



# Efka<sup>®</sup> PB 2770

**Silicone-free, 100% defoamer  
for radiation curing systems**

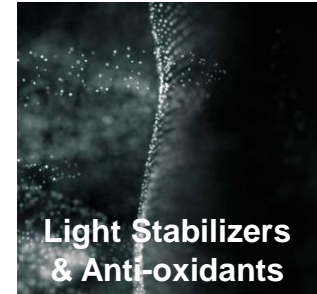
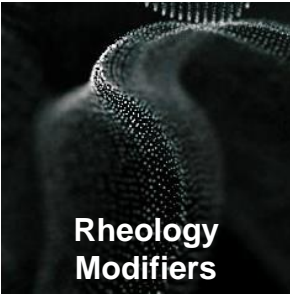
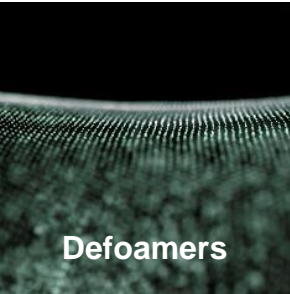
Ludwigshafen, April 3rd, 2020



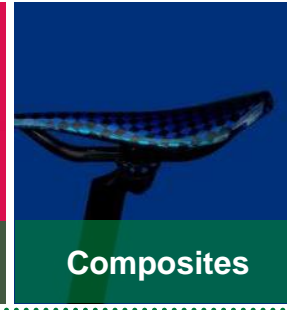
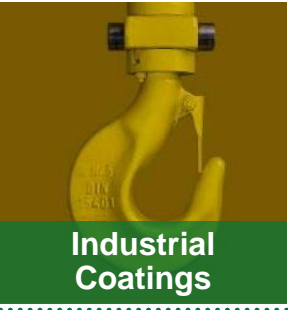
# Agenda

1. Introduction
2. Performance Highlights Furniture & Flooring
3. Performance Highlights Overprint Varnishes
4. Summary

# Our comprehensive portfolio enables solutions for various industries



BASF is the premiere provider of **Performance & Formulation Additives** for the paints and coatings industry



# Strong brands to empower your business

Water-based brands	Application	Solvent-based* brands
Dispex <sup>®</sup> / Dispex <sup>®</sup> Ultra	DISPERSING AGENTS	Efka <sup>®</sup>
Foamaster <sup>®</sup> / FoamStar <sup>®</sup>	DEFOAMERS	Efka <sup>®</sup>
Rheovis <sup>®</sup> (organic) / Attagel <sup>®</sup> (clays)	RHEOLOGY MODIFIERS	Efka <sup>®</sup>
Hydropalat <sup>®</sup>	WETTING AGENTS	Efka <sup>®</sup>
Loxanol <sup>®</sup>	FILM-FORMING AGENTS	Efka <sup>®</sup>
Tinuvin <sup>®</sup> / Lignostab <sup>®</sup>	LIGHT STABILIZIERS	Tinuvin <sup>®</sup> / Chimassorb <sup>®</sup>
Irganox <sup>®</sup>	ANTIOXIDANTS	Irganox <sup>®</sup> / Irgafos <sup>®</sup> / Irgastab <sup>®</sup>

\*Efka<sup>®</sup> includes also High Solids and 100% Solid Systems



# Efka® PB 2770

Silicone-free, 100% defoamer for radiation curing systems



## Application:

Efka® PB 2770 is a new, silicone-free, 100% active defoamer for radiation curing systems offering excellent foam-breakdown and outstanding compatibility.

Efka® PB 2770 is an excellent deaerator and defoamer for universal use in clear and pigmented UV curable formulations, composites, gel coats, cast resins and adhesives.

## Sustainability highlights:

- Silicone-free
- 100% active

## Performance highlights:

- Silicone-free, polymer-based defoamer
- Outstanding compatibility in various systems
- Excellent recoatability
- Suitable for typical F&F applications like roller and curtain coater

## Characteristic Values:

Appearance	Clear yellowish liquid
Density at 20°C	~ 0.96 g/cm <sup>3</sup>
Viscosity	~ 1800 mPa·s

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# Efka® PB 2770

## Product benefits

- Silicone-free, polymer-based defoamer
- Outstanding compatibility in various systems
- Excellent recoatability
- Suitable for typical F&F applications like roller and curtain coater
- 100% active

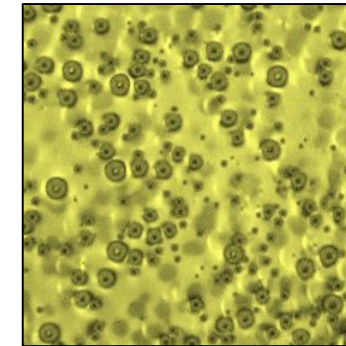
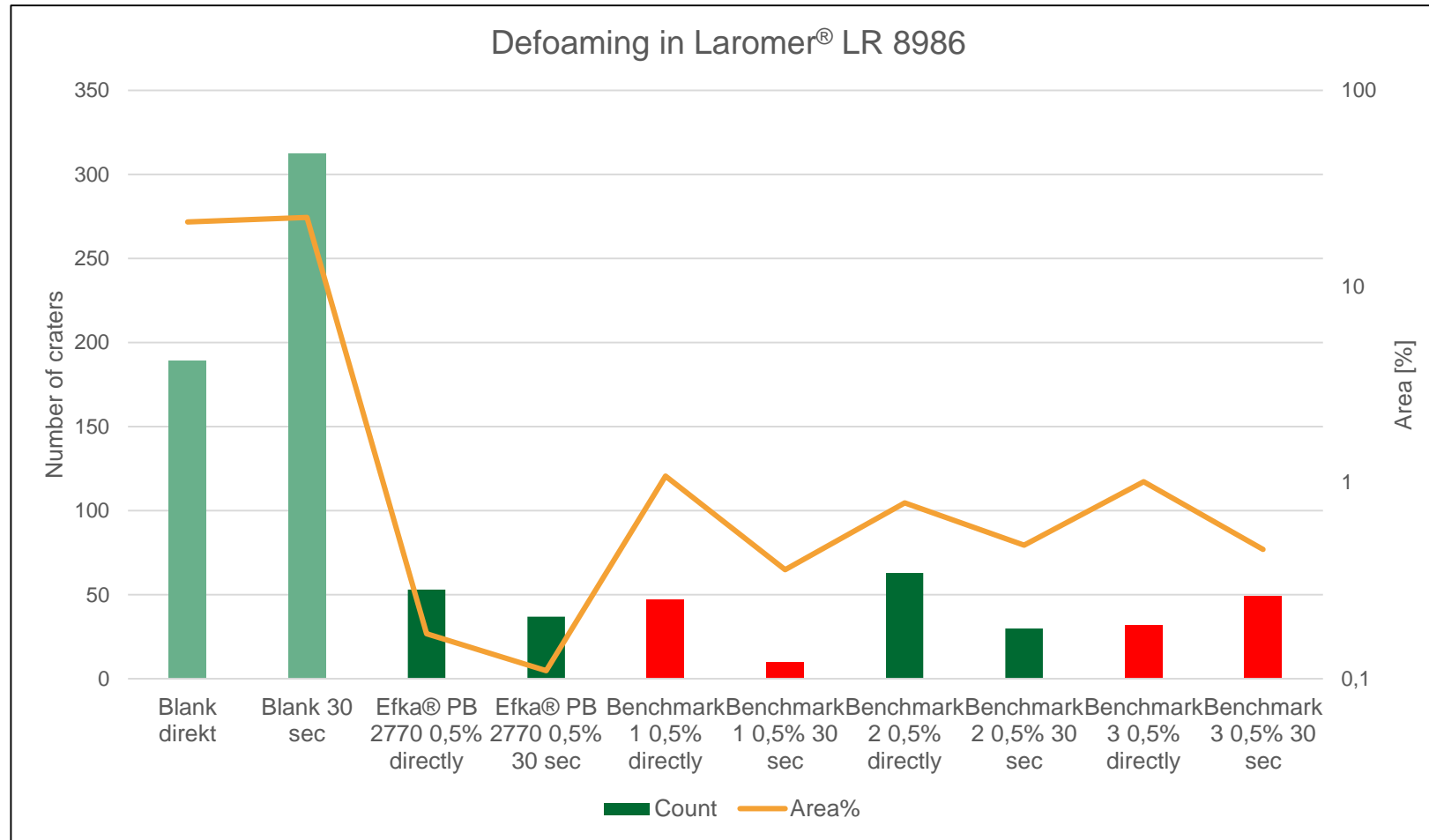


