



Slurry and Microsurfacing

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24 June 2026



Conventional Slurry Mixtures

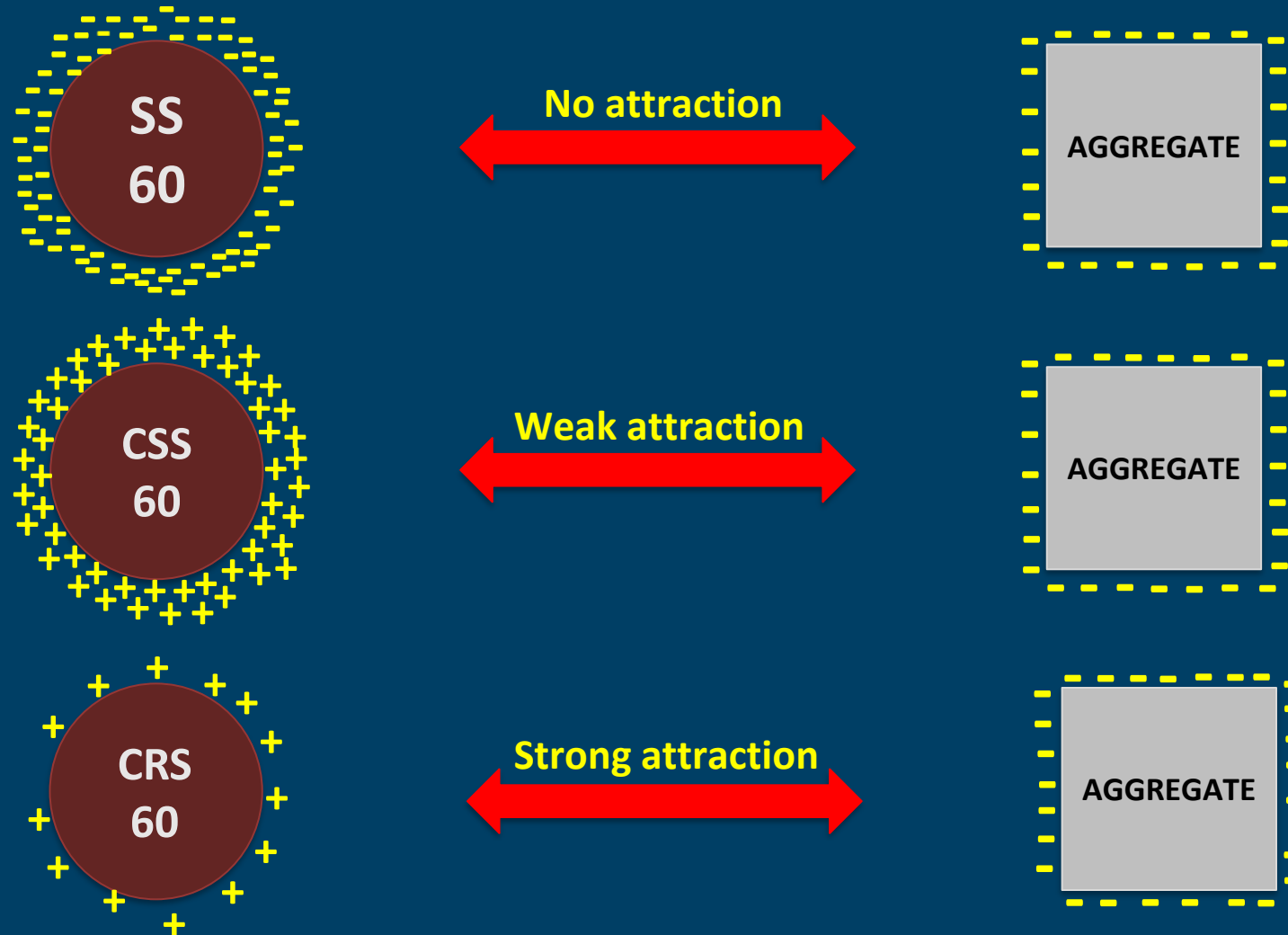


Composition [Conventional Slurry Mixtures (...continued)]

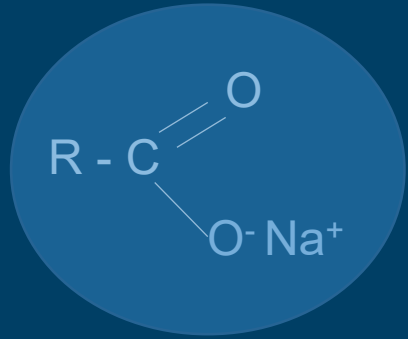
- Stable Grade bitumen emulsion
 - SS60 or CSS60
- Continuously graded crushed mineral aggregate
 - or in combination with natural sand and/or single sized aggregate
- Calcium source (“Filler”)
 - OPC [$4\text{CaO} \cdot \text{Al}_2\text{O}_3 \cdot \text{Fe}_2\text{O}_3$]
 - Lime [$\text{Ca}(\text{OH})_2$]
 - Calcium Chloride [CaCl_2]
- Water
 - Potable water, usually fit for use
 - Non-potable water, pH check and “slurry mix test” recommended



