



Flow & Leveling Additives

Bernhard Hirschmann



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ADDITOL®
MODAFLOW®

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Frequent Problems

- Bad substrate wetting
- Bad leveling
- Craters
- Orange peel effect
- Fish eyes
- Spray mist contamination
- Low slip
- Low scratch resistance



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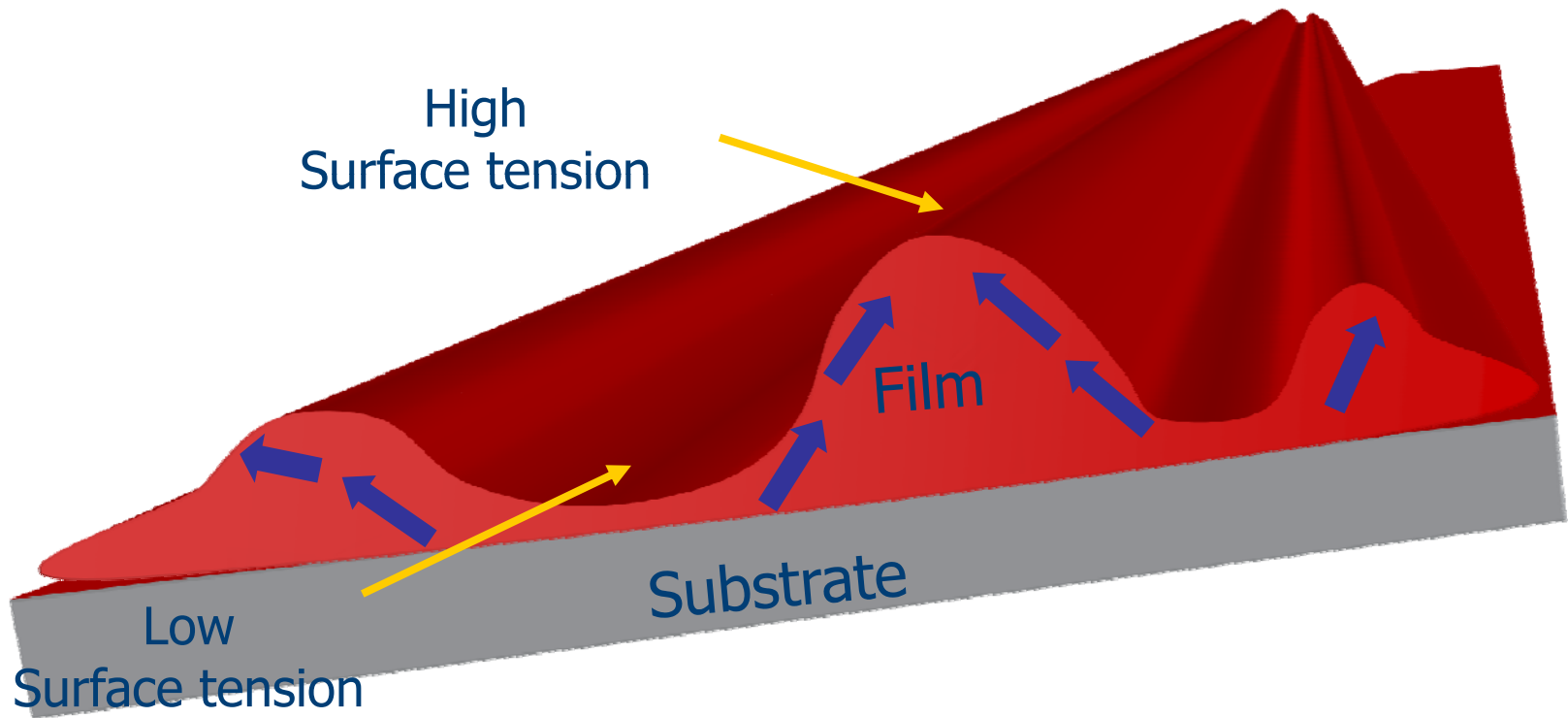
(Meth-) acrylic copolymers

