



Neuburg Siliceous Earth
in UV clear coat – excimer curing
Constant matting with unique filler



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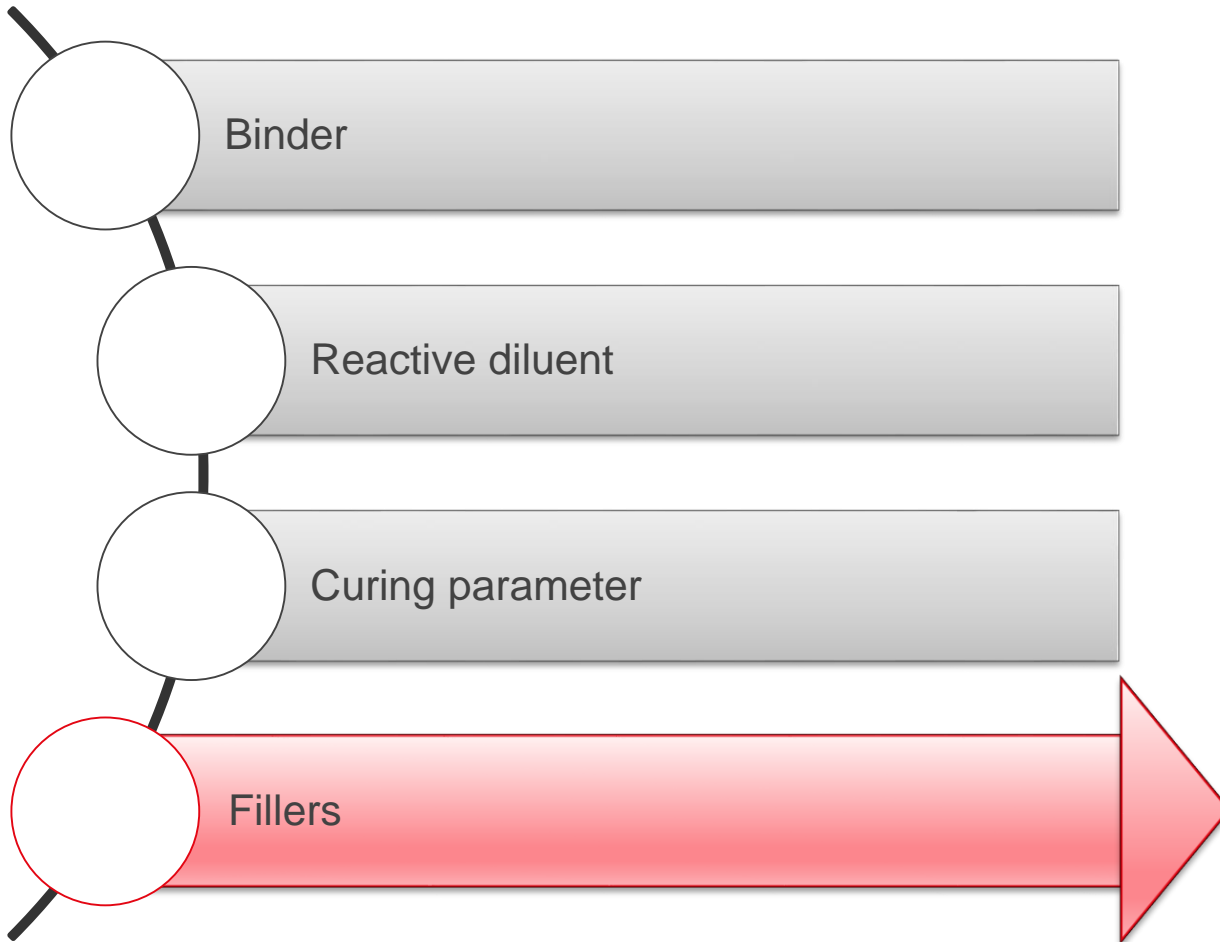


