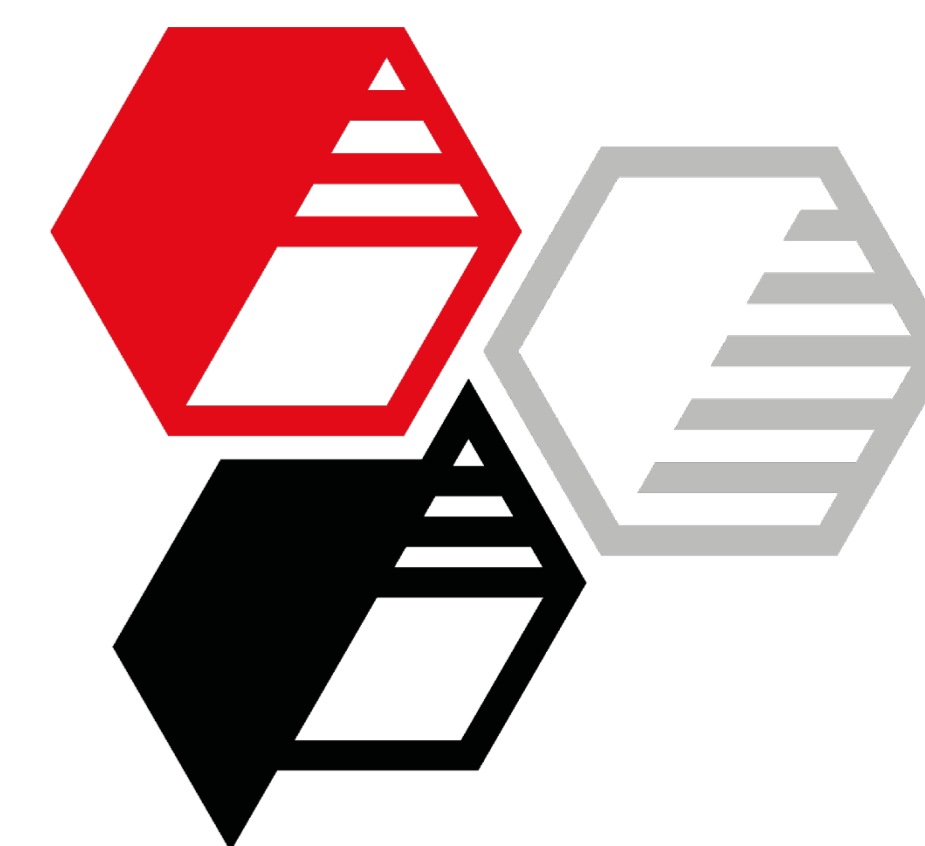


Neuburg Siliceous Earth in waterborne 2C Epoxy clear coats: Optimization of corrosion protection



Objective

Can Neuburg Siliceous Earth be used as an anti-corrosion filler in a clear coat to meet the requirement profile?

Neuburg Siliceous Earth:

Sillitin Z 89, Silfit Z 91, Aktisil AM, Aktisil AM/89

Formulation

		Control	Sillitin Z 89 15 pbw	Silfit Z 91 15 pbw	Aktisil AM 15 pbw	Aktisil AM 25 pbw	Aktisil AM/89 25 pbw
A-Component	BECKOCURE™ EH 2260w/41WA *1 (Amine hardener)	55.00	48.45	48.45	48.45	44.90	44.90
	Neuburg Siliceous Earth	-	11.90	11.90	11.90	18.37	18.37
B-Component	BECKOPOX™ EP 147w *1 (Epoxy resin)	11.25	9.91	9.91	9.91	9.18	9.18
	BECKOPOX™ EP 386w/52WA *1 (Epoxy resin)	33.75	29.74	29.74	29.74	27.55	27.55
Total [%]		100	100	100	100	100	100
Solids content [%]		51.4	57.1	57.1	57.1	60.3	60.3
PVC [%]		0	9.9	9.9	9.9	15.5	15.5

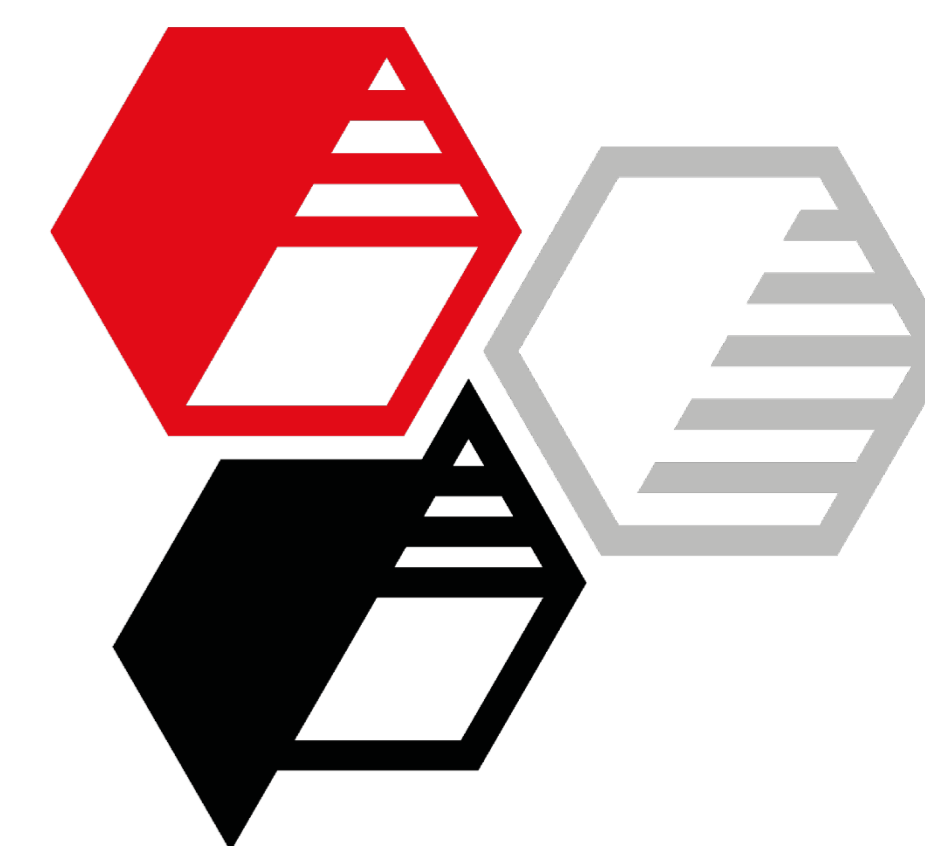
Substrate: Gardobond F (aluminum) and Gardobond OC (steel), both without pre-treatment

