

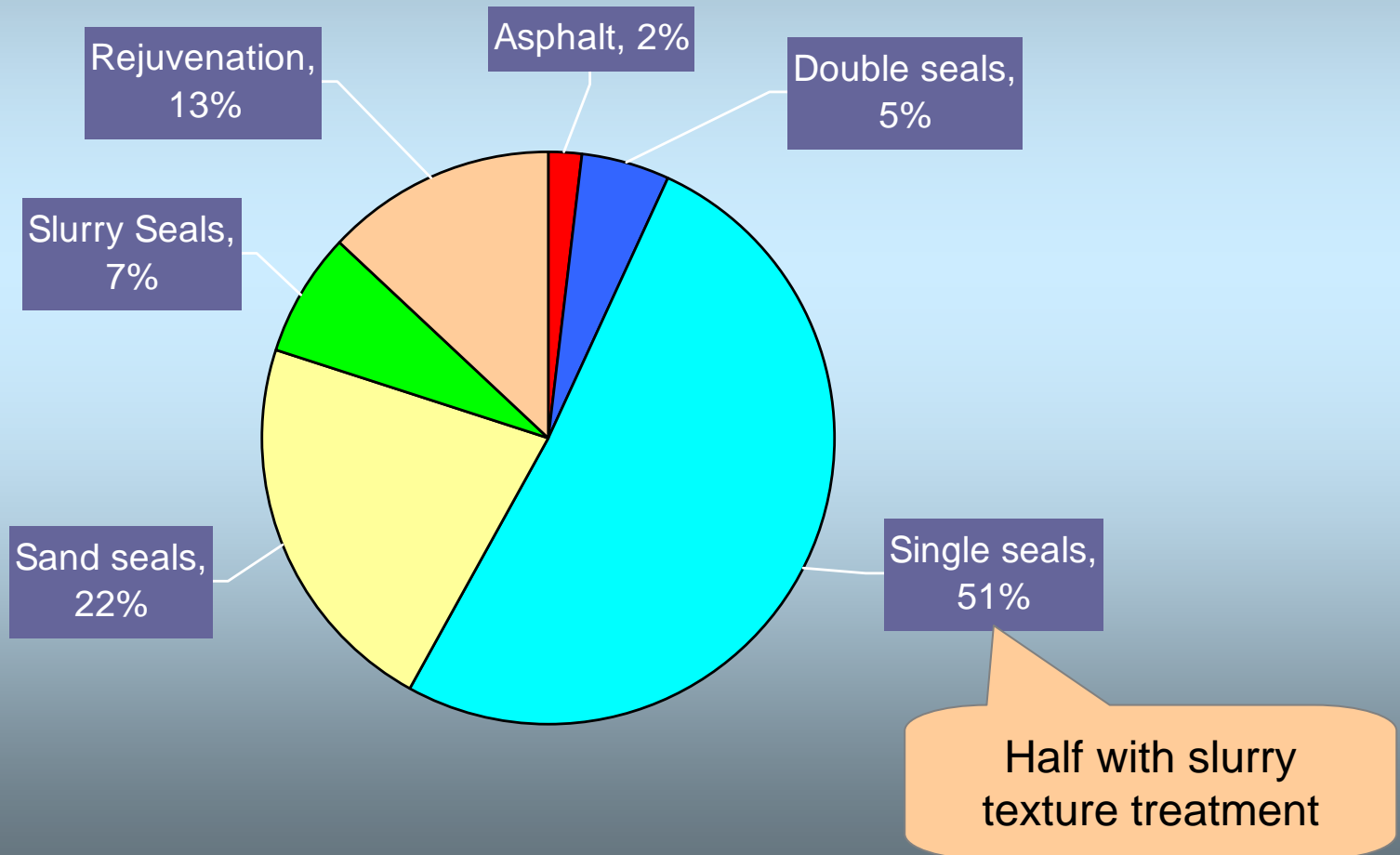
ROAD PAVEMENTS FORUM MAY 2009



Slurry Design & Application Manual Sabita Manual 28

Gerrie van Zyl

Reseal Type Distribution (Western Cape 6 – year average)