Status Quo



Objective

Influencing factors on the folding and matting of the excimer curing



Silica gel
Matting Silica

Neuburg Siliceous Earth

Sillitin V 88 Aktisil MAM



Base formulation

	Formulation A	Formulation B
Polyester unsaturated	55	
Urethane acrylate highly functional	22	
Polyester acrylate flexible		40
Polyester acrylate high functional		37
Matting Silica or Neuburg Siliceous Earth		5
Reactive diluent difunctional		16.4
Photoinitiator MAPO liquid (Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate)		0.3
Photoinitiator HCPK (1-Hydroxycyclohexylphenylketone)		0.5
Defoamer		0.3
Leveling additive		0.5
Total	100.0	100.0

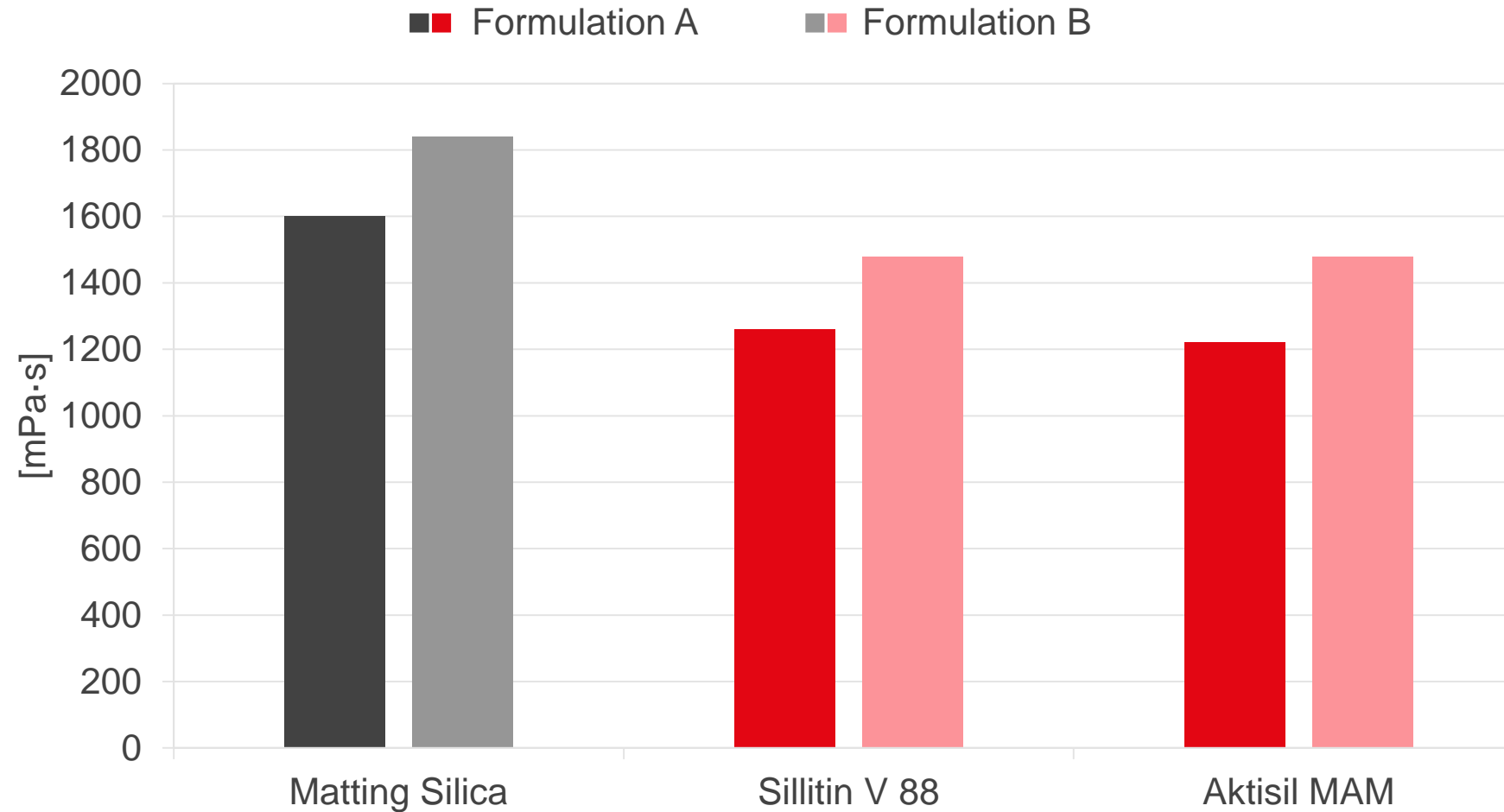


Filler characteristics

	Particle size		Oil absorption [g/100g]	Specific surface area BET [m ² /g]	Special characteristics Surface treatment
	d ₅₀ [μm]	d ₉₇ [μm]			
Matting Silica Silica gel	6	11	320	400	-
Sillitin V 88	4	18	45	8	-
Aktisil MAM	4	18	45	7	methacrylic functionalized