# Test Methods

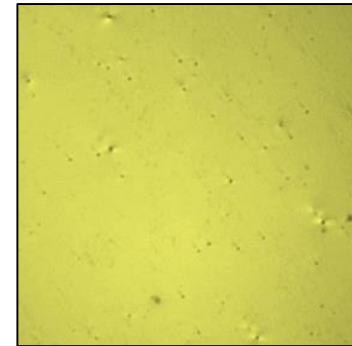
Test	Method
Defoaming	Stir the sample 3 min @ 2000 RPM, apply the coating two times on foil by wire-bar (100µm). Cure one application immediately after draw-down and the other one after 30 sec rest. Make pictures via microscope and evaluate foam bubbles count/area with an analytical software (Fiji).
Defoaming during application - curtain coater	Pump material into the system without any defoamer. Make pictures of the curtain. Add defoamer to the test material. Wait until defoamer starts working. Make pictures of the curtain.



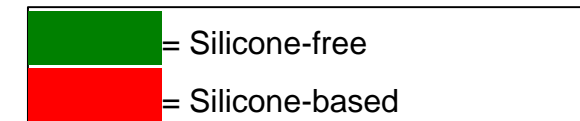
# Performance in 100% Epoxy-Acrylate



Defoaming without defoamer



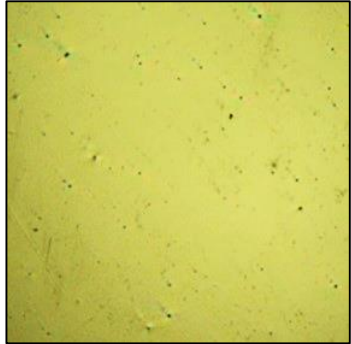
Defoaming with 0,5% Efka® PB 2770



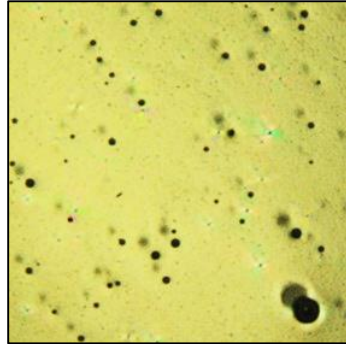
**Efka® PB 2770 shows better defoaming (less macro foam) than benchmarks.**

# Performance in 100% Epoxy-Acrylate - Laromer® LR 8986

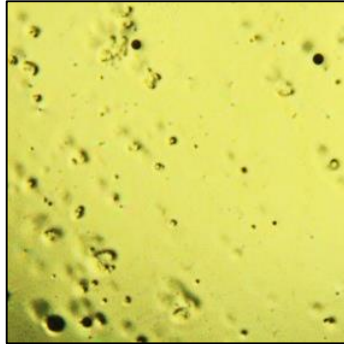
Efka® PB 2770



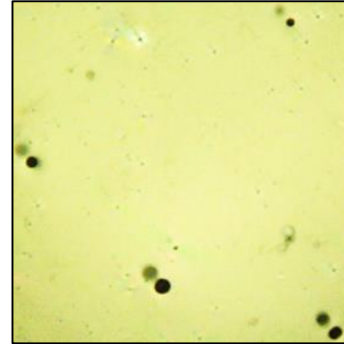
Benchmark 1\*



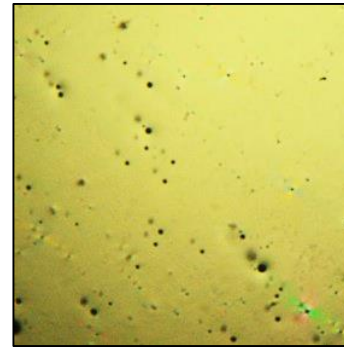
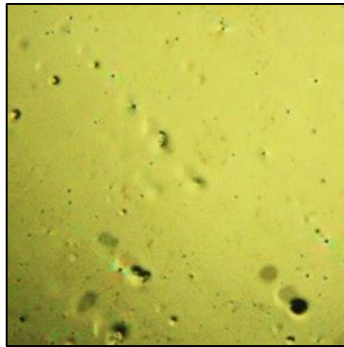
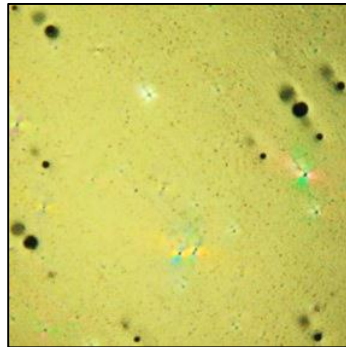
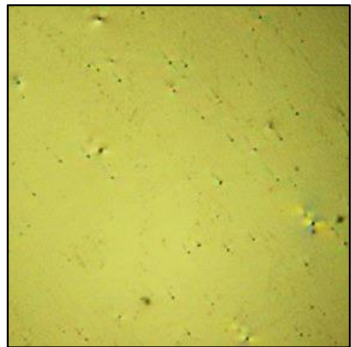
Benchmark 2



