Ninety-Cycle Shear Stability (NCSS) Task Force,

Section B on Non-Newtonian High Temperature Viscosity
Subcommittee 7 on Flow Properties

Report to the HDEOCP

F. W. Girshick, Chair
R. Patterson, Secretary
22 June 2004

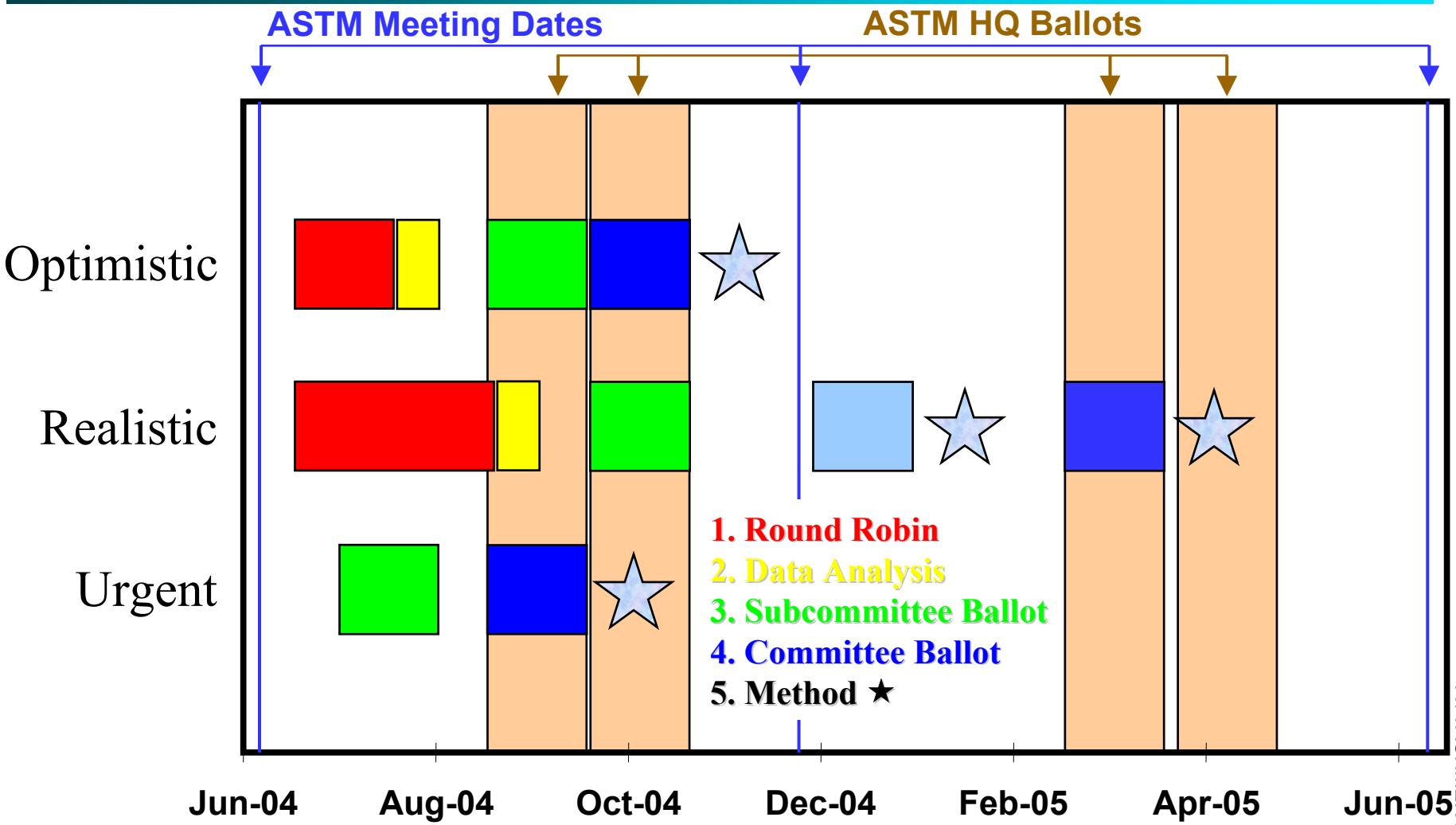
CONCLUSIONS

- **Expect to have an approved Test Method October 2004**
  - **Expedited ballot**
  - **Preliminary precision statement**
    - ⇨*r = 1.8% (absolute)*
    - ⇨*R = 2.9% (absolute)*
- **Expect to have a revised Test Method by April 2005**
  - **Approved Precision Statement**
    - ⇨*Based on Full Round Robin*