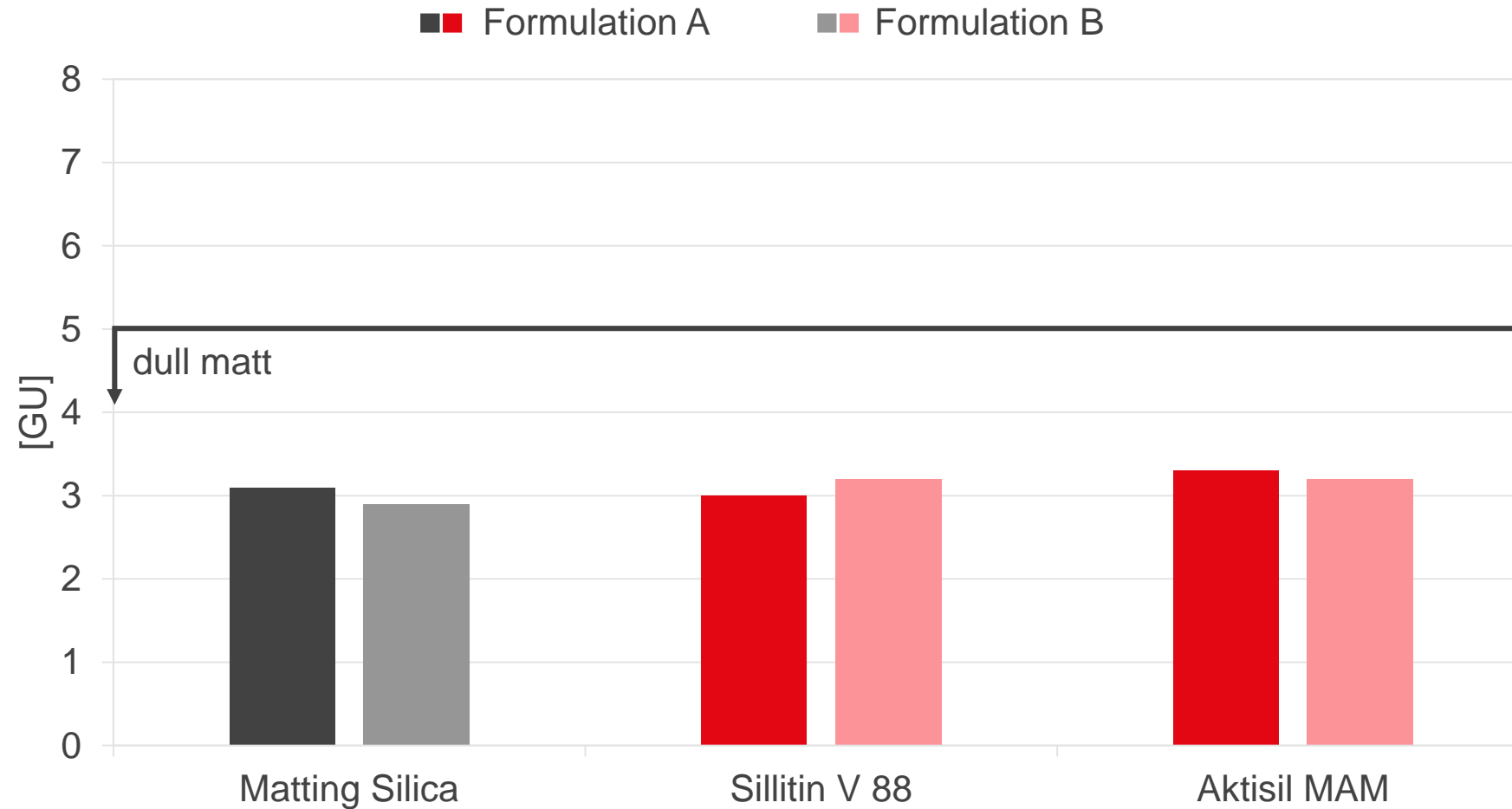
Viscosity



With **Neuburg Siliceous Earth**
20 % lower
viscosity than
with the Matting
Silica