Need for Manual 28

- Existing TRH3 guidelines still require too much experience - “Art”
- Current practices for design differ
- Different applications/ types
- Appropriateness for different situations/ Limitations
- Practical hints (for design and construction)

Progress to date

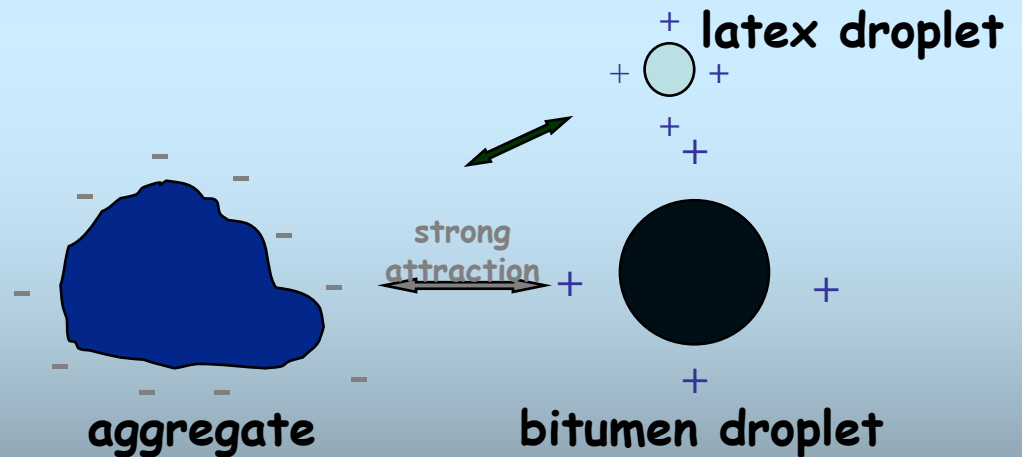
- **Documented current practices**
- **3 Seminars (Pretoria, Durban, Cape Town)**
- **Feedback incorporated**
- **Draft manual (80%+)**

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Basic Types & Composition

- **Crusher dust**
 - Gradings
- **Emulsion**
 - Stablemix
 - Modified quickset
- **Water**
- **Cement/ Lime**
- **Additives**



Interaction & curing

Basic Slurry types & Uses

Slurry

- Texture slurry (1 – 3 mm)
- Thin overlay (4 – 6 mm)
- Med. overlay (6 – 8 mm)
- Thick overlay (8 – 12 mm)
- Cape Seal
- Slurry Bound Macadam

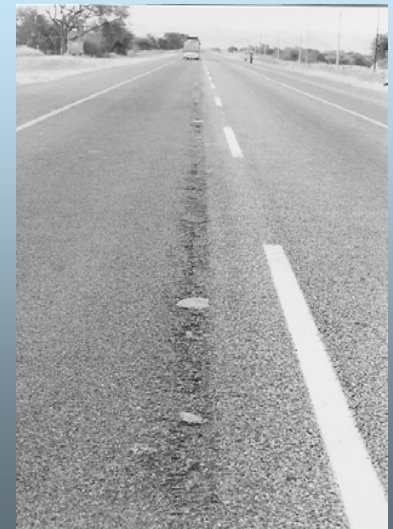
Microsurfacing

- Medium overlay (6 – 8 mm)
- Thick overlay (8 – 15 mm)
- Shape correction (8 – 15 mm)
- Rut filling (8 – 30 mm)

Appropriate application

- **Maintenance**

- Surface repair
- Joint repair
- Geotextile patching cover
- BTB and ETB cover
- Edgebreak repair
- Holding action



Appropriate application

- **Initial seals**

- Med – thick overlay

- Cape seals

- Slurry gradings
- 1 or 2 layers
- 13, 19, 26 mm
- Rapid setting
- Modified binder combinations
- Construction techniques

