

Novel Defoamers for Architectural Systems – Achieving the Ideal Efficiency and Compatibility Profile

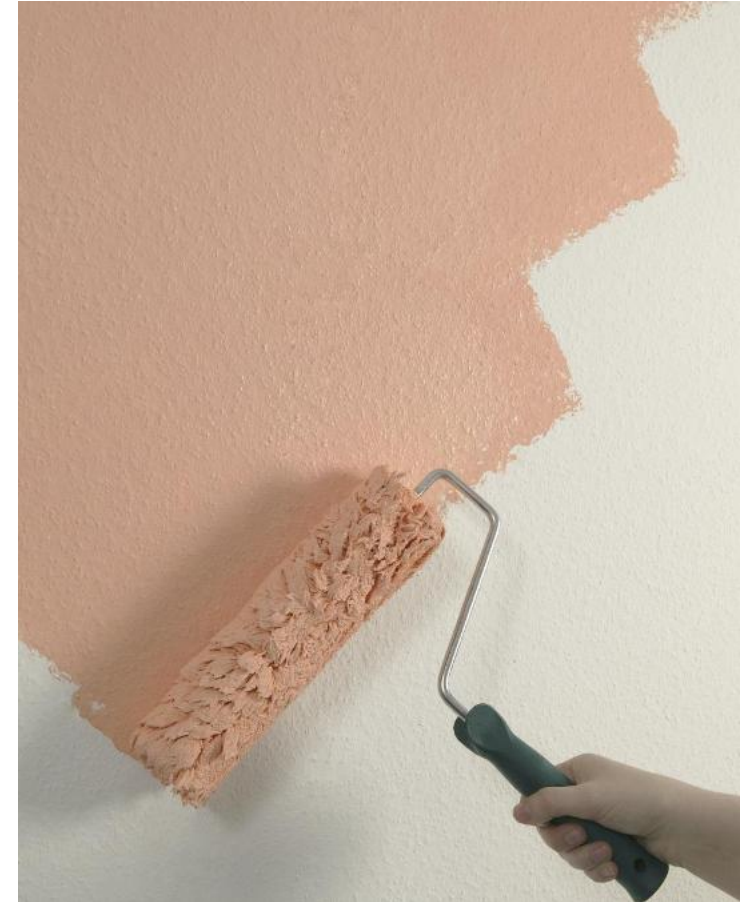
26th November 2024

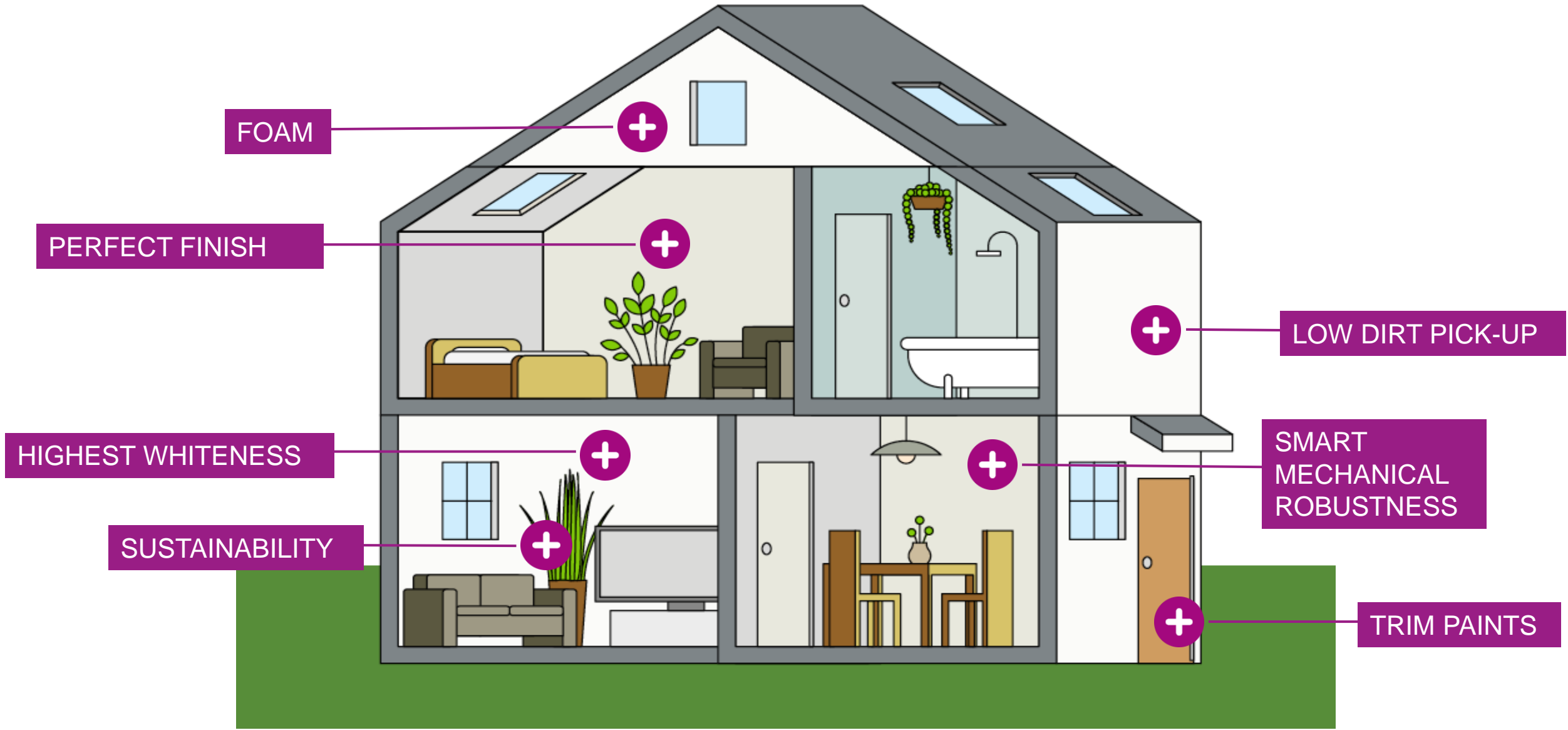
Robert Styrzynski
Account Director
Business Line Coating Additives
Evonik Operations GmbH



