

To: API Lubricants Group
 Cc: Lubricants Group Mailing List
 API

Ballot for Proposal #1 Sequence IIIH BOI

On Nov. 14, 2018 the Lubricants Standards Group (LSG) reviewed the BOI/VGRA Task Force Proposal #1 Sequence IIIH BOI.

Incorporate following text and table in Annex E

E.2.2.4.x For Sequence IIIH and IIIHB tests required for interchanging the base stock, specific requirements are given in Table E-xx.

Additionally, once five passing IIIHB test have been demonstrated on a unique technology (a unique technology is a single additive package (DI) at a constant treat rate), then no additional Sequence IIIHB testing is required for that unique technology

Table E-xx – Sequence IIIH and IIIHB Tests Required for Interchanging the Base Stock

Base Stock in Original Test Oil	Interchange Base Stock				
	Group I	Group II	Group III	Group IV	Group V
Group I	Required	Required	≤ 30% Not Required ----- > 30% Required	Required	Required
Group II	Required	Required	≤ 30% Not Required ----- > 30% Required	Required	Required
Group III	Required	Required	Required	Required	Required
Group IV	Required	Required	Required	Not Required provided the interchange Group IV meets the original manufacturer's specifications in all physical and chemical properties	Required
Group V	Required	Required	Required	Required	Required

BOI/VGRA Proposal 1 is given in Attachment 1, page 2. The Motion to Ballot BOI/VGRA Proposal 1 is given on Attachment 1, Page 3. Background Information can be found Attachment 1, pages 4-7.

After review and discussion, the LSG agreed by voice vote to **Ballot Table E-xx – Sequence IIIH and IIIHB Tests Required for Interchanging the Base Stock.**

Motion

Ballot the recommendation to add BOI for the Seq. IIIH and Seq. IIIHB.

Motion by: Rick Dougherty

Second: Bill O’Ryan

LSG Hand Ballot

- For: 13
- Against: 0
- Abstain: 0

Motion Passed

Lubricants Group Members should use the API Ballot System to cast their vote and make comments. The Ballot Link is: <http://Ballots.api.org>. The Lubricants Group Member votes will be counted, and all received comments reviewed and considered before the ballot results are final.

Non-Lubricants Group Members should comment on the Ballot Motion using the Ballot system. The Ballot Link is: <http://Ballots.api.org>. All comments on the Ballot Motion will be reviewed before the ballot results are final.

This Ballot will close on January 15, 2019. All Votes and/or Comments must be received by the close date.

Attachment 1

BOI/VGRA Task Force Recommendation to Lubricants Group

1: Sequence IIIH BOI

R. C. Dougherty

November 14, 2018

Sequence IIIH BOI Recommendation

Incorporate following text and table in Annex E

E.2.2.4.x For Sequence IIIH and IIIHB tests required for interchanging the base stock, specific requirements are given in Table E-xx.

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Motion

- Ballot the recommendation to add BOI for the Seq. IIIH and Seq. IIIHB.
- Motion by: Rick Dougherty
- Second: Bill O’Ryan
- For: 13
- Against: 0
- Abstain: 0

BOI/VGRA Task Force Recommendation #1

Sequence IIIH BOI

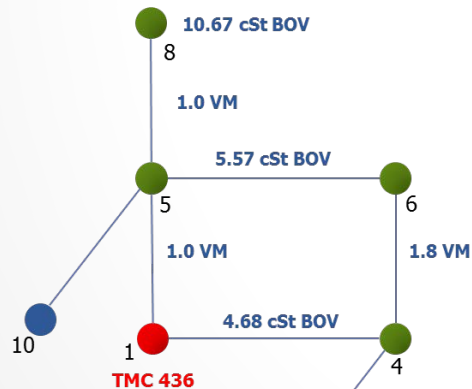


Additional Information

Sequence IIIH: Grp III → Grp II BOI

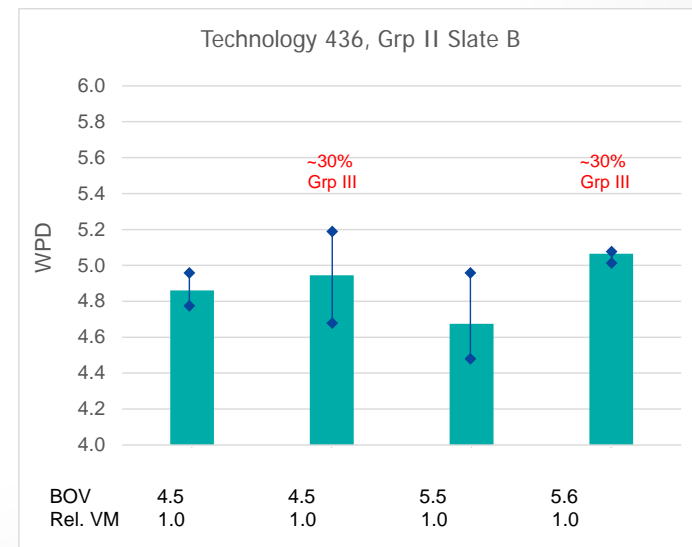
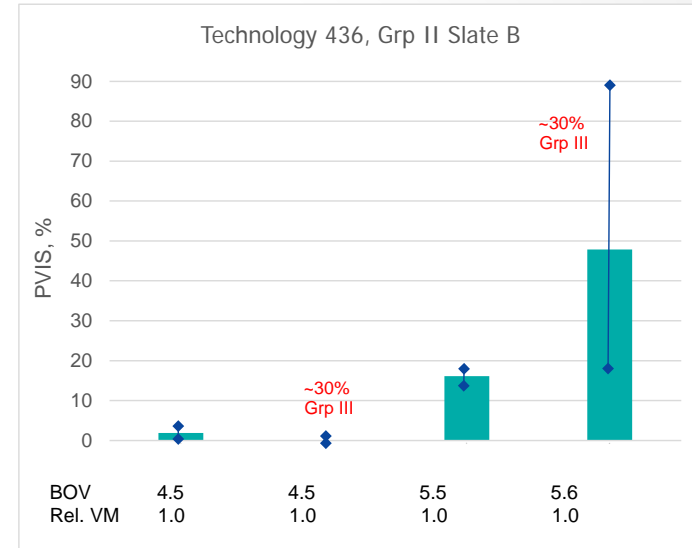
- Test program evaluated directly 30% substitution of Grp III into Grp II (fully formulated oil basis)
- Two {BOV,VM} levels evaluated

