

## Oil Seal Compatibility Test (OSCT) Surveillance Panel Meeting Minutes

May 11, 2016

Don Bell

Participants: See attached OSCT Membership List in Appendix

An OSCT Surveillance Panel meeting was called to order by D. Bell at 1:06 pm on 5/11/2016 via Webex and in person at Automation Alley in Troy, MI.

The Panel reviewed the 12 OSCT voting members, and as part of a blanket motion by D. Smith and 2<sup>nd</sup> by A. Goyal, T. Muransky of Meritor will replace the retired B. McGlone from Meritor as a voting member. Added to this motion was the replacement of D. Smith by M. Lopez of Intertek as a new voting member. The motion was unanimously approved with 9 votes.

A motion made by W. Venhoff and 2<sup>nd</sup> by A. Goyal to approve the past two OSCT Surveillance Panel meeting minutes posted to the TMC website from 2/10/2016 and 2/24/2016 was also unanimously approved with 9 votes.

There are multiple baths available at Lz, SWRI, and one at Intertek (no NI testing) with no known related problems as confirmed by the test lab personnel.

The TMC provided severity and precision information on all three ASTM D5662 seals for the reference oil testing period for all three labs from 10/1/2015 to 3/31/2016. The combined-elastomer industry charts show severity for all parameters and all 3 seals to be within limits. The individual elastomer charts show:

- % elongation for FL above target, while PA below target thus causing several precision alarms
- Shore hardness for FL below target, while PA above target thus causing a few precision alarms too
- % volume change remained within control limits for all 3 elastomers
- NI results for all 3 parameters within control chart limits

The Test Engineering Institute's elastomer inventory as of 5/10/2016 was reviewed as shown below:

- PA354 Rejected due to repeat qualification runs being out of spec.
- PA355 TEI has 31 approved slabs
- PA356 TEI has 267, sent to labs for qualification testing
- PA357 TEI just received 300 slabs, sending out for qualification testing
- FL399 TEI has 162 slabs
  - Lab B to repeat requalification testing in 160-1 & 169
  - Lab G to repeat requalification testing in 160-1
- FL400 TEI has 156 slabs, sent to labs for qualification testing
  - 18 rejected since too thick (1.78-2.03 mm)
  - Lab C submitted data to TMC 4/27

- FL401 TEI has 167 slabs. sent to labs 5/9 for qualification testing
- NI346 TEI has 38 approved slabs
- NI347 TEI has 112 approved slabs
- NI348 TEI has 278 slabs, sent to labs for qualification testing (4/21)
- NI 349 TEI ordered

TMC has depleted inventory of TMC 168 nitrile reference oil and is not re-blendable. TMC 170 has been identified as a replacement for TMC 168, and TMC has 47 gallons. Labs B and C conducted NI testing side-by-side with TMC 168 and TMC 170 to compare results. The Panel reviewed the NI data found in the Appendix of the recent 12 data points for TMC 170 and 138 previous results for TMC 168 for % elongation, % volume change and shore hardness. A motion was made by W. Venhoff and 2<sup>nd</sup> by A. Goyal to have the TMC set TMC 170 acceptance limits knowing that the limits may be adjusted accordingly after 20 and 30 data points are obtained. The motion passed unanimously with 9 approvals.

TMC 155-1 is a category reference oil that passes all of the SAE J2360 performance tests, but was never tested in ASTM D5662. As per an 8/12/2015 approved motion, labs B and C conducted ASTM D5662 testing with TMC 155-1 on all three elastomers and submitted data to TMC as found in the Appendix. The Panel reviewed the TMC 155-1 graphed data and found that it does comfortably pass the J2360 seal limits. A motion made by J. Goyal and 2<sup>nd</sup> by B. Grinfield requires that all 3 labs conduct ASTM D5662 testing on PA and FL with TMC 155-1 every September as reminded by the TMC to ensure D5662 is still well in control. The motion passed unanimously with 9 approvals.

A TMC information letter 15-1 required that elastomer slab thickness in ASTM D5662 section 8.2.3 be changed from 1.9-2.1 mm to 1.78-2.02 mm to accurately reflect the thickness that the elastomers were always manufactured to. ASTM D2240 references D5662 for the durometer hardness test which states in section 6.1 that the test specimen shall be 6.0 mm thickness unless it is known that the results equivalent to 6.0 mm values are obtained with a thinner specimen. ASTM D5662 states in section 8.7.2.1 that on a hard horizontal surface, stack 3 rectangular specimens on top of each other to obtain the 6 mm thickness required by D2240. The concern raised is that the lower slab thickness of 1.78-2.02 mm will have a greater chance of the 3 slab thickness being <6 mm. A motion made by W. Venhoff and 2<sup>nd</sup> by B. Grinfield is to revise D5662 8.7.2.1 to disregard the 6 mm thickness limit required by D2240. The motion passed unanimously with 9 approvals.

It was noted that the elastomer shelf life is 2 years as per the D5662 procedure.

A motion for adjournment was made by W. Venhoff and 2<sup>nd</sup> by B. Grinfield and approved unanimously with 9 votes at 1:46 pm on 5/11/2016.