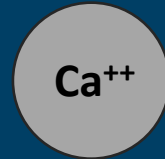
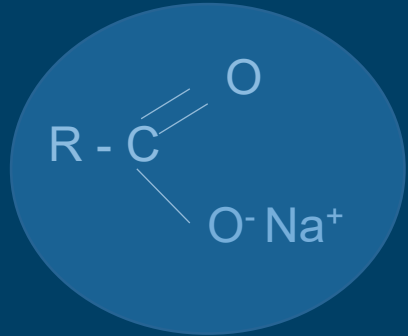
Composition [Conventional Slurry Mixtures (...continued)]



Composition [Conventional Slurry Mixtures (...continued)]



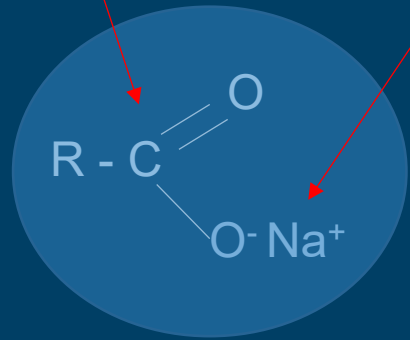
Soap droplets
(part of the H_2O phase of the bitumen emulsion)



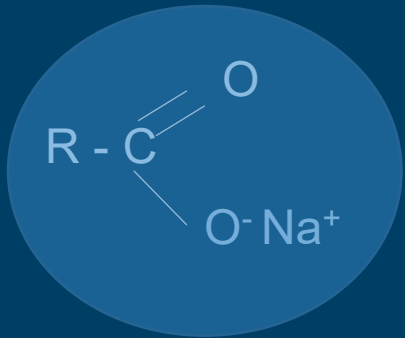
Composition [Conventional Slurry Mixtures (...continued)]

Anionic Emulsifier

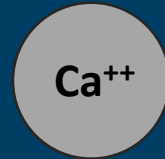
Neutralising agent (NaOH)



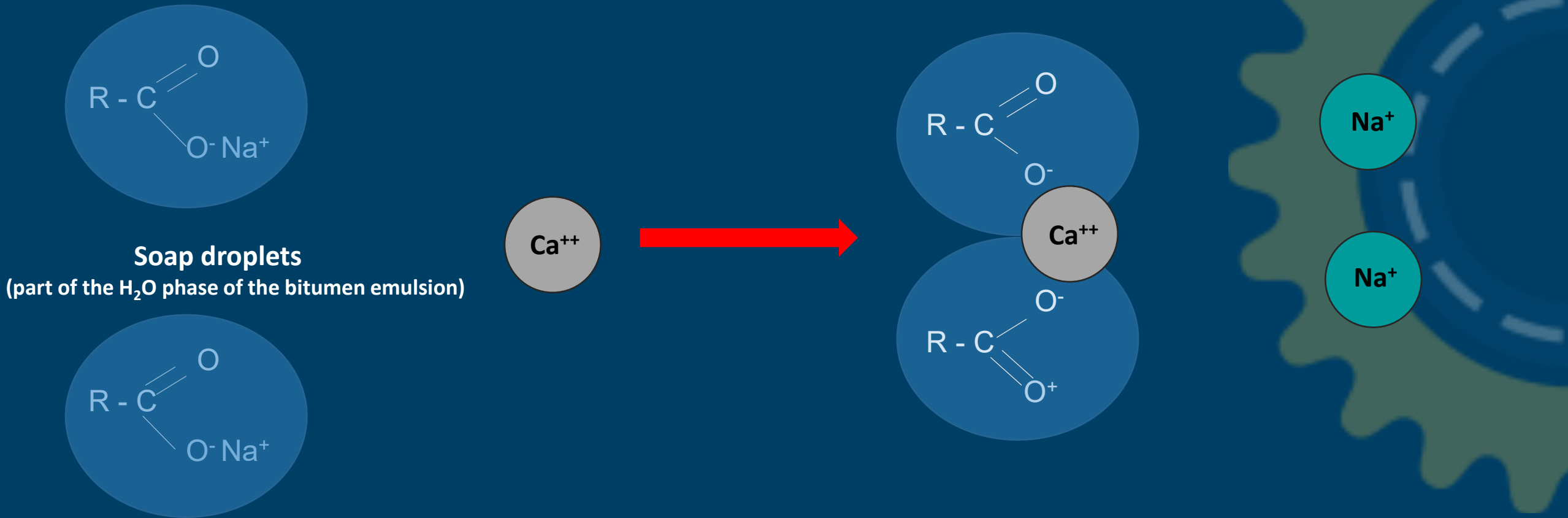
Soap droplets
(part of the H₂O phase of the bitumen emulsion)