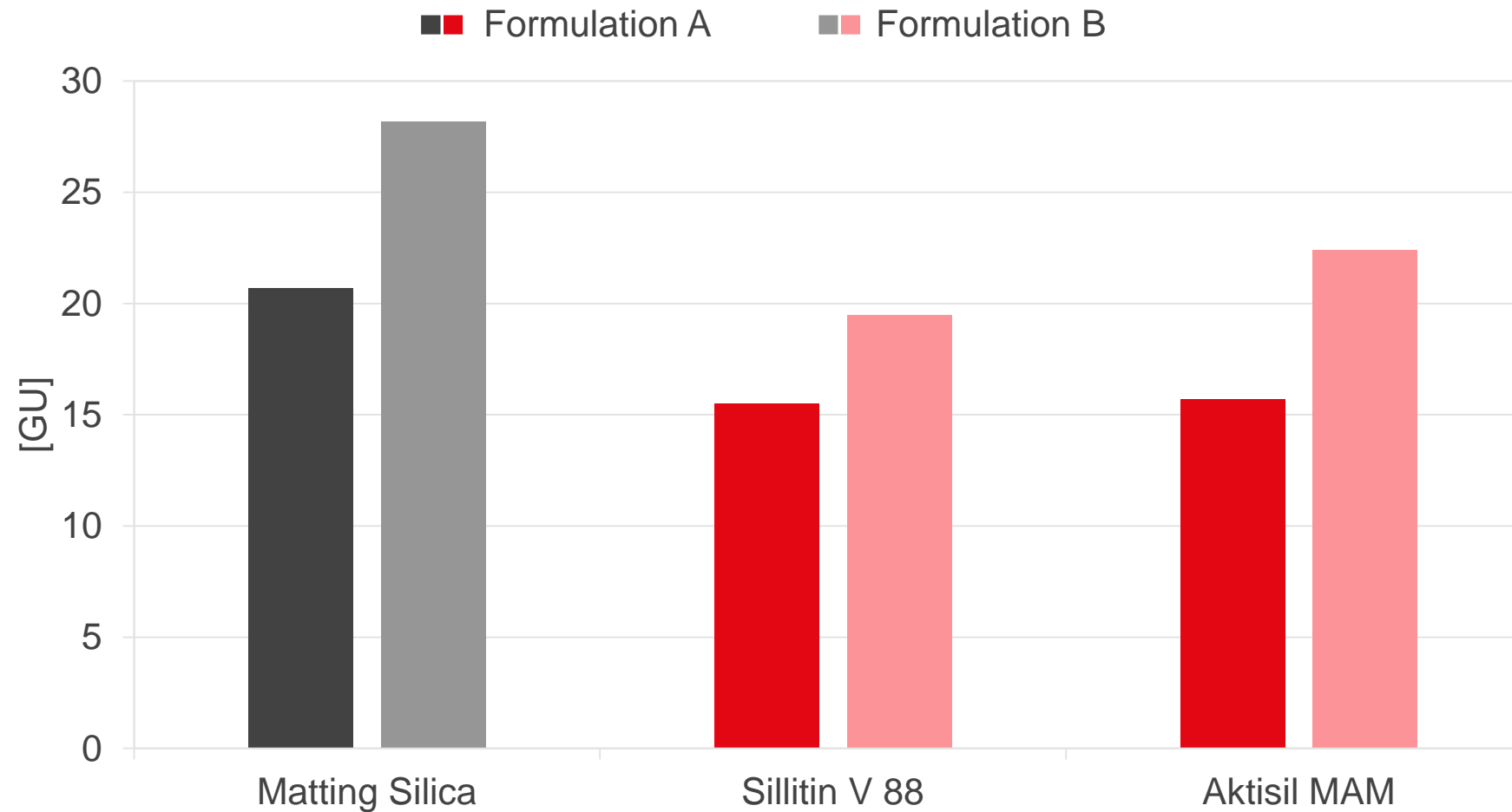
Gloss 60°



With Neuburg
Siliceous Earth
dull matte
surface, equal to
