

SHRP Gyrotory Compaction Angle - External? Internal?

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Annual Meeting

Milwaukee, WI

January 30, 2003



SHRP Gyrotory Compactor Angle

Items that effect Gyrotory Compaction angle:

- **SGC**
 - individual devices from the same manufacturer differ
- **Mold maintenance**
 - wear changes the angle
- **SGC maintenance**
 - wear reduces the angle
- **Mix Stiffness**
 - stiffer mixes reduce the angle



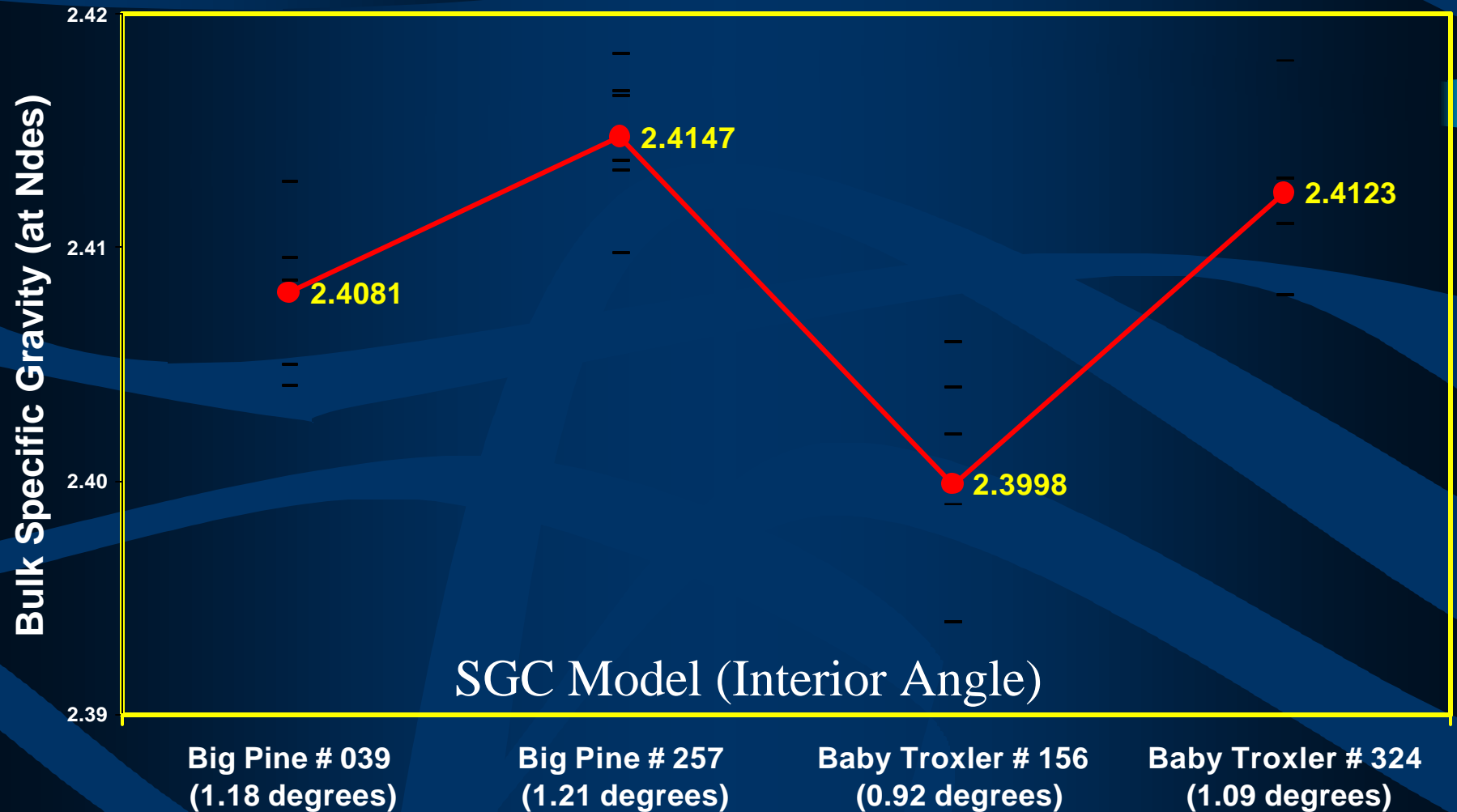
Comparison of Wisconsin DOT Marshall and SGC Data

Year	Marshall			SGC		
	Gmm Std Dev	Va Range -Gmm	Gmb Std Dev	Va Range -Gmb	Gmb Std Dev	Va Range -Gmb
1999	0.007	0.29	0.010	0.38	0.019	0.76
2000	0.006	0.25	0.013	0.52	0.012	0.46
2001	0.010	0.41	0.013	0.52	0.009	0.36
2002	0.008	0.32			0.008	0.30

Comparison of MsDOT Round-Robin Data

SGC	Ave G_{mb}	Std Dev	Range V_a	Int Ang.	Ext Ang	count
Baby Pine	2.325	0.007	0.29	1.225	1.250	2
Baby Troxler	2.313	0.009	0.38	1.016	1.243	2
Big Troxler	2.310	0.008	0.33	1.111	1.257	11
Brovold	2.307	0.009	0.38	1.086	1.252	2
Average	2.314	0.008	0.34	1.109	1.251	
Std Dev	0.008		0.047	0.087	0.006	