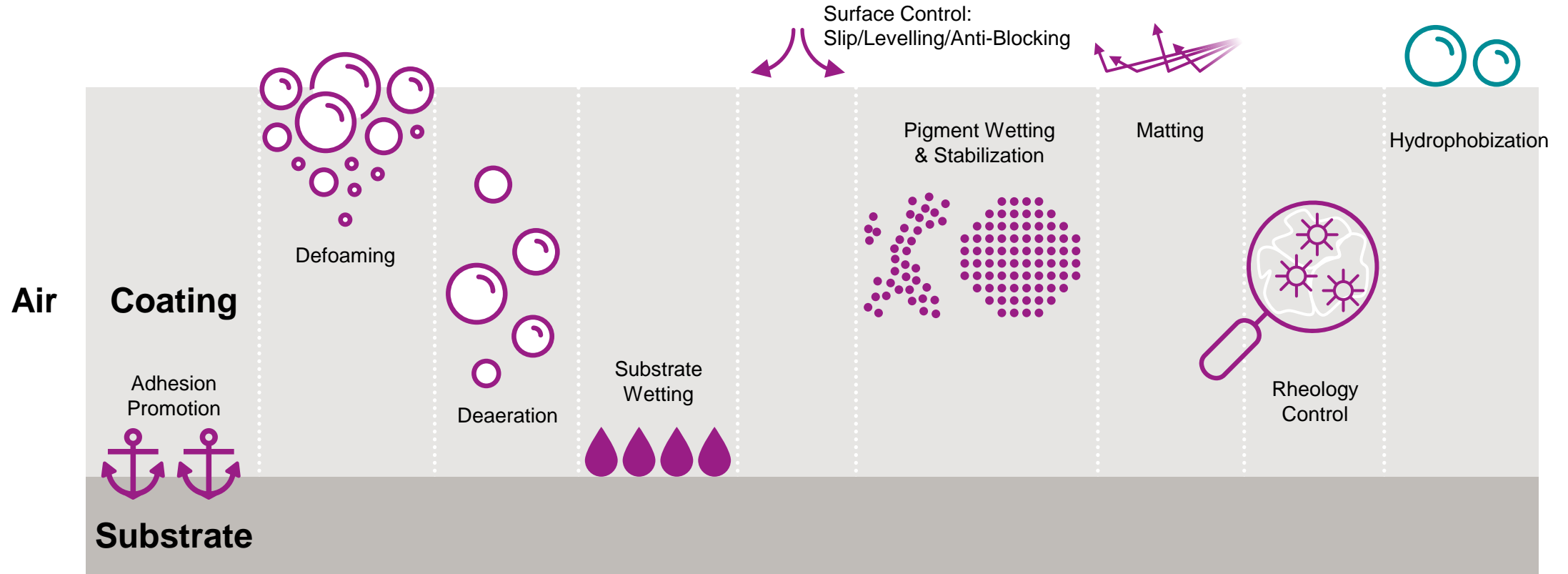
Perfect Finish with environmentally friendly coatings

- Architectural Coatings are used in our everyday life to provide a decorative finish to our homes and protective properties against mechanical and chemical influences.
- The huge range of architectural coatings consists of various binder technologies, gloss levels, and paint qualities for the DIY and professional segment.
- Independent from the applicator, the final finish should be perfect and, therefore, the final coating should be without any defects.
- Overall, architectural coatings are an integral part of maintaining and enhancing the built environment, providing both beauty and protection to our everyday spaces.
- Absolutely, sustainability has become a significant focus in the paint and coatings industry. As environmental awareness grows, both consumers and manufacturers are prioritizing eco-friendly practices and products.





Coating Additives offer functionalities that master nearly all challenges



We own strong brands and offer the perfect solution to match every need.

tego 

AEROSIL® 

ACEMATT® 

COATINO®

... and
much
more.