Respectfully Submitted,



Don Bell

# Appendix

OSCT Membership

TMC 168 and TMC 170 Graphs

TMC 155-1 Graphs

OIL SEAL COMPATIBILITY SURVEILLANCE PANEL

Date: May 11, 2016

Initials	V = Voting NV = Non-voting	Name	Company & Address	Phone / FAX / e-Mail
	NV	Nancy Aguirre	Intertek Automotive Research 5404 Bandera Road San Antonio, TX 78238	Phone: 210-647-9428 FAX: e-Mail: Nancy.AGUIRRE@Intertek.com
	V	Rob Banas	ExxonMobil Lubricants and Specialties 114 Arcadia Park Drive Canton, GA 30114	Phone: 678-493-3930 FAX: e-Mail: Rob.a.banas@exxonmobil.com
	NV	Tony Barrera	Intertek Automotive Research 5404 Bandera Road San Antonio, TX 78238	Phone: FAX: e-Mail: Tony.barrera@intertek.com
DB	V	Don Bell <i>Chairperson</i>	Afton Chemical Corp. 500 Spring Street Richmond, VA 23219	Phone: 804-788-6332 FAX: 804-788-6243 e-Mail: don.bell@affonchemical.com
BT	NV	Brad BuBonic	The Lubrizol Corporation 29400 Lakeland Blvd. Wickliffe, OH 44092	Phone: 440-347-5325 FAX: 440-347- e-Mail: Brad.bubonic@lubrizol.com
	NV	Harold Chambers	Linamar Driveline Systems Travelers Tower 1 26555 Evergreen Rd. Ste. 900 Southfield, MI 48076	Phone: 248-358-6038 FAX: 248-355-3558 e-Mail: hchambers@Linamar.com
	NV	Jeff Clark	Test Monitoring Center 6555 Penn Avenue Pittsburgh, PA 15206	Phone: 412-365-1032 FAX: 412-365-1047 e-Mail: jac@astmtmc.cmu.edu
AC	V	Allen Comfort	US Army TACOM RDTA-DP/MS110 6501 E. 11 Mile Road Warren, MI 48307-5000	Phone: 586-282-4225 FAX: 586-282-4244 e-Mail: Allen.s.comfort@us.army.mil
JD	V	John Dharte	American Axle 1 Dauch Drive Detroit, MI 48211	Phone: 313-758-4687 FAX: 313-758-4237 e-Mail: dhartej@aam.com

# OIL SEAL COMPATIBILITY SURVEILLANCE PANEL

Date: \_\_\_\_\_

Initials	V = Voting NV = Non-Voting	Name	Company & Address	Phone / FAX / e-Mail
	NV	Vince Donndelinger	The Lubrizol Corporation 29400 Lakeland Blvd. Wickliffe, OH 44092	Phone: 440-347-6589 FAX: 440-347- e-Mail: Vince.donndelinger@lubrizol.com
ED	NV	Eric Donovan	Afton Chemical Corp. 500 Spring Street Richmond, VA 23219	Phone: 804-788-5097 FAX: e-Mail: Eric.donovan@aftonchemical.com
BD	NV	Bridget Dwornick	US Army RDECOM/TARDEC RDTA-DP/210 MS 110 6501 E 11 Mile Road Warren, MI 48397-5000	Phone: 586-282-4221 FAX: 586-282-4244 e-Mail: Bridget.dwornick@us-army-mit-bridget.l.dwornick.cv@mail.mil
	NV	Brian Foecking	The Lubrizol Corporation 29400 Lakeland Blvd. Wickliffe, OH 44092	Phone: 440-347-2130 FAX: 440-347- e-Mail: bjf@lubrizol.com
Arjun	V	Arjun Goyal	BASF 500 White Plains Rd Tarrytown, NY 10551	Phone: 914-785-2083 e-Mail: Arjun.goyal@basf.com
Rebecca	V	Rebecca Grinfield	Southwest Research Institute P.O. Drawer 28510 San Antonio, TX 78228-0510	Phone: 210-522-3652 FAX: 210-522-5907 e-Mail: bgrinfield@swri.org
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# OIL SEAL COMPATIBILITY SURVEILLANCE PANEL

Date: \_\_\_\_\_

Initials	V = Voting NV = Non-voting	Name	Company & Address	Phone / FAX / e-Mail
CK	V	Clayton Knight	Test Engineering Institute 12718 Cimarron Path San Antonio, TX 78249	Phone: 210-690-1958 FAX: 210-877-0228 e-Mail: cknight@tei-net.com
DL	NV	Dan Lancot	Test Engineering Institute 12718 Cimarron Path San Antonio, TX 78249	Phone: FAX: e-Mail: dlancot@tei-net.com
	NV	Chris Lonsway	Lubrizol 29400 Lakeland Blvd. Wickliffe, OH 44092	Phone: 440-347-4517 FAX: e-Mail: Chris.lonsway@lubrizol.com
	V	<del>Bruce McGlone</del> Retired	Meritor 2135 West Maple Troy, MI 48084	Phone: 248-435-9929 FAX: 248-435-6602 e-Mail: Bruce.McGlone@meritor.com
DM	V	Donna Mosher	Eaton Corporation 13100 E. Michigan Avenue Galesburg, MI 49053	Phone: 269-342-3039 FAX: 269-746-6039 e-Mail: donnamosher@eaton.com
	NV	Ronny Mumaw	Lubrizol 29400 Lakeland Blvd. Wickliffe, OH 44092	Phone: 440-347-8017 FAX: e-Mail: Ronny.mumaw@lubrizol.com
	Alternate V	Troy Muransky	Meritor 2135 West Maple Rd. Troy, MI 48084	Phone: 248-435-1409 FAX: 248-435-6602 e-Mail: Troy.muransky@meritor.com
	V	Scott Parke	ASTM Test Monitoring Center 6555 Penn Avenue Pittsburgh, PA 15206	Phone: 412-365-1033 FAX: 412-365-1047 e-Mail: sdp@astmtmc.cmu.edu
	NV	Dale Smith	Intertek Automotive Research 5404 Bandera Road San Antonio, TX 78238	Phone: 412-855-6854 FAX: e-Mail: Dale.smith@intertek.com