Benchmark 3\*



Immediately after the influence of shear forces

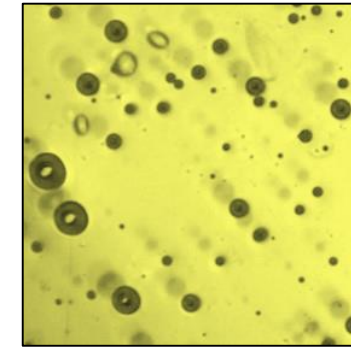
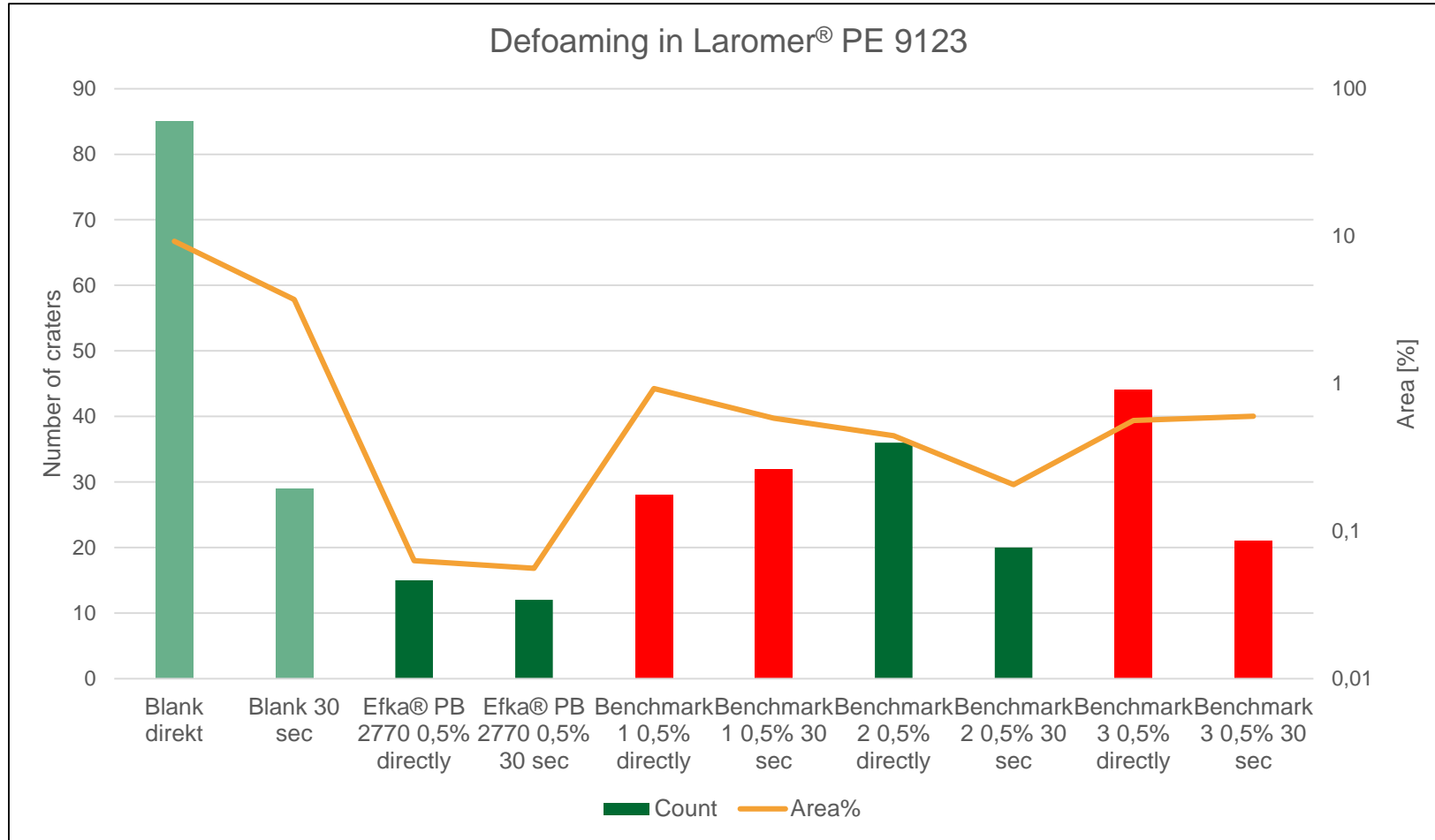


30 seconds after the influence of shear forces

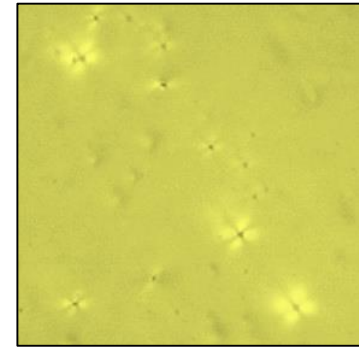
\*silicone-based

Polymer-based Efka® PB 2770 avoids foam better than silicone-based and polymer-based benchmarks → crater prevention.

# Performance in 100% Polyester-Acrylate



Defoaming without defoamer



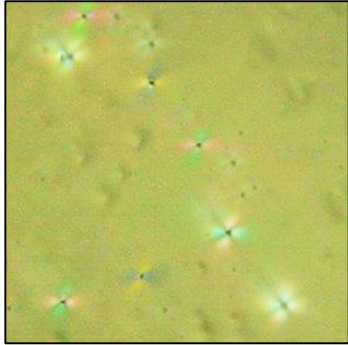
Defoaming with 0,5% Efka® PB 2770

= Silicone-free  
 = Silicone-based

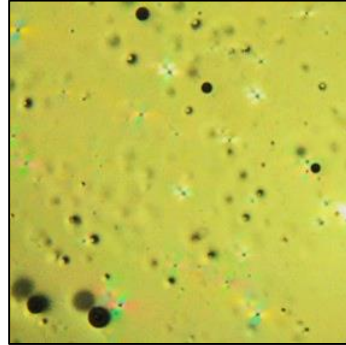
**Efka® PB 2770 shows better defoaming (less macro foam) than benchmarks.**