the Matting Silica



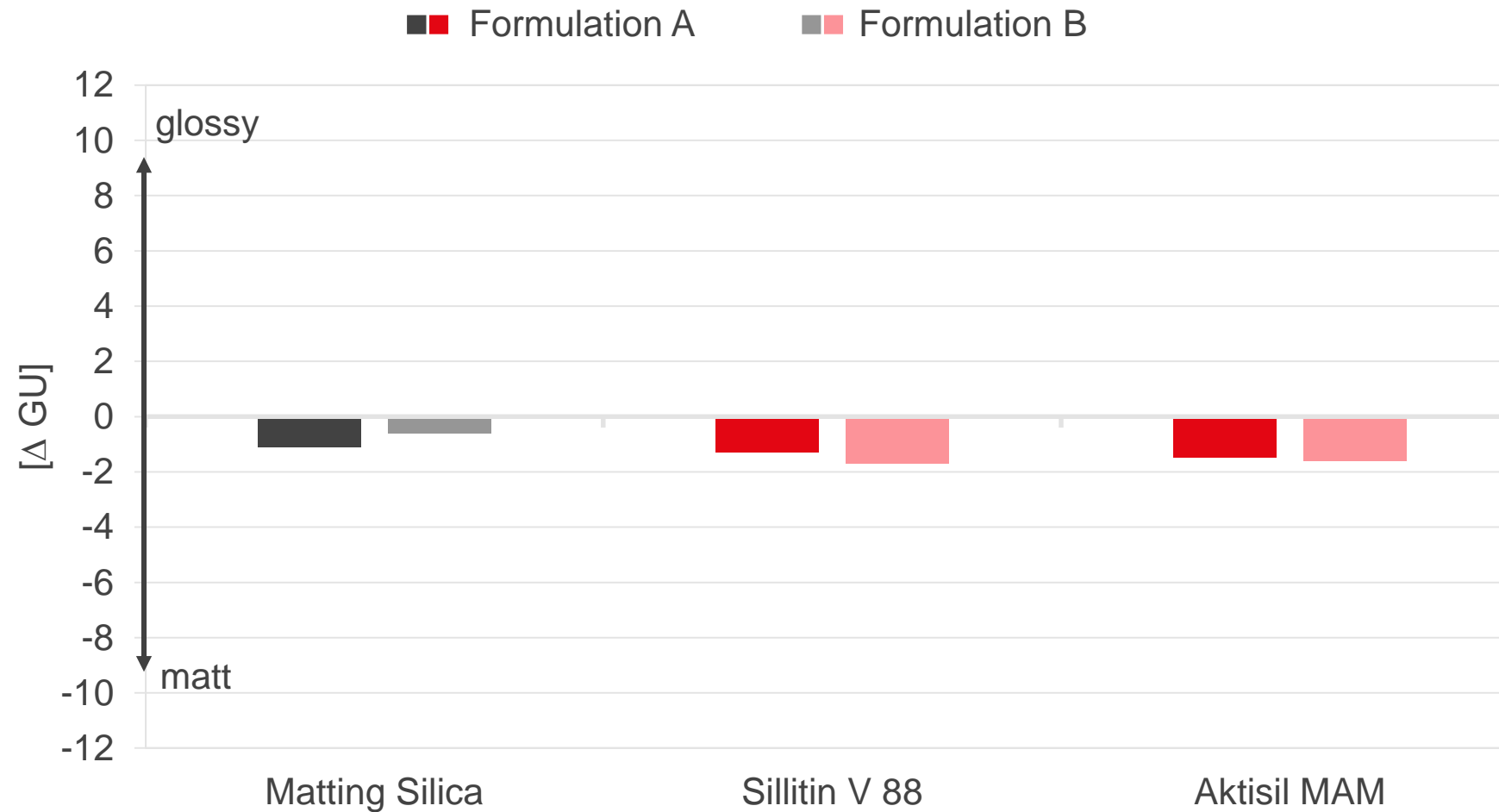
Gloss 85°



With Neuburg
Siliceous Earth
25 % more
matting than with
