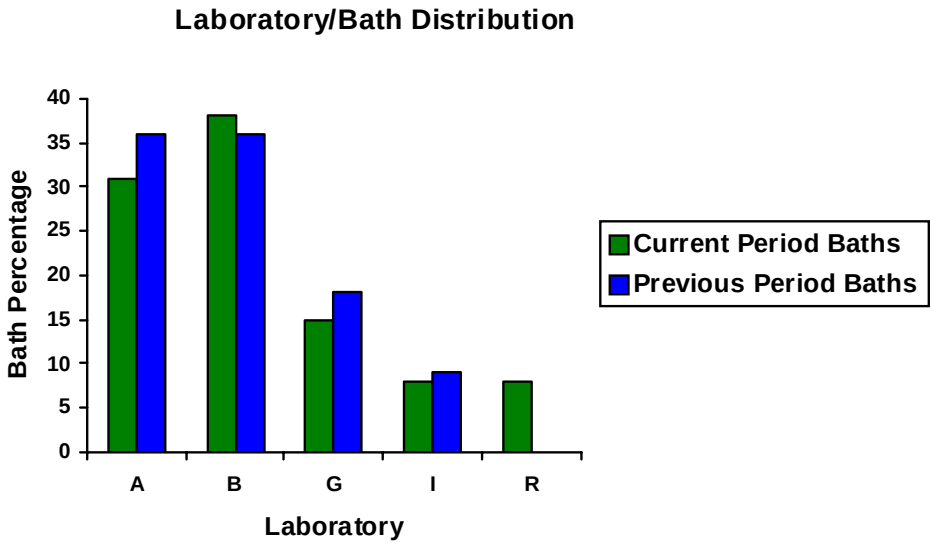
TO: Gil Reinhard, Chairman, HTCBT Surveillance Panel

FROM: Michael T. Kasimirsky

SUBJECT: High Temperature Corrosion Bench Testing for the April 2009 Report Period

A total of 226 High Temperature Corrosion Bench Test results from 13 baths in four labs were reported to the TMC during the April 2009 ASTM report period, which began on October 1, 2008 and ended on March 31, 2009.

The following chart shows the distribution by laboratory.