SURFYNOL®

~350

products for a broad spectrum of applications in numerous end markets

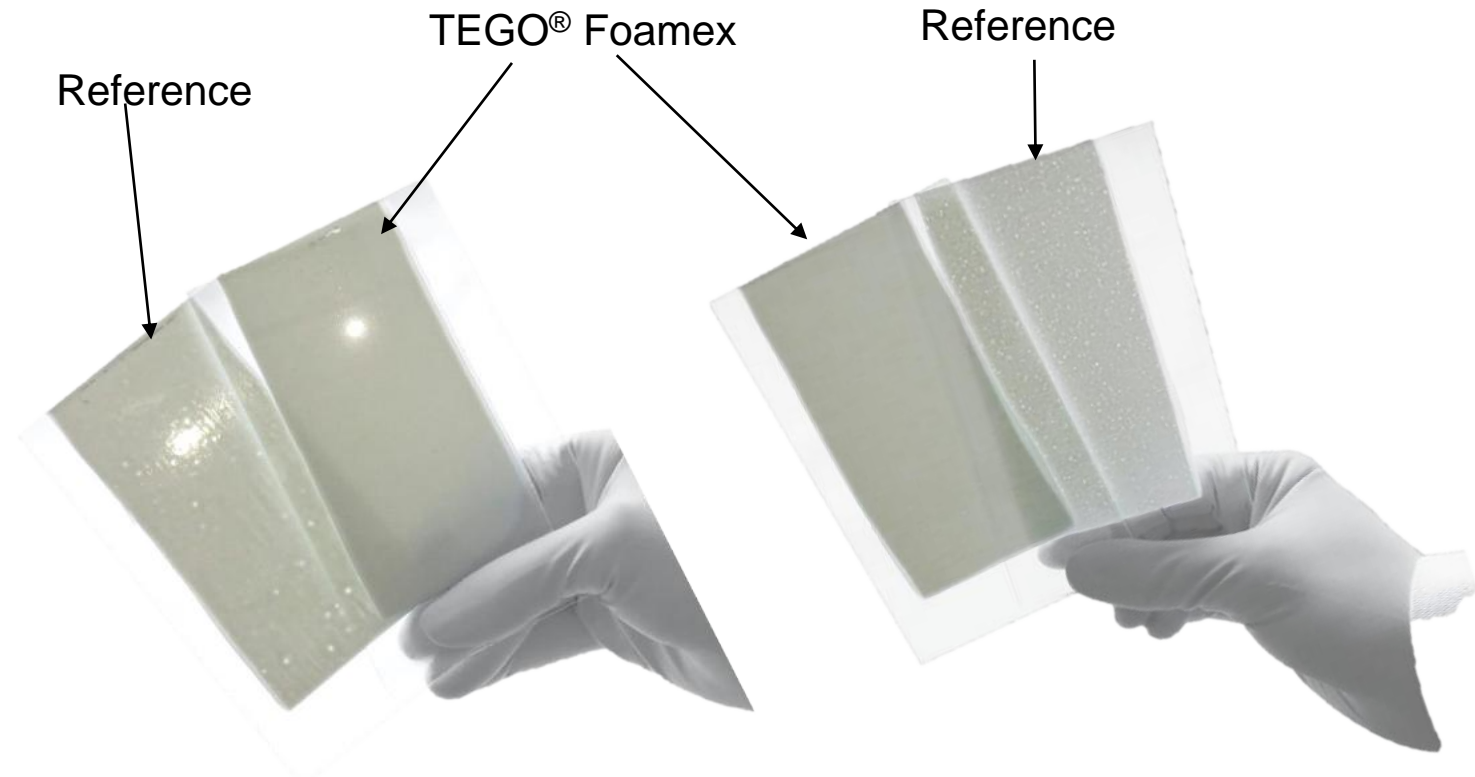
Generic Paint Composition



Evonik - World Leader in Defoamers for Waterborne Coatings

What drives our innovation

- Responding to the challenge of increasing regulatory requirements
- Adapting to new and emerging binder technologies
- Improving manufacturing flexibility to enable regional production
- Increasing the use of bio-based materials in our innovation efforts



Future-Proof Your Formulations with TEGO® Foamex XX

TEGO® Foamex 11

New

Highly efficient defoamer emulsion, suitable for low VOC and ecolabel-compliant architectural formulations



Positioning of TEGO® Foamex 11

■ KEY BENEFITS

- Strong defoaming efficiency
- Prevents macro- and micro foam
- Suitable for grinding & let-down stage
- Very low VOC and SVOC content (0.01%)
- Long-term efficient even after longer storage

■ TYPICAL APPLICATIONS

- Architectural paints
- Designed for medium to high PVC formulations
- Suitable for Ecolabel-compliant and low VOC formulations



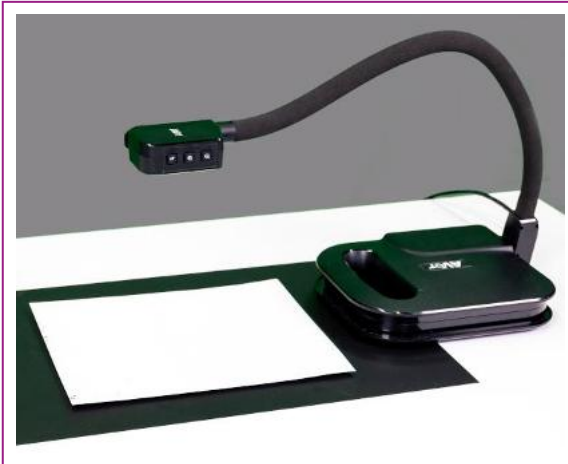
Assessment of defoaming strength by roller application



New COATINO® Defect Detection Tool for Architectural Coatings

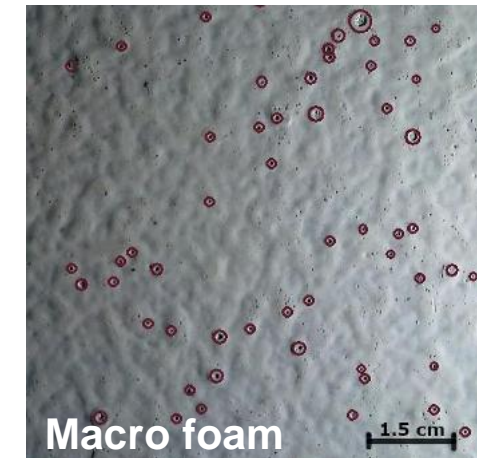
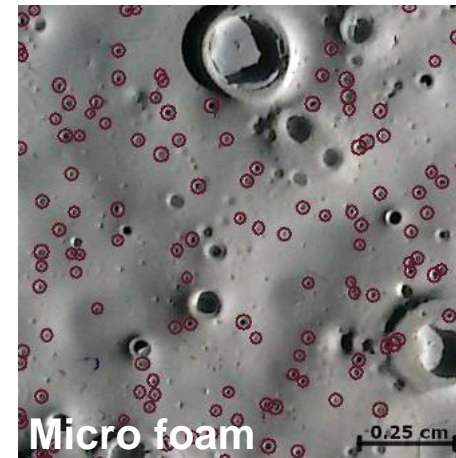
Take images

- Digitalize rating process by using COATINO® Defect Detection



Foam detection

- Defects are detected within the image by computer vision
- The defect amount is quantified for comparison of samples.



- High resolution images allow detection of small **micro foam** defects.
- Large detection area for **macro foam** ensures that also sparsely distributed defects are detected.

