



Evaluation of Laboratory Performance in MSCR Testing (T350/D7405) Using AASHTO re:source PSP Data (Continued)

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Review:

Statistically Significant Differences PGB Rounds 241/242 (64-28p)

- ▶ Out of the six reporting parameters in T350/D7405, statistical differences existed between manufacturers (A, B, & C) for these four test parameters:
 - ▶ % Recovery at 0.1 kPa (A – B)
 - ▶ % Difference in Recovery (A – B)
 - ▶ J_{nr} at 0.1 kPa (A – B)
 - ▶ % Difference in J_{nr} (A – B – C)

Actions Taken

- ▶ We will continue to solicit for test data for all reporting parameters in the MSCR (T350/D7405).
- ▶ Administrative Task Group has been informed of the situation.
 - ▶ AAP's proposal to the ATG is to not evaluate % difference in recovery and % difference in J_{nr} for accreditation purposes.
 - ▶ Still evaluate data for % recovery and J_{nr} values at 0.1 and 3.2 kPa, respectively.
- ▶ Continue to evaluate the data after each PSP round and look for issues (check model and software version).

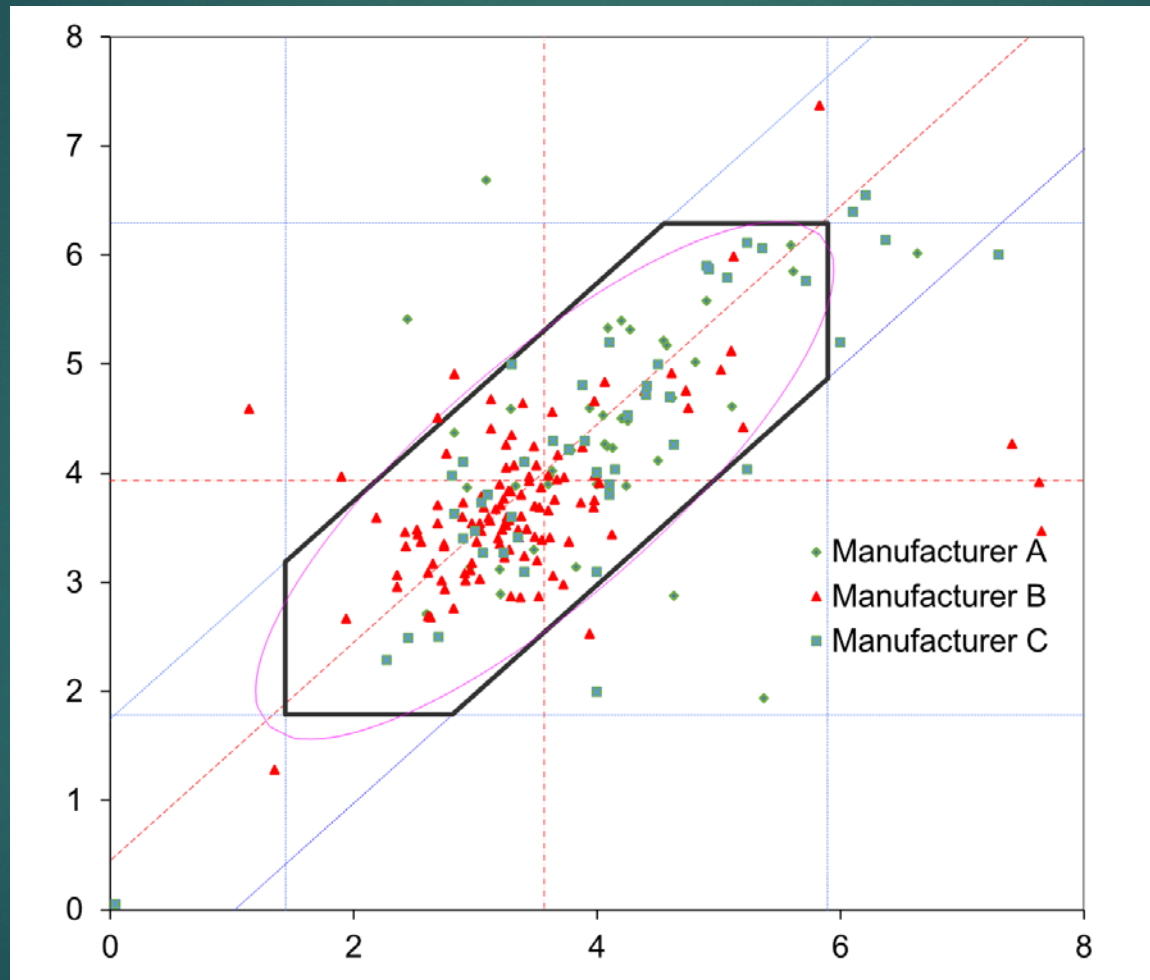
Results from PGB 243/244

(PG 64-22)
(evaluation using Welch-t)