- Labour intensive

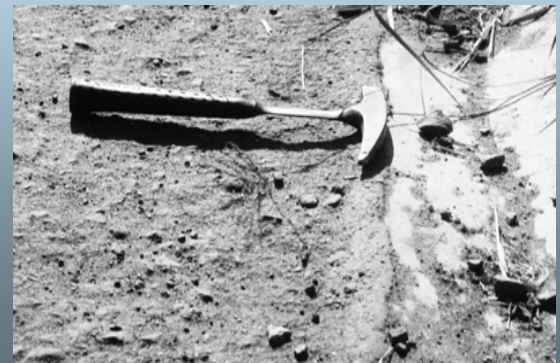
- Slurry bound Macadam
- Slurry seals



Appropriate application

- **Reseals**

- Texture treatment
- Rut filling
- Shape correction
- Overlays/ slurry seal

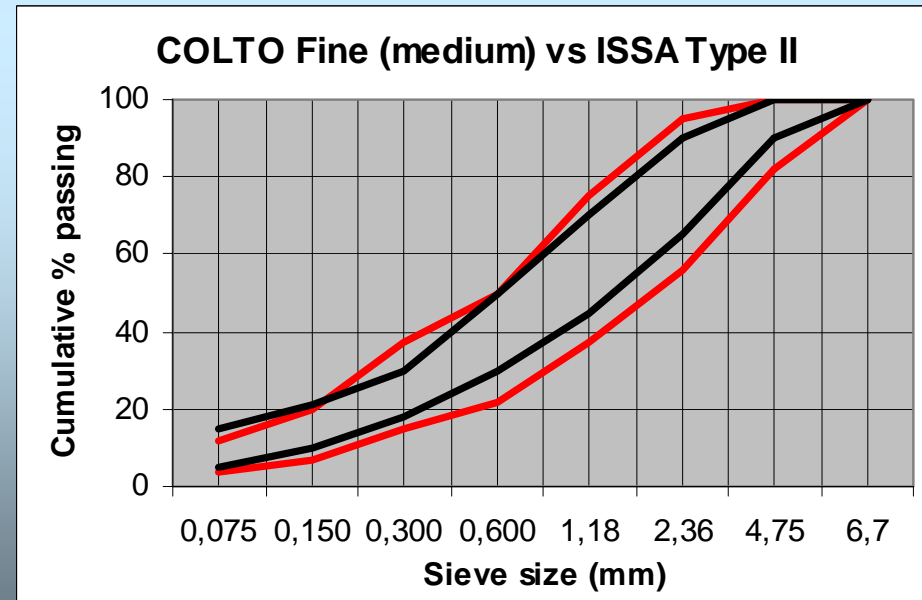
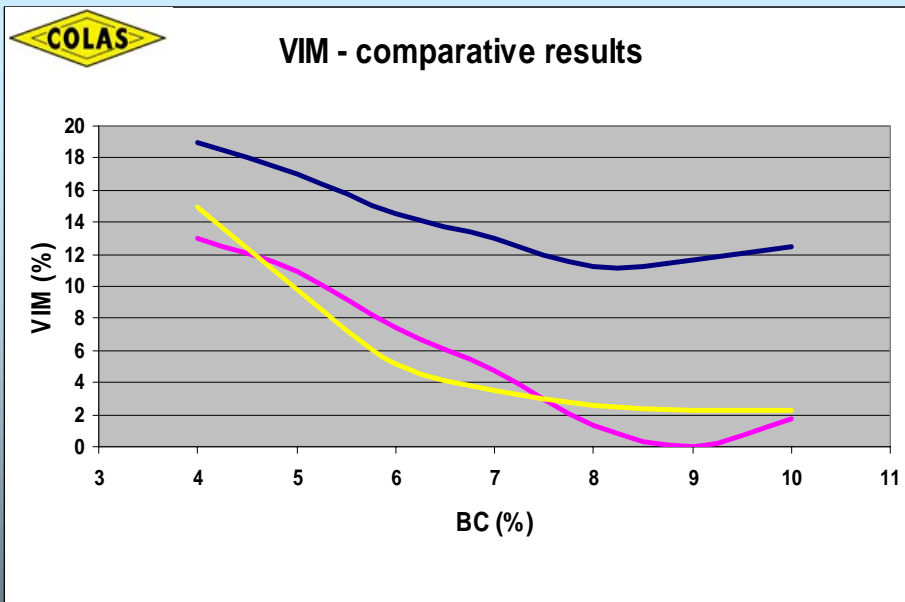