COATINO® Defect Detection at a glance

Innovative digital solution addresses specific formulation issues:

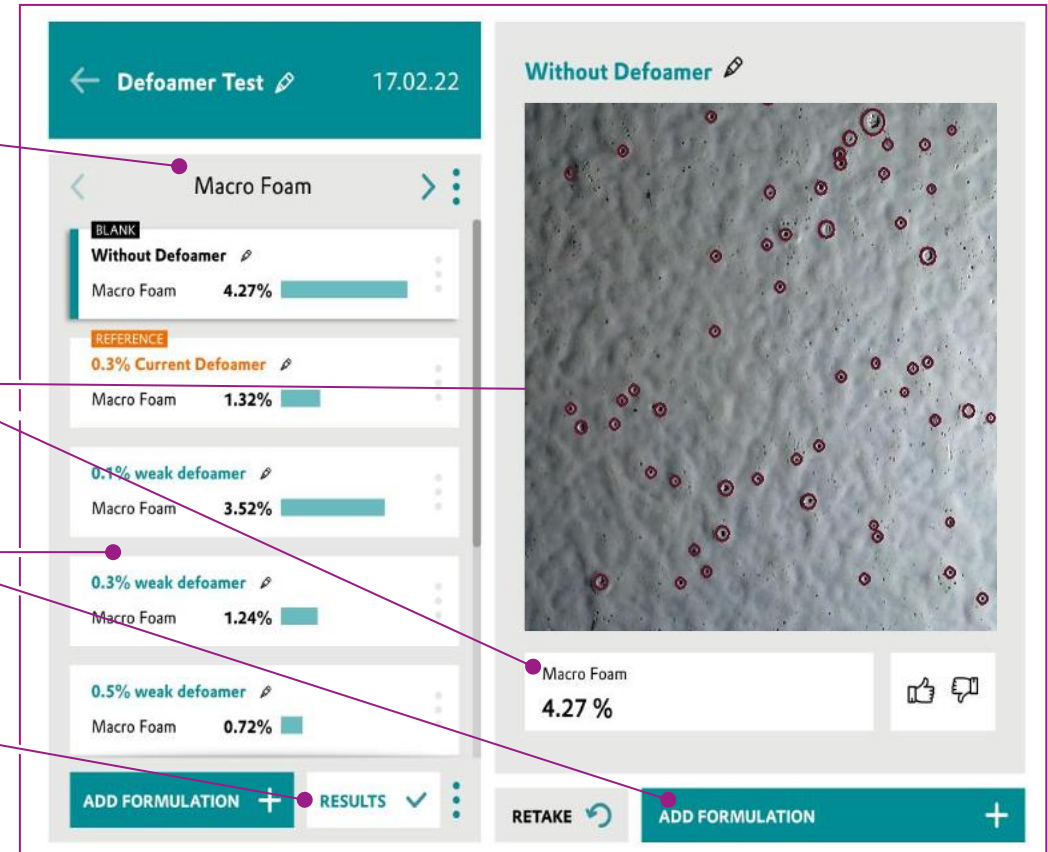
- **Easy-to-use:** application of computer vision to detect & classify coating defects
- **Objectivity:** objective evaluation of surface defects in less time
- **Quality:** data model counts all defects and calculates exactly the covered area
- **Standardization:** automated defect scoring

Easy adding of further defects

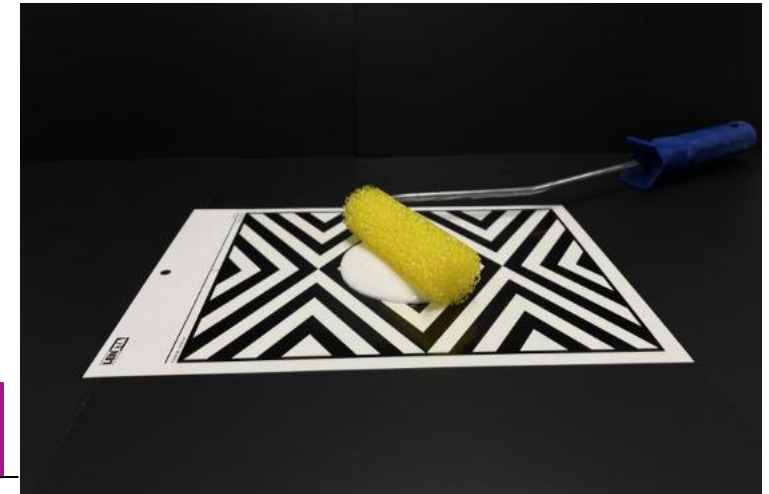
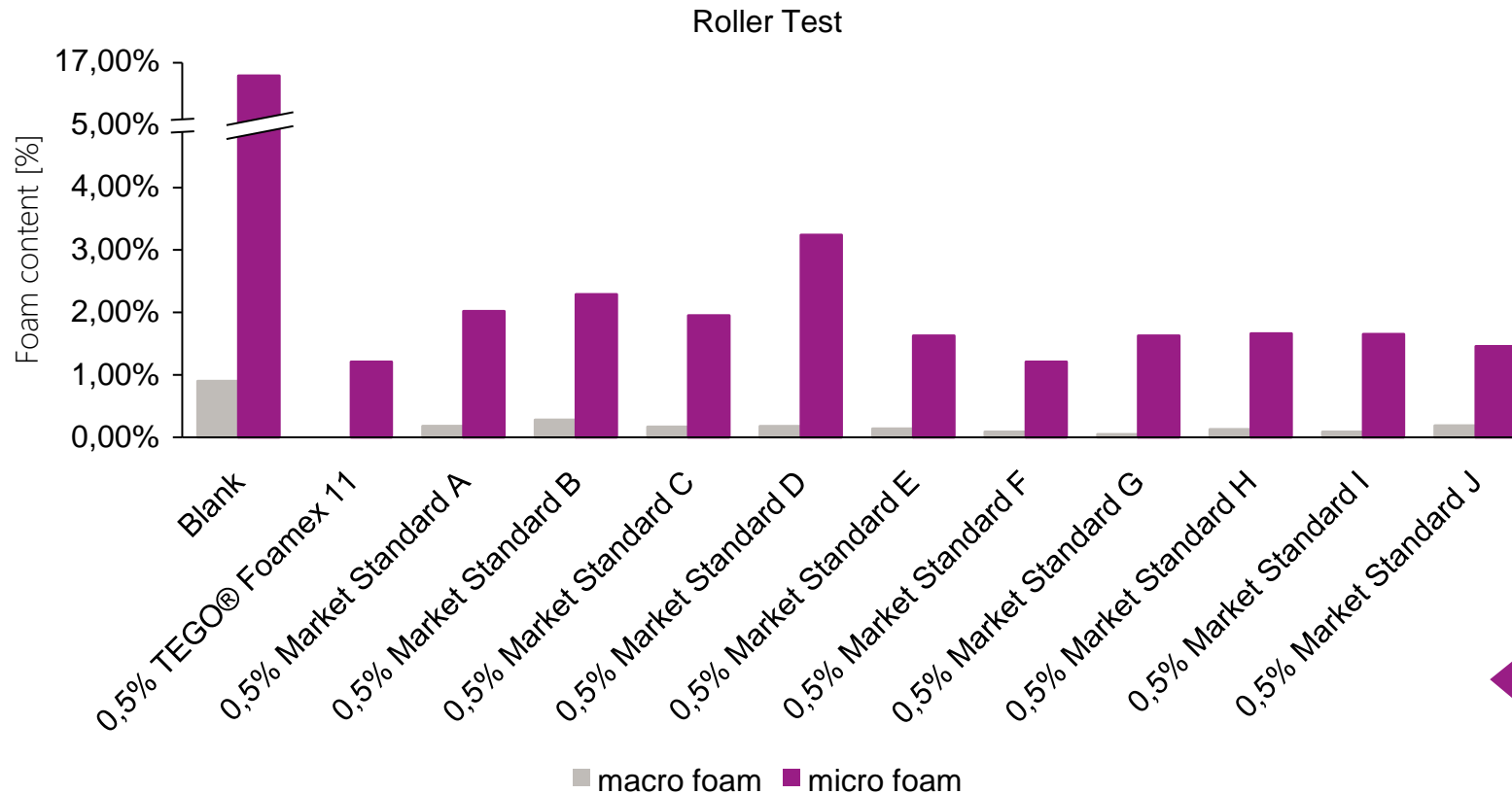
Visual display of detected defects - direct user feedback