# Performance in 100% Polyester-Acrylate - Laromer® PE 9123

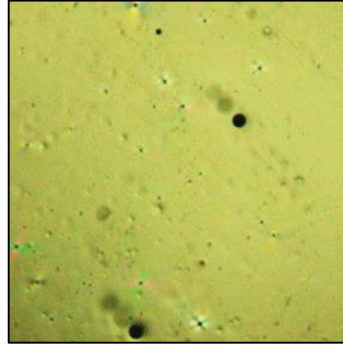
Efka PB 2770



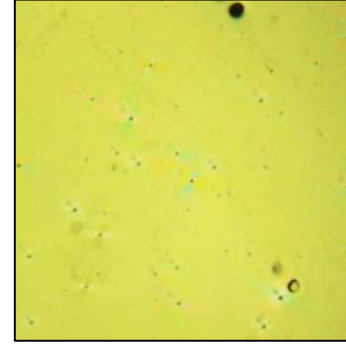
Benchmark 1\*



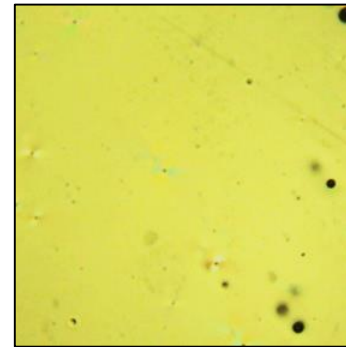
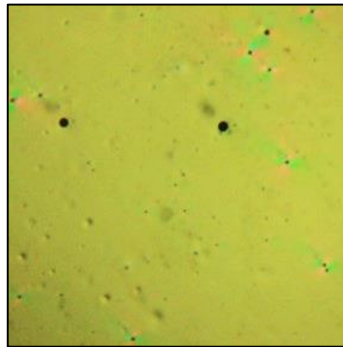
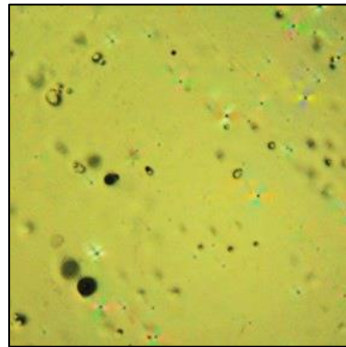
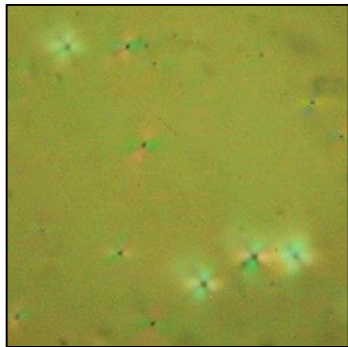
Benchmark 2



Benchmark 3\*



Immediately after the influence of shear forces

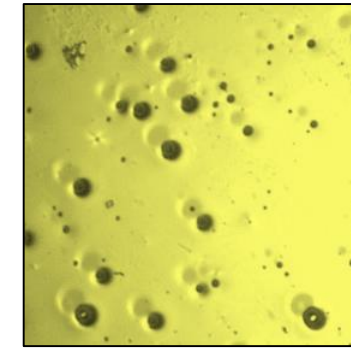
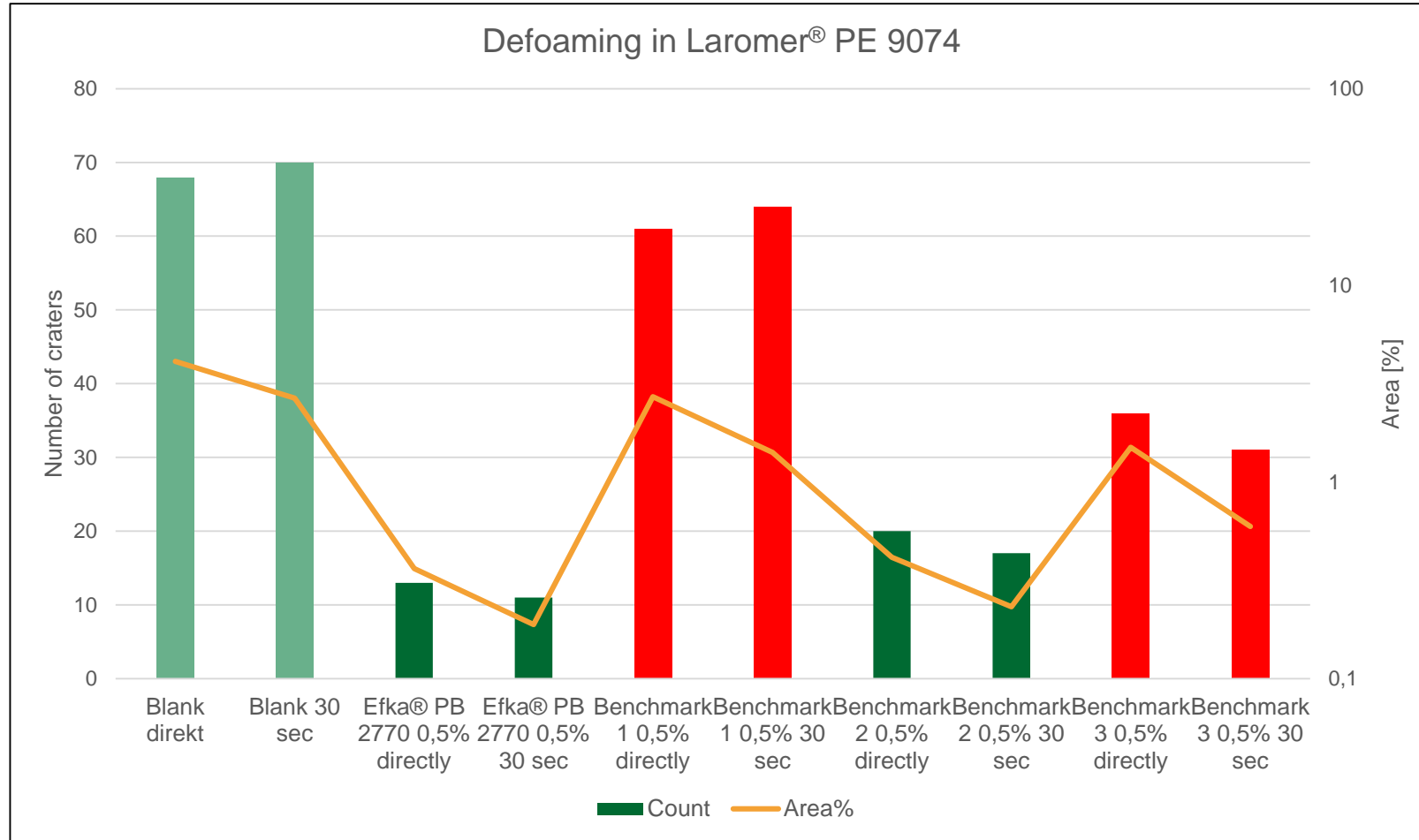


30 seconds after the influence of shear forces

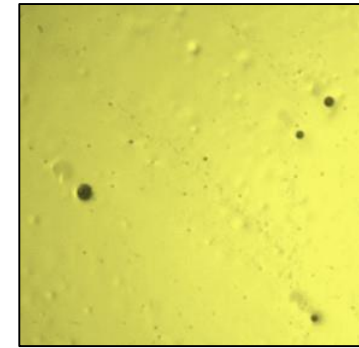
\*silicone-based

Polymer-based Efka® PB 2770 avoids foam better than silicone-based and polymer-based benchmarks → crater prevention.