2/11/2010

**OIL SEAL COMPATIBILITY SURVEILLANCE PANEL**

**Date:** \_\_\_\_\_

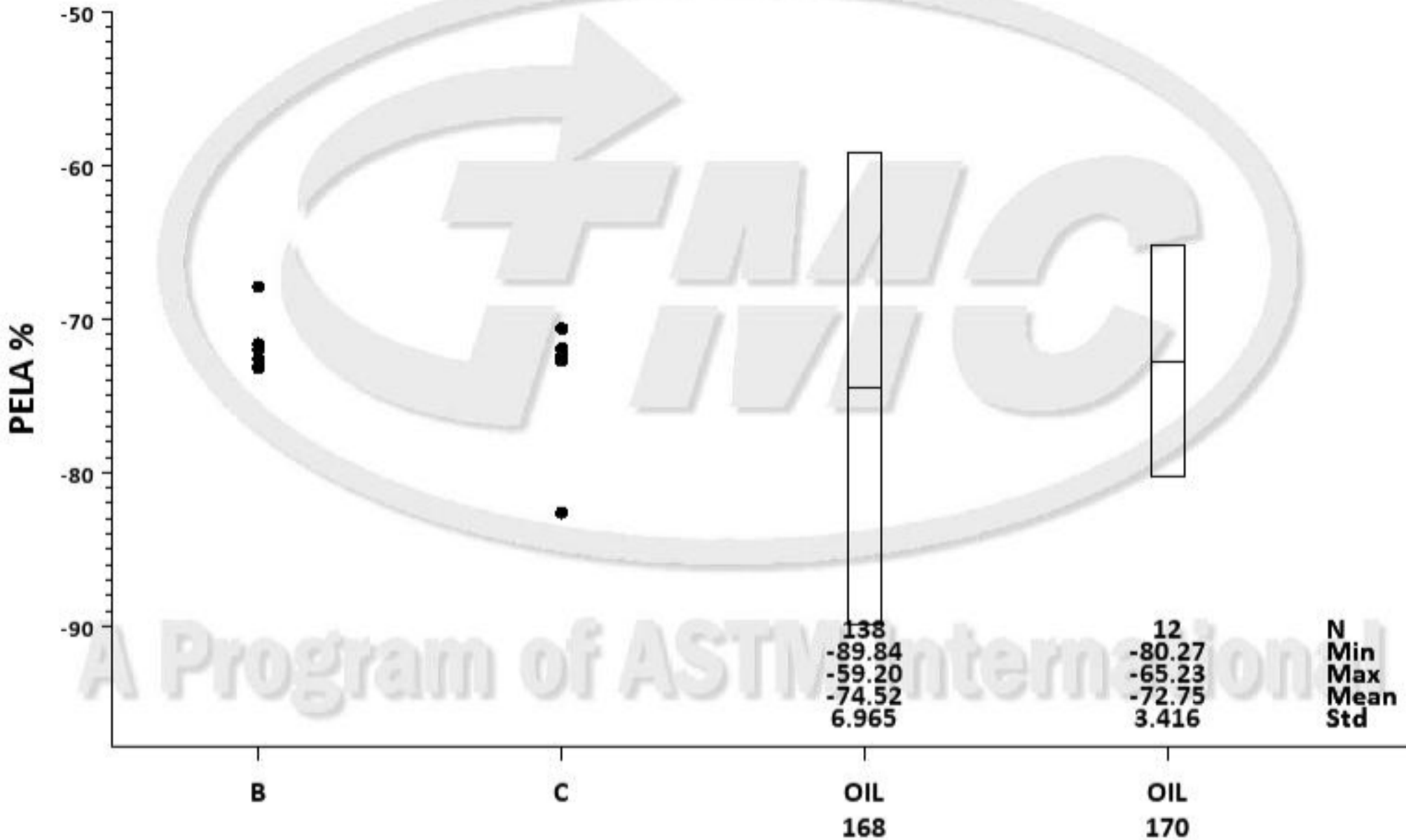
Initials	V = Voting NV = Non-voting	Name	Company & Address	Phone / FAX / e-Mail
AT	NV	Angela Trader	Intertek Automotive Research 5404 Bandera Road San Antonio, TX 78238	Phone: 210-706-1533 FAX: e-Mail: Angela.trader@intertek.com
MU	NV	Matt Umerley	Lubrizol 29400 Lakeland Blvd. Wickliffe, OH 44092	Phone: 440-347-4589 FAX: e-Mail: <a href="mailto:Matthew.umerley@lubrizol.com">Matthew.umerley@lubrizol.com</a>
	NV	Chintan Ved	Ford 35500 Plymouth Road Livonia, MI 48150	Phone: 313-805-9495 FAX: e-Mail: cved@ford.com
	V	Wes Venhoff	Lubrizol 29400 Lakeland Blvd. Wickliffe, OH 44092	Phone: FAX: e-Mail: Wes.venhoff@lubrizol.com
RW	NV	Rebecca Warden	Southwest Research Institute P.O. Drawer 28510 San Antonio, TX 78228-0510	Phone: 210-522-6266 FAX: e-Mail: Rebecca.Warden@SWRI.org
	NV	<del>Jack Zakarian</del> Retired	Chevron 100 Chevron Way Richmond, CA 94802	Phone: FAX: e-Mail:
	NV	Khaled Zreik	General Motors	Phone: 248-977-9214 FAX: e-Mail: Khaled.zreik@gm.com