the Matting Silica



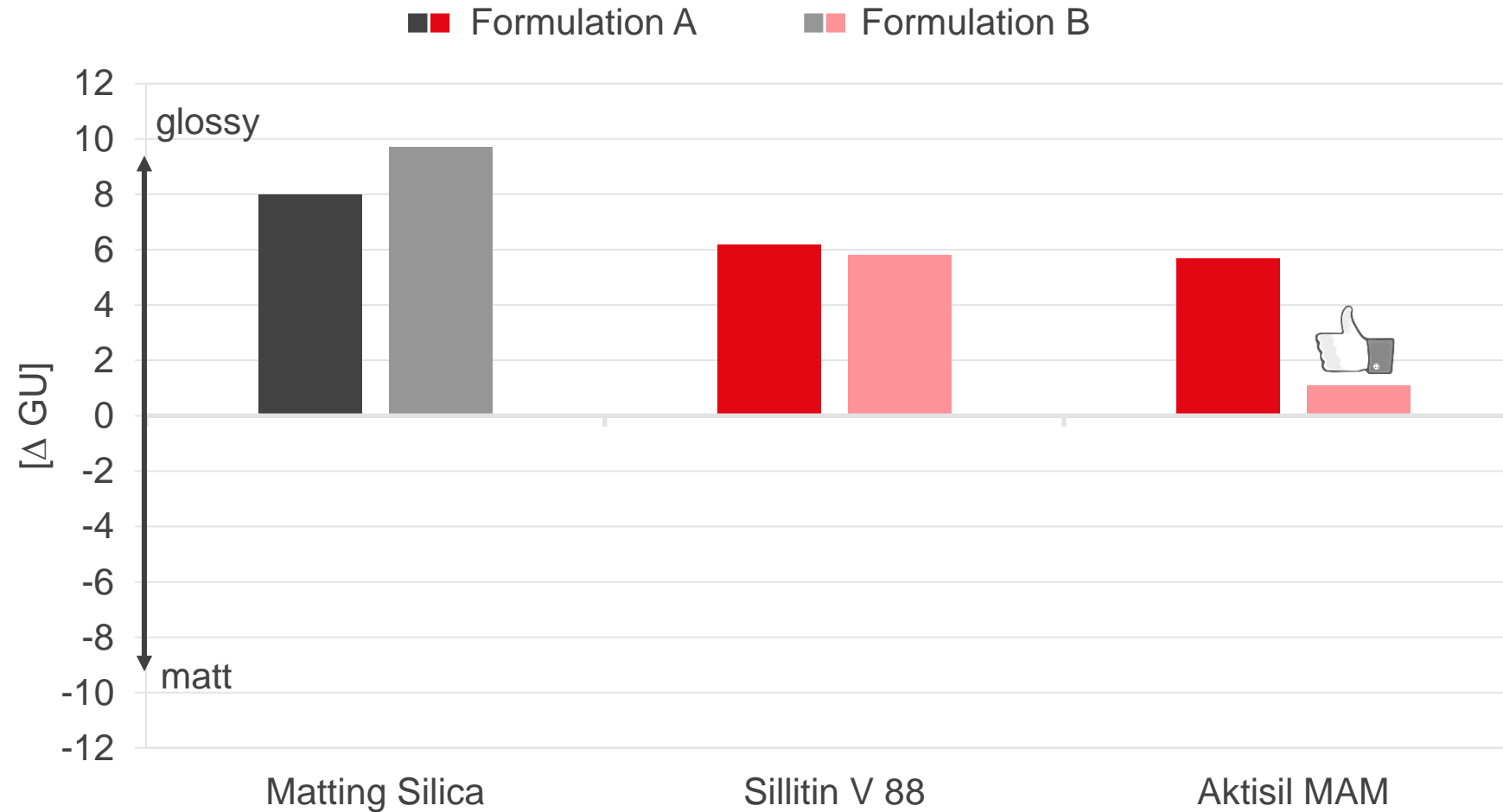
Scratch test with Martindale method A – change in gloss 60°