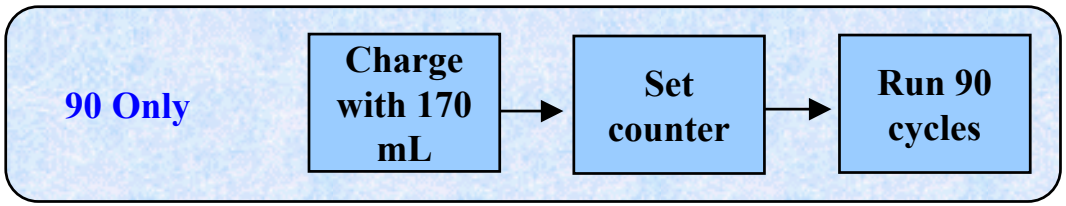
BRIEF HISTORY

- 17 June 2003 – Task Force formed by Subcommittee 7, Section B
  - Develop a test method for 90 cycle (only) shear stability
- 9 July 2003 – Task Force meeting (conference call)
- 12 August 2003 – Draft 1 circulated for comment
  - Round Robin plans proceeding
- 8 October 2003 – HDEOCP meeting
  - Formal request from Subcommittee D02.B to develop test method
    - ⇨ *Shear stability at 90 cycles*
    - ⇨ *Include 30 cycle intermediate result*
    - ⇨ *Generate precision at both 30 and 90 cycles*
- 25 November 2003 – Draft 2 circulated for comment
- 7 December 2003 – Task Force meeting
  - Recommend "90 cycle only" to Subcommittee B as fastest to develop
  - Subcommittee B rejects recommendation and requests 30 & 90 cycle in same method
- 7 April 2004 – Draft 3
- 10 May 2004 – B.2 re-confirms request for 30 & 90 results
- 21 May 2004 – Draft 4 circulated (Perkin-Elmer method)
- 10 June 2004 – "Mini" Round Robin data from T-11 Surveillance
- 20 June 2004 – Task Force meeting
  - Draft 5 finalized

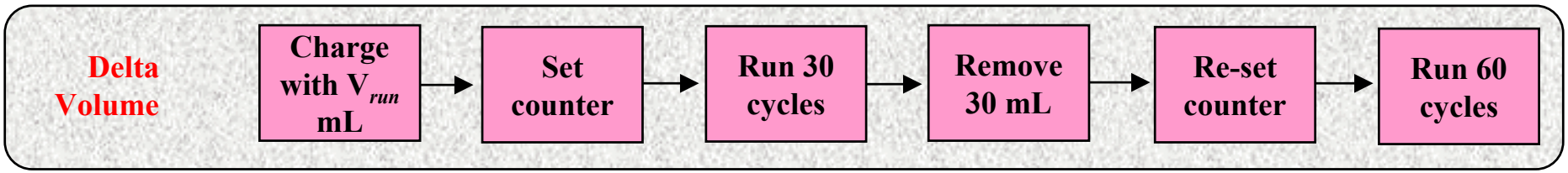
Proposed Timeline(s)



