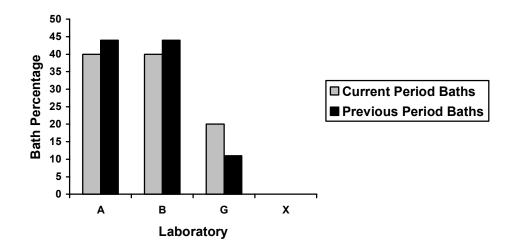


| MEMORANDUM: | 04-082  |
|-------------|---|
| DATE:       | October 13, 2004  |
| TO:         | Joe Franklin, Chairman, CBT Surveillance Panel                              |
| FROM:       | Jeff Clark  |
| SUBJECT:    | High Temperature Corrosion Bench Testing for the October 2004 Report Period |

A total of 204 High Temperature Corrosion Bench Test results from ten baths in three labs were reported to the TMC during the October 2004 ASTM report period, which began on April 1, 2004 and ended on September 30, 2004.

The following chart shows the distribution by laboratory.



## Laboratory/Bath Distribution

|  | TMC Validity<br>Codes | No. of Tests |
|--|-----------------------|--------------|
| Operationally and Statistically Acceptable | AC                    | 134          |
| Failed Acceptance Criteria                 | OC                    | 8            |
| Declared Invalid by Laboratory             | LC                    | 0            |
| Aborted                                    | XC                    | 2            |
| Acceptable Donated Test                    | AG                    | 60           |
| Total                                      |                       | 204          |

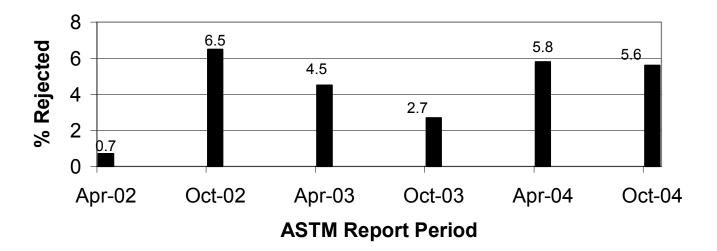
The following summarizes the status of the reference oil tests reported to the TMC:

One test was aborted by the client and one test was aborted due to a mechanical failure. All 60 donated tests were run as part of an industry-wide matrix to study the effects of changing cleaning solvents. The table below tallies the statistically unacceptable tests:

| Reason                     | Number of Tests |
|----------------------------|-----------------|
| Severe Copper              | 5               |
| Severe Copper, Severe Lead | 2               |
| Mild Copper, Severe Lead   | 1               |

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

# Comparison of Rejection Rates for This Period Versus Previous Periods

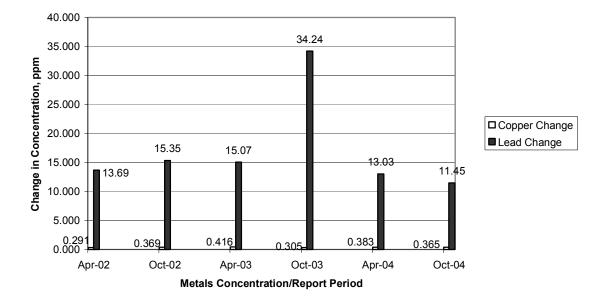


#### Industry Severity and Precision

| Period                  | n   | ΔCu             | Δ Pb             |
|-------------------------|-----|-----------------|------------------|
|                         |     | Mean $\Delta/s$ | Mean $\Delta$ /s |
| 4/1/04 through 9/30/04  | 142 | 1.03            | -0.26            |
| 10/1/03 through 3/31/04 | 120 | 0.35            | -0.22            |
| 4/1/03 through 9/30/03  | 111 | 0.01            | 0.07             |
| 10/1/02 through 3/31/03 | 134 | 0.01            | -0.26            |
| 4/1/02 through 9/30/02  | 124 | 0.30            | 0.22             |

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

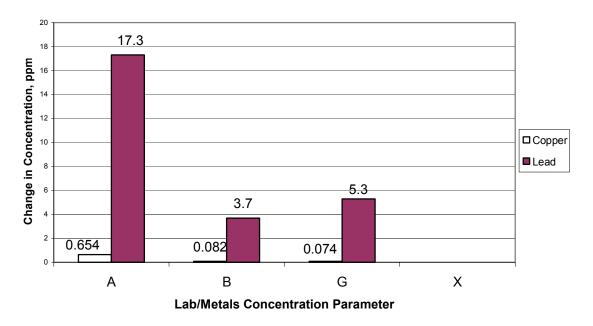
Figures 1 and 2 plot the Summation delta/s from target for both change in copper and change in lead, respectively. Figure 1 shows copper change to be severe for the period. Figure 2 shows lead change to be mild for the period. Precision estimates, by report period are depicted below. Precision for Cu change is within historical levels. Precision for Pb change shows some improvement compared to historical levels.