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# OSCT Reference Oil 170

Test Target Data Set and Shewart Severity Limits

PELA

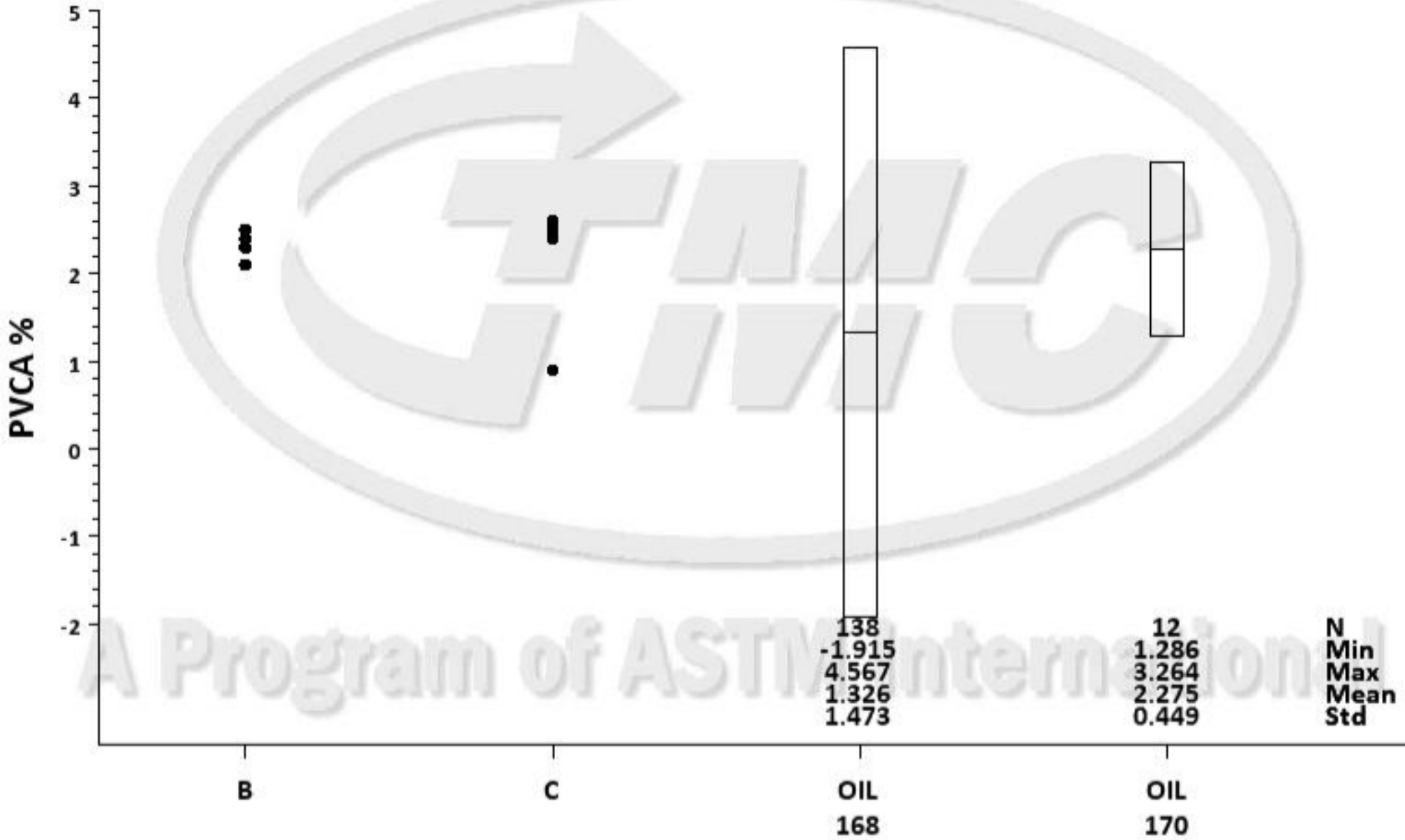




