

**HEAVY-DUTY ENGINE OIL CLASSIFICATION PANEL**  
OF  
ASTM D02.B0.02  
April 6, 2006  
Detroit Courtyard Marriott, Detroit, Michigan

THIS DOCUMENT IS NOT AN ASTM STANDARD: IT IS UNDER CONSIDERATION WITHIN AN ASTM TECHNICAL COMMITTEE BUT HAS NOT RECEIVED ALL APPROVALS REQUIRED TO BECOME AN ASTM STANDARD. IT SHALL NOT BE REPRODUCED OR CIRCULATED OR QUOTED, IN WHOLE OR IN PART, OUTSIDE OF ASTM COMMITTEE ACTIVITIES EXCEPT WITH THE APPROVAL OF THE CHAIRMAN OF THE COMMITTEE HAVING JURISDICTION AND THE PRESIDENT OF THE SOCIETY. COPYRIGHT ASTM, 100 BARR HARBOR DRIVE, WEST CONSHOHOCKEN, PA 19428-2959.

---

**ACTION ITEMS**

**1. Issue T-12 to T-10 Exit Ballot**

**Jim Mc Geehan**

---

**MINUTES**

1.0 Call to order

- 1.1 The Heavy Duty Engine Oil Classification Panel (HDEOCP) was called to order by Chairman Jim McGeehan at 8:30 a.m. on Thursday April 6, 2006, in the Marriott A room of the Detroit Courtyard Marriott, Detroit, MI.
- 1.2 There were 13 members present and 10 guests present. The attendance list is shown as Attachment 2.

2.0 Agenda

- 2.1 The agenda shown (included as Attachment 1) was used except that Wim van Dam presented the T-10 to T-12 in place of John Zalar.

3.0 Minutes

- 3.1 The minutes from the January 26, 2006 meeting were approved as written.

4.0 Membership

- 4.1 There were no membership changes.

5.0 Chairman's Comments

- 5.1 D4485 Ballot: Lyle Bowman has issued the revised D4485 standard for review. Possible corrections are changing the word "any" to "all" in the T-11 limits and change the terminology for merits from "higher and lower" to "better and worse".
- 5.2 CJ-4 review open forum: There were comments that there are too many wear tests and that the category is too expensive. This group did put this category together and it may be a very robust category. Chairman McGeehan offered to host a dinner Tuesday at June ASTM for members and spouses. Volvo is disappointed at some of the comments from the SAE open forum held two days prior. Volvo will push their spec as a worldwide spec and doesn't feel that there will be niche products. Hopefully, there could be a worldwide or at least US and Europe category next time. There still may be some fragmentation and the 3 stakeholders need to work very hard to achieve a more uniform category for broader use. Even with so many tests, the category was delivered on time.