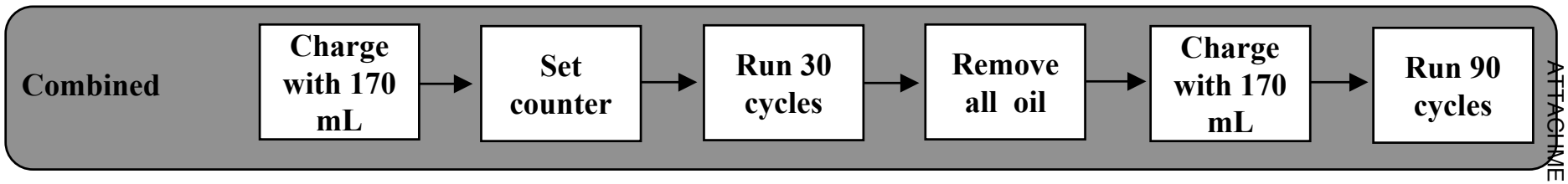
Method Options



Recommended by the Task Force (7-0)
Fastest to develop

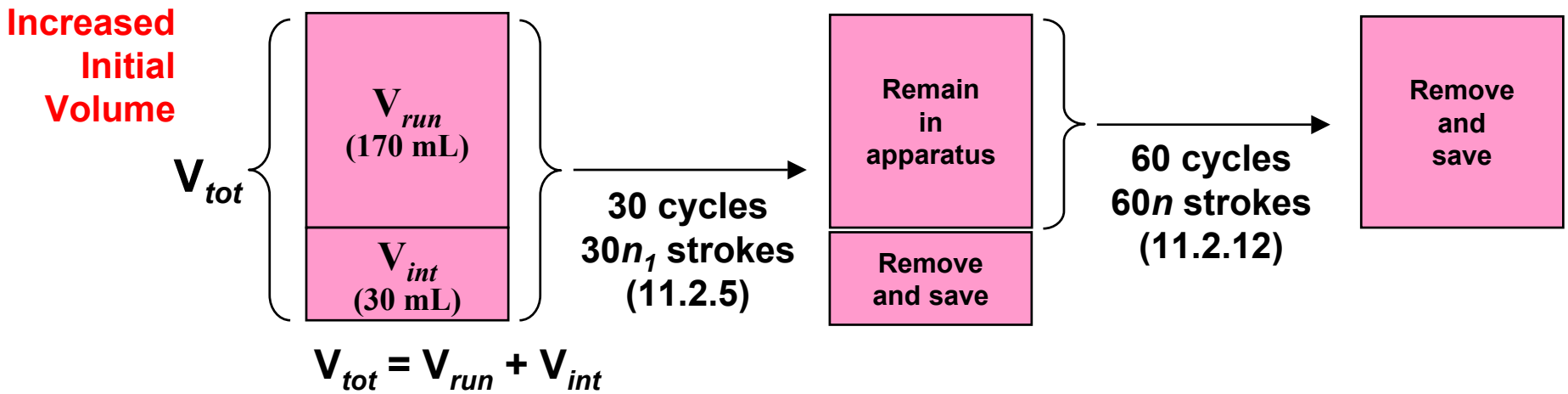


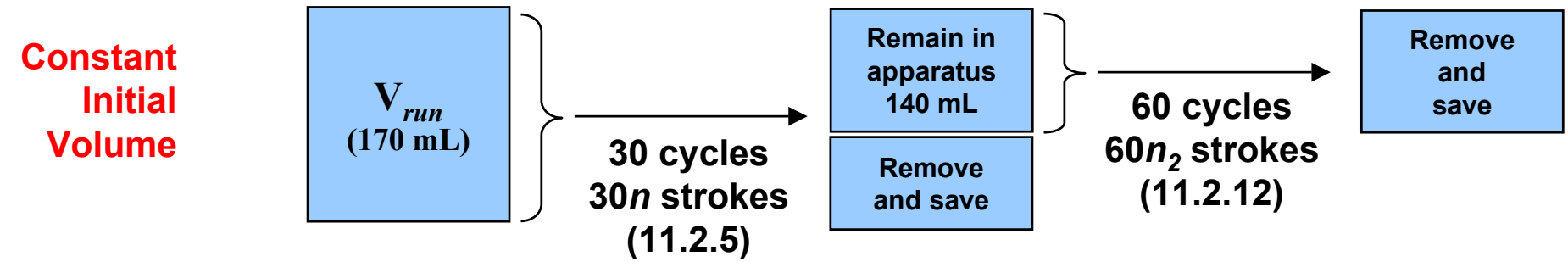
Selected by Subcommittee D02.0B
Slowest to develop