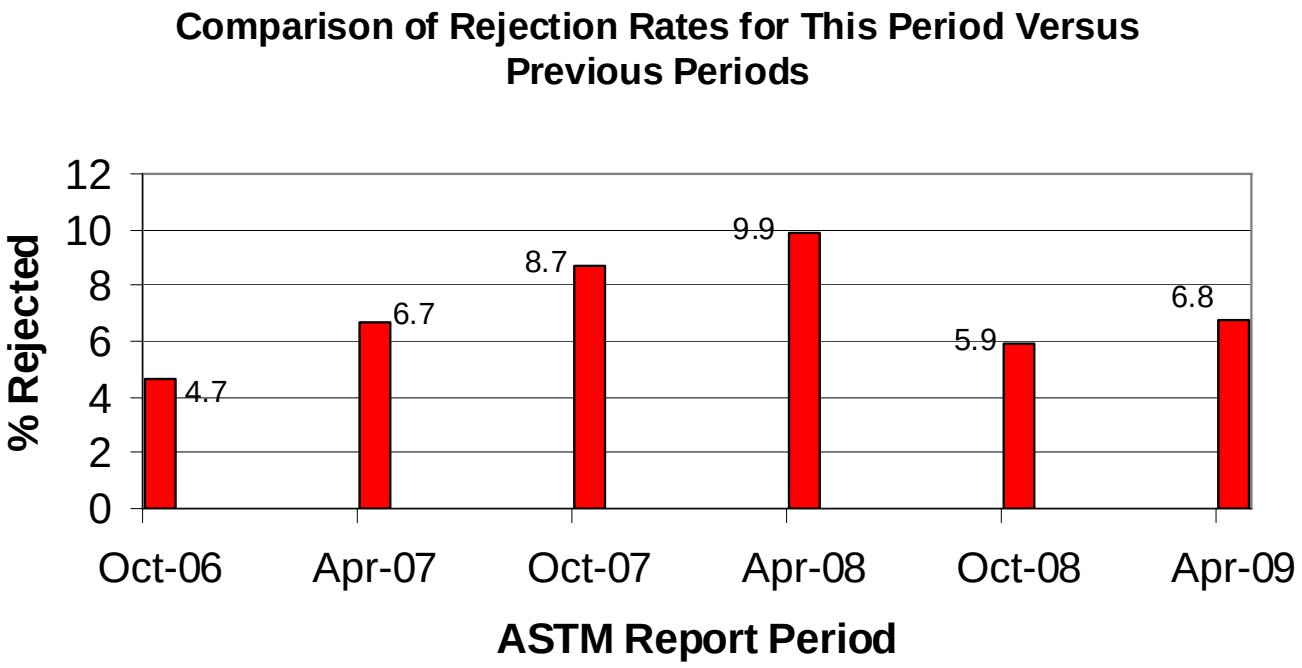


The following summarizes the status of the reference oil tests reported to the TMC:

	TMC Validity Codes	No. of Tests
Operationally and Statistically Acceptable	AC	205
Failed Acceptance Criteria	OC	15
Declared Invalid by Laboratory	LC	5
Aborted	XC	1
Acceptable Donated Tests	AG	0
Unacceptable Donated Tests	OG	0
Total		226

Tables 1, 2, and 3 (attached) summarize any failed, invalid and aborted tests.

The following presents the fail rate for this period with the fail rates of previous periods.

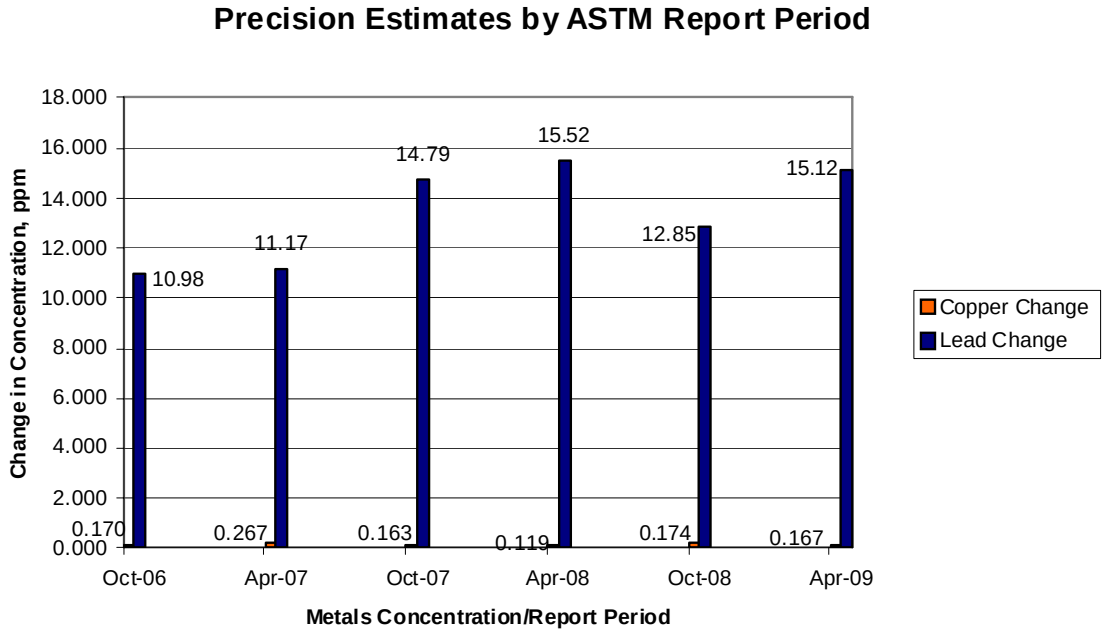


Industry Severity and Precision

The current severity for the change in metals concentration parameters on all operationally valid tests, for the current and previous periods, is tabulated below.