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With Neuburg
Siliceous Earth
no polishing up
after the scratch
test



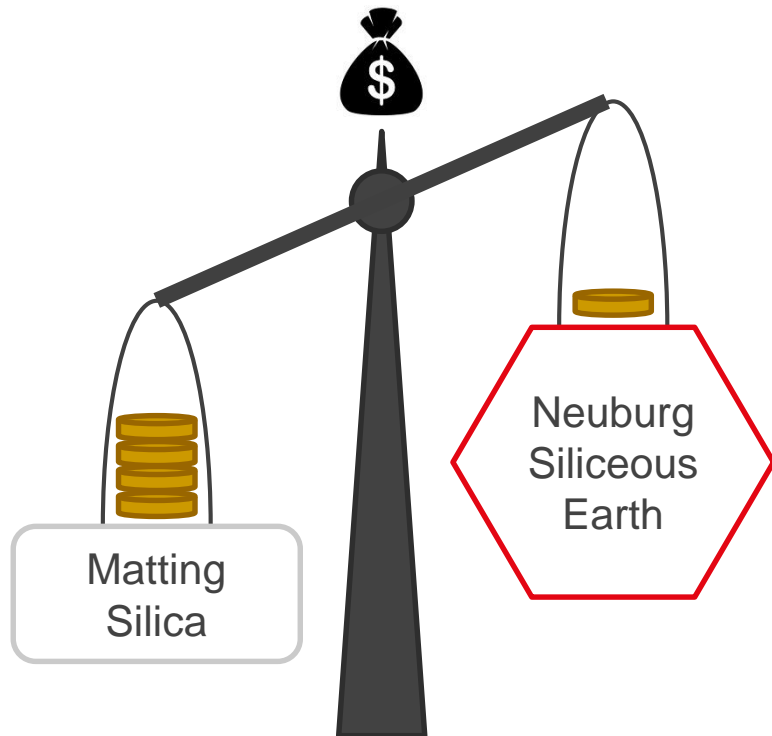
Scratch test with Martindale method A – change in gloss 85°



With **Neuburg Siliceous Earth** less polishing up (burnishing), especially with Aktisil MAM in Formulation B



Conclusion



The special advantages of **Neuburg Siliceous Earth** in UV clear coats with excimer curing are:

- + Low viscosity of the liquid lacquer
- + Consistently strong matting
- + No polishing up (burnishing) after scratch test (Martindale)
- + Potential for cost reduction of matting agent up to 80 %

Warm and special thanks to BASF for the close cooperation as well as the execution of the experiments and the provision of the results!



We supply material for good ideas!