Dropped early – Doesn't make much sense

Volume Change Methods

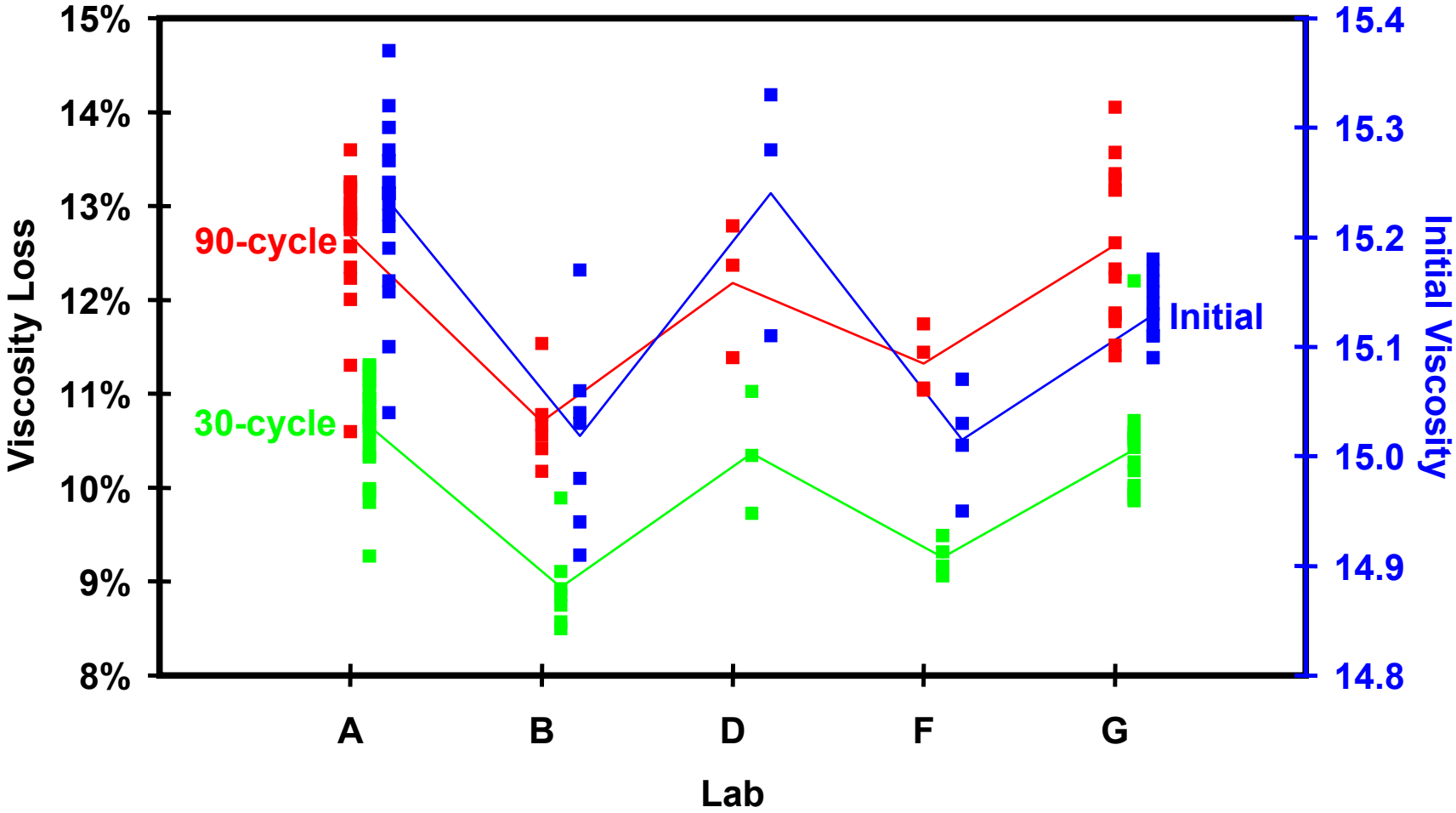




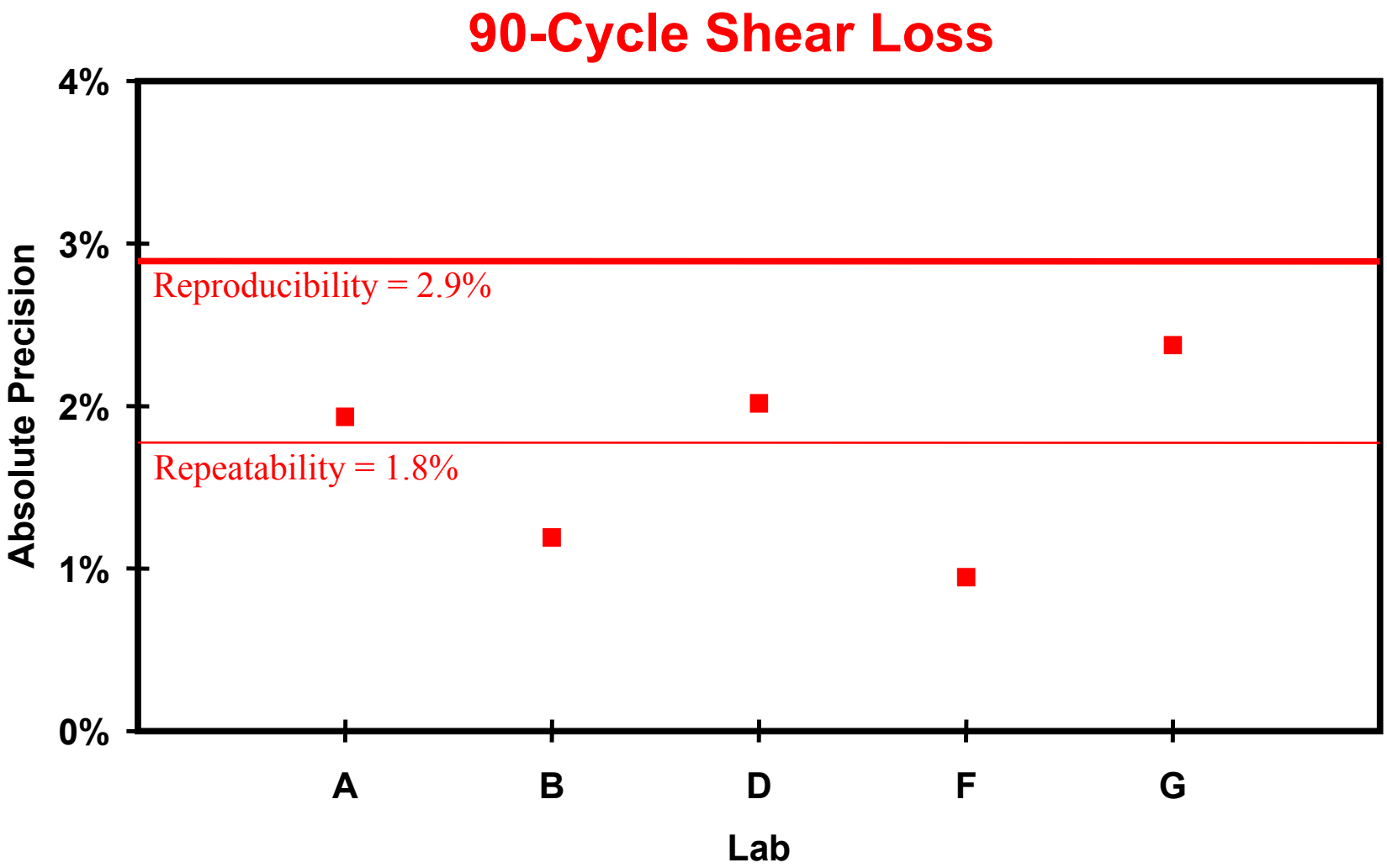
n **determined in section 10.3**

$$n_1 = \left[\frac{(170+30)}{170}\right] * n \qquad n_2 = \left[\frac{(170-30)}{170}\right] * n$$