# OSCT Reference Oil 170

Test Target Data Set and Shewart Severity Limits

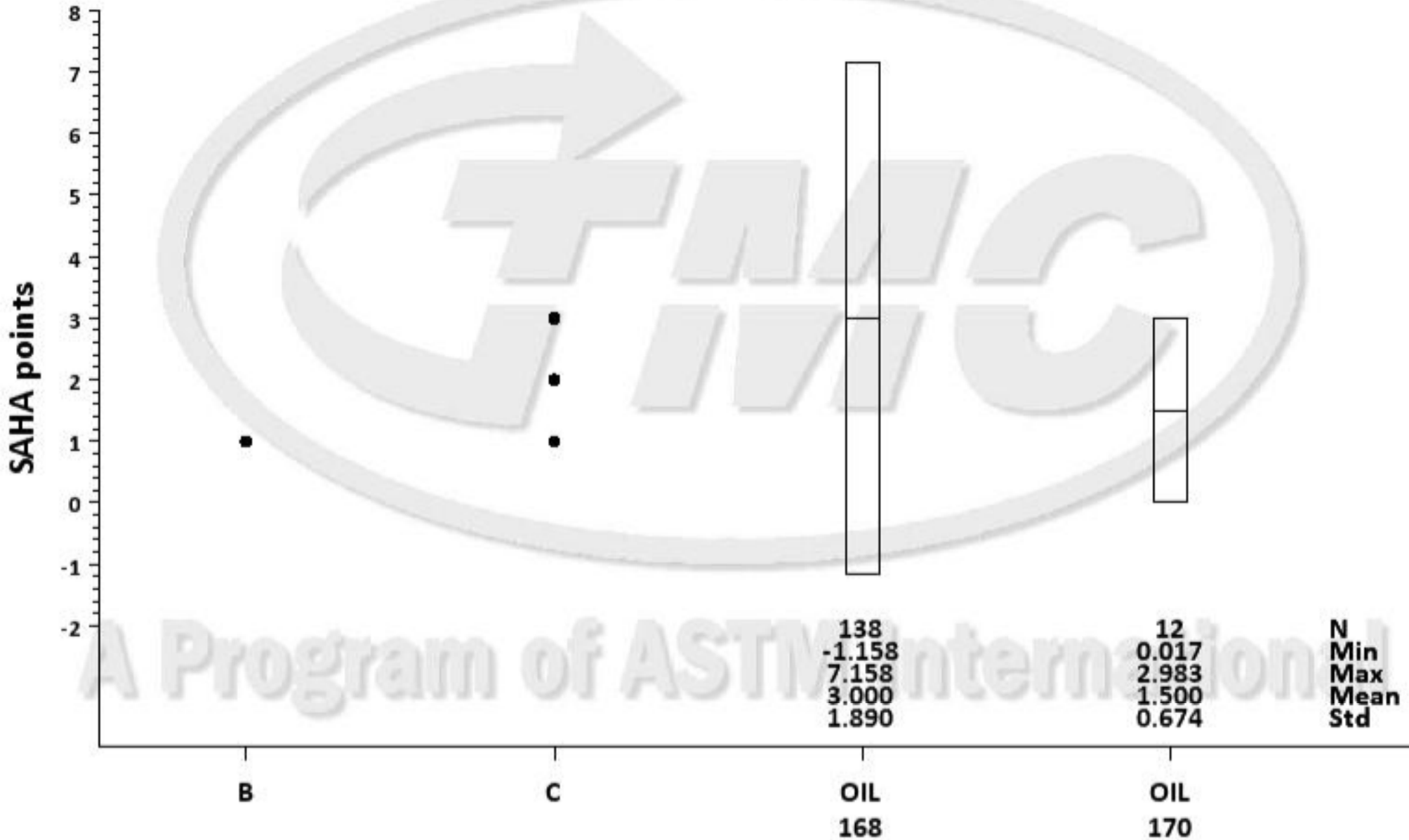
PVCA



# OSCT Reference Oil 170

Test Target Data Set and Shewart Severity Limits