Mathy Construction SGC Comparison (19-APR-2001)



Mold Effect-a limited study on external angle measurement

SGC No.	Mold A	Mold B	Diff(A-B)
321	1.265	1.248	0.0017
	1.265	1.257	0.008
319	1.247	1.243	0.004
347	1.257	1.249	0.008
Average	1.259	1.249	0.009
Std Dev	0.009	0.006	0.005



SGC-Mold Maintenance

3 years old



Cooking
Oil
Residue

New

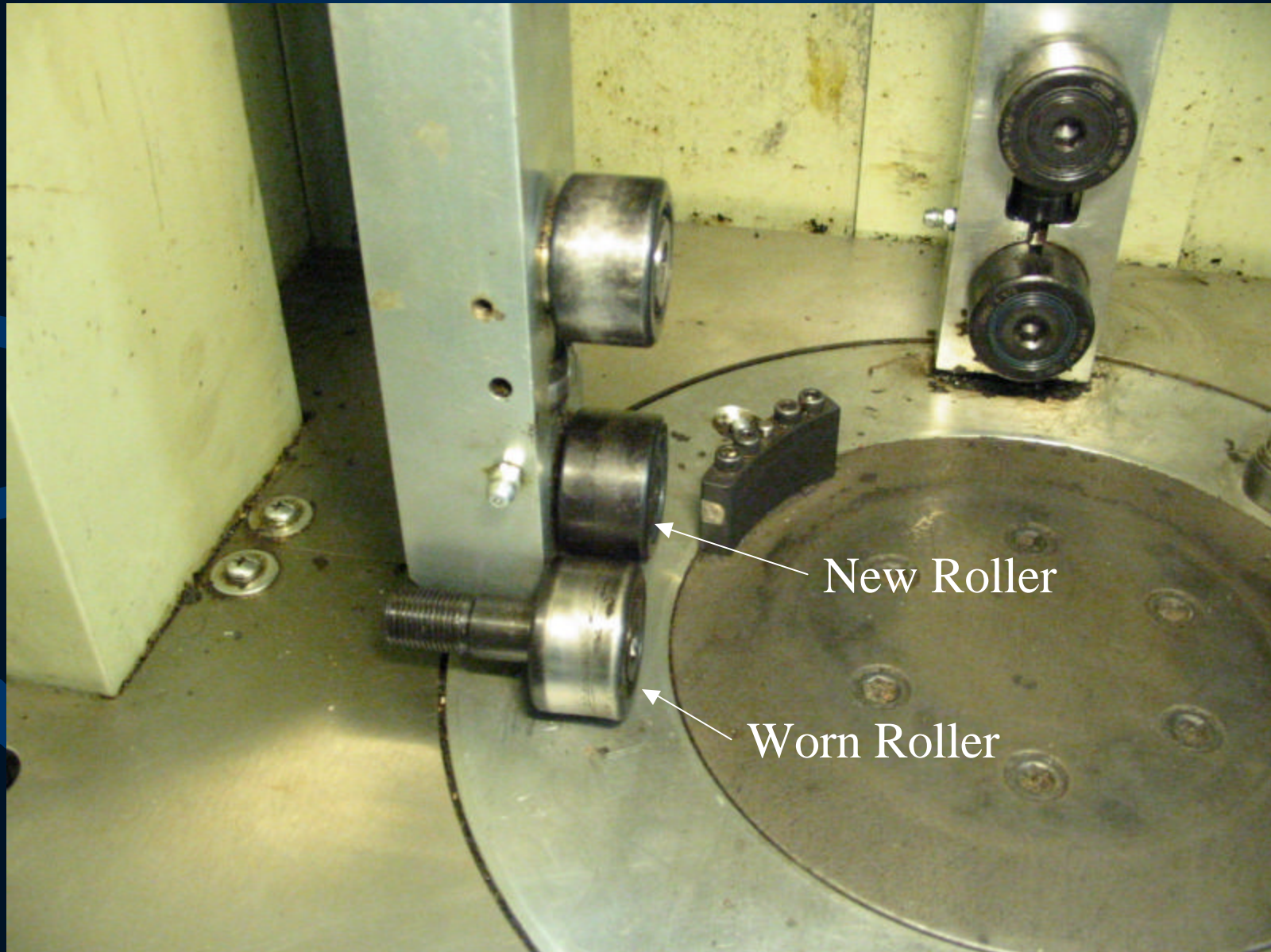


Gyratory Compactor- a History

Interior Angle by Year	2001	2003 initial	2003 after
Pine No. 257	1.21	0.98	1.17
External Angle	1.26	1.12	1.25



SGC Maintenance



SGC Maintenance



Adjustable
Roller

Fixed
Roller

SGC Summary

- There are differences between devices of the same manufacturer, as well as different manufacturers.
- When SGC's are properly calibrated to each manufacturer standards these differences are not significant.
- Significant differences in test results are a indication that SGC maintenance is required.
- Periodic SGC maintenance is required to prevent correlation problems between