Cement

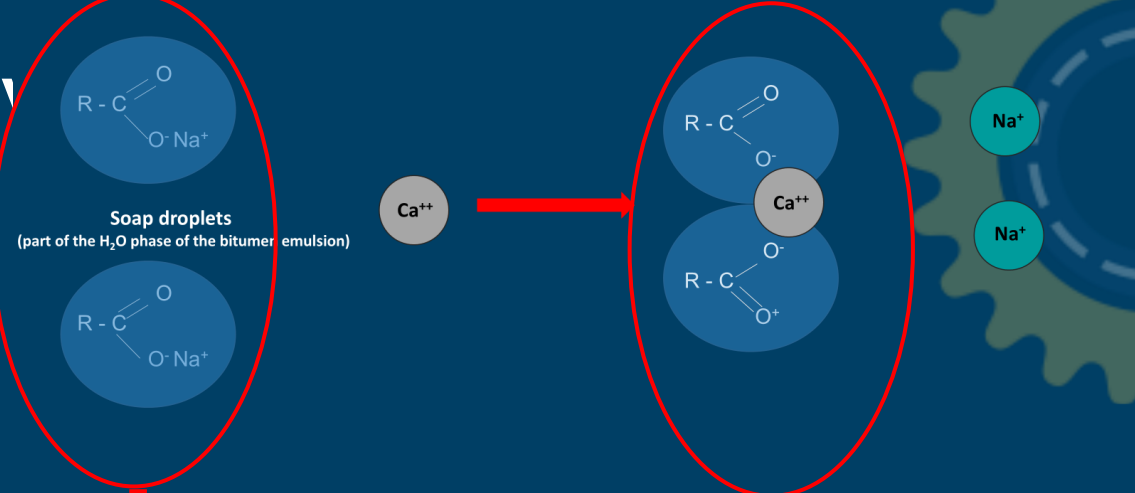


Composition [Conventional Slurry Mixtures (...continued)]



Composition [Conv

ed)]



No Cement



Cement



Ca^{++}

Composition [Conventional Slurry Mixtures (...continued)]

Suitable water source



Unsuitable water source



Application [Conventional Slurry Mixtures (...continued)]

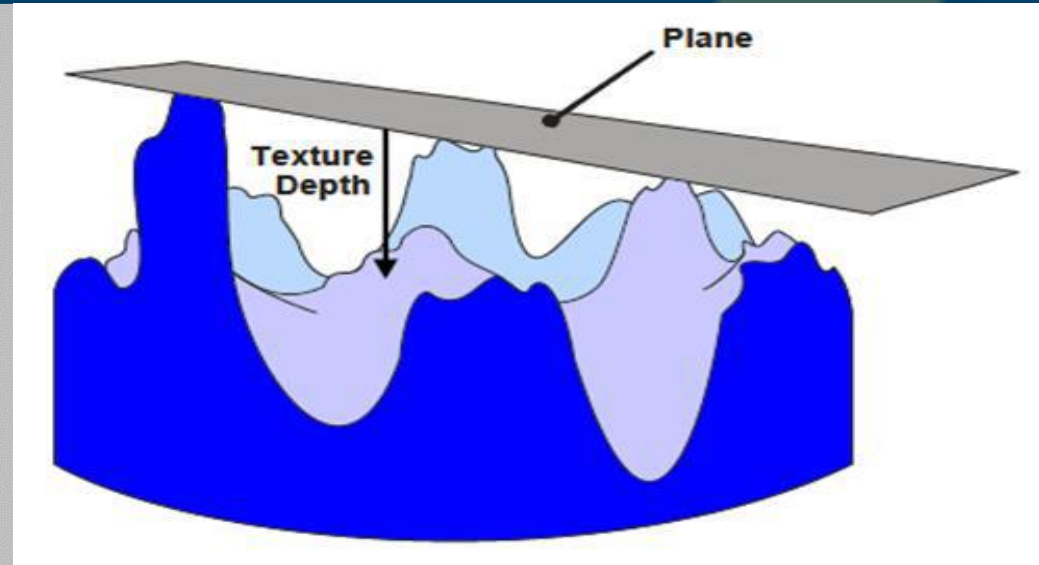
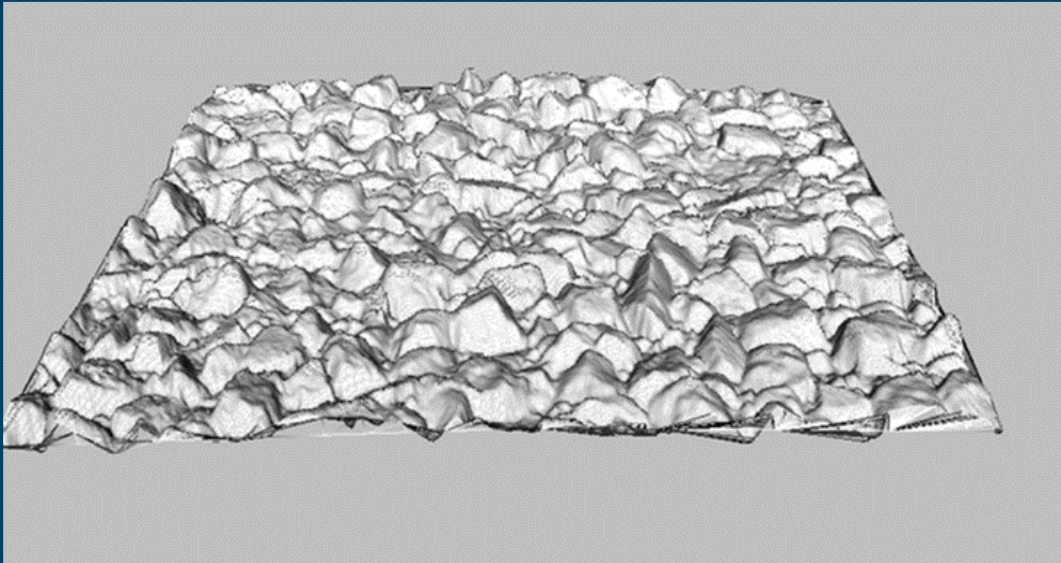
- Texture treatment
 - 1 - 3mm / 2 – 4mm
 - 190 – 210 l/m³
- Cape seal
 - 220 – 260 l/m³
- Overlays
 - 210 – 250 l/m³
- Wearing coarse on a primed base
 - 210 – 250 l/m³