Fluoro modified polymers

Silicones



Mode 1 Adjustment of surface tension



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Mode 2

mono molecular layer



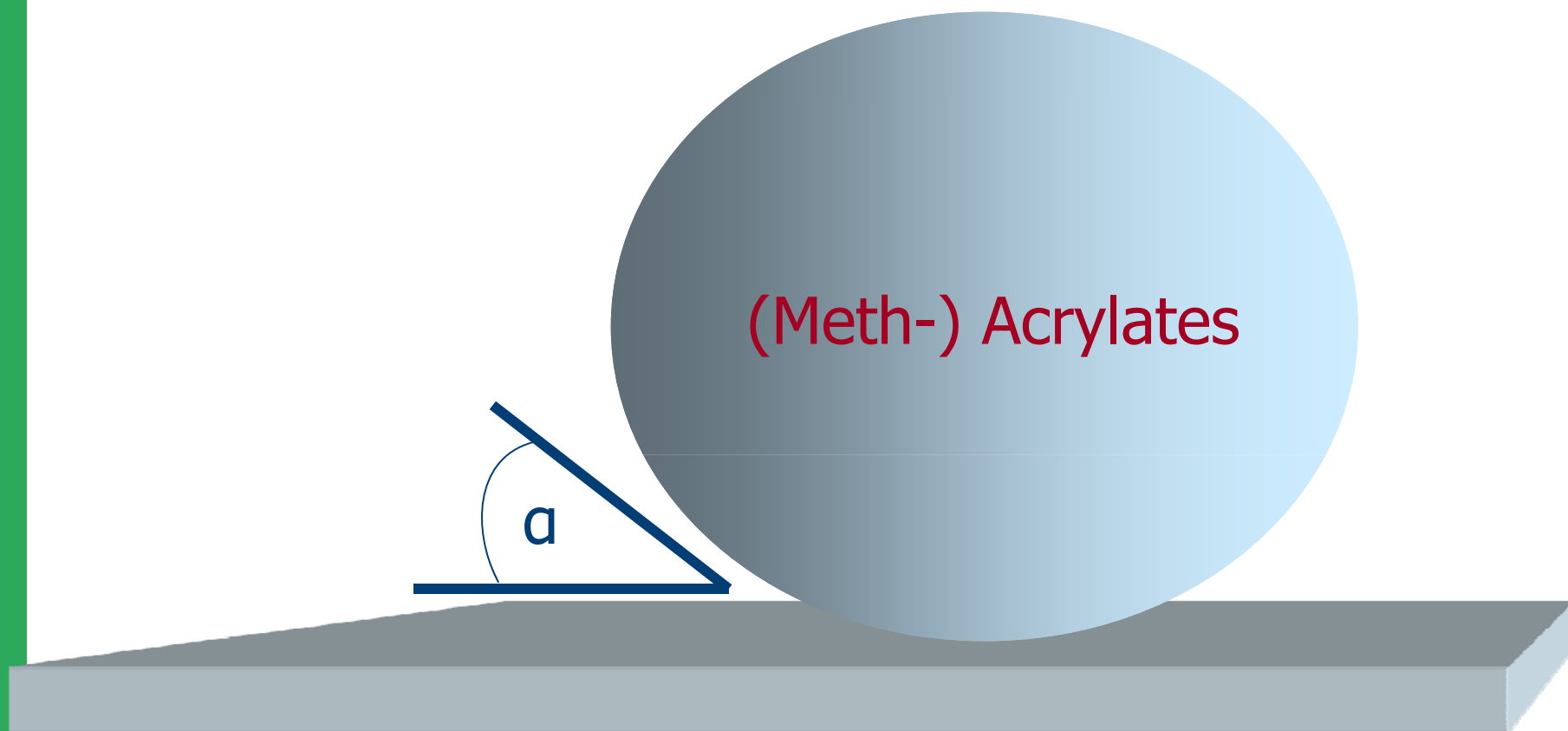
Leveling agent

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Surface tension



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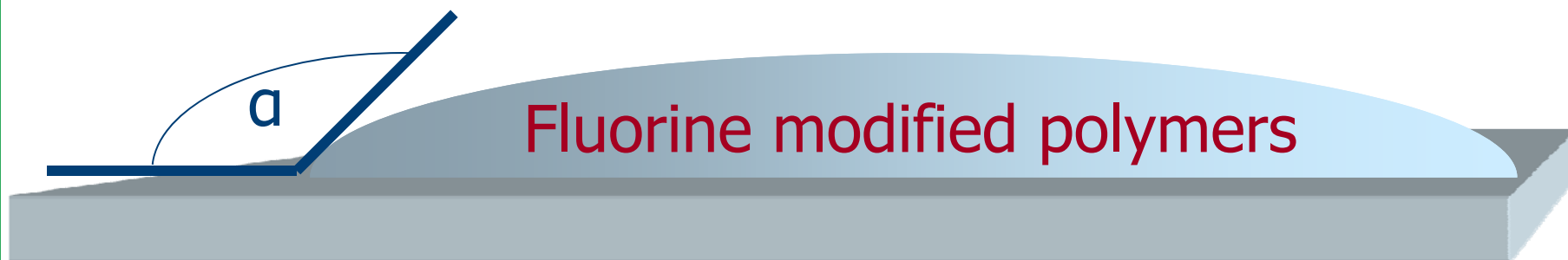
Surface tension