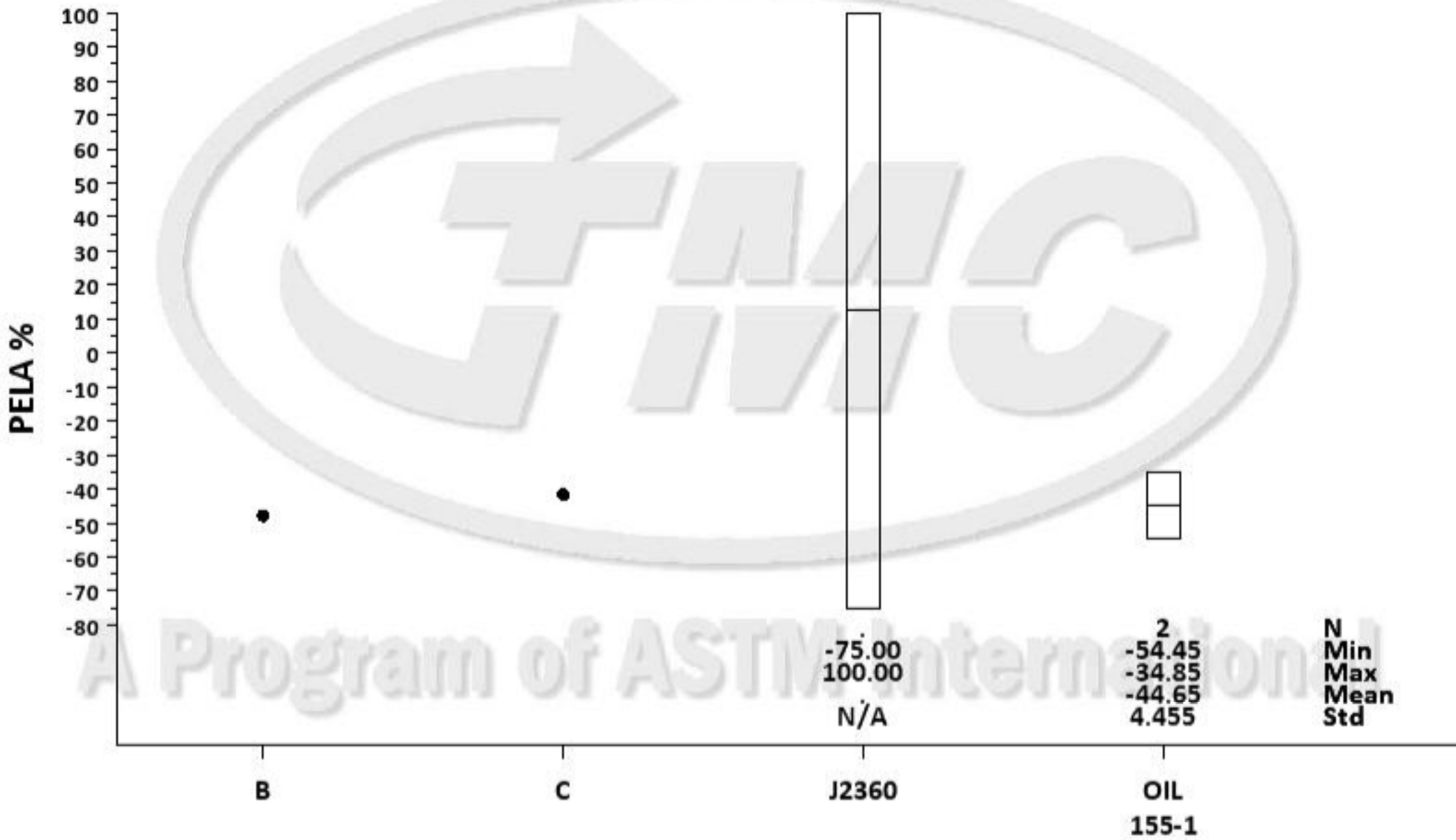
SAHA



# OSCT Reference Oil 155-1

## FLUOROELASTOMER Results

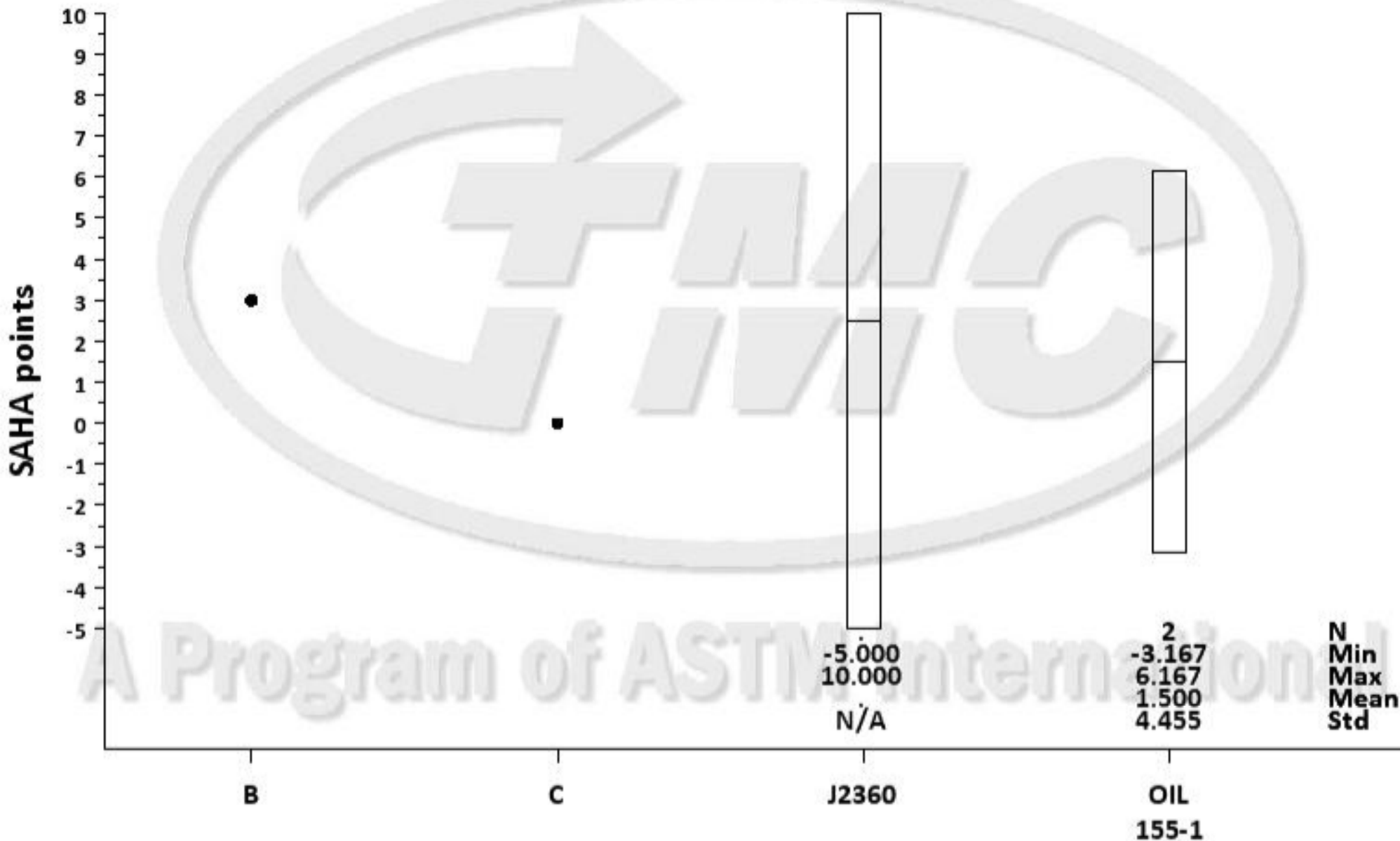
PELA



# OSCT Reference Oil 155-1

## FLUROELASTOMER