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**Defoamer Solution For Decorative Coating – SILFOAM® SE 237  
Application Study Report in Low PVC Paint System**

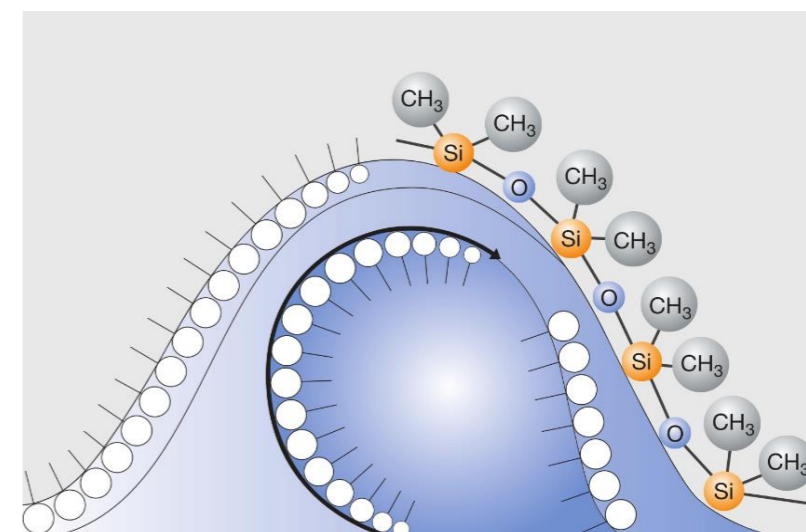
WACKER METROARK CHEMICALS PVT. LTD., October 2023

# SILFOAM® SE 237 : Defoamer Solution for Decorative Coating

SILFOAM® SE 237 is an organosilicone based high efficiency foam control agent for aqueous coating system.

## Special Features :

- 1) Non-ionic in nature.
- 2) Can be used for high and low shear paint manufacturing system.
- 3) Effective in low PVC paint system
- 4) It can be used to formulate the paint by adding at high shear grinding or low shear let down or both stages,
- 5) Very minimum usage, dosing 0.1 – 0.3%.
- 6) Nonhazardous and nontoxic in nature.
- 7) Completely APEO free.



spreading of low surface tension silicone on foam lamella

Parameter	Value	Method
Appearance	White emulsion	Visual
%NVM	~12	Moisture analyzer
pH	~7.5	Indicator strip

# Defoaming Action of SILFOAM® SE 237 in 0.1% Emulsifier Solution

## Procedure

- ▶ 100 mL 0.1% emulsifier (Alphox 200) solution is made in water and taken in a 250 mL stoppered measuring cylinder.
- ▶ Shake it manually (arm action) for 10 times, initial foam heights are found almost equal in all cases.
- ▶ At this condition 1 drop of defoamer is added and the foam knock down time is noted.
- ▶ The same solution is then shaken to check the efficacy of defoamer in the solution, for another 10 times and immediate knock down time is noted as “1<sup>st</sup> re-shake” in Sec.
- ▶ Same process is repeated and noted as 2<sup>nd</sup> re-shake in Sec.



Blank Solution



With one drop mineral oil defoamer



With one drop SE 237 defoamer

Knock down

Foam knock down time in Sec		
Stages	Mineral Oil Defoamer	SE 237 Defoamer
Knock down	29	33
1 <sup>st</sup> re-shake	39	25
2 <sup>nd</sup> re-shake	90	20

**Conclusion :** Although the initial knock down time of mineral oil defoamer is slightly better than SILFOAM® SE 237, the persistence after re-shaking the solutions, found better for SILFOAM® SE 237 in all two repeat cycles. So “in-can” performance should be better for SILFOAM® SE 237.