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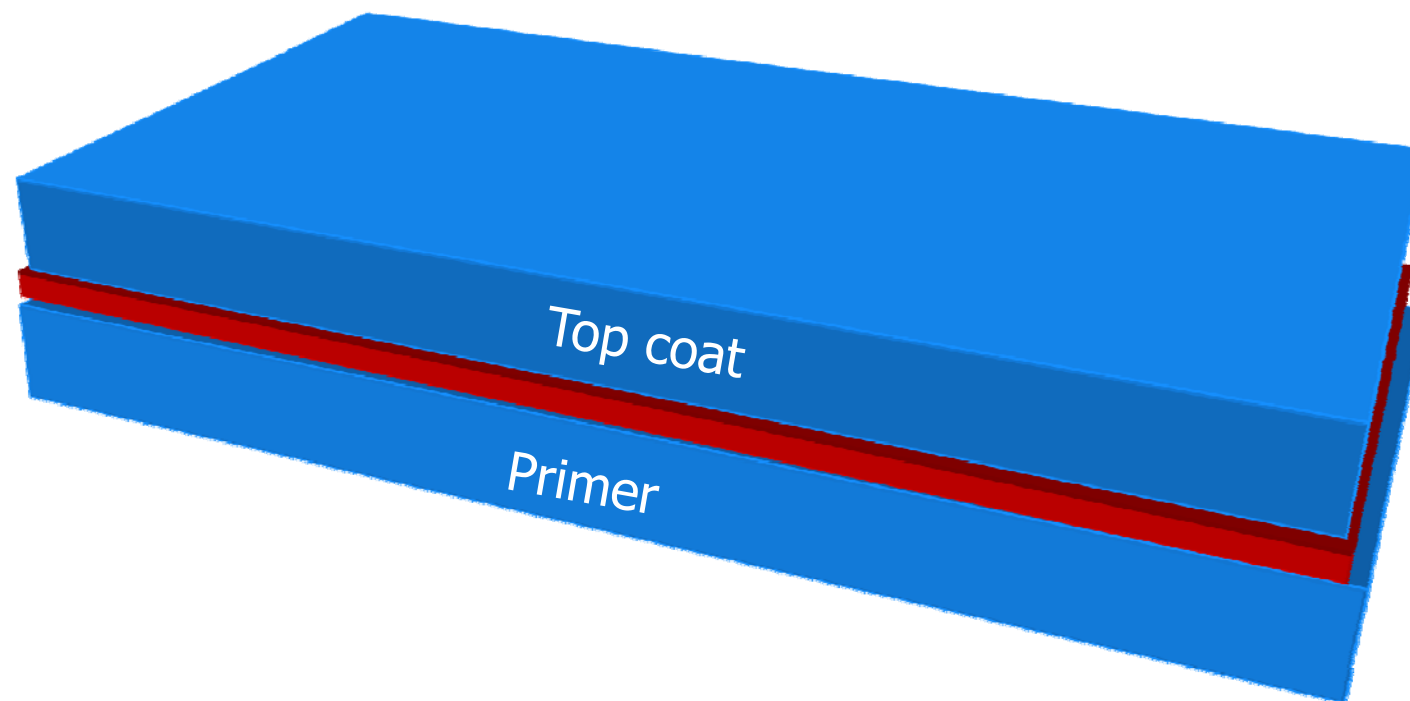
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Surface tension



