

Multi-Stress Creep and Recovery Test Method A New Specification

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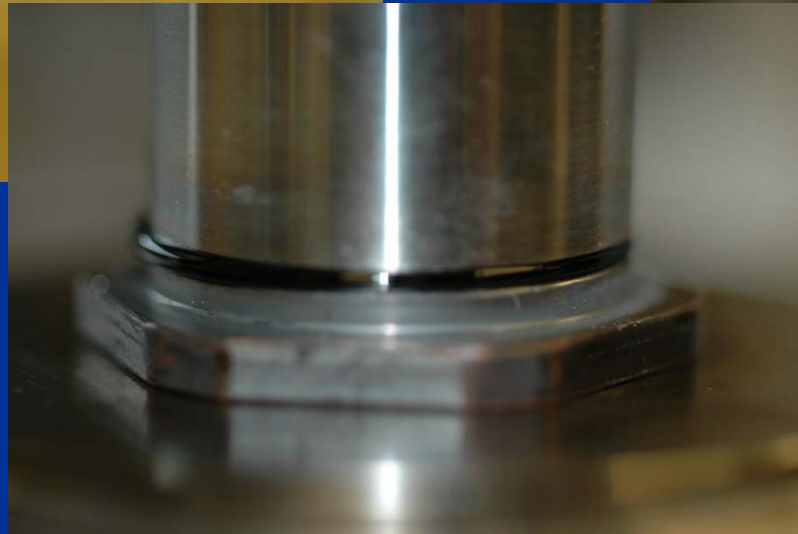
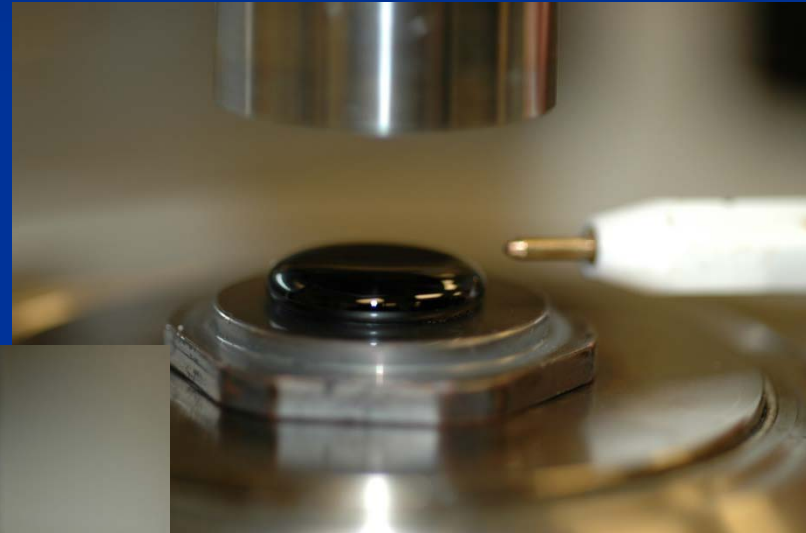