Rule of thumb:

- Max Slurry layer thickness = $1.5 \times \text{ALD}_{\text{NMPS}}$
- Min Slurry layer thickness = ALD_{NMPS}



Application [Conventional Slurry Mixtures (...continued)]



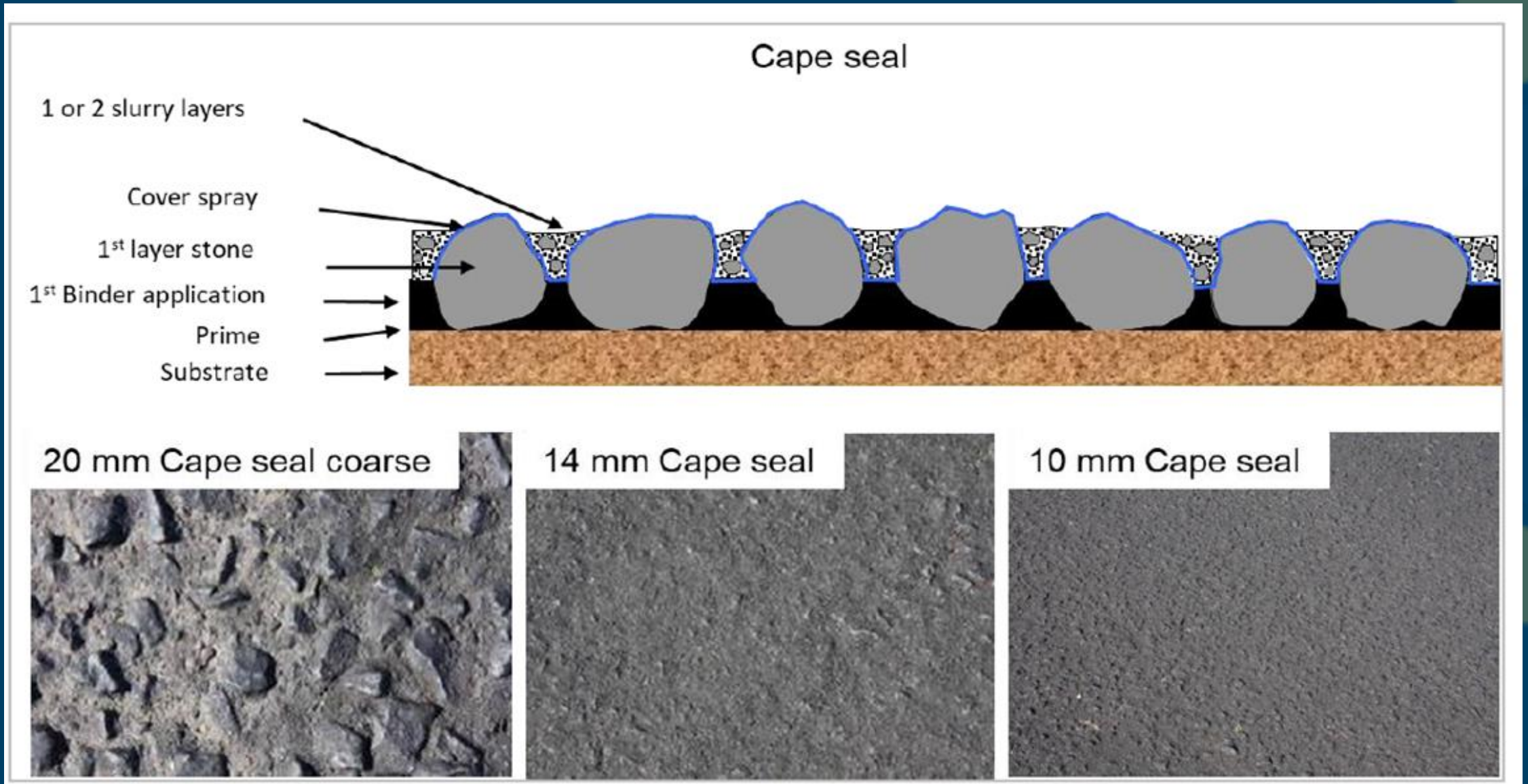
Application [Conventional Slurry Mixtures (...continued)]



Application [Conventional Slurry Mixtures (...continued)]



Application [Conventional Slurry Mixtures (...continued)]



Application [Conventional Slurry Mixtures (...continued)]



Application [Conventional Slurry Mixtures (...continued)]



Limitations [Conventional Slurry Mixtures (...continued)]