Further formulations can be added and analyzed

Easy comparison of results with specific scoring for defects



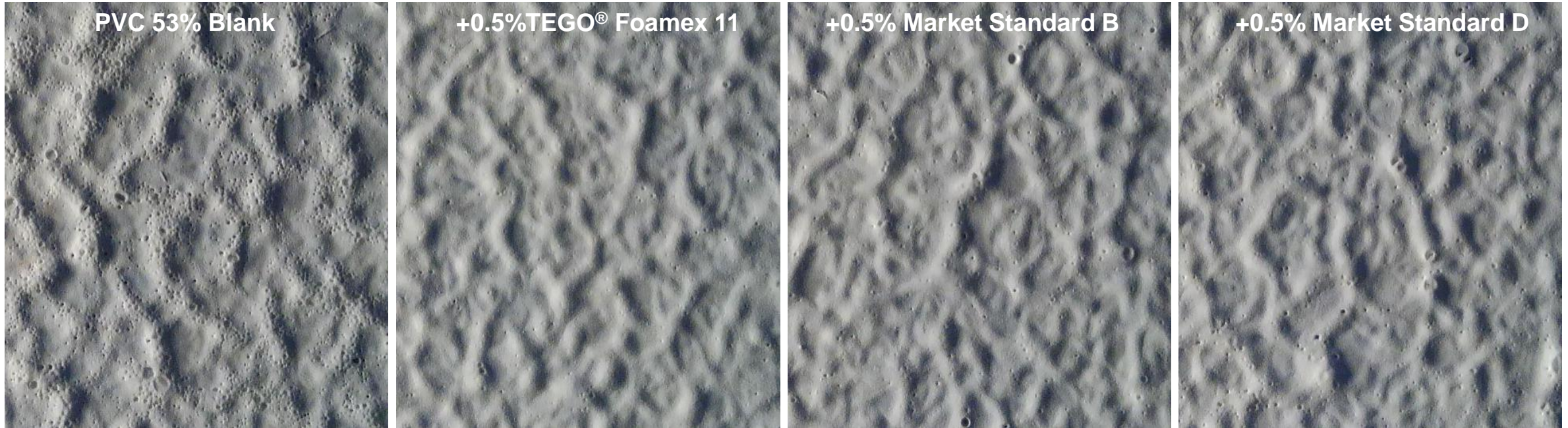
Strong Results in PVC 53% Architectural Paint based on Acronal® S 790



Roller test evaluation: Coatino® Defect Detection

- TEGO® Foamex 11 showed the best performance at roller application test
- Complete elimination of macro-foam
- TEGO® Foamex 11 was the best performing product over all tests

Strong Efficiency in medium PVC Systems – PVC 53%



TEGO® Foamex 11 leads to an excellent elimination of macro- and micro foam with good compatibility in medium PVC systems.

Video Demonstration of Defoaming Efficiency

TEGO® Foamex 11 leads to prevention of micro- and macrofoam in architectural paints and coatings

Roller application test method

COATINO®



Very low VOC and SVOC Content

- VOC (volatile organic compounds)
 - Determination via DIN EN ISO 11890/2:
approx. 0.1 g/l (0.01%)
- SVOC (semi-volatile organic compounds)
 - Determination via DIN EN ISO 11890/2:
approx. 0.1 g/l (0.01%)



TEGO® Foamex 11 is suitable for ecolabel compliant sustainable waterborne paints and coatings.