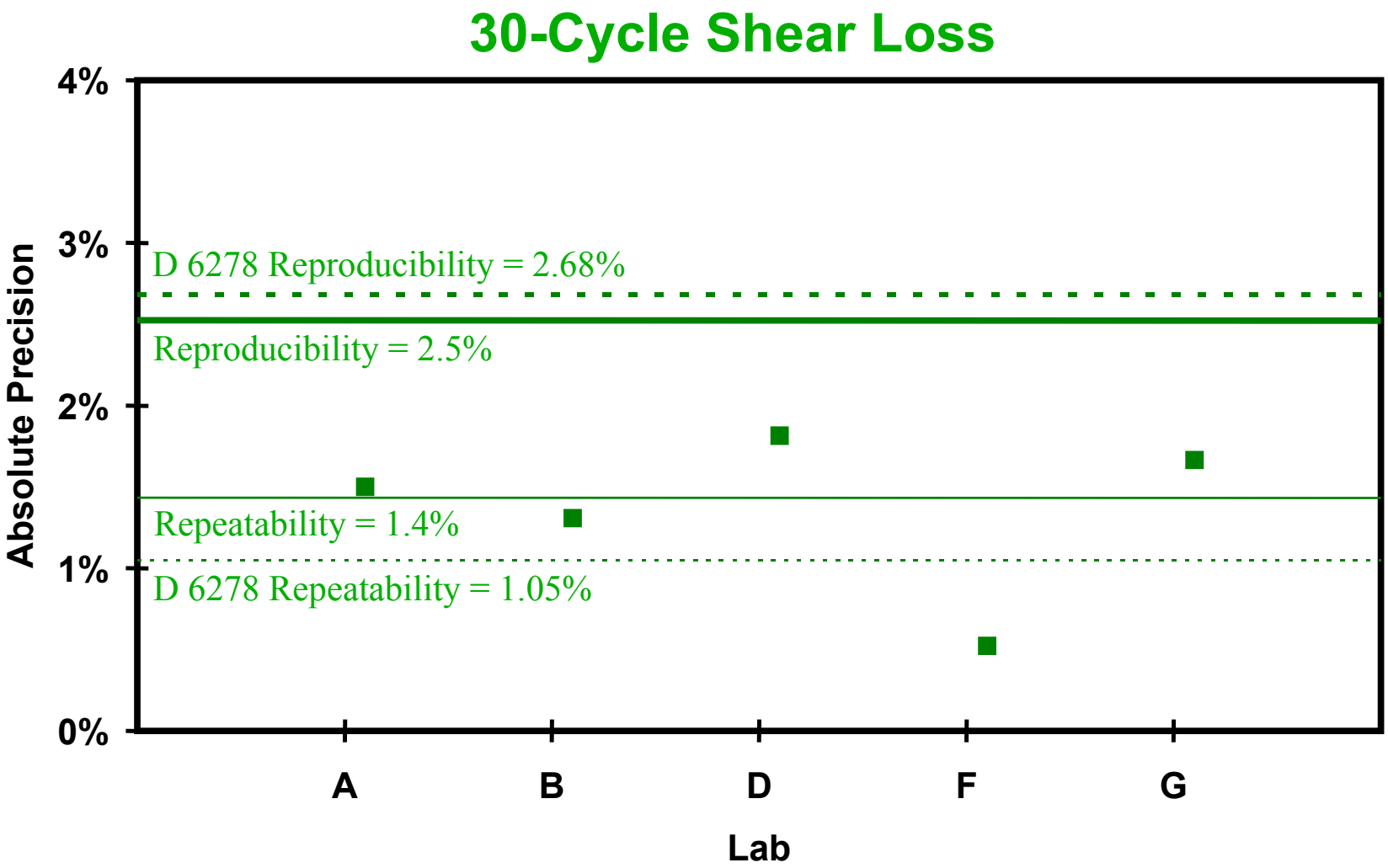
ASTM 90-Cycle Shear Data (TMC 820-2)