Limitations



Design

- Existing methods (RSA & elsewhere)
- Applicable tests and specifications
- Interpretation of results



Applicable Tests

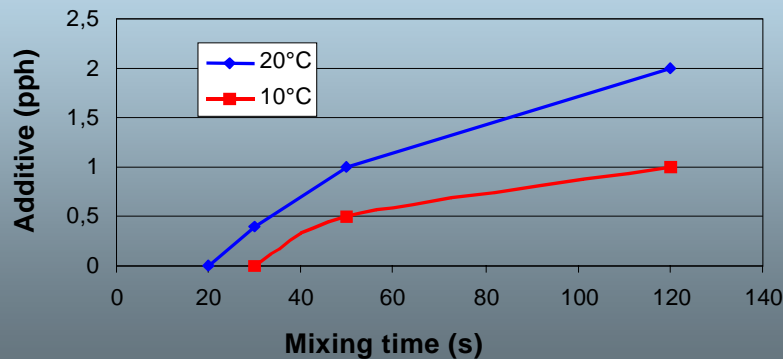
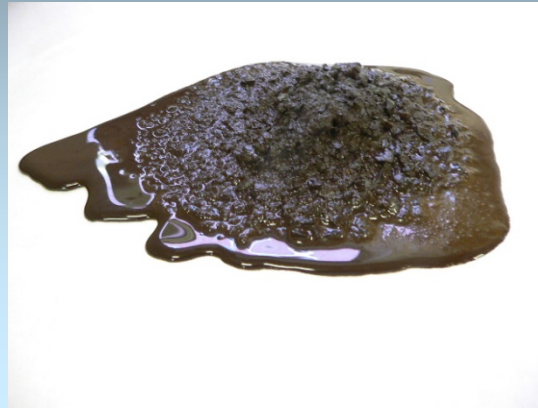
- **Suitability**
 - ❑ E.g. grading, ACV, sand equivalent
- **Design**
 - ❑ E.g. Wet track abrasion,
- **On-site**
 - ❑ Bulking
- **Purpose, procedure, Interpretation, adjustment, impact**
- **(Practical hints)**