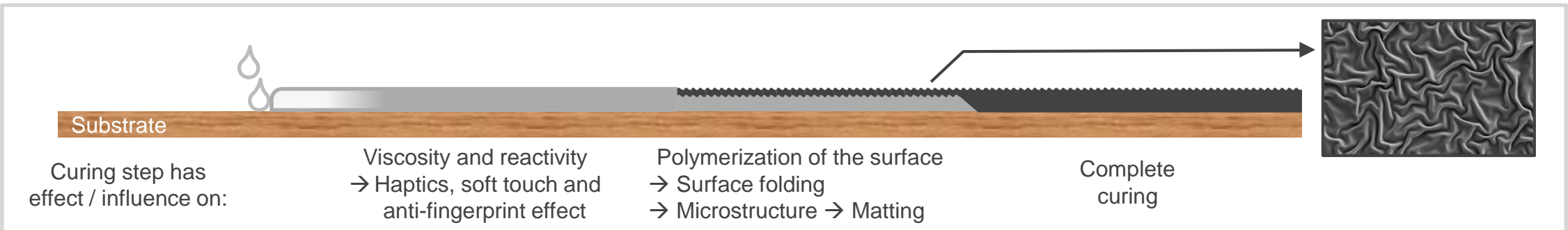
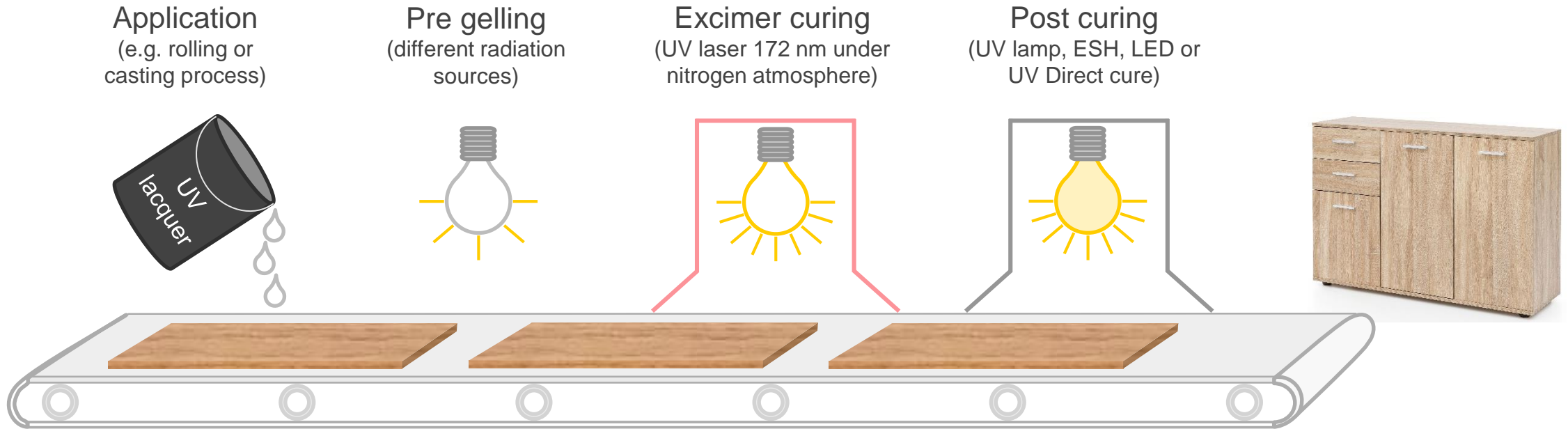
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Excimer curing – functionality





Scratch test with Martindale method A



Quelle: Mess Werkstoff - Prüfgeräte

- Usually a device for testing the abrasion resistance of textiles
- Other uses as a testing device for scratch tests and polishing up e. g. of coatings
- Coating surface is subjected to a defined period of pressure and a fixed pattern of movement with a abrasive sponge
- Subsequent evaluation visually of the surface and by gloss measurement