## 6.0 Mack T-12 to T-10

- 6.1 Wim van Dam presented the work of the Mack Surveillance Panel to use the Mack T-12 test as a substitute for the Mack T-10 test. See Attachment 3. The T-10 test will not be around much longer. There are two calibrated T-10 stands, and their calibrations will expire soon. The calibrated stands have had their calibration period extended by a couple of months to give time to resolve. There are approximately less than 10 sets of engine build parts. Volvo has reminded us that there are piston forgings available, but those pistons would be bushingless. That is, no bronze bushing for the wrist pin. The wrist pin would ride on the steel piston. The desire is to wrap this up by the June meeting. The Surveillance Panel considered several different approaches. One is to just use a lower merit value. The second is to develop an alternate merit system. The third is to predict T-10 performance from a set of correlation equations, then use the T-10 merit system. The Surveillance Panel felt that the second approach was the best approach, but there was one negative vote.
- 6.2 Approach #1: Relatively simple by selecting a lower merit number possibly in the 400 to 600 merit range. One problem is what happens when one value exceeds the maximum. Are the merits kept at zero or do we allow a negative merit contribution. A new set of maxima would have to be developed. It is basically a new merit system.
- 6.3 Approach #2: This is more complicated and requires a data set of oils run in both test types. New anchors, minima, and maxima would have to be developed. That would consist of comparing the actual T-10 performance with the T-10 merit system and develop limits that would keep the T-10 performance similar.
- 6.4 Approach #3: This is also more complicated. Requires a data set of oils run in both test types. Establish the correlations for each parameter and use the equations to predict T-10 performance and use the T-10 merit system.
- 6.5 The details of approach #2 were explained. Some of the oils translate well, but some have merits that differ greatly. The reference oil improves quite a bit. The OEM expressed a concern that the lead limits are too high so a modification to the system was shown. Another modification was to use the reference oil average 7 times to equal the number of candidate runs, instead of using the average of the reference as one data point. There are many more runs on TMC820-2 than the candidate data oils used in the data set. The Surveillance Panel recommends this system as the basis. None of the systems are straightforward. The OEM has received much lobbying and feels that there could be negatives on an exit ballot. Volvo has investigated this and decided that the lead values of 43 are too high, especially for use in ACEA. Volvo is willing to offer a compromise to get this accomplished by June. Many felt that more emphasis should be placed on the reference oil results.
- 6.6 Greg Shank presented a compromise. See Attachment 4. The compromise is what Volvo can live with and is based on some of the lobbying. Steve Kennedy discussed some adjusted limits. Top ring weight loss and oil consumption would move, but the data may not show a problem on top ring weight loss. Possibly use the anchor value for cylinder liner wear of 23 but use a maximum of 26. Volvo can live with a max of 26. Steve Kennedy listed off some new values in maximum, anchor, minimum order. Cylinder Liner Wear (CLW): 26, 23, 12. Top Ring Weight Loss (TRWL): 117, 82, 47. Oil Consumption (OC): 95, 82, 50. Zero to 300 Hour Delta Lead (EOT Pb): 42, 35, 10. 250 to 300 Hour Delta Lead (PB2): 18, 13, 0. The seven candidate oils would have merit values as follows: 982, 816, 871, 352, 1474, 1188, 1495. Greg Shank **moved** to send out an exit ballot with a 2 week response time for a T-12 to T-10 using the compromise values. Bill Kleiser seconded. The **motion passed** unanimously with 13 votes for, 0 against and 0 waives.
- 6.7 Mack tests in old categories: Since the T-10 itself will no longer be available, what happens to the T-9 and T-6. Lubrizol thinks that the older categories need to be supported and will be presenting some proposals.
- 6.8 T-8 to T-11. Volvo suggests that if the T-11 is used in place of the T-8, that it be the 180 hour T-11A. Reference oil 1004 has not been run in a T-11. There are no lab or hardware issues to prevent the T-8 from being run. The group is trying to be proactive and will start to get data on 1004 in a T-11. To do this, 3 tests on 1004 in a T-11 have been offered. Also,

need to consider what to do with a T-8A. The T-8A is in current categories. The Mack Surveillance Panel will take this on.

#### 7.0 Recommendations to API

- 7.1 Steve Kennedy updated the group. The API lubes committee approved the ballot for CJ-4. After May 1<sup>st</sup>, oils can state that they meet CJ-4 or OEM specs, but are not required to. CJ-4 oils can be in a bottle that only states CI-4+. There is some concern that for off-highway applications with higher sulfur fuel, the CJ-4 oil may not yield the same service interval. There is no legal way to claim CJ-4 before October 15<sup>th</sup>. The oil marketers should help the customer understand what is in the bottle during the transition. CJ-4 oil is better than CI-4+ and meets CI-4+. The user may find that TBN levels are different. Between June and October, communication between oil marketer, OEM and user will be critical. Communicate accurately in terms of TBN level, not oil quality.

#### 8.0 Next meetings

- 8.1 Conference call to discuss the exit ballot unless very controversial.
- 8.2 June 27, 2006. Toronto ASTM

#### 9.0 The meeting was adjourned at 11:00 am.