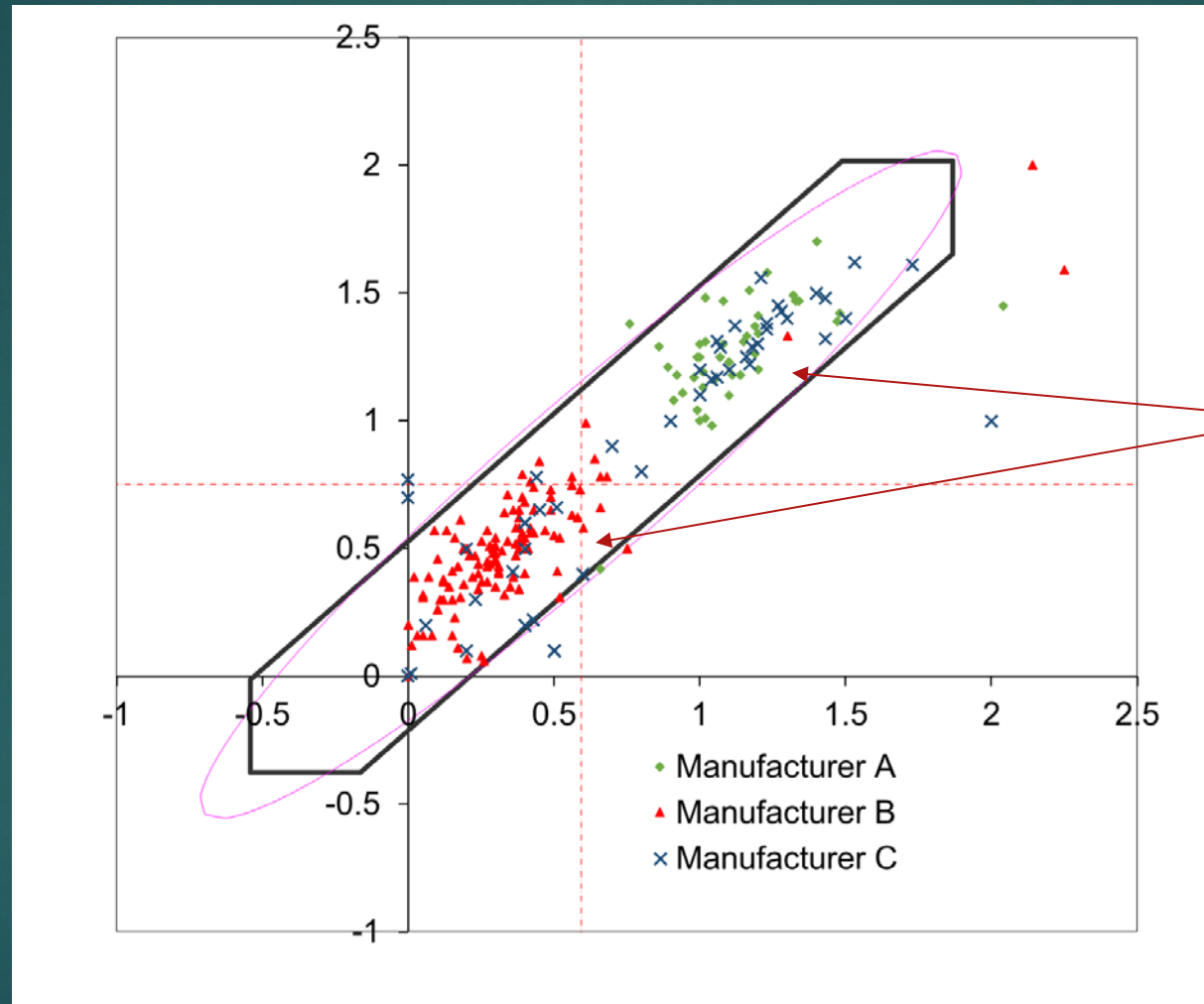
- ▶ Statistical significance exists between manufacturers for the following parameters:
 - ▶ % recovery at 0.1 kPa (all manufacturers)
 - ▶ % recovery at 3.2 kPa (all manufacturers)
 - ▶ % difference in recovery (all manufacturers)
 - ▶ % difference in jnr (all manufacturers)

Scatter Plots

(Percent Recovery at 0.1 kPa)