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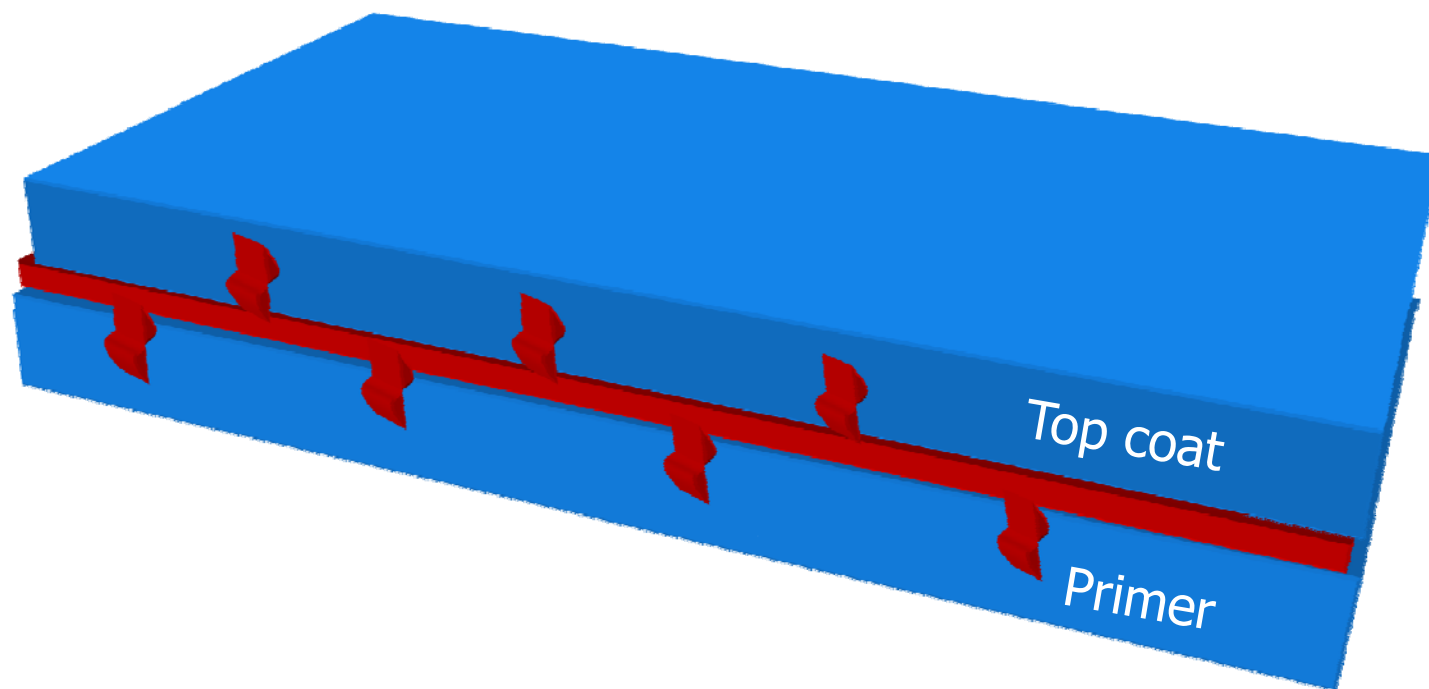


Non reactive leveling additives



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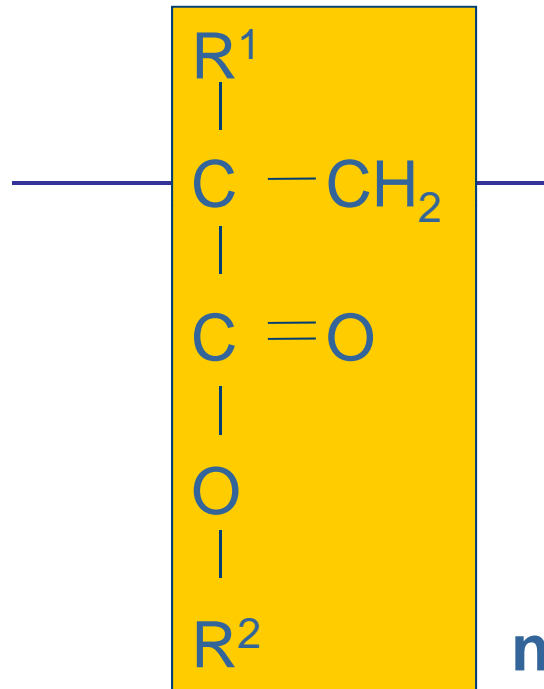
Reactive leveling additives