TEGO® Foamex 11 – Excellent Performance Meets Excellent Properties



Regulations

- Suitable for formulations where VOC or SVOC is a hurdle
- Meets all relevant ecolabel requirements
- Global registration



Technology

- Based on polyethersiloxane technology
- 15% defoamer emulsion
- Very low VOC and SVOC content (approx. 0.01%)



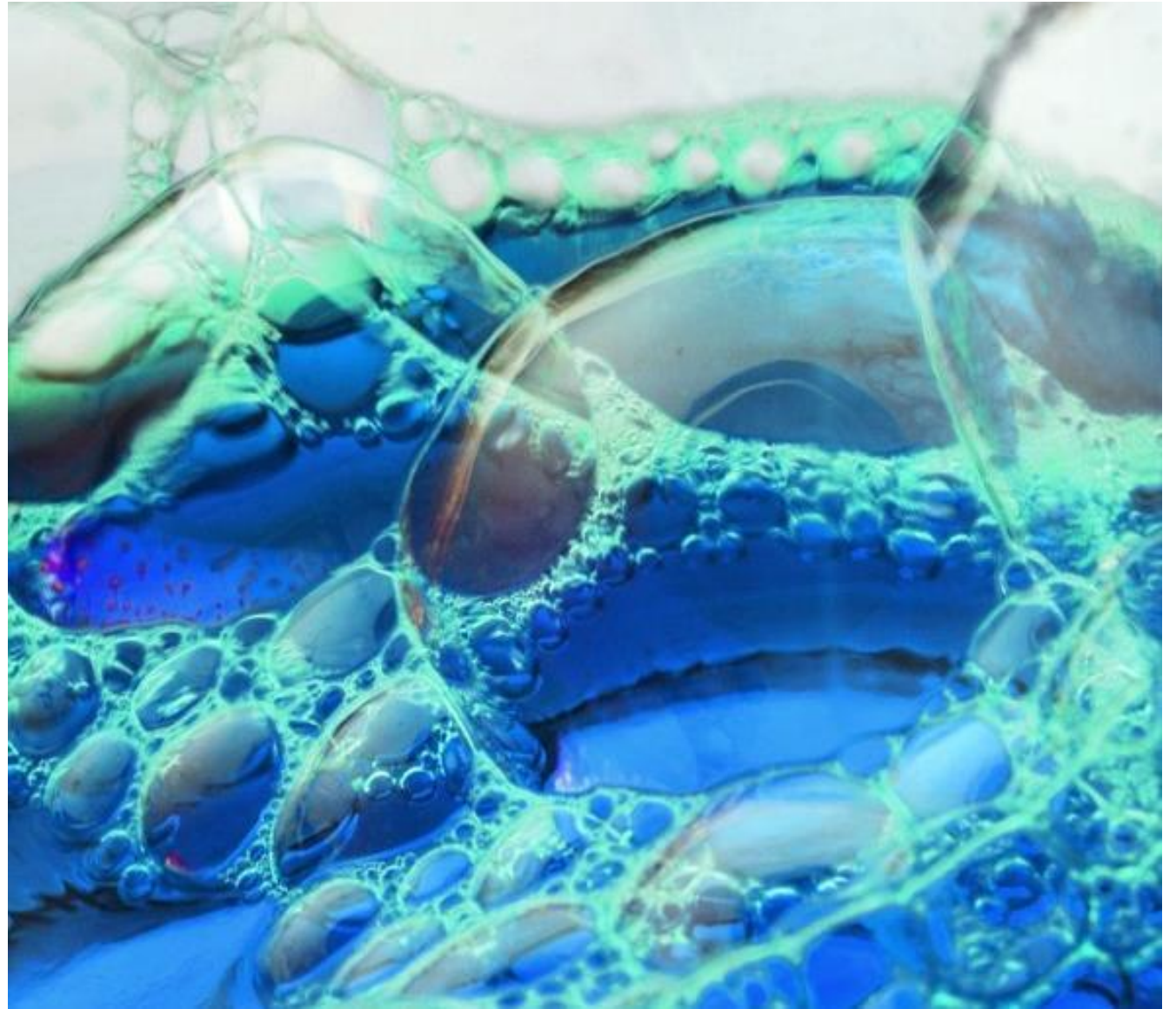
Reliable Performance

- Economic defoamer with strong defoaming efficiency
- For grinding stage and let-down
- For medium to high PVC formulations

TEGO® Foamex 16

New

New siloxane-based defoamer concentrate for waterborne architectural, wood and floor coatings



Positioning of TEGO® Foamex 16

■ KEY BENEFITS

- Excellent balance of defoaming and compatibility
- Targeted for gloss and semi-gloss systems
- Produced in the USA
- No reportable cyclics (D4, D5, D6)
- Contains 25% biobased material

■ TYPICAL APPLICATIONS

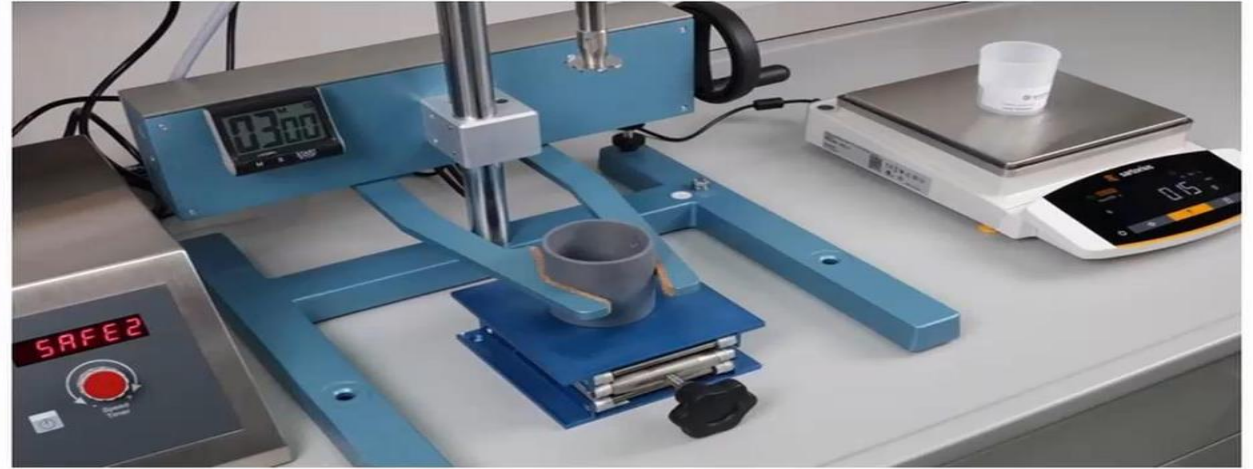
- Architectural paints
- Wood coatings
- Floor coatings