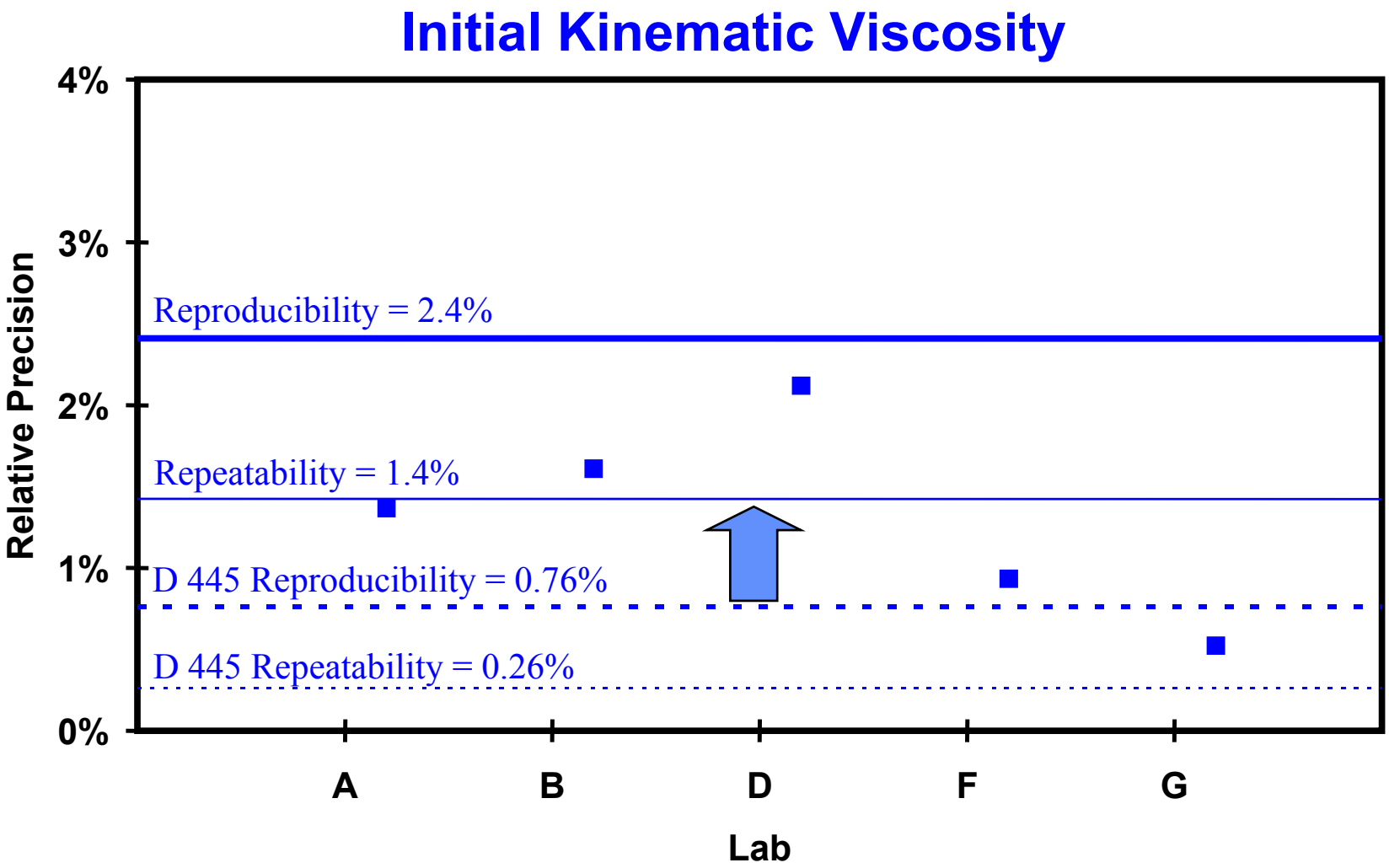
Preliminary Precision (TMC 820-2)



Preliminary Precision (TMC 820-2)



Preliminary Precision (TMC 820-2)



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