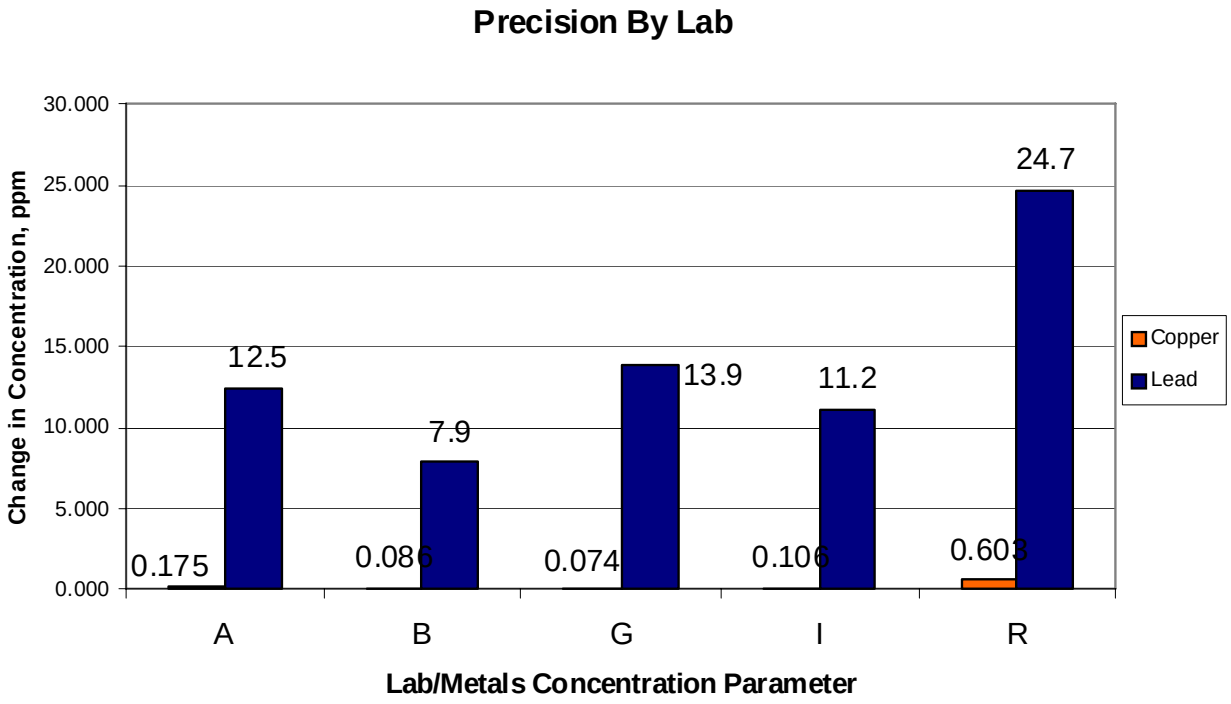
Period	n	Δ Cu Mean Δ/s	Δ Pb Mean Δ/s
10/1/08 through 3/31/09	220	0.86	0.55
4/1/08 through 9/30/08	179	0.79	0.37
10/1/07 through 3/31/08	172	1.27	0.68
4/1/07 through 9/30/07	173	0.84	0.36
10/1/06 through 3/31/07	176	0.58	0.15
4/1/06 through 9/30/06	172	0.90	0.11

Figures 1 and 2 plot the Summation delta/s from target for change in copper and change in lead, respectively. Figure 1 shows copper change to be severe for the period. Figure 2 shows lead change to be severe for the period. Precision estimates, by report period are depicted below. Compared to past periods, the precision for lead change shows a slight improvement, while precision for copper shows some degradation, but it still in line with historical performance.