# Performance in 100% Polyester-Acrylate



Defoaming without defoamer



Defoaming with 0,5% Efka® PB 2770

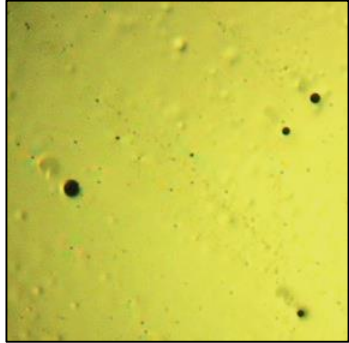
= Silicone-free  
 = Silicone-based

**Efka® PB 2770 shows better defoaming (less macro foam) than benchmarks.**

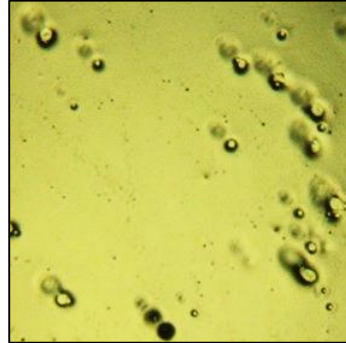


# Performance in 100% Polyester-Acrylate - Laromer® PE 9074

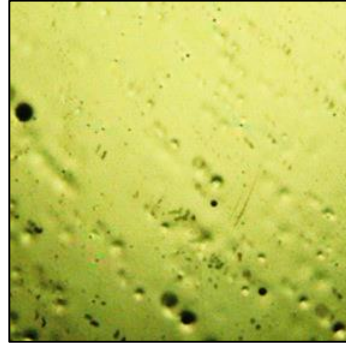
Efka®PB 2770



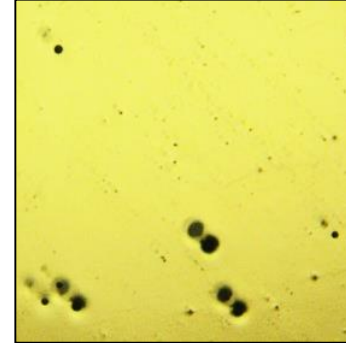
Benchmark 1\*



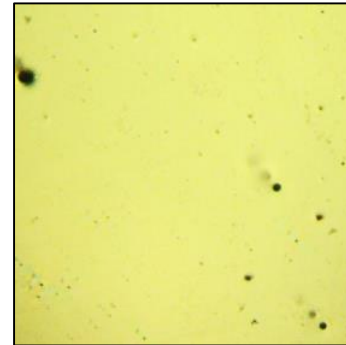
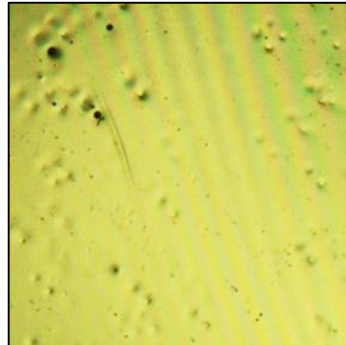
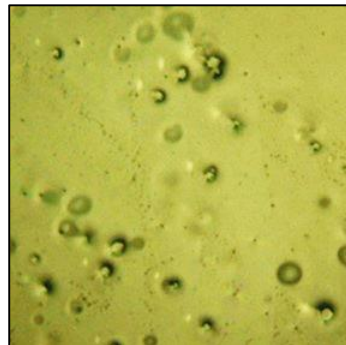
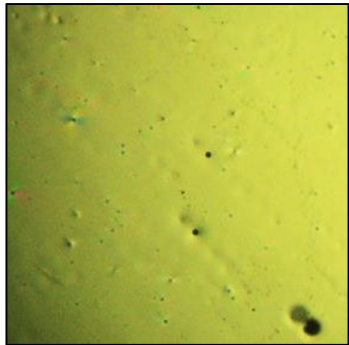
Benchmark 2



Benchmark 3\*



Immediately after the influence of shear forces



30 seconds after the influence of shear forces

\*silicone-based

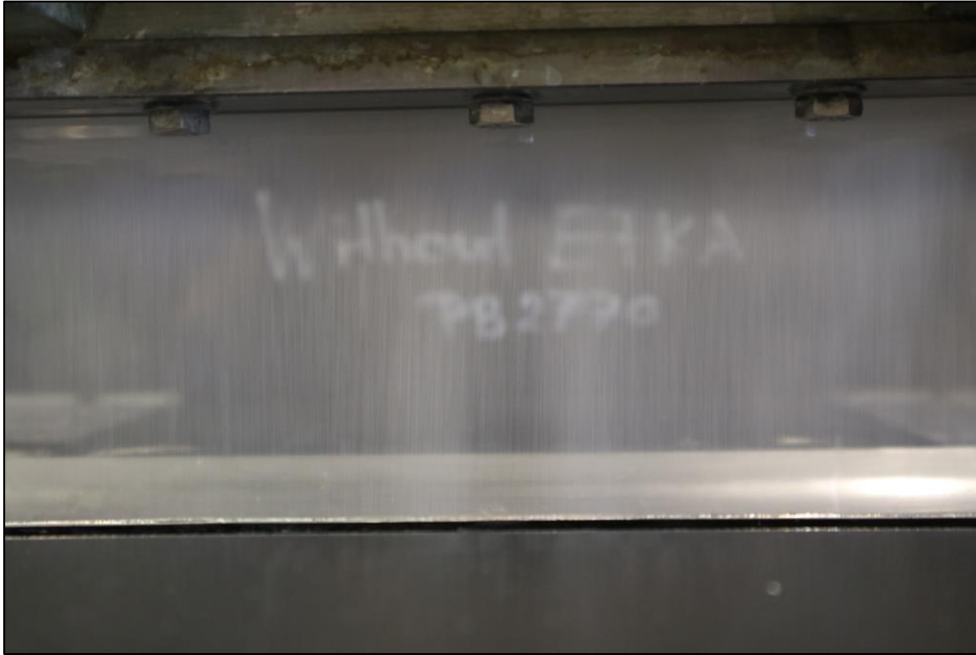
Polymer-based Efka® PB 2770 avoids foam better than silicone-based and polymer-based benchmarks → crater prevention.

# Defoaming during application – curtain coater

Product	Amount
Laromer <sup>®</sup> PE 9123	47
Laromer <sup>®</sup> HDDA	50
Omnirad <sup>®</sup> TPO-L	2
Efka <sup>®</sup> FL 3772	1

Curtain coater formulation was put on the curtain coater without a defoamer to generate foam. After evaluating, 0.5% Efka<sup>®</sup> PB 2770 was added to the system.