Results

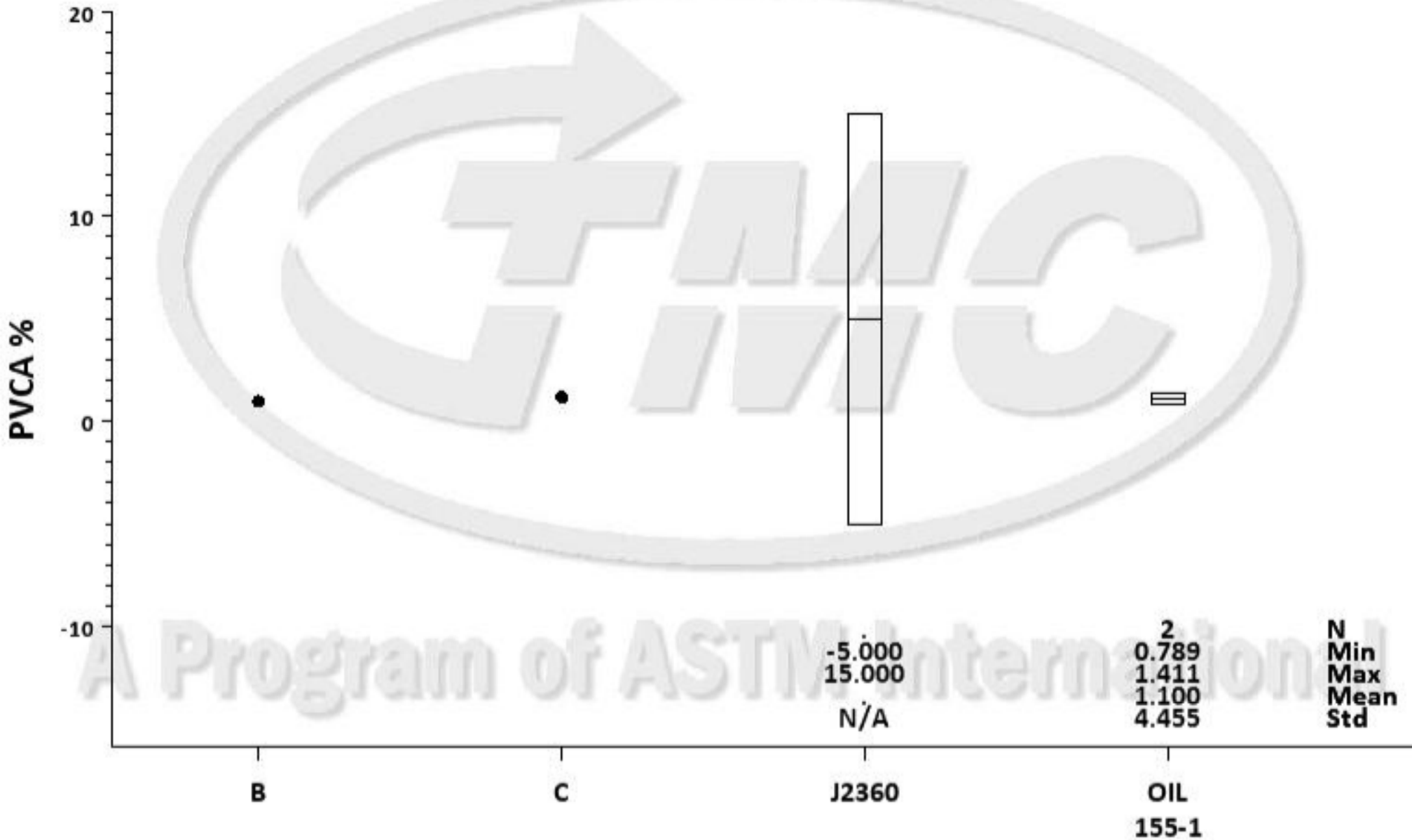
SAHA



# OSCT Reference Oil 155-1

## FLUROELASTOMER Results

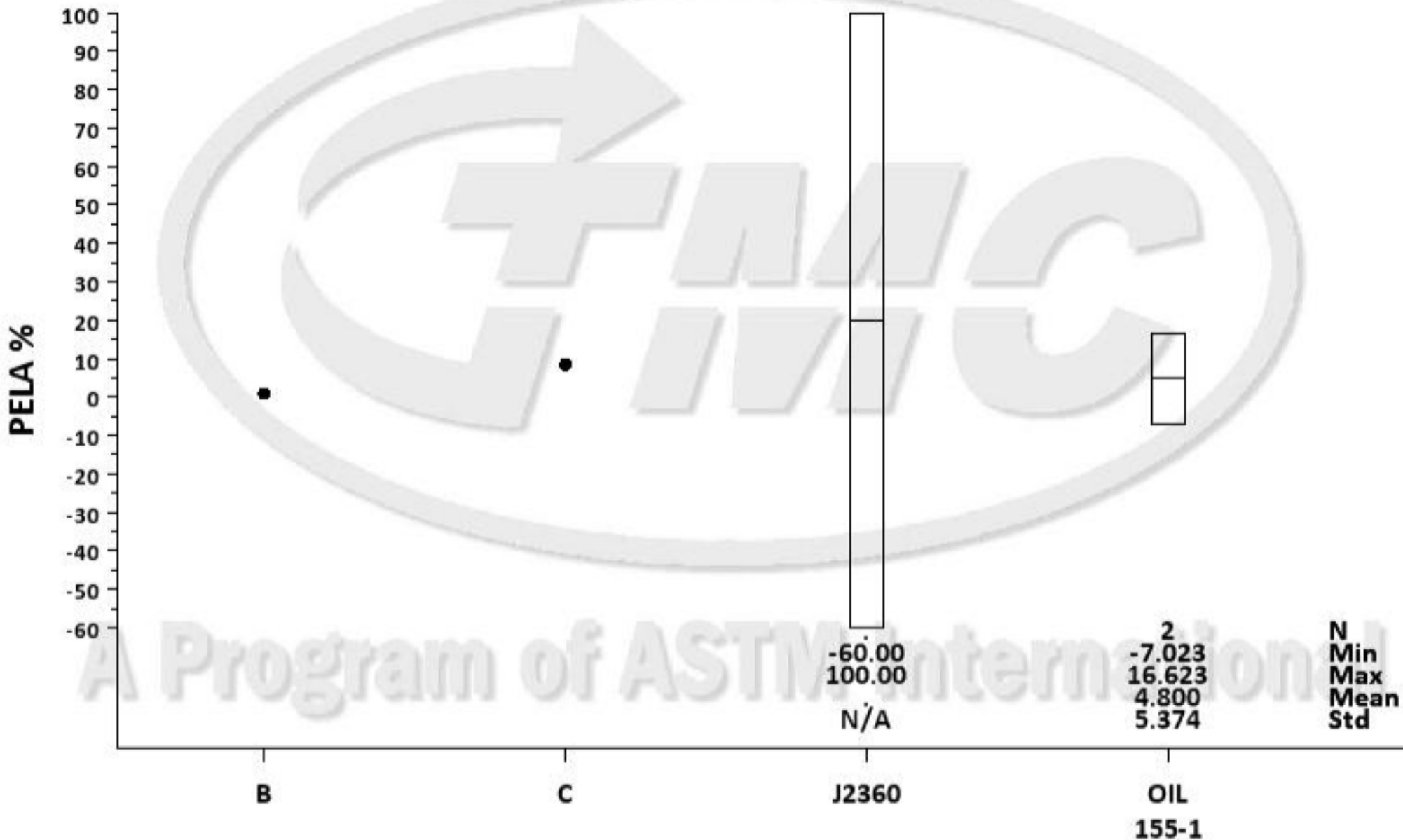
PVCA



# OSCT Reference Oil 155-1