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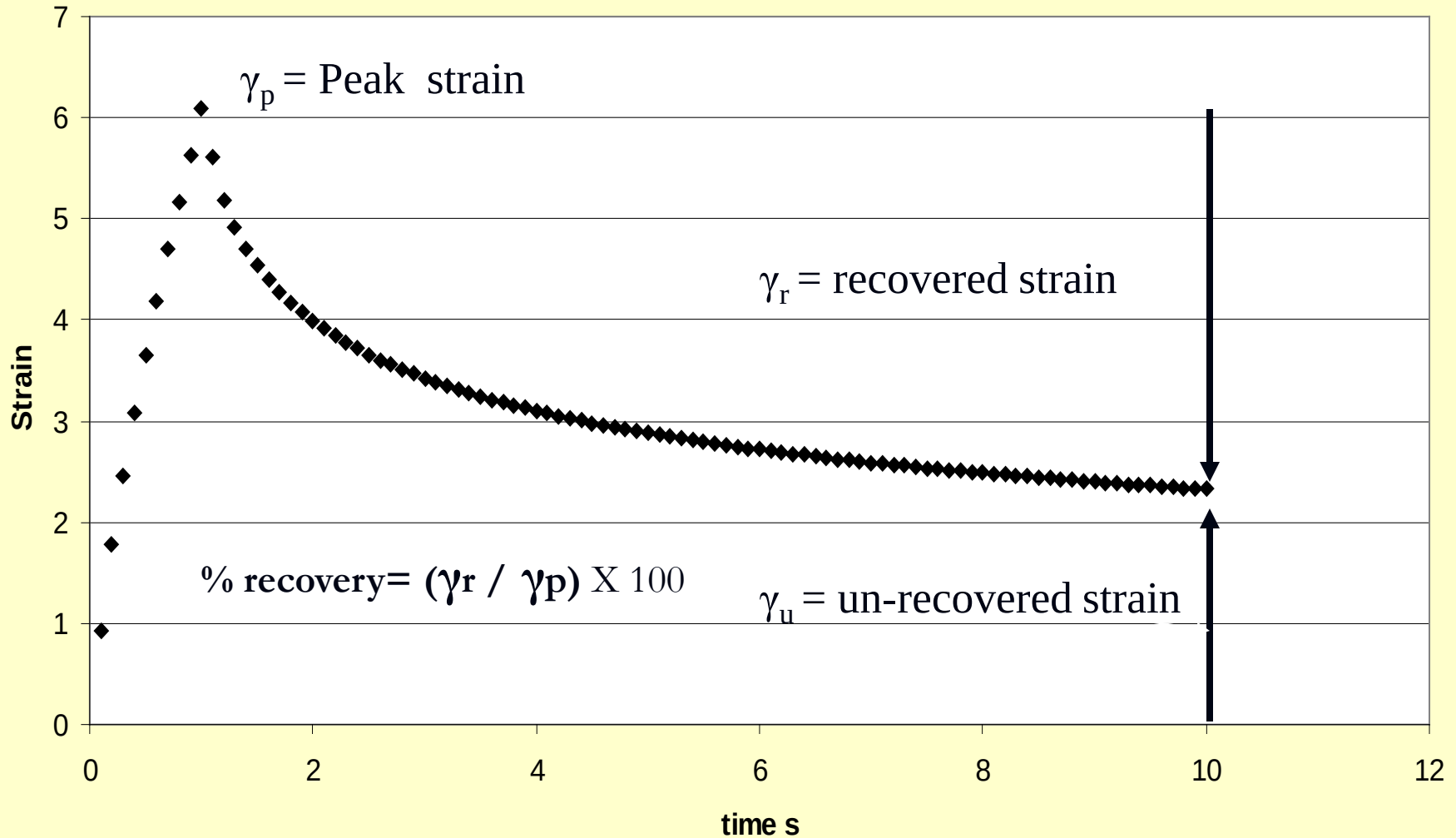
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Multi Stress Creep and Recovery