## **Precision Estimates by ASTM Report Period**

### Laboratory Severity and Precision

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

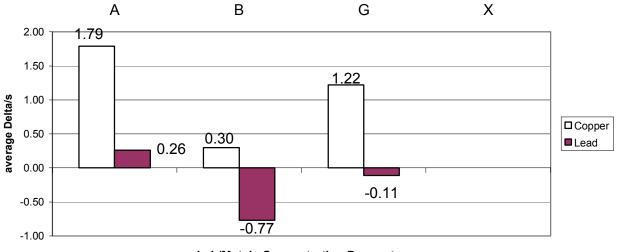


## Precision By Lab

Precision estimates for both Copper and Lead show better precision at labs B and G than at lab

A.

The following plot shows the average  $\Delta$ /s by laboratory and concentration parameter for this ASTM report period.



## Average Delta/s By Lab, TMC Oil 43

Lab/Metals Concentration Parameter

For both copper and lead, Lab A was the most severe and lab B the most mild.

#### Reference Oil Supply

Reference oil quantities available at the laboratories and TMC, as well as estimated life of these oils, are tabulated below.

| Oil  | TMC Inventory, in | TMC Inventory, in | Laboratory          | Estimated life |
|------|-------------------|-------------------|---------------------|----------------|
|      | gallons           | tests             | Inventory, in tests |                |
| 42   | 0                 | 0                 | 6                   | 1 month        |
| 1005 | 57.3              | ~1834             | 52                  | 6+ years       |

The TMC supply of oil 42 has been exhausted. The TMC is in the process of obtaining a new reference oil.

#### Information Letters and Memorandum

No information letters were issued this report period.

#### Additional Information

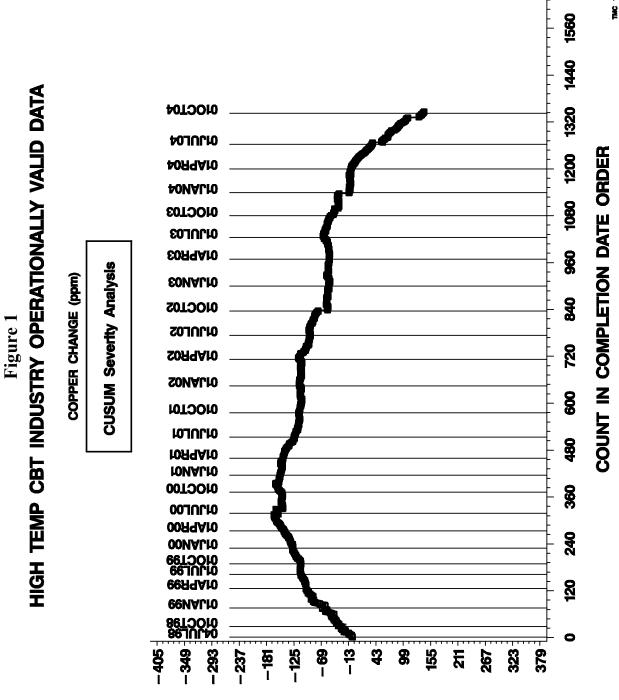
The HTCBT database is available on the TMC's website. If you have any questions on how to access this information, contact the TMC.

JAC/jac/mem04-082.jac.doc

 c: HTCBT Surveillance Panel ftp://ftp.astmtmc.cmu.edu/docs/bench/htcbt/semiannualreports/htcbt-10-2004.pdf
J. L. Zalar

F. M. Farber

Distribution: Email



Standard Deviation Units

TMC 110CT04:14:23

**1680** 

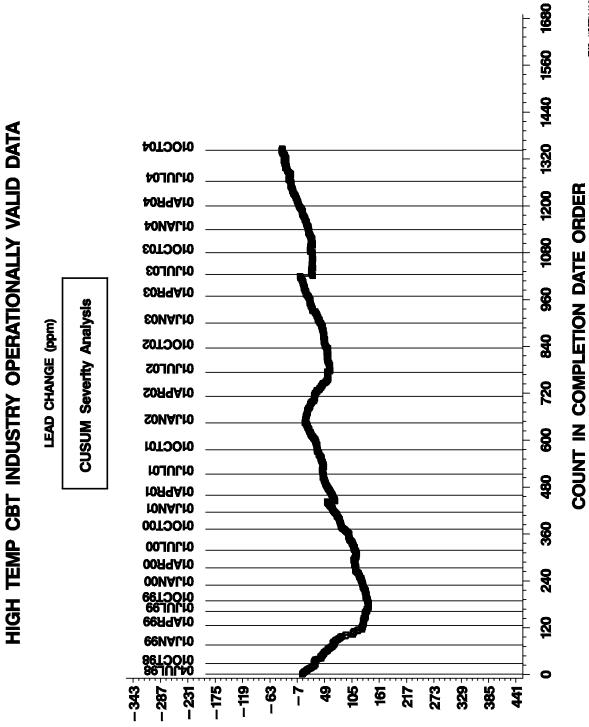


Figure 2

Standard Deviation Units

THC HOCTORIAL23