- Weather dependent
 - slow curing (extended lane closures; disruptive to traffic)
- Contains no polymers
 - more temperature susceptible than Microsurfacing; cannot be placed in thicker single layers (not as stiff as Microsurfacing layers)



Tips and Tricks [Conventional Slurry Mixtures (...continued)]

- Segregating slurry
 - increase Calcium content
 - make use of an alternative Calcium source
 - reduce water content
 - alter aggregate grading
 - make use of alternative aggregate source
- Excessive water demand
 - alter aggregate grading
 - make use of alternative aggregate source
 - make use of alternative bitumen emulsion
 - prepare- and apply slurry during colder parts of the day
 - pre- wet (cool down) the substrate
 - alter bitumen emulsion formulation and/or make use of stabilisers / retarders



Microsurfacing Mixtures

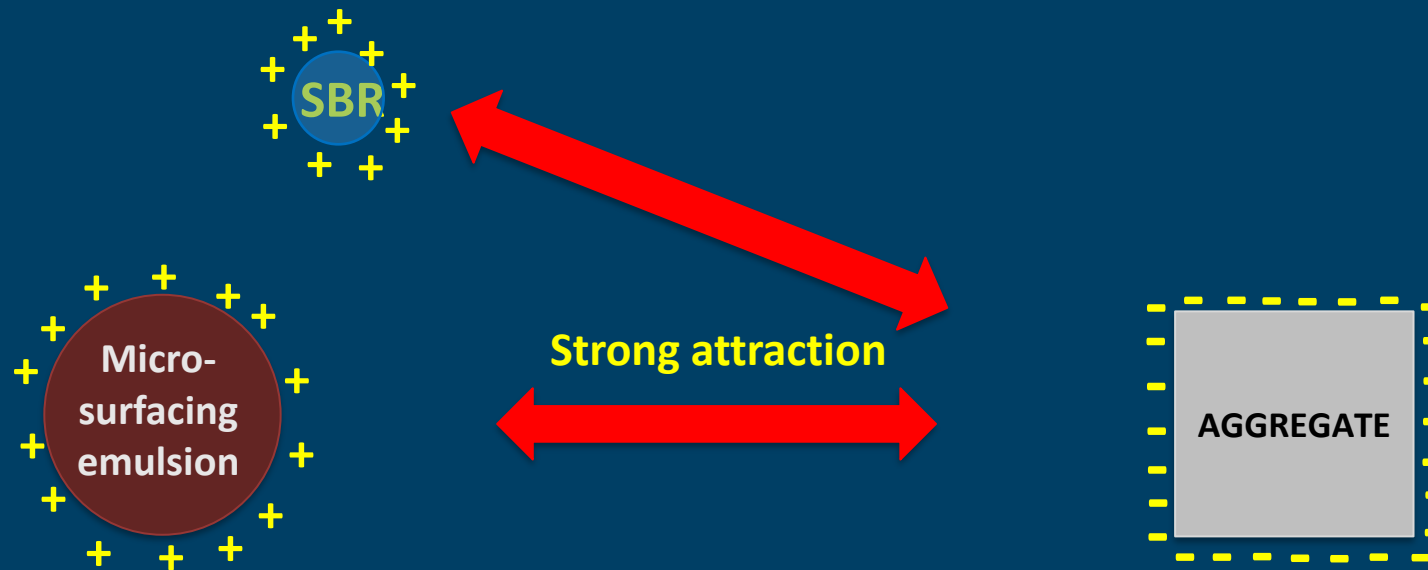


Composition [Microsurfacing Mixtures (...continued)]