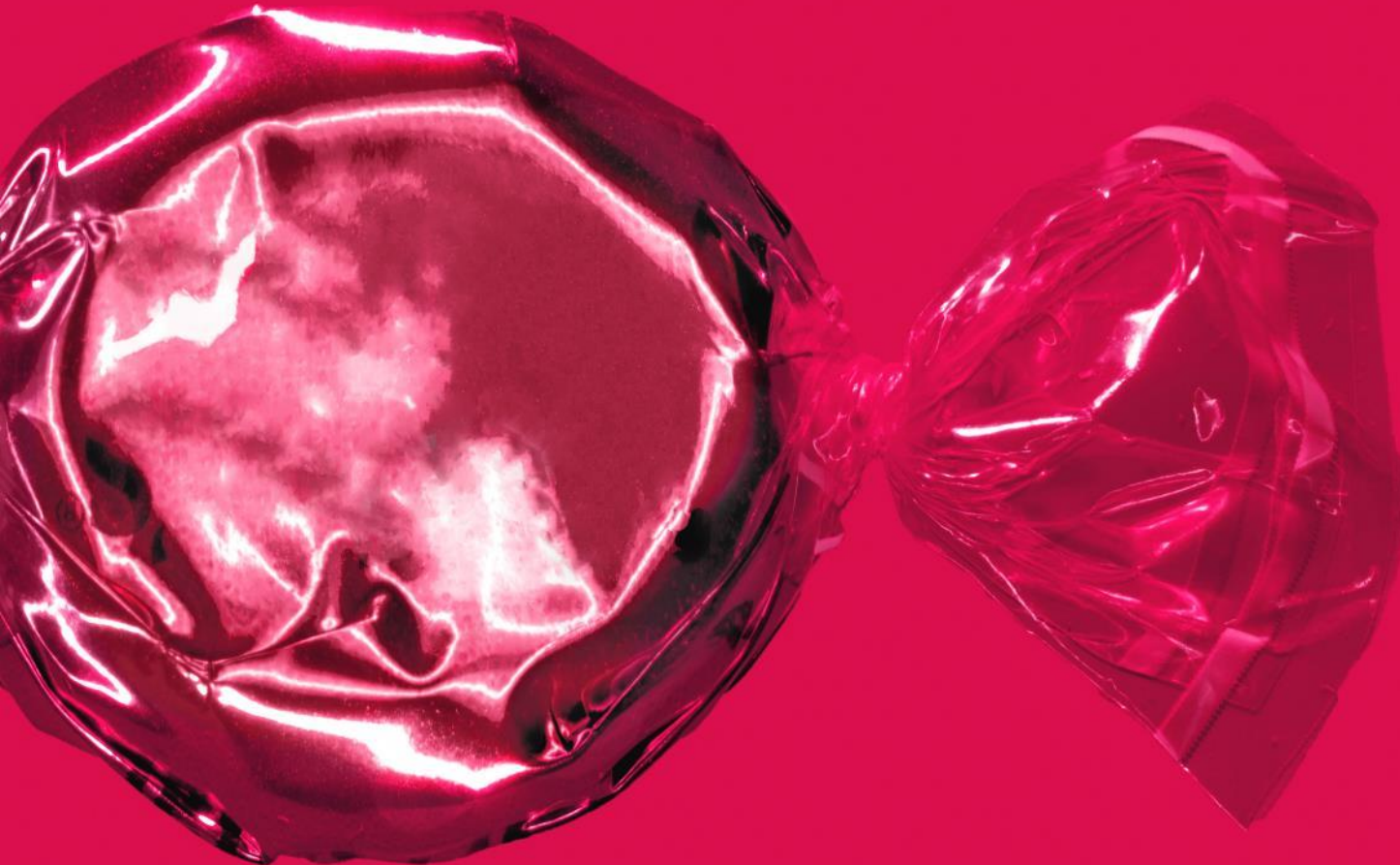
# Defoaming during application – curtain coater



Efka® PB 2770 is a highly efficient defoamer for typical furniture applications like curtain coater.

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## Efka® PB 2770

A new silicone-free, polymer based 100% active defoamer for P&P applications with following benefits:

- Silicone-free, polymer based defoamer
- 100% active
- Outstanding compatibility in various systems
- Excellent recoatability and hot foil stampability
- Suitable for typical UV ink and OPV systems



# Test Methods

Test	Method
Defoaming (foam height)	Stir the sample 1 min @ 2000 RPM in a 250 mL glass jar. Measure the foam height [cm] immediately after stirring.
Density	Stir the sample 3 min @ 5000 RPM. Measure density immediately after stirring. Store the samples 2 weeks @ 50°C and repeat the process.
Gloss	Measure gloss with BYK trigloss meter @ 60°

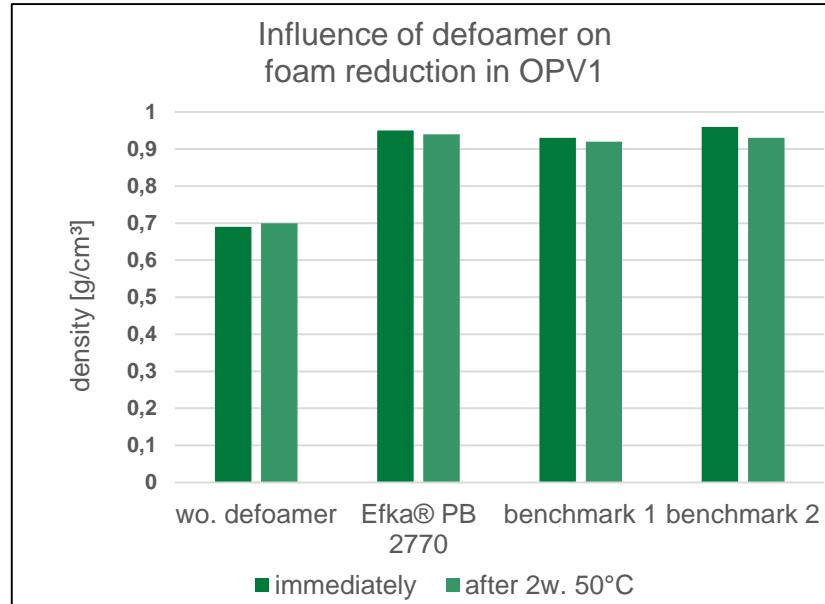
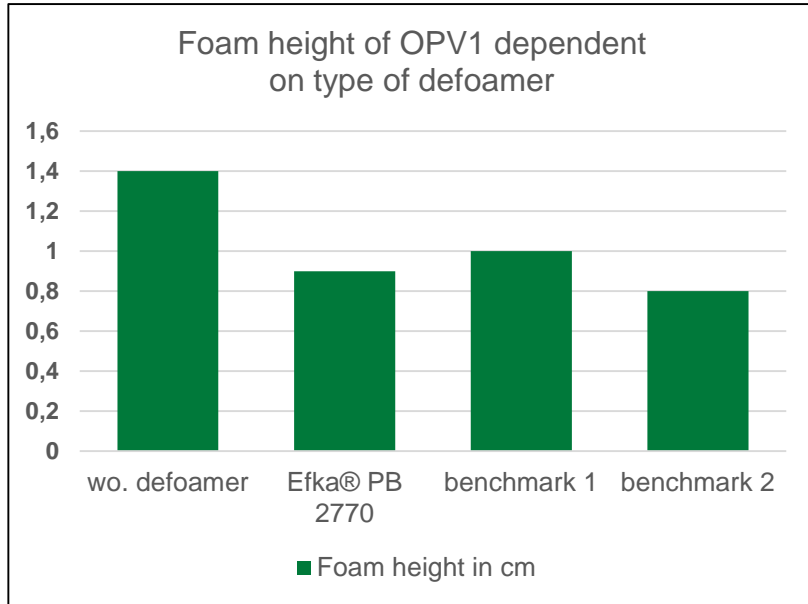
# Efka® PB 2770 in P&P applications – UV-OPVs