Assessment of defoaming strength by stirring foam test

Assessment of defoaming strength by stirring foam test

COATINO®

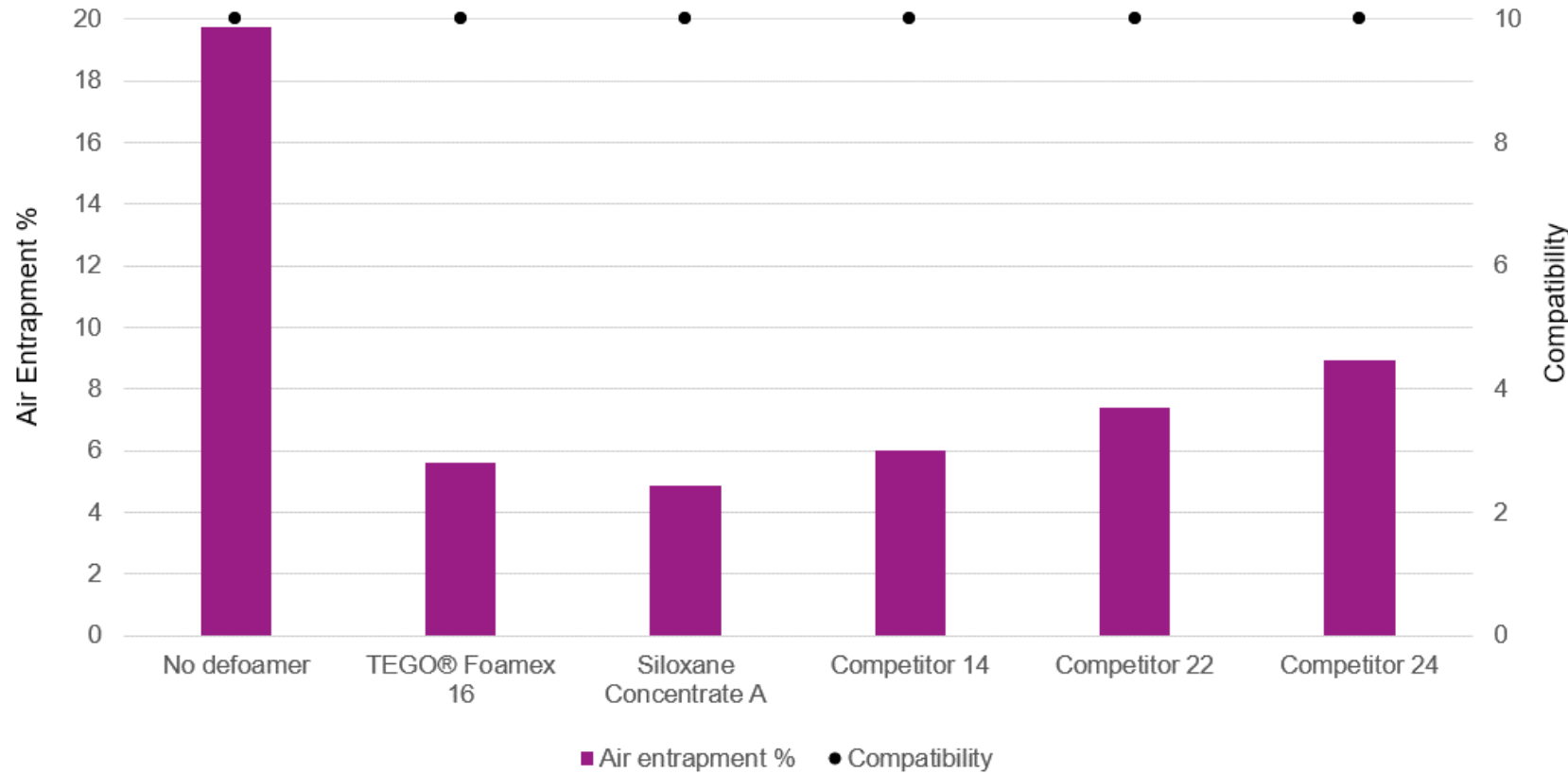


 **EVONIK**
Leading Beyond Chemistry

 **EVONIK**
Leading Beyond Chemistry

TEGO® Foamex 16 – Excellent Defoaming & Compatibility Balance (18% PVC)

18% PVC Acrylic Gloss Paint (Based on EPS® 2799)



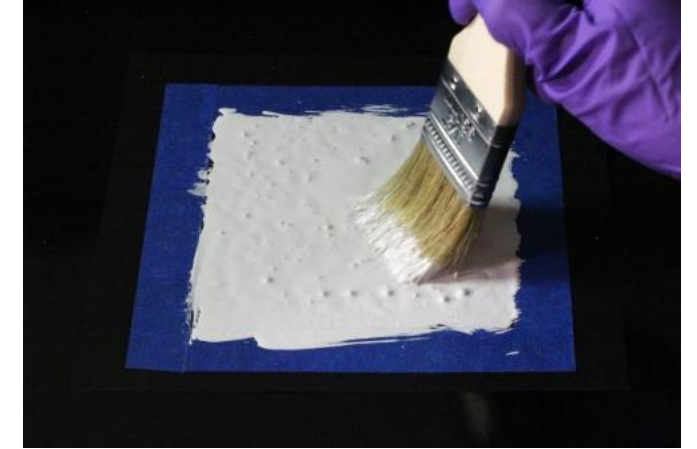
Air entrapment: lower is better
 Compatibility: 10 = no craters

- TEGO® Foamex 16 outperforms three competitor products in this space
- TEGO® Foamex 16 is a more economical option compared to Siloxane Concentrate A