The mixing/coating test



Slurry > 5 minutes

Microsurfacing 90 – 120 s

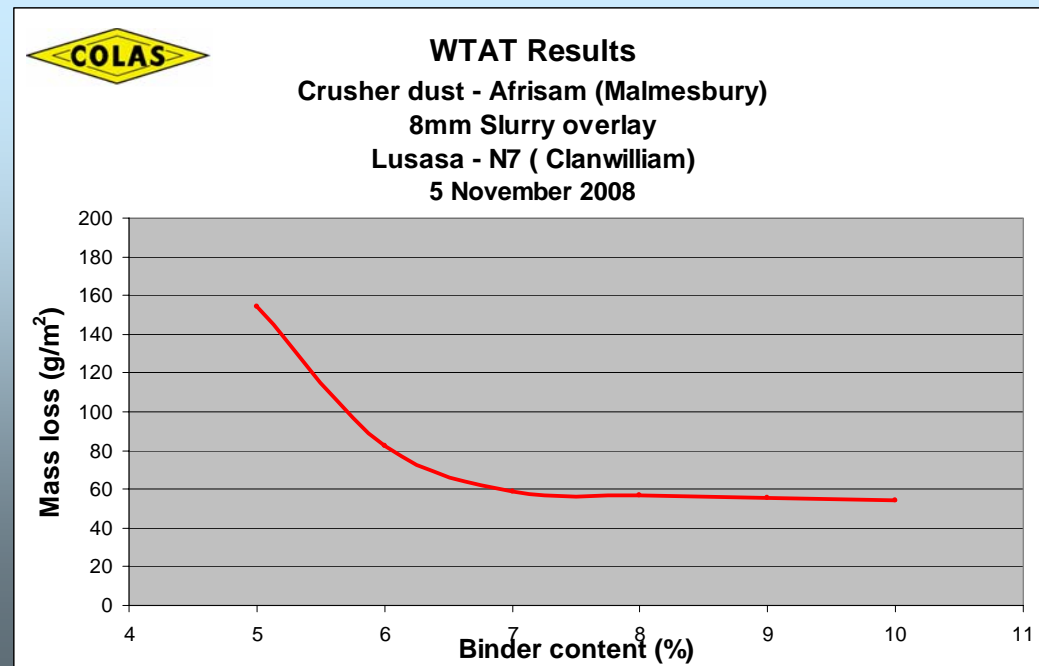


Consistency test



Recommended design approach

- Purpose
- Situation (traffic, climate, material availability, construction)
- Target grading & impact of variation
- Minimum binder content
 - Wet track abrasion
 - Film thickness