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Acrylic copolymers



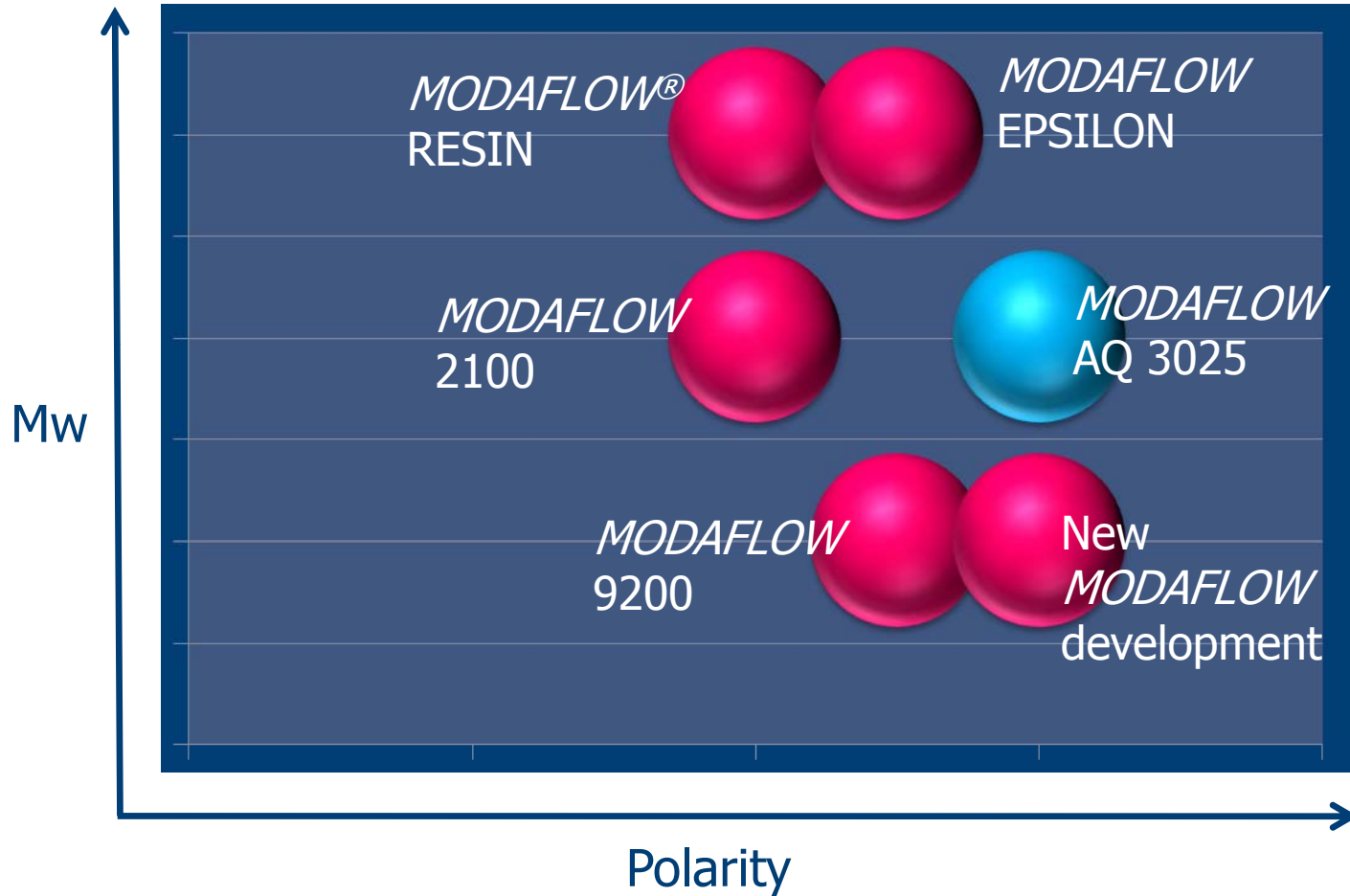
$R^1 =$ H (Acrylate)
 CH_3 (Methacrylate)

$R^2 =$ Alkyl
 Polyester/Polyether
 Salt
 HO-functional
 COOH-functional



(Meth)-Acrylic copolymers

MODAFLOW[®] technology



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MODAFLOW[®] Properties & Features