TEGO® Foamex 16 – Good Gloss and DOI Maintenance (18% PVC)

18% PVC Acrylic Gloss Paint (Based on EPS® 2799)

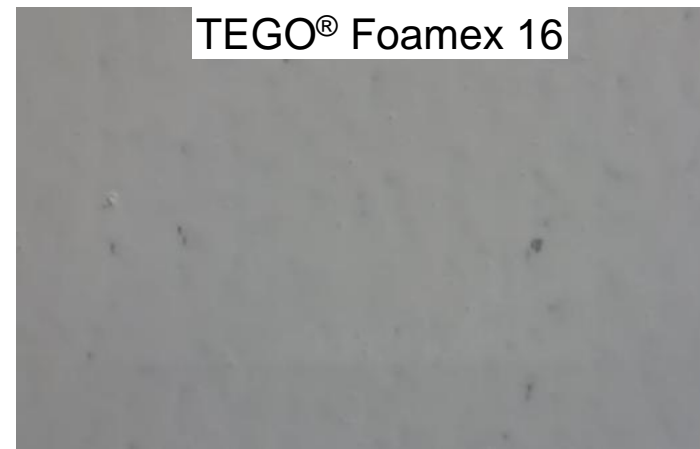
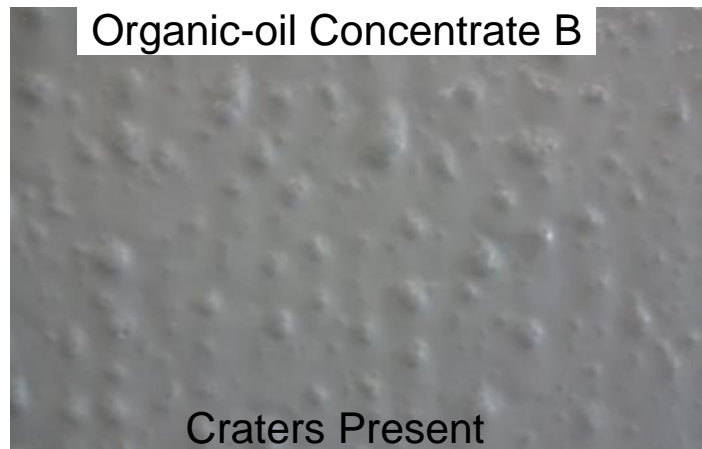
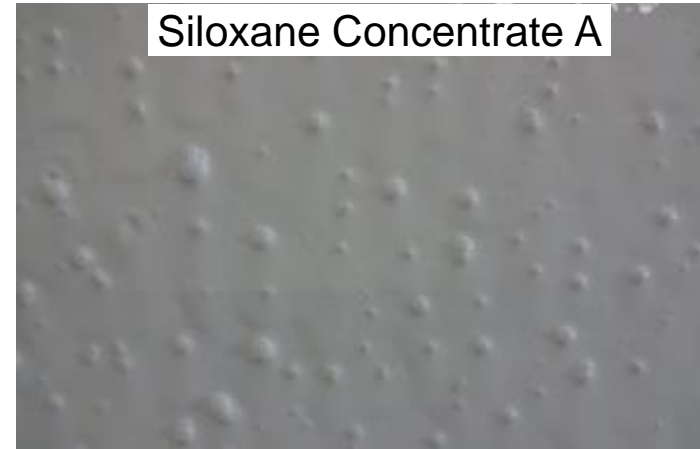
Defoamer (0.1 wt.%)	Brush foam tap (5=best)	Gloss			Distinctness of image (visual)
		20°	60°	85°	
None	1	51.4	82.5	97.5	best
TEGO® Foamex 16	3.5	54.3	81.5	96.8	better
Siloxane Concentrate A	4	56.6	82.1	96.8	best
Organic-oil Concentrate B	3	43.9	75.0	94.9	fair
Competitor 14	3	41.0	76.5	95.2	fair
Competitor 22	2	55.4	83.4	96.6	better
Competitor 24	2	52.5	78.4	95.6	better



- TEGO® Foamex 16 does not impact gloss
- TEGO® Foamex 16 outperforms three competitor products on foam tap test and distinctness of image.

TEGO® Foamex 16 – Outstanding Defoaming in Roller-Applied High Gloss Styrene Acrylic Coating (15% PVC)

Initial appearance - open pore roller



TEGO® Foamex 16 – Excellent Performance and Properties



Technology

- Based on polyethersiloxane technology
- 100% active defoamer concentrate
- Contains 25% biobased material



Reliable Performance

- Strong defoaming efficiency
- Suitable for grinding & let-down stage
- Excellent compatibility in low to medium PVC formulations
- Maintains defoaming efficiency after storage



Regulations

- Registered in US TSCA, Canada DSL, Taiwan and Vietnam.
- Refer to Regulatory Data Sheet for a broader list
- Expected to have broad global registrations - pending
- No reportable cyclics (D4, D5, D6)

Siloxane based defoamers for waterborne architectural coatings

TEGO® Foamex 11

Siloxane-based defoamer emulsion for waterborne formulations

- High efficiency for high PVC coatings
- Emulsion (15% active matter)
- An alternative to mineral oil based defoamers

TEGO® Foamex 16

New siloxane-based defoamer concentrate for waterborne formulations

- Unique balance of defoaming and compatibility for low to medium PVC coatings
- Can be used in grind and let-down with sufficient shear



Your contact in Hungary...

Gombos Szilvia
Area Sales Manager

Biesterfeld Speciális Kemikáliák Magyarország Kft.

Tel: +36 1 218 68 03

Mobil: +36 30 400 5127

s.gombos@biesterfeld.hu

<http://www.biesterfeld-specialis.hu>

Venera Zamfir

Account Manager | Business Line Coating Additives

Evonik Operations GmbH

Mobile +40 722297447

Venera.Zamfir@evonik.com

www.coating-additives.com





EVONIK

Leading Beyond Chemistry