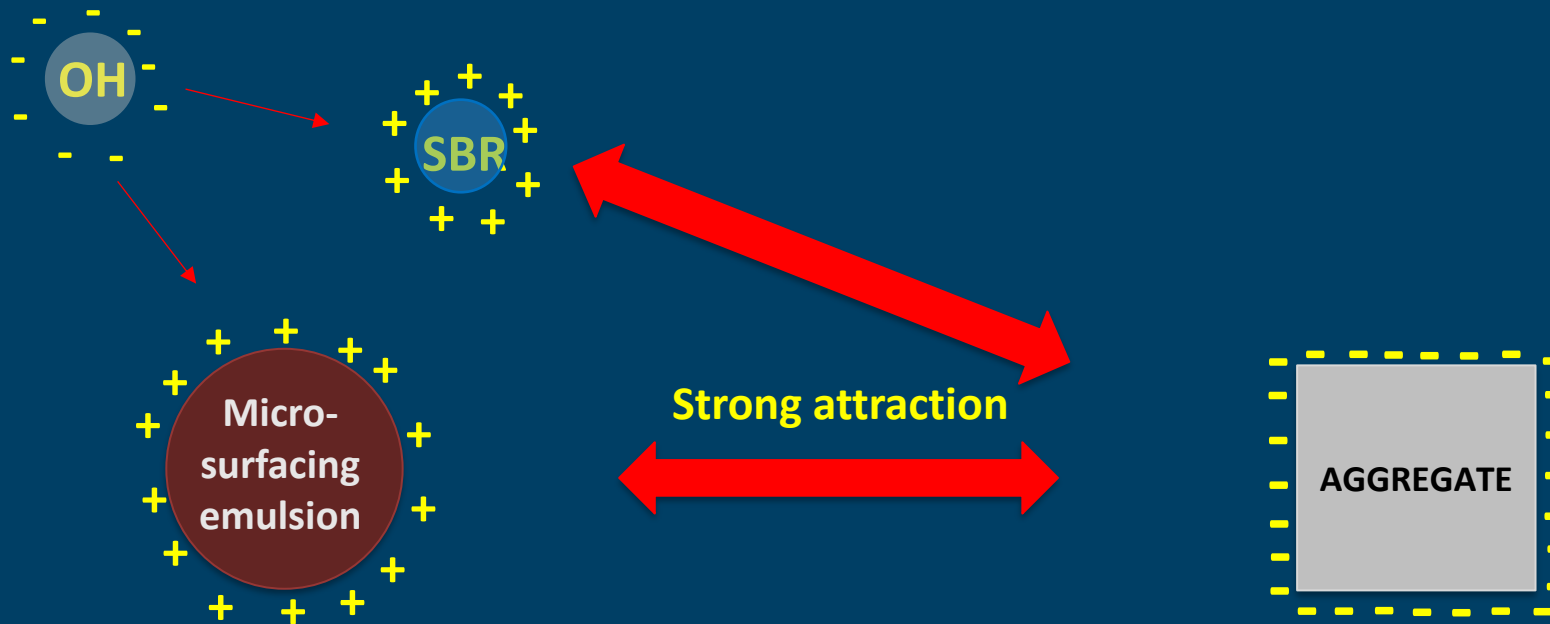
- Microsurfacing emulsion
 - Cationic PME
 - AC-E1; AC-E2
- Continuously graded crushed mineral aggregate
 - or in combination with natural sand and/or single sized aggregate
 - aggregate needs to have favourable reactivity
- Calcium source (“Filler”)
 - OPC [$4\text{CaO} \cdot \text{Al}_2\text{O}_3 \cdot \text{Fe}_2\text{O}_3$]
- Water
 - Potable water, usually fit for use
 - Non-potable water, pH check and “slurry mix test” recommended



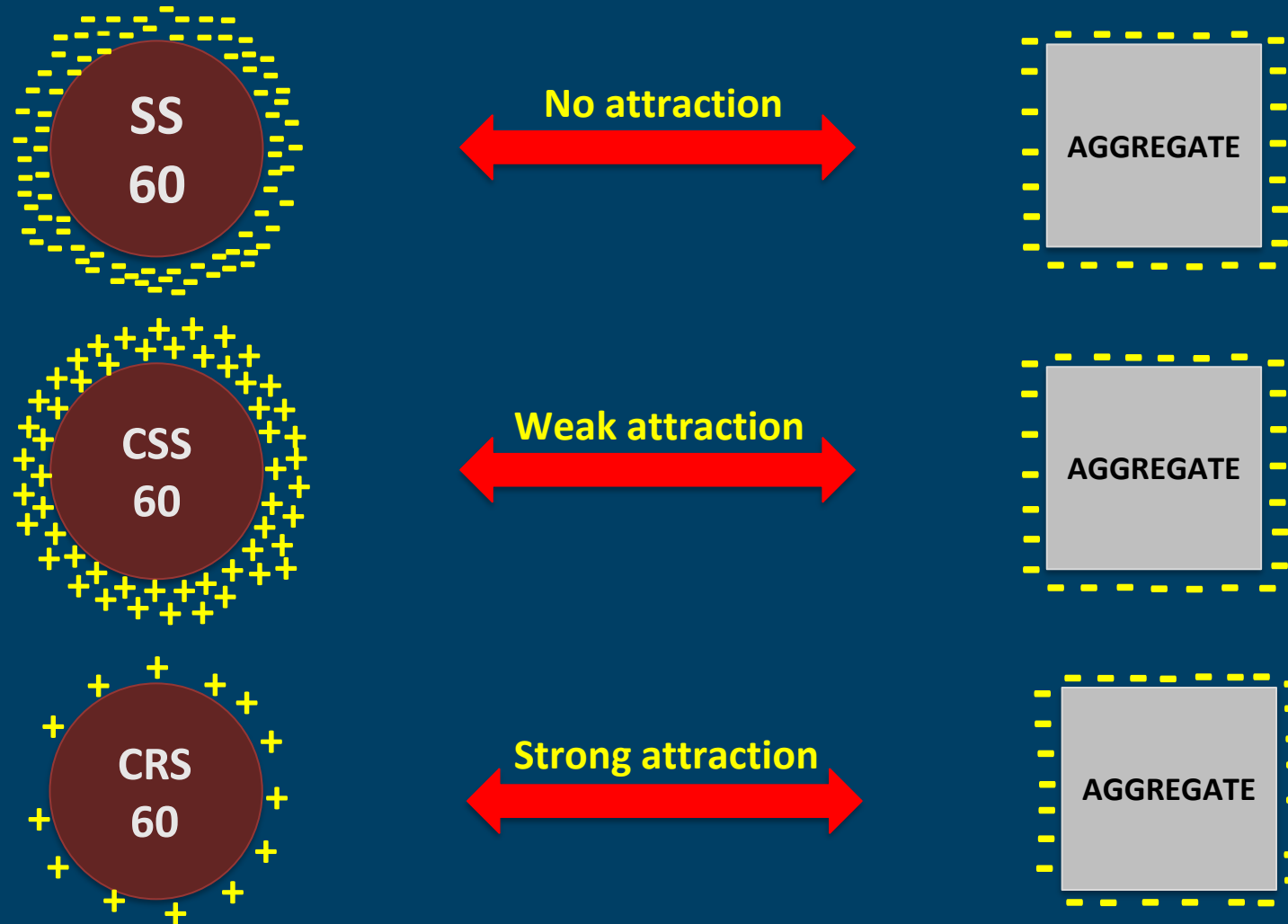
Composition [Microsurfacing Mixtures (...continued)]