## POLYACRYLATE Results

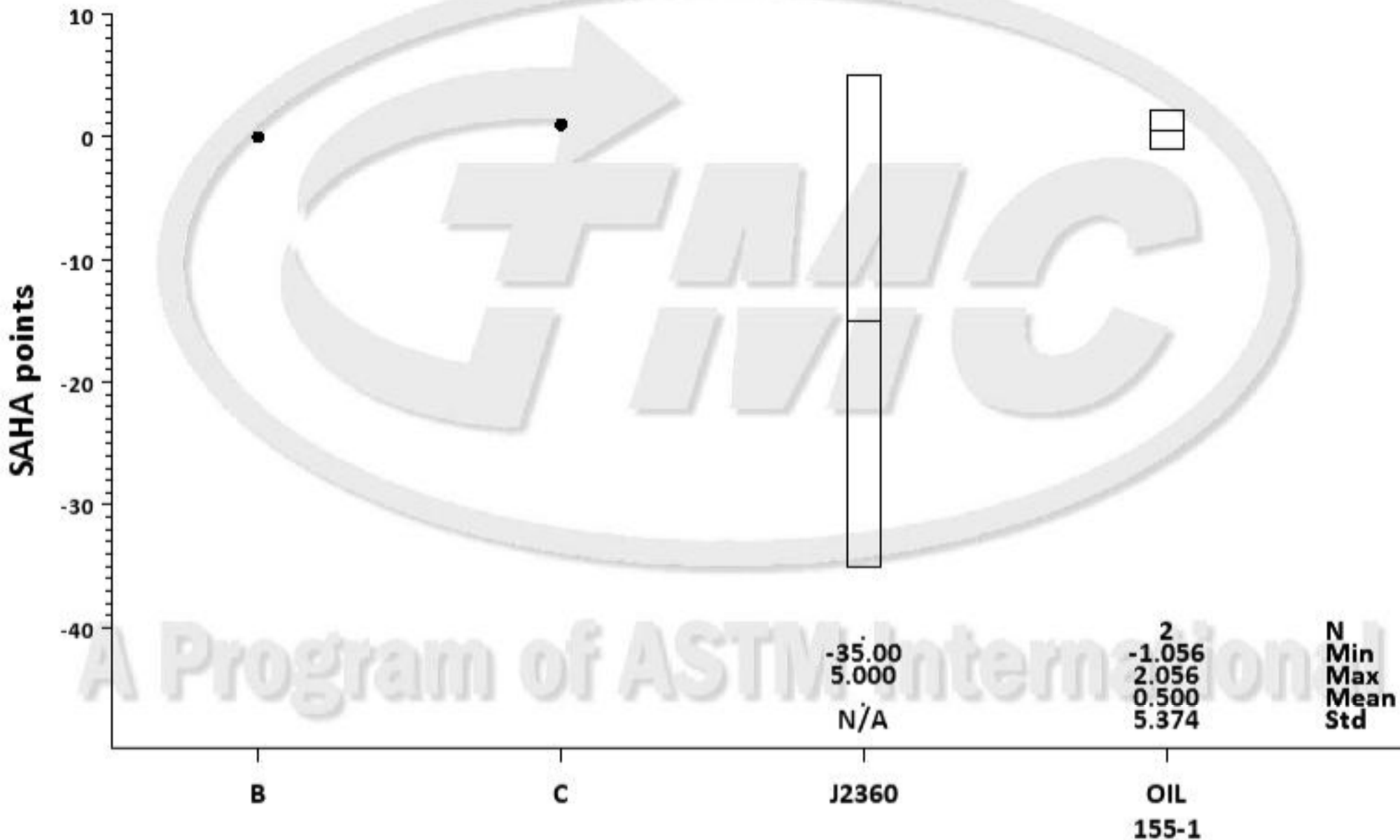
PELA



# OSCT Reference Oil 155-1

## POLYACRYLATE Results

SAHA



# OSCT Reference Oil 155-1

## POLYACRYLATE Results

PVCA