Acrylic copolymers

Silicon free

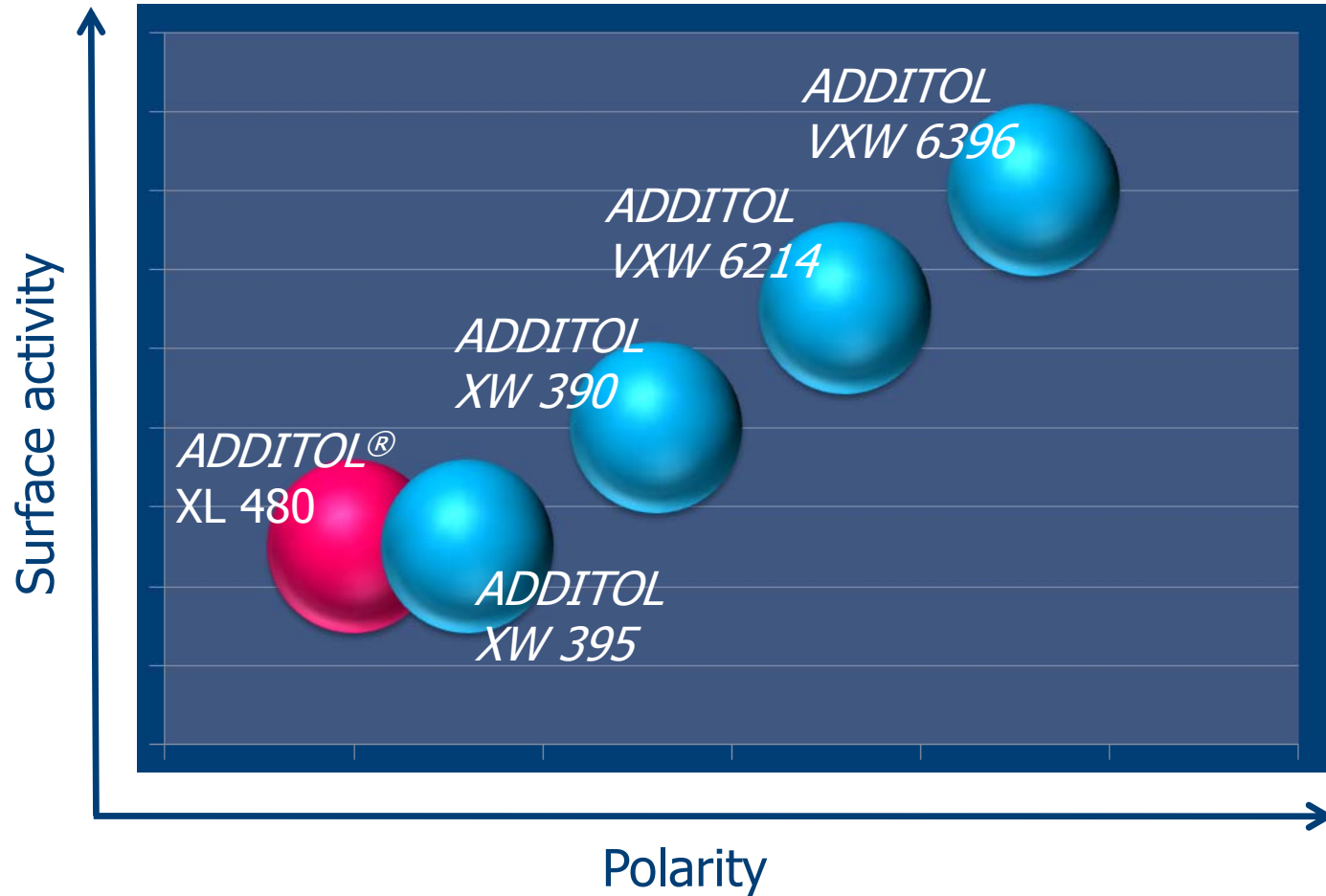
Improve flow and leveling

Against crater/fisheyes/pinholes



(Meth)-Acrylic copolymers

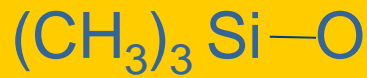
ADDITOL[®] technology



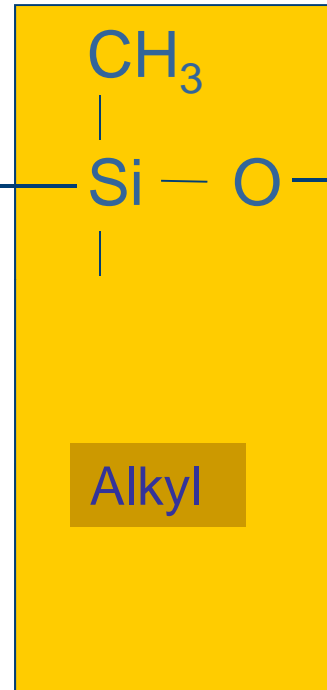
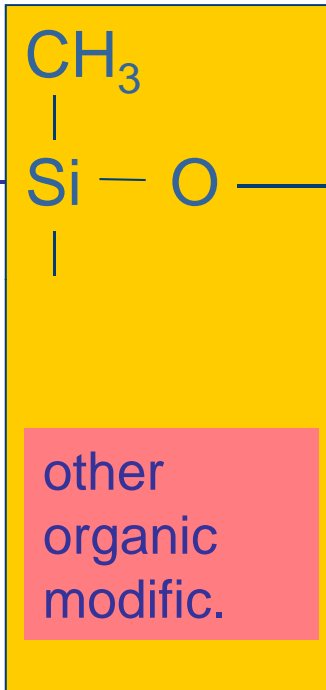
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Silicones