- Sample prep is exactly the same as the existing RTFOT DSR.



What is % Recovered Strain



Standard Test Procedure developed for AASHTO

Standard Method of Test for

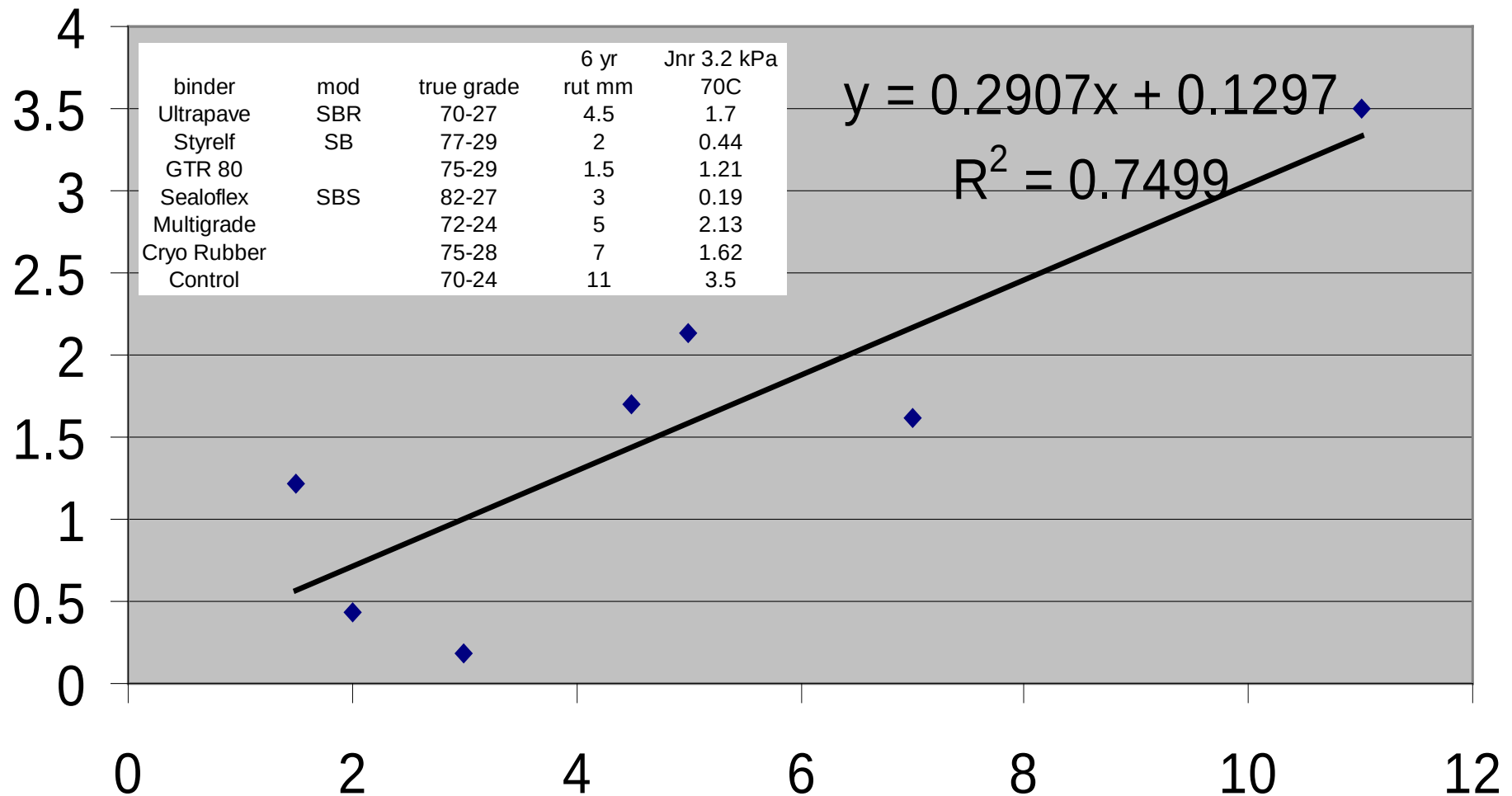
Multiple Stress Creep Recovery (MSCR) Test of Asphalt Binder Using a Dynamic Shear Rheometer (DSR)

AASHTO Designation: TP 70-08



American Association of State Highway and Transportation Officials
444 North Capitol Street N.W., Suite 249
Washington, D.C. 20001