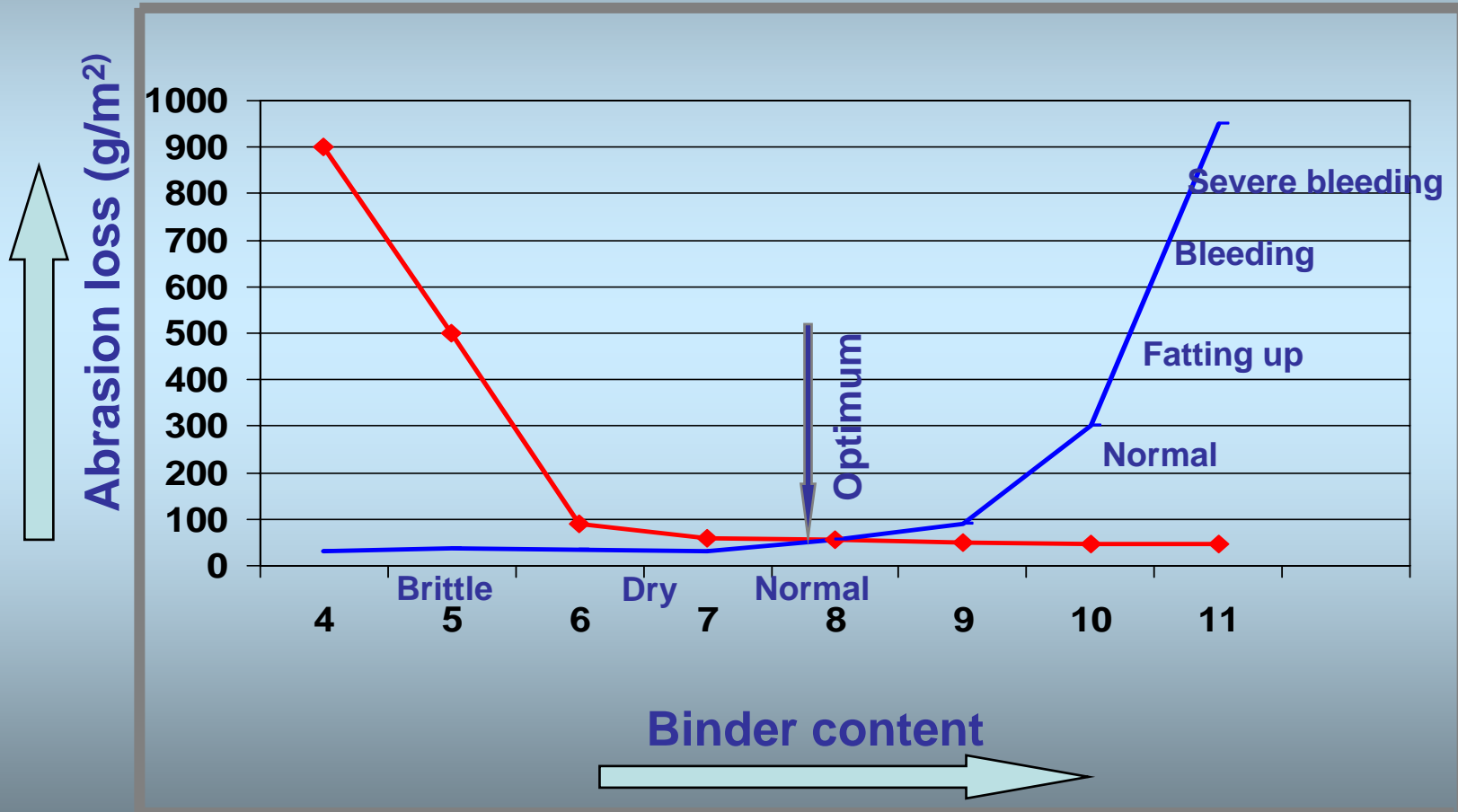


Recommended design approach

- **Maximum binder content**
 - Voids
 - Film thickness
 - Performance information matrix
 - Traffic
 - Climate
- Standardisation of test