Overprint varnish 1	
Laromer® EA 9138	39.5
Laromer® TPGDA	23.5
Laromer® TMPTA	23
Efka® SL 3259	1
Defoamer	0.5
Laromer® PO 8956 M	5.5
Omnirad® 500	7

Overprint varnish 2	
Laromer® PO 94 F	53.5
Laromer® GPTA	35
Laromer® TPGDA	3
Efka® SL 3259	1
Defoamer	0.5
Omnirad® 500	7

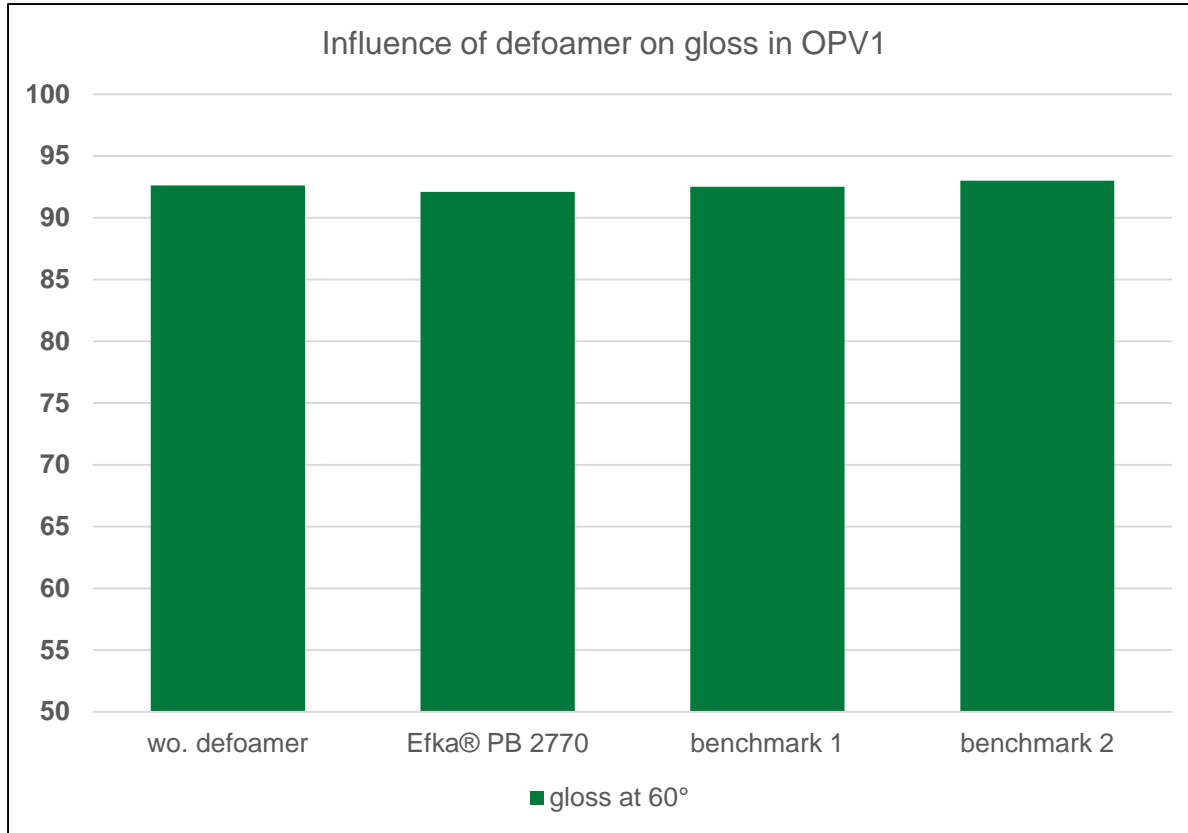
Overprint varnish 3	
Laromer® PO 94 F	20
Laromer® LR 8863	31.2
Laromer® LR 8986	42.5
Efka® SL 3259	1
Defoamer	0.5
Omnirad® 127	4.8