Polyester
Polyether
Aralkyl
Reactive:
Acryl
COOH
OH

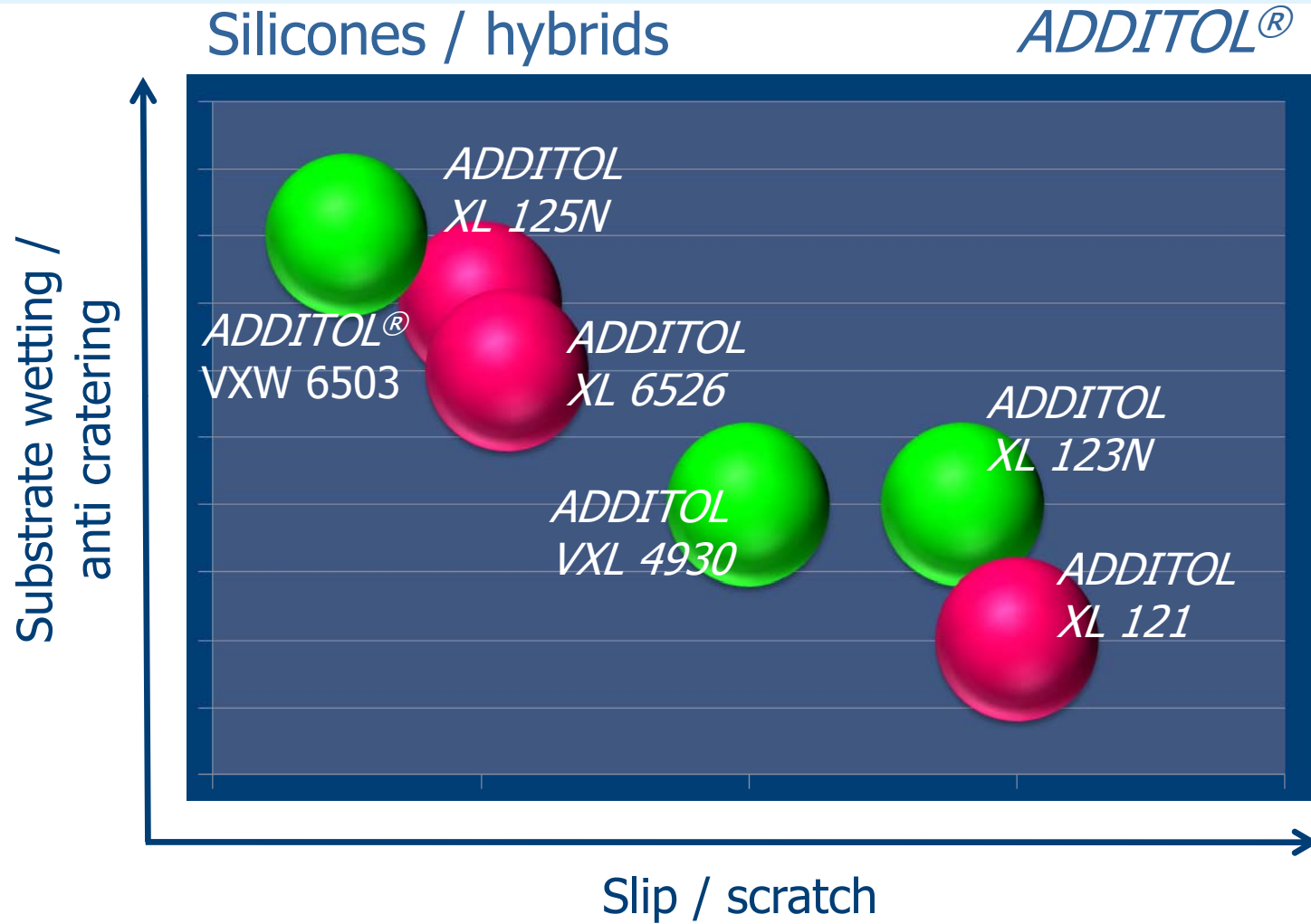


mN/m	
CH ₃	21
CH ₂ CH ₃	26
(CH ₂) ₉ CH ₃	32



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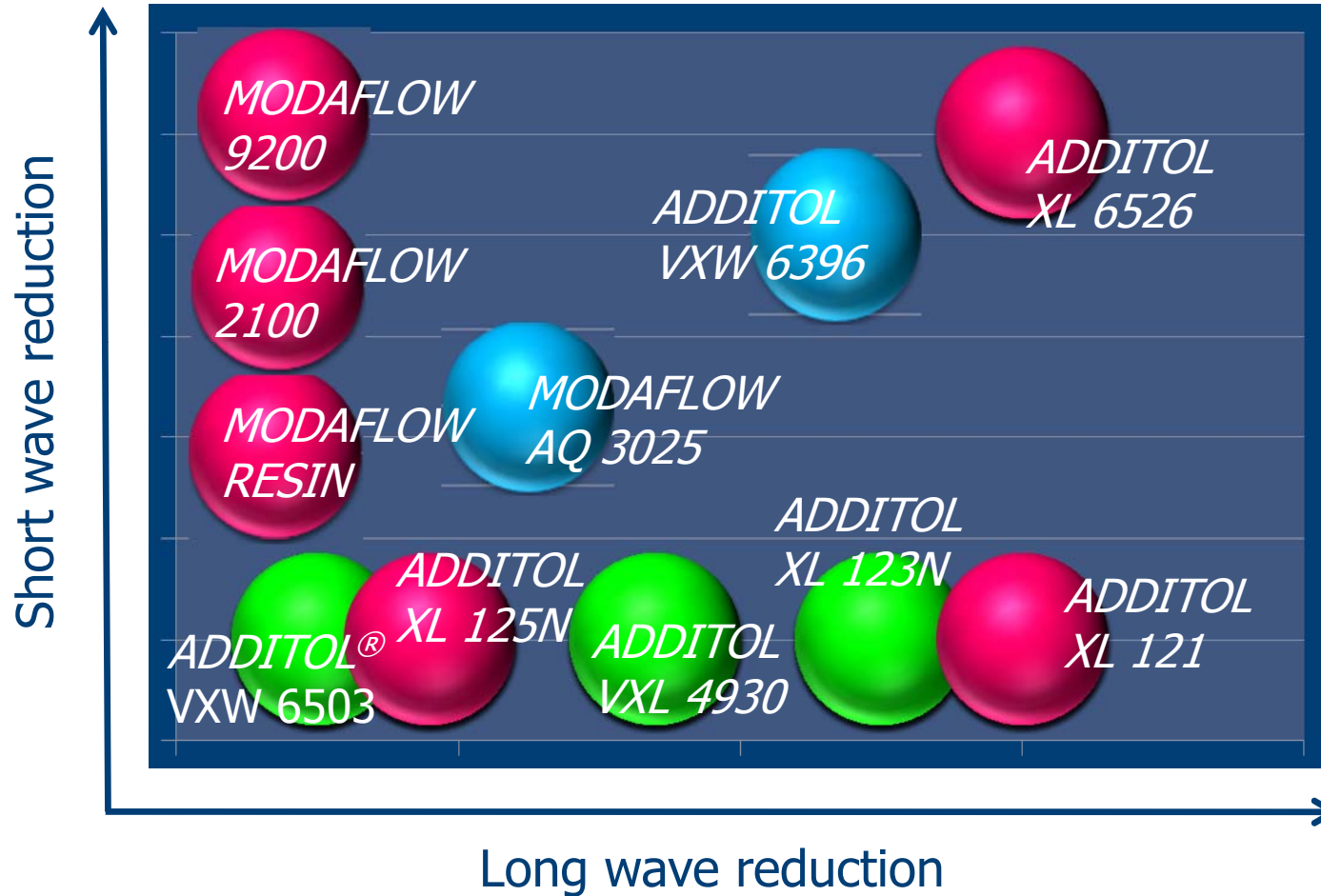
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ADDITOL® & MODAFLOW®



Leveling additives

(Meth-) acrylic copolymers

New development
High solids, solventborne
ADDITOL® XL 6526



Better appearance

Flow & Leveling, reduce defects, improve gloss



Better performance

Improve substrate wetting, improve slip



Better economics

Low dosage (100% active)



Leveling additives

Outlook



Improved slip / scratch resistance
ADDITOL project



Flow promoter with slip and substrate wetting performance
MODAFLOW project



T H A N K

Y O U

**for your
attention**



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