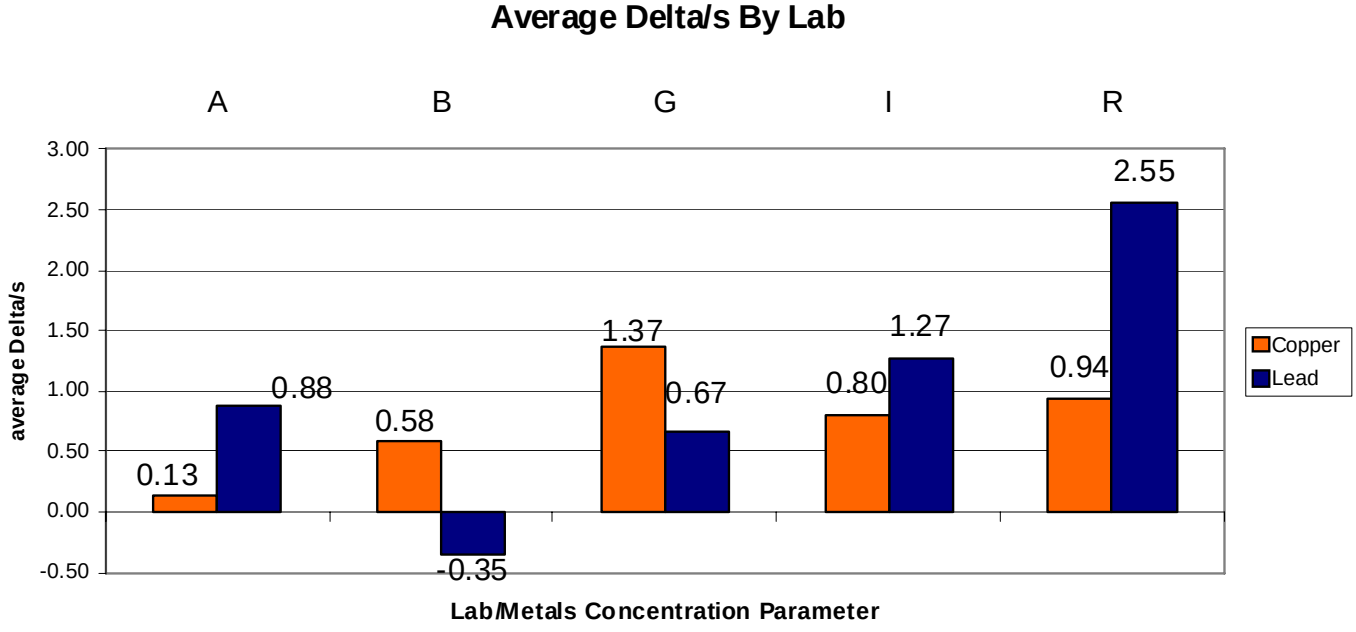
Laboratory Severity and Precision

The following plot shows the precision for this period, by lab.



Precision estimates for Lead show better precision at Lab B than at Labs A, G, and I, while precision estimates for Copper show better precision at Lab G than at Labs A, B, and I. Lab R precision is worse than any other laboratory in industry.

The following plot shows the average Δ/s by laboratory and concentration parameter for this ASTM report period. For Copper, Lab A was the mildest and for Lead, Lab B was the mildest. Lab G was the most severe for Copper and Lab R was the most severe for Lead.



Reference Oil and Hardware

Reference oil quantities available at the laboratories and TMC, as well as estimated life of these oils, are tabulated below. The TMC is out of oils 44 and 1005. Testing is currently underway to set initial test targets on reference oil 44-1, but has not been completed at this time. Introduction of reference oil 1005-1, a reblend of oil 1005, has been approved by the Surveillance Panel. Samples will be shipped out to the labs in the near future and then initial testing can take place to establish initial test targets for the oil.

Oil	TMC Inventory (gallons)	TMC Inventory (tests)	Lab Inventory (tests)	Usage Ratio (%)	Estimated life
1005	0	0	57	~75	~2 months*
1005-1	4.9	142	0	~75	~5 months*
44	0	0	0	N/A	None
44-1	14.3	~416	41	~25	~45 months*

* Estimated life of reference oils based upon introduction of oils 44-1 and 1005-1 into system.

Information Letters

No information letters were issued this period.

Additional Information

The HTCBT database is available on the TMC's website. If you have any questions on how to access this information, contact the TMC.

MTK/mtk/mem09-025.mtk.doc

c: HTCBT Surveillance Panel
ftp://ftp.astmtmc.cmu.edu/docs/bench/htcbt/semiannualreports/htcbt-04-2009.pdf
J. L. Zalar
F. M. Farber
M. T. Kasimirsky

Distribution: Email

Table 1
Summary of Reasons for Failed Tests

	No. of Tests
Lead, severe	3
Copper, severe	1
Copper and Lead, severe	9
Lead Severe, Copper Mild	2