# Defoaming effect of Efka® PB 2770 in OPV 1



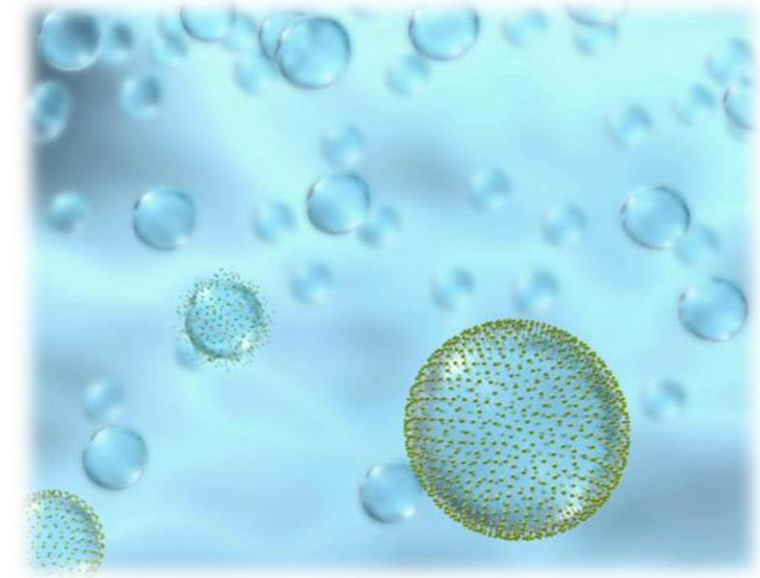
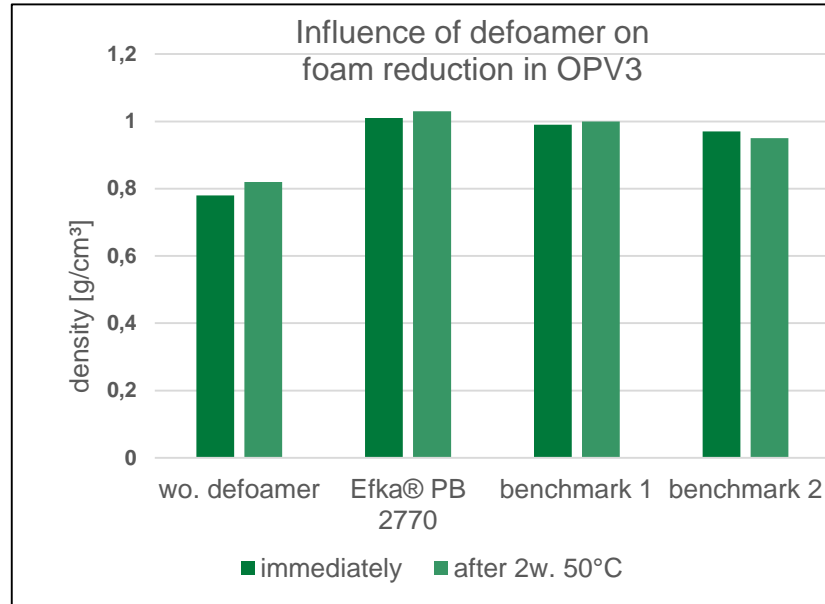
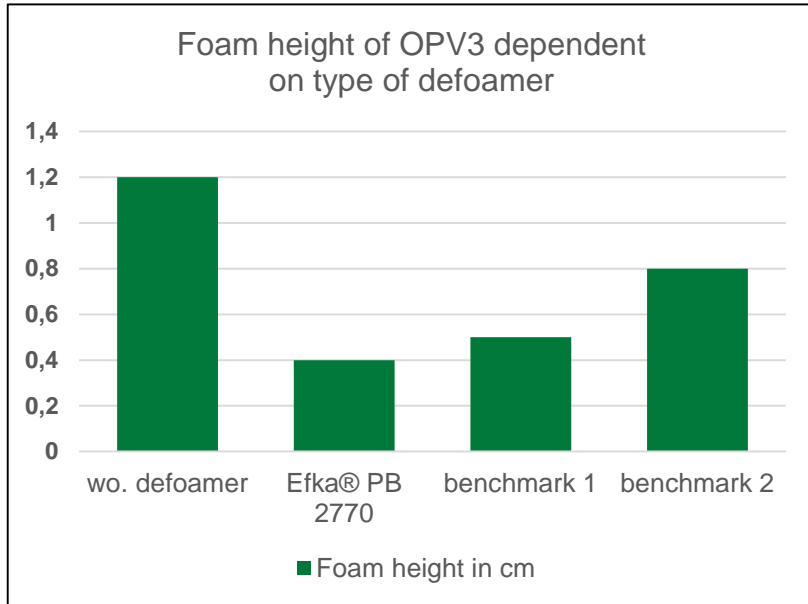
**Efka® PB 2770 is highly efficient against macro- and micro-foam compared to market standards.**

# Influence on gloss with Efka® PB 2770 in OPV 1



Due to very good compatibility Efka® PB 2770 shows little to no influence on gloss.

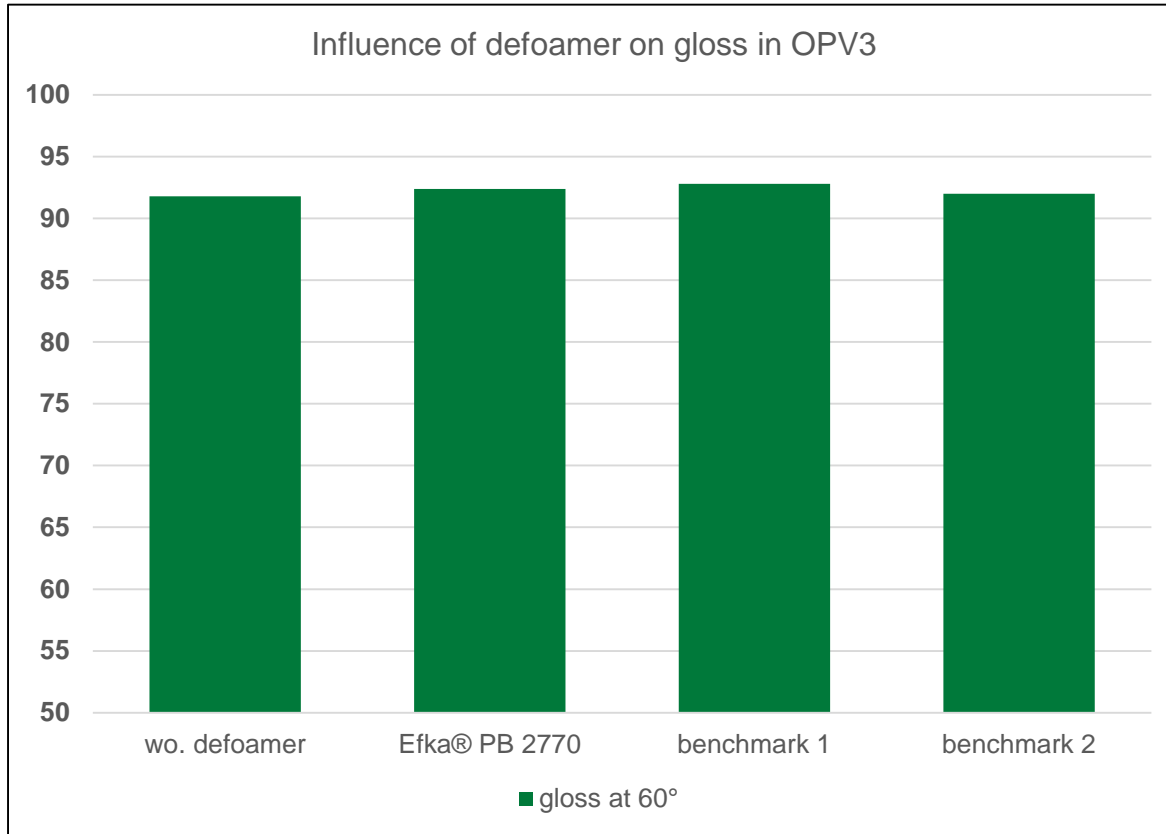
# Defoaming effect of Efka® PB 2770 in OPV 3



**Efka® PB 2770 is highly efficient against macro- and micro-foam compared to market standards.**



# Influence on gloss with Efka® PB 2770 in OPV 3



Due to very good compatibility Efka® PB 2770 shows little to no influence on gloss.

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# Efka® PB 2770

## Summary

### ■ Efka® PB 2770

- ▶ is a new, silicone-free, 100% active defoamer
- ▶ offers excellent foam-breakdown and outstanding compatibility in various systems
- ▶ is suitable for radiation curing systems, composites, gel coats, cast resins and adhesives
- ▶ can be used universally in clear and pigmented UV curable coatings with excellent recoatability



# Contacts



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We create chemistry



# Disclaimer

## ■ Safety

When handling the mentioned products, please comply with the advice and information given in the safety data sheets and observe protective and workplace hygiene measures adequate for handling chemicals.

## ■ Note

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our products, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights, etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. The agreed contractual quality of the product results exclusively from the statements made in the product specification. It is the responsibility of the recipient of our product to ensure that any proprietary rights and existing laws and legislation are observed.