Grp II Slate B, Tech 436



36% Grp III I / 64% Grp II B
5.57 BOV, 1.0 VM

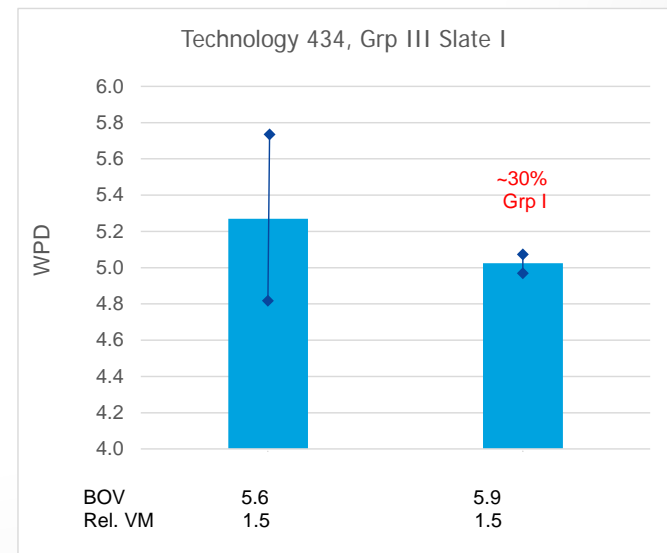
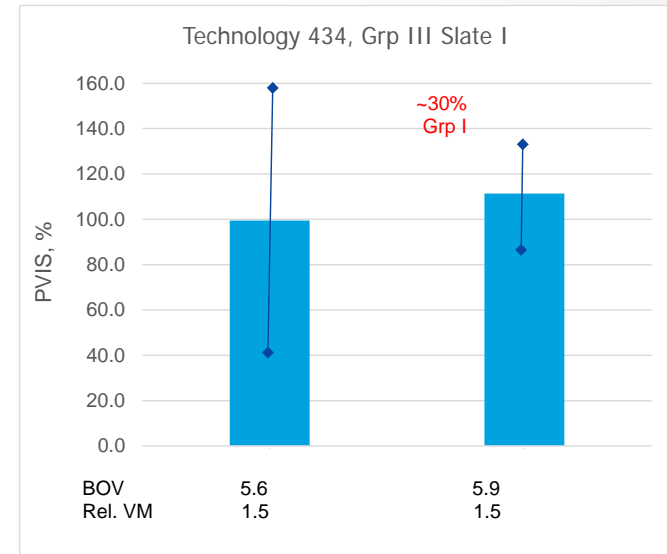
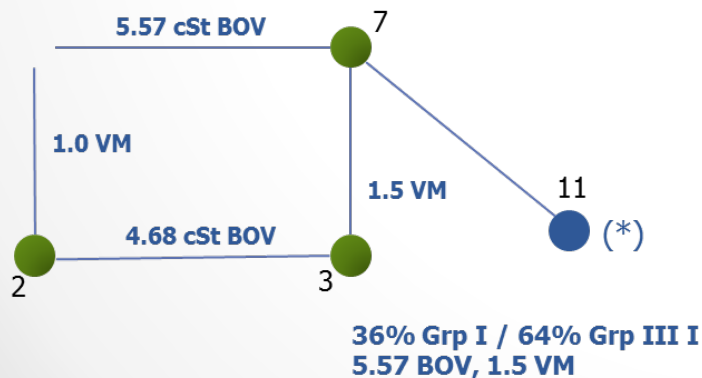
36% Grp III I / 64% Grp II B
4.68 BOV, 1.8 VM



Sequence IIIH: Grp III → Grp I BOI

- Test program evaluated 30% substitution of Grp III into Grp I (fully formulated oil basis) by testing the inverse
- Concern was that full Grp I formulation might not be capable of completing the test
- One {BOV,VM} levels evaluated

Grp III Slate I, Tech 434



Sequence IIIH: Statisticians Report

Executive Summary

- Technology is statistically significant for all parameters
- BOV is statistically significant for WPD
 - *Linear effect may not be capturing the trend in the data*
- Relative VM within Technology is statistically significant for PVIS and WPD
 - *Evidence of opposite slopes between Technologies*
- BO Group is not statistically significant for all parameters
 - *Swapping Group II with 30% Group III (Tech 434) or Group III with 30% Group I (Tech 436) is not statistically significant*
- Lab and Stand within Lab are not statistically significant for all parameters