Determination of optimum binder content

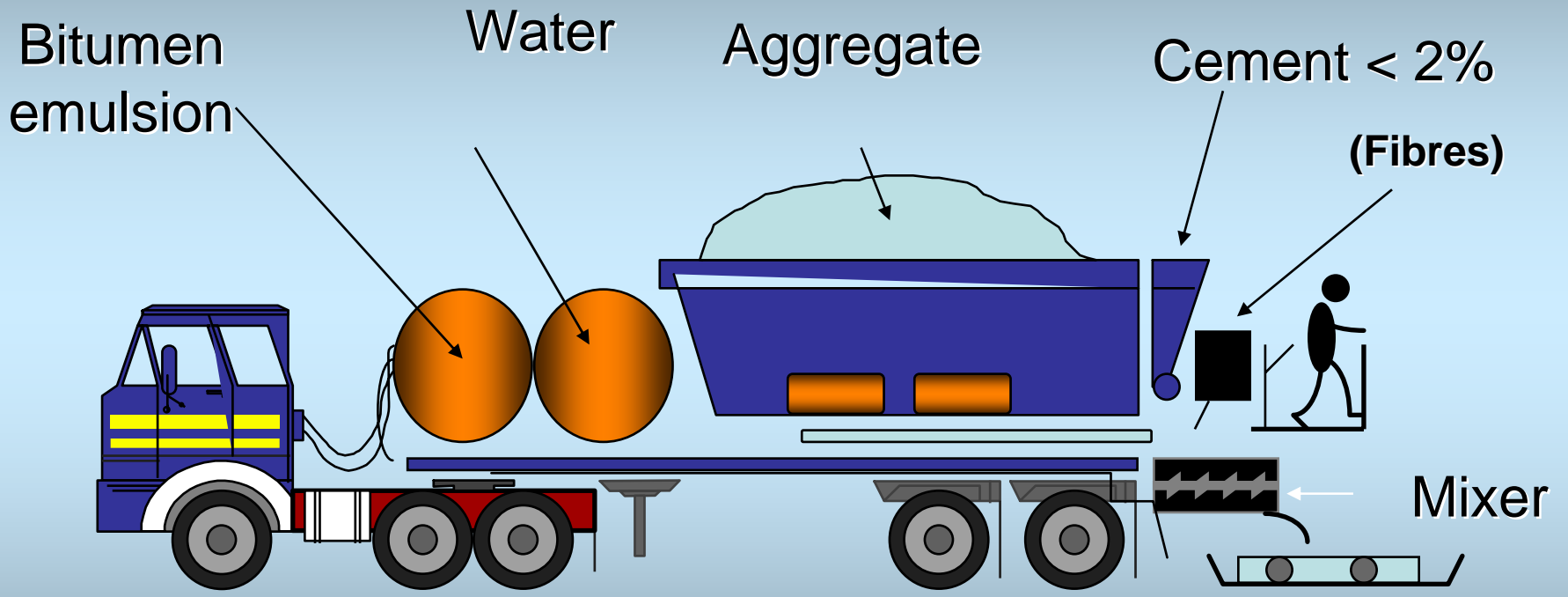


Construction & Control

- Equipment
- On-site tests
- Adjustments/ problem solving
- Practical hints



Equipment



Application rates

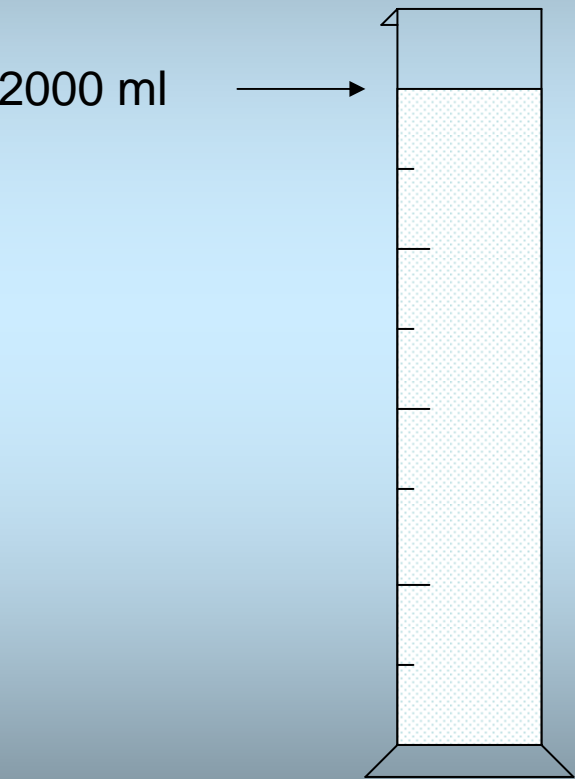
- 0/4 = 6 à 10 kg/m²
- 0/6 = 10 à 16 kg/m²
- 0/10 = 16 à 25 kg/m².

Additives :

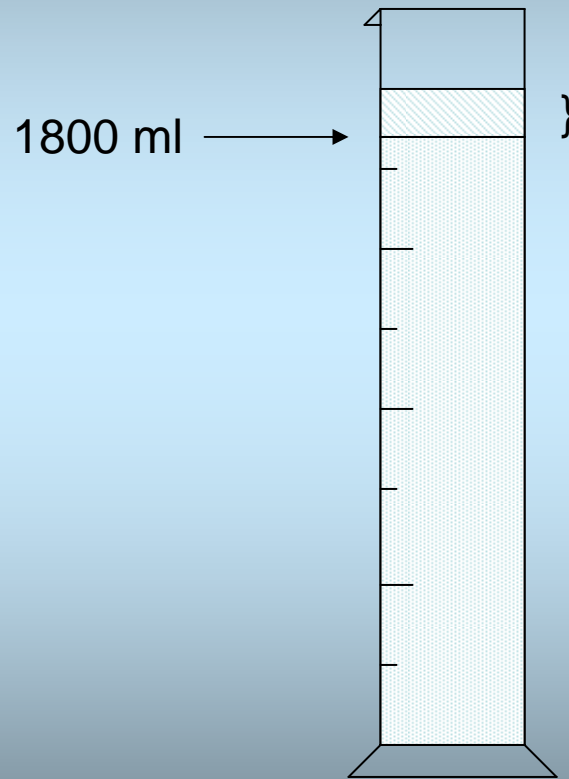
- Break accelerators
- Break retarders
- (Latex)
- (Fibres)