Miss I55 6yr rut Jnr 3.2 kPa



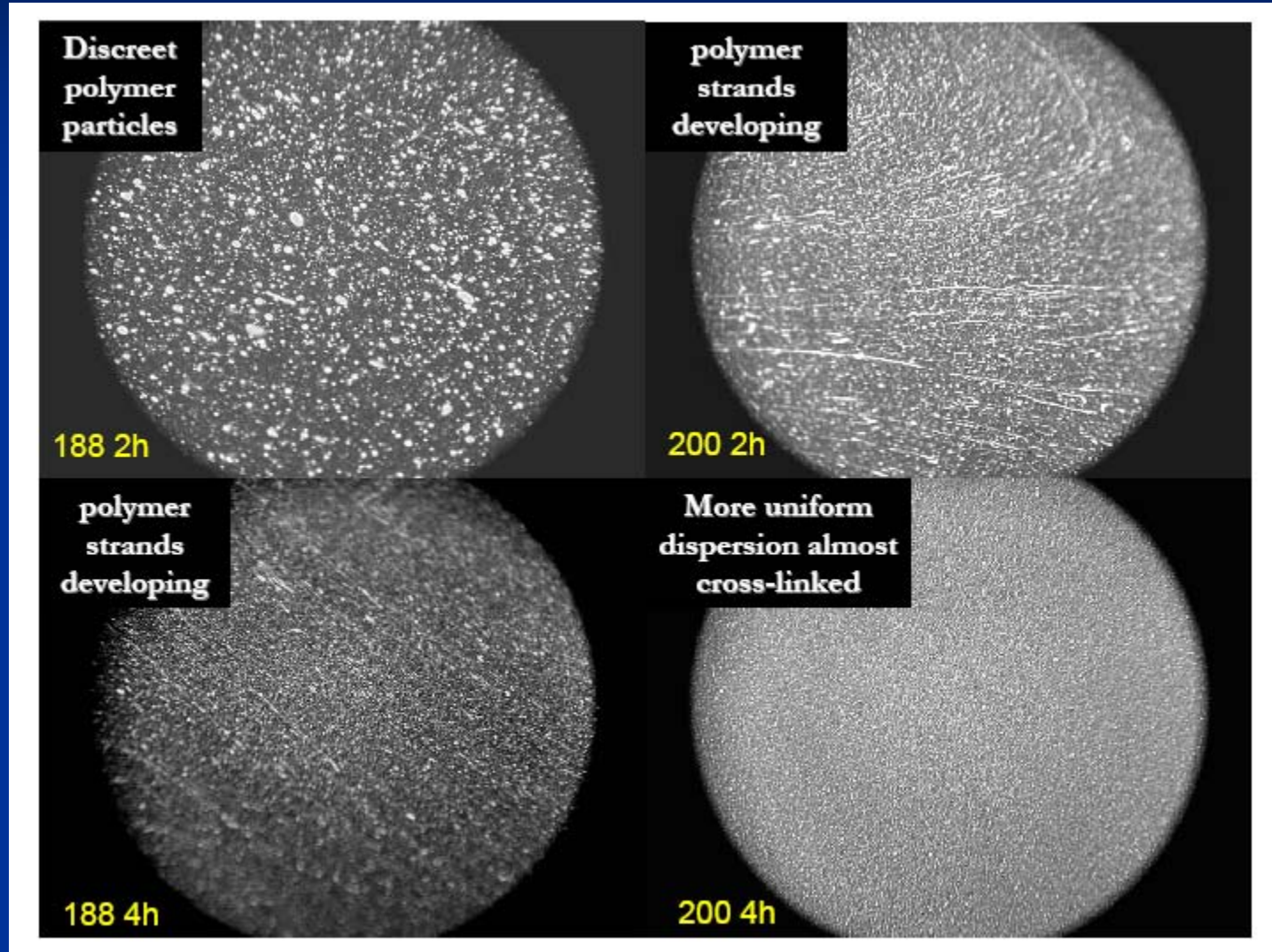
New MSCR Binder Spec

AASHTO MP 19

Original					
DSR $G^*/\sin\delta$ Min 1.0	64				
RTFOT					
64 Standard MSCR3.2 <4.0	[(MSCR3.2 – MSCR 0.1)/ MSCR 0.1] < .75	64			
64 Heavy MSCR 3.2<2.0		64			
64 Very heavy MSCR3.2 <1.0		64			
PAV					
S grade DSR $G^*\sin\delta$ Max 5000	28	25	22	19	16
H & V grade DSR $G^*\sin\delta$ Max 6000	28	25	22	19	16