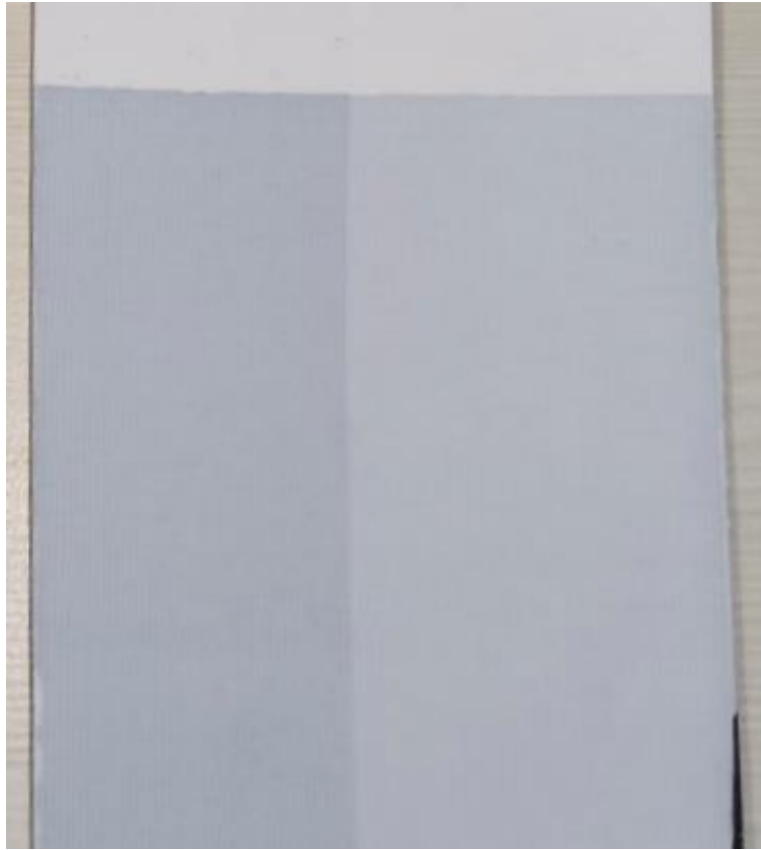
# Effect of Defoamer in Low PVC Paint System

Formulation of Water-based Paint for Defoamer Application				
Stage	Material Description	%Weight	RPM	Time (min)
1	Water	29.89	1000	10
	Metazolone FM (Preservative)	0.22		
2	Defoamer (Blank/Mineral Oil/ SILFOAM® SE 237)	0.11	1000	5
3	Alphox 200 (Dispersing agent)	0.54	1000	10
4	Hydroxy Ethyl Cellulose (HEC)	0.54	1000	10
5	SILRES® BS 168 (pH Adjuster)	0.22	1000	5
6	TiO2	6.52	3000	40
	CaCO3	21.74		
	Talc	5.43		
7	Defoamer (Blank/Mineral Oil/ SILFOAM® SE 237)	0.11	3000	5
8	Texanol (coalescent)	0.76		5
	Propylene Glycol (Levelling and freeze-thaw protection)	0.22		5
9	Anucryl C-168 (Styrene/acrylic emulsion)	33.70	3000	15
	Total	100.00		105