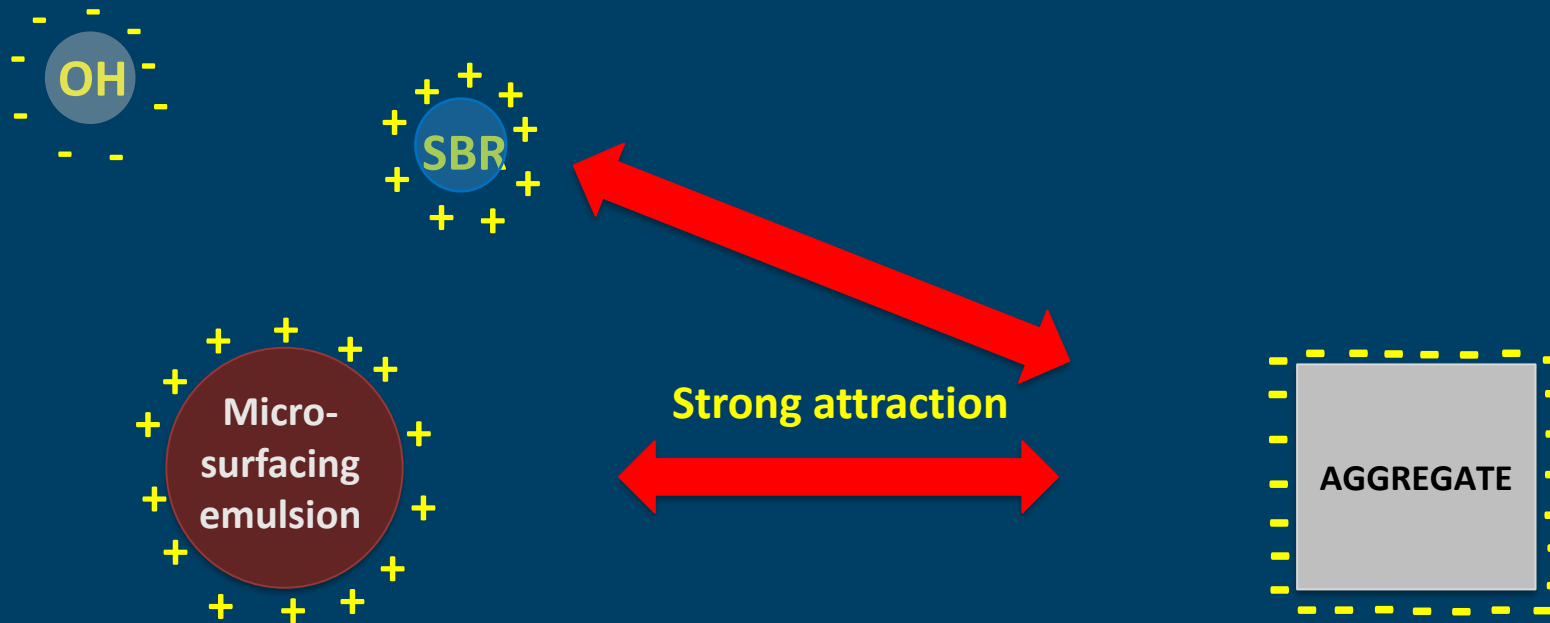
Composition [Microsurfacing Mixtures (...continued)]