Low temp BBR and DTT remain unchanged

Fluorescence Micro-graphs at 250 magnification



Fluorescence Micro-graphs at 250 magnification

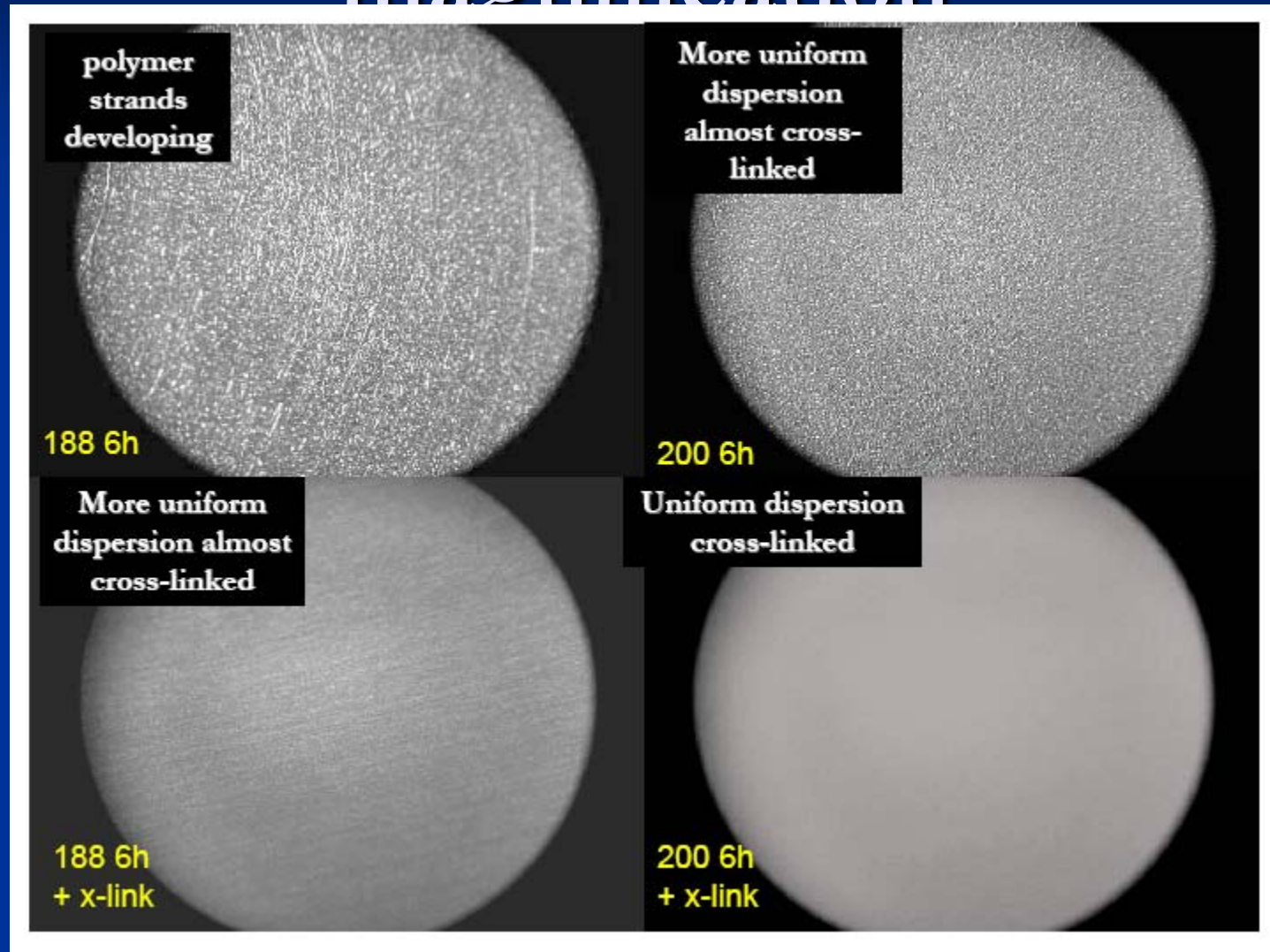


Table for MSCR % Recovery minimum values

Minimum % Recovery for Measured J_{nr} values	
J_{nr} @ 3.2 kPa	Minimum % Recovery
2.0 - 1.01	30%
1.0 - 0.51	35%
0.50 - 0.251	45%
0.25 - 0.125	50%

Implications

- MSCR test is more discriminating and a fundamental property test
- New practice for SBS blend optimization?
 - For research
 - For spec.

Implementation

- MSCR can replace the ER
 - Single protocol
 - Quick and easy
 - Fundamental property

New MSCR Specification

- MSCR test procedure TP-70 published Spring 2008.
- New AASHTO MP 19 published Spring 2009.

Roadblocks to implementation

■ New test

- Training to run the test
- Equipment software changes to determine values

■ DOT's

- What do my binders look like with this new spec?
- Will I get the same materials?

■ Suppliers

- What changes do I need to make to meet the specs?

Thank You