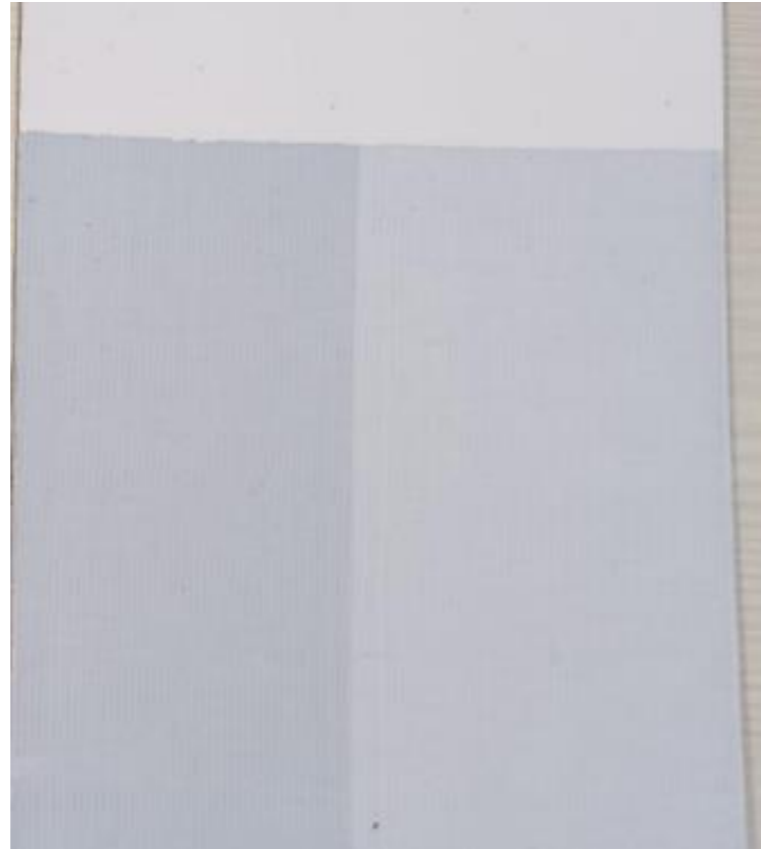
## Test Result

Parameter	Blank	Mineral Oil Defoamer	SILFOAM® SE 237
Density(g/cc)	1.254	1.334	1.354
Viscosity (Krebs unit)	102.2	104.7	106.5

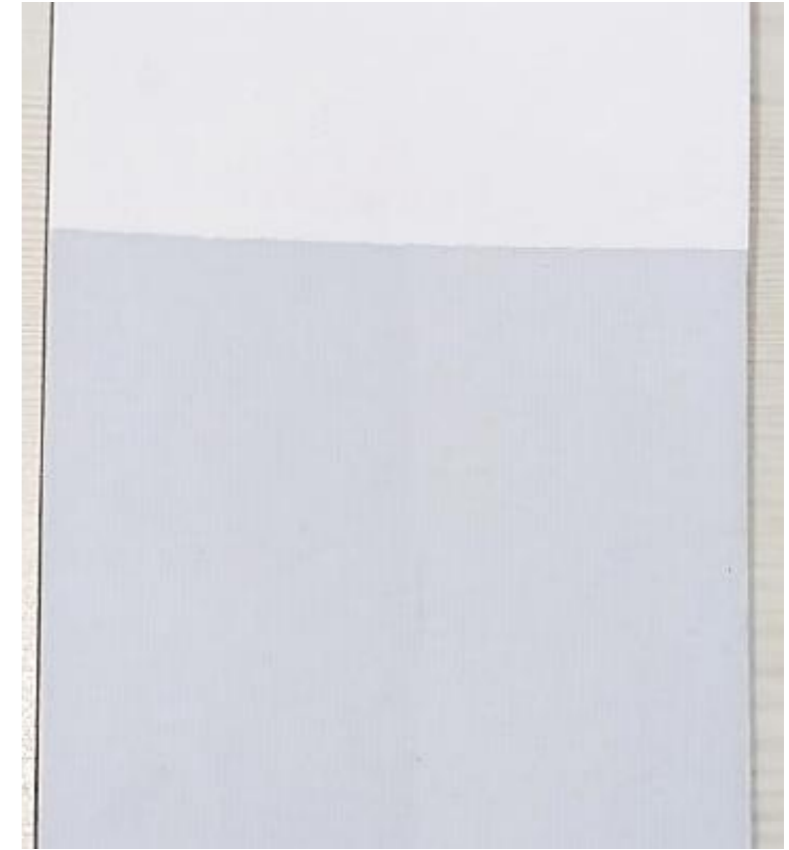
# Draw down on Hiding Chart using Wire Bar Coater



Blank vs Mineral Oil Defoamer  
(3000 RPM)  
Contrast Ratio :  
Blank – **88.65**  
Mineral Oil Defoamer – **91.25**



Blank vs **SILFOAM® SE 237**  
(3000 RPM)  
Contrast Ratio :  
Blank – **88.93**  
**SILFOAM® SE 237** – **93.80**



Mineral Oil Defoamer vs **SILFOAM® SE 237** (3000 RPM)  
Contrast Ratio :  
Mineral Oil Defoamer – **91.45**  
**SILFOAM® SE 237** – **93.45**

## Conclusion and Remark



- ▶ The cylinder shake test indicates that effect of SILFOAM® SE 237 is stronger and long lasting when it is already present in the system (slide 2).
- ▶ Lower density & viscosity of the blank and mineral oil defoamer based batches (slide 3) indicates the presence of more micro foams inside the paint system than SILFOAM® SE 237.
- ▶ The higher contrast ratio (C/R) values of paint film on black and white hiding chart with SILFOAM® SE 237 indicates the greater reduction of foam in the paint (slide 4).
- ▶ No paint defect was observed with SILFOAM® SE 237.

**Thank you for your Attention!**