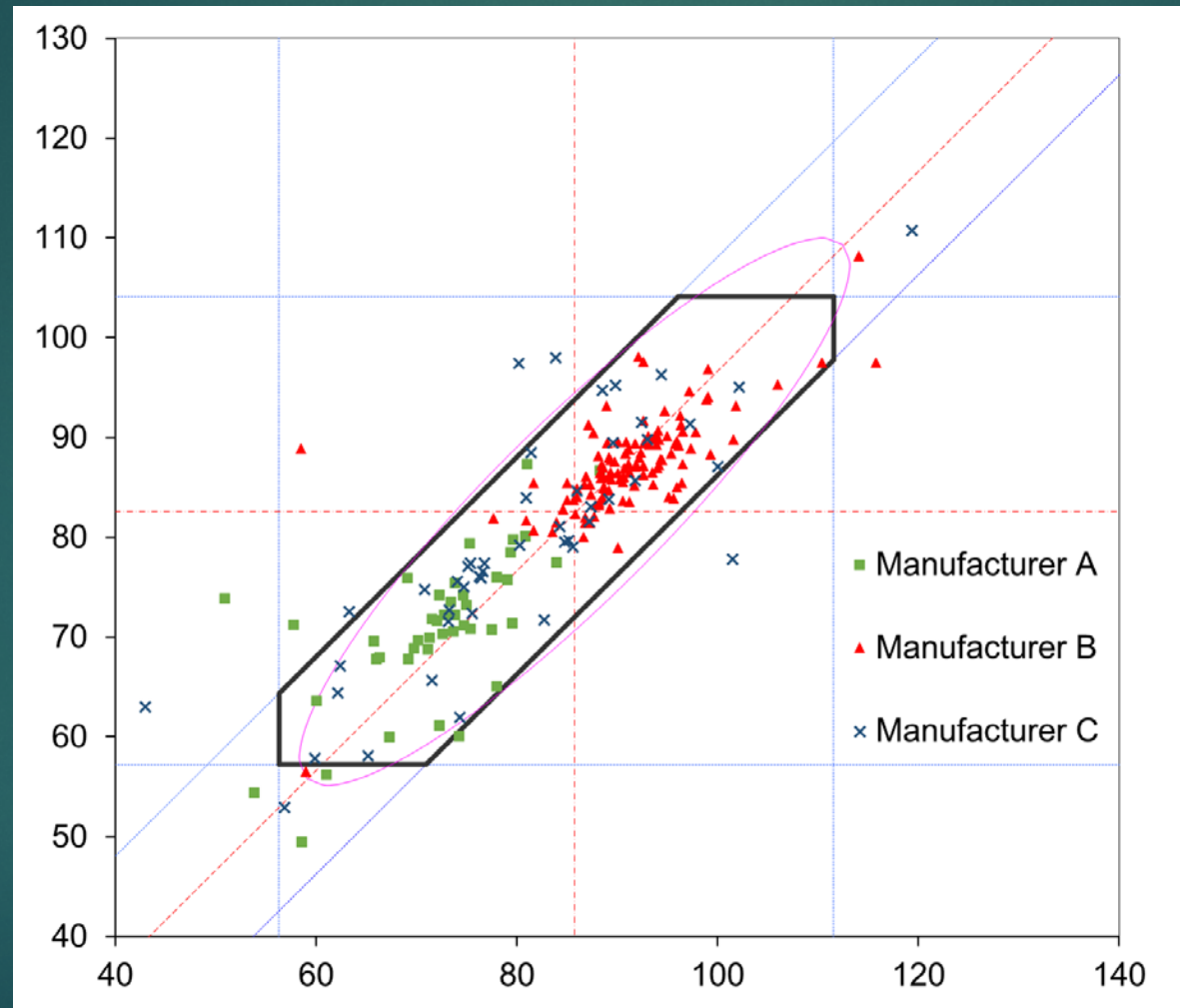
Percent Recovery at 3.2kPa



Bi-modal distribution

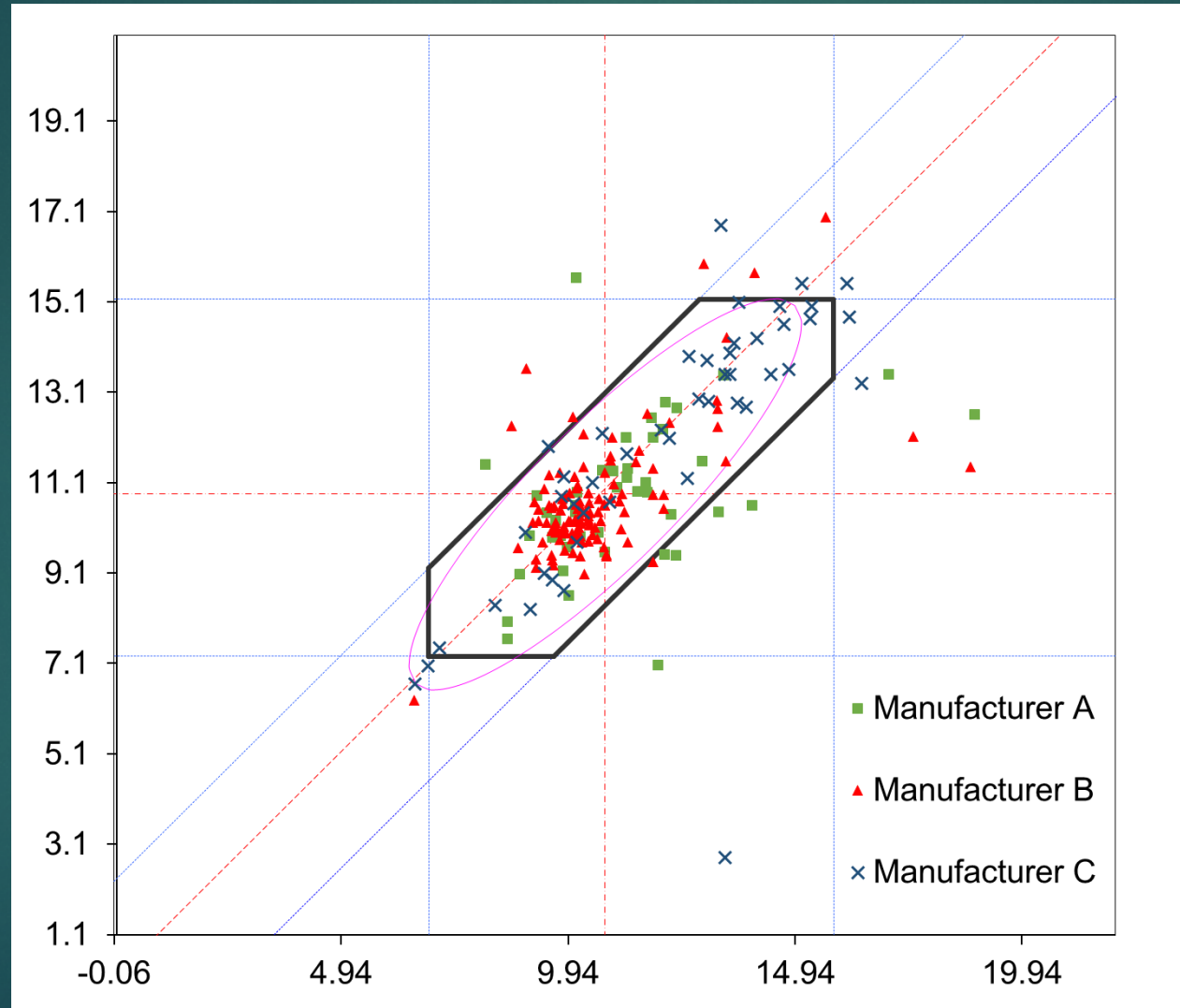
Ratings were suppressed

Percent Difference in Recovery



Bi-modal distribution
Ratings suppressed

Percent Difference in jnr



DSR Software Versions

- ▶ Out of 240 participants, over 40 different software “versions” were reported.

DSR/MSCR Software Versions ???			
1.00	R6.50.5.7	RheoPlusTP70V6.56	MSCR+
1.15	5.7.0	rspace 1.7	PheoCompass pro
1.60	5.7.13	r Space 1.61.1968	REHOPLUS 132
1.61	6.51.0.3	Star	Bohlin R6.51.0.3
1.70	9.00	TRIOS	Advantage V 5.7.0
1.72	11.00	Bohlin Software: CVO ADS 100	Rheology Advantage 5.8.2
3.40	Multi 6 V3.61 Recovery 9	DHR Navigator	Rheology Advantage Navigator v.5.7.1
4.00	Rheopave	350-14-ULv1.61-3.0 03.15.15	Malvern 2-27-2008
5.00	Rheoplus	FAST TRACK	Rehoplus/32 Multi3 V3.62
7.00	Rheoplus V 9	Fasttrack version 3.3.1.4668	VII
5.5.20	RHEOPLUS/32 V3.60	MSCR(V2)	Bohlin software v06.50

Discussion:

- ▶ Contacted DSR Manufacturers to cross reference the reported software versions.
 - ▶ Communication indicates that laboratories are not certain on what type of software they have.
 - ▶ DSR manufacturers are reaching out to customers to ensure that software is being updated to the most current versions.
- ▶ AASHTO re:source Assessments:
 - ▶ Identifying devices w/o most current software.
 - ▶ Assessors are looking for the data to determine if conditioning cycles are being used.
 - ▶ Conditioning cycles implemented in MSCR in 2014 – tour cycle is close to 30 months (6 month lag)

Options

- ▶ Collect data based off of the correct software versions.
 - ▶ Be more clear in specialized sample round instructions.
- ▶ New RTFO sample vs. tested RTFO DSR sample with “rest” period (AASHTO and ASTM allow both)
- ▶ Revise the standards to require most current version of software from the manufacturer.
- ▶ Any suggestions?

Thank You!

▶ Questions?

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