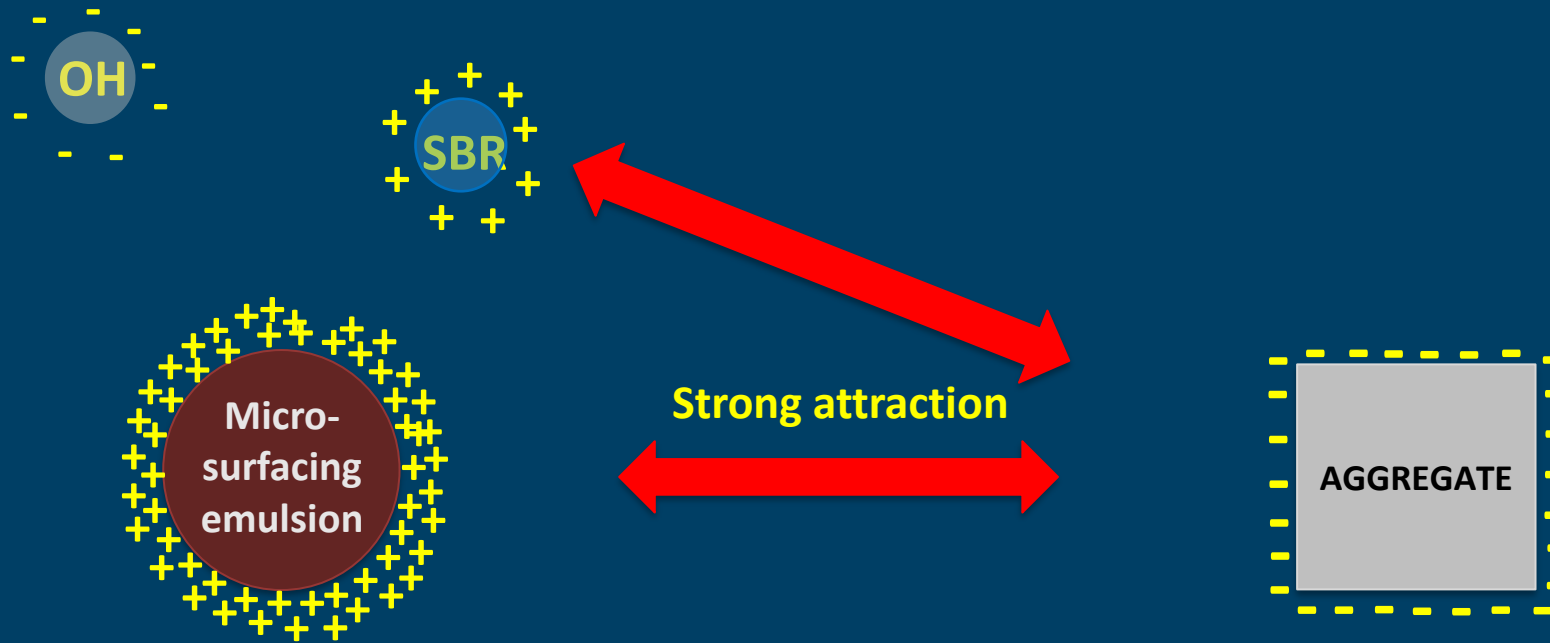
Composition [Microsurfacing Mixtures (...continued)]



Composition [Microsurfacing Mixtures (...continued)]

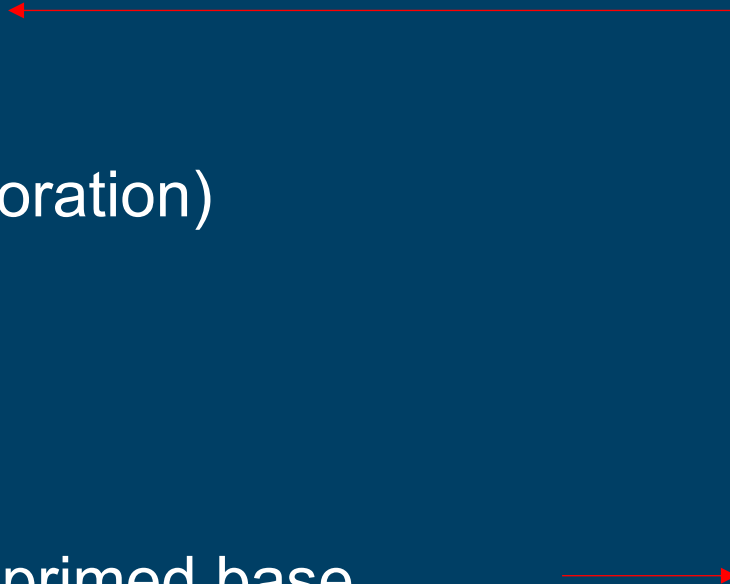


Composition [Microsurfacing Mixtures (...continued)]



Application [Microsurfacing Mixtures (...continued)]

- Overlays
 - 6 – 15 mm
 - 170 – 200 l/m³
- Rut filling (profile restoration)
 - < 30 mm
 - 160 - 170 l/m³
- Edge break repairs
- Wearing coarse on a primed base



➡ **Rule of thumb:**

- Max Slurry layer thickness = $3 \times \text{ALD}_{\text{NMPS}}$
- Min Slurry layer thickness = ALD_{NMPS}

Application [Microsurfacing Mixtures (...continued)]



Application [Microsurfacing Mixtures (...continued)]



Application [Microsurfacing Mixtures (...continued)]



Application [Microsurfacing Mixtures (...continued)]



Limitations [Microsurfacing Mixtures (...continued)]

- Limited suitable aggregate sources
- Not suitable for use at excessive on-site temperatures



Tips and Tricks [Microsurfacing Mixtures (...continued)]

- Segregating slurry
 - alter aggregate grading (grading might be too coarse)
 - refrain from spreading the slurry over long distances by hand (limit excessive handling)
- Pre-mature setting
 - alter aggregate grading
 - make use of alternative aggregate source (less reactive)
 - apply during colder parts of the day
 - alter bitumen emulsion formulation and/or make use of additives/retarders



Latest Developments



Latest Developments (...continued)



Non-recyclable glass



Latest Developments (...continued)



Non-recyclable glass

Latest Developments (...continued)



Reclaimed Asphalt

Latest Developments (...continued)



Nano Modified Emulsion (NME) Slurry

Thank You