Drying: 30 min at 60°C and 7 days at 23°C / 50% relative humidity

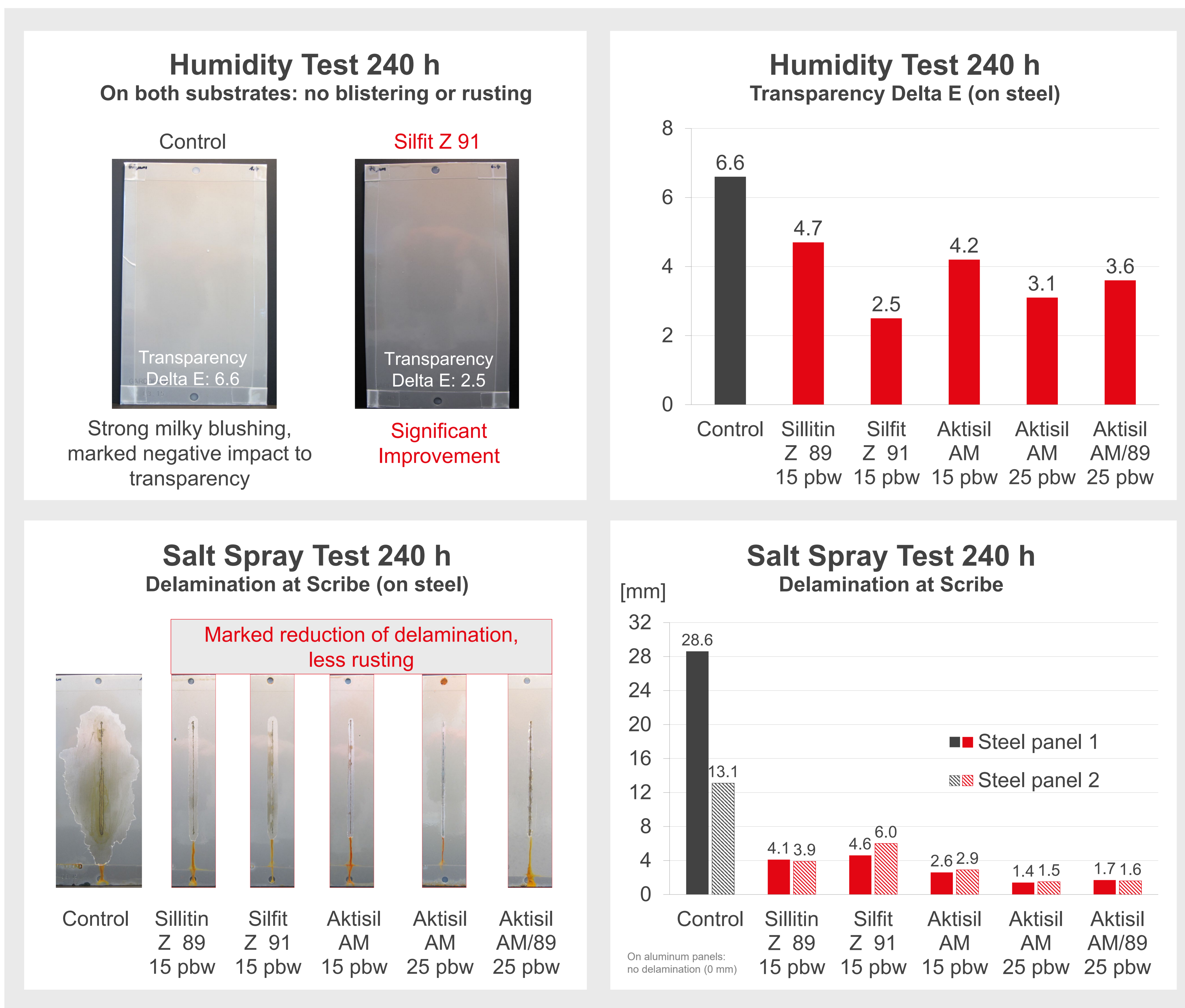
Dry film thickness: 50 - 80 µm

*1 <http://allnex.com/the-easy-cure-system>

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Results



Summary

Retained Features

- ✓ Transparency and color neutrality
- ✓ High gloss (60°: > ~ 80)
- ✓ Excellent adhesion (GT 0-1)
- ✓ Good flexibility (cupping test 6-8 mm)

Improved Features

- + Best price/performance ratio (especially by using **Sillitin Z 89**)
- + No milky blushing and maintaining transparency and color neutrality after exposure to humidity (especially by using **Silfit Z 91** with 15 pbw)
- + Significant improvement of corrosion resistance: marked reduction of delamination, less rusting (especially by using **Aktisil AM** or **Aktisil AM/89** with 25 pbw)