Determination of the bulking factor

Wet aggregate



Dry aggregate

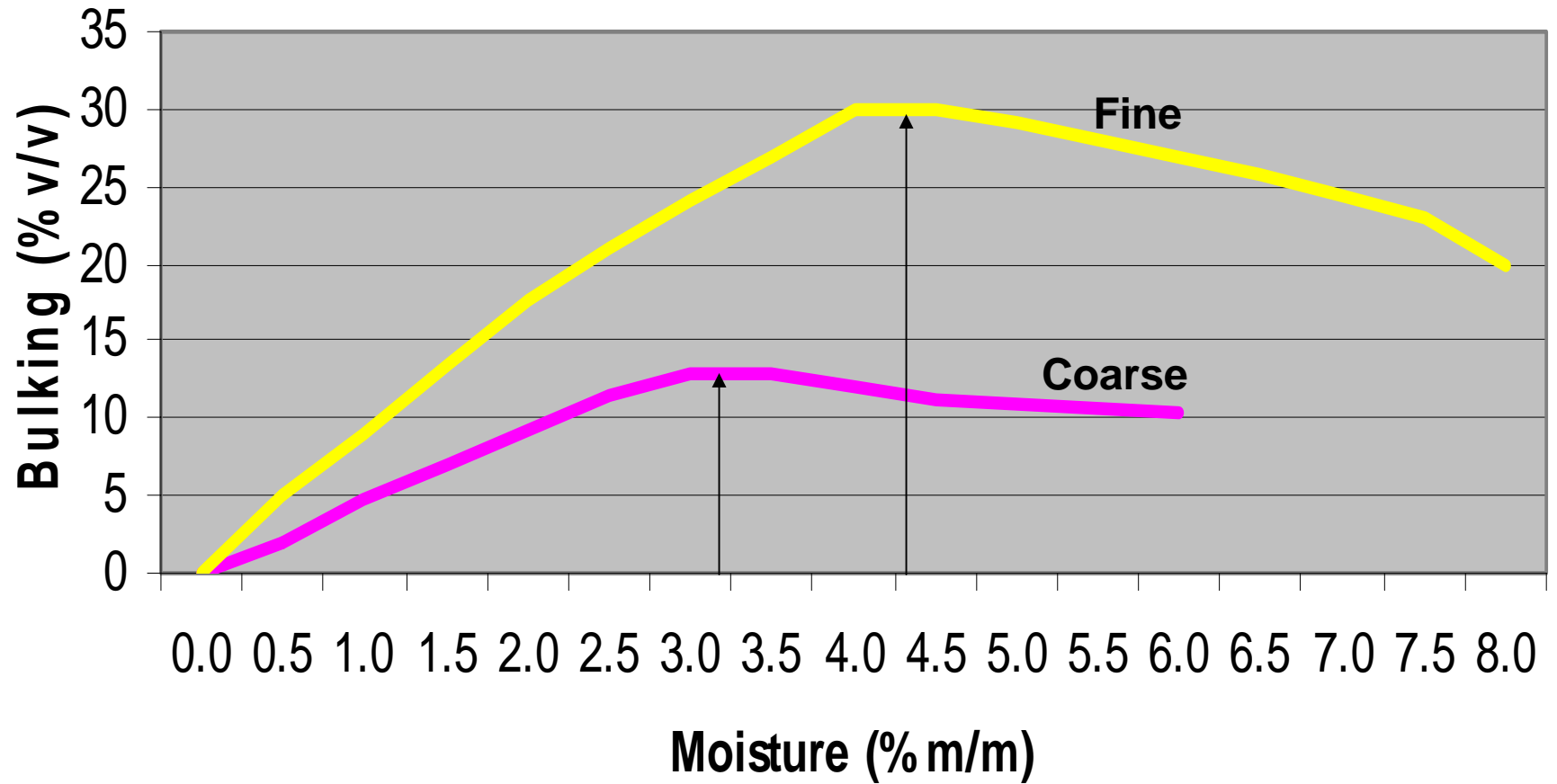


$$\text{Factor} = 1800/2000$$
$$= 0,90$$

If you require 225 l/m³ of dry aggregate actual emulsion volume is:

$$225 \times 0,9 = 203 \text{ l/m}^3$$

Bulking Coarse vs Fine



Typical problems



Slurry balling – high temp.

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Towards completion

- **Still require feedback from 2 study projects**
- **Standardisation of test methods**
- **Target (Distribution for comments)– End of June**

THE END

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