Table 2
Summary of Reasons for Invalid Tests

	No. of Tests
Bath Failure	1
Wrong Test Length	2
Temperature Control Problem	2

Table 3
Summary of Reasons for Aborted Tests

	No. of Tests
Power failure	1

Figure 1

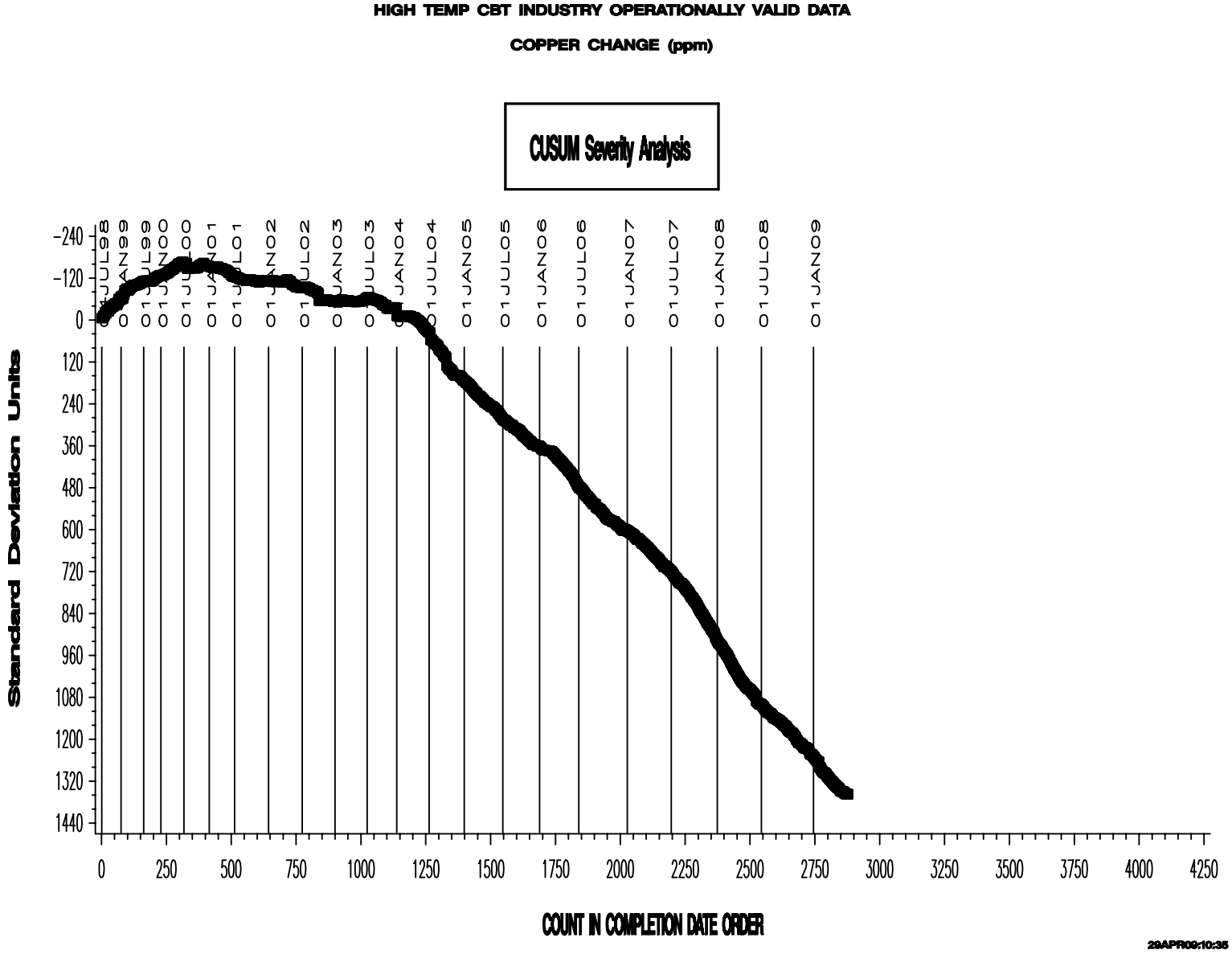

HIGH TEMP CBT INDUSTRY OPERATIONALLY VALID DATA
COPPER CHANGE (ppm)
CUSUM Severity Analysis
Standard Deviation Units
-240
-120
0
120
240
360
480
600
720
840
960
1080
1200
1320
1440
01JUL98
01JAN99
01JUL99
01JAN00
01JUL00
01JAN01
01JUL01
01JAN02
01JUL02
01JAN03
01JUL03
01JAN04
01JUL04
01JAN05
01JUL05
01JAN06
01JUL06
01JAN07
01JUL07
01JAN08
01JUL08
01JAN09
0
250
500
750
1000
1250
1500
1750
2000
2250
2500
2750
3000
3250
3500
3750
4000
4250
COUNT IN COMPLETION DATE ORDER
29APR09:10:35

Figure 2

HIGH TEMP CBT INDUSTRY OPERATIONALLY VALID DATA

LEAD CHANGE (ppm)