NEUBURG SILICEOUES EARTH IN ARCHITECTURAL INTERIOR EMULSION PAINT

Good Hiding / Straight Acrylic / PVC 66 % / TiO_2 19 %
TiO_2 Extension by Silfit Z 91

FORMULATION

*Base formulation by BASF		Control*	Added TiO_2 Extender						
Water deionized		314	- 20 % TiO_2				- 30 % TiO_2		
Additives		16							
TiO_2		**190**	**150**				**135**		
Silfit Z 91			0	40	60	80	60	80	100
GCC	2 µm	65							
	5 µm	165							
Mica	10 µm	50							
Talc	5 µm	20							
Acronal ECO 6270		180							
Total parts by weight		1000							
Solids content w/w [%]		59.0							

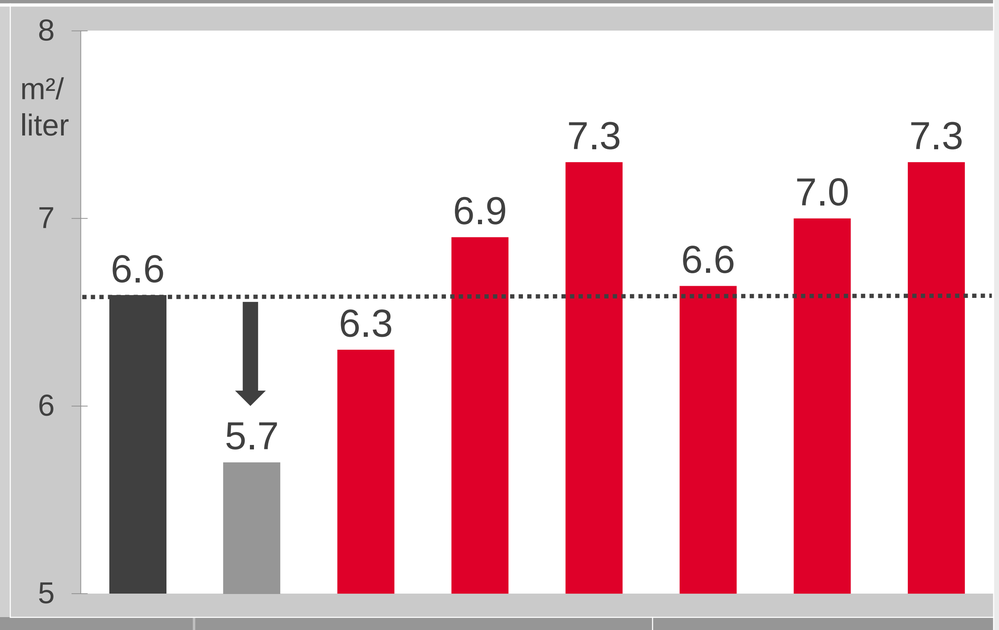
IMPROVED FEATURES AND COST PERFORMANCE

Undiluted formulations / drying time before testing: 7 days / 23°C / 50 % relative humidity

Hiding Power

Spreading rate
at contrast ratio 98 %
Class 2 DIN EN 13300

Contrast ratio
ISO 6504-3



Cost / Performance

Germany 2019
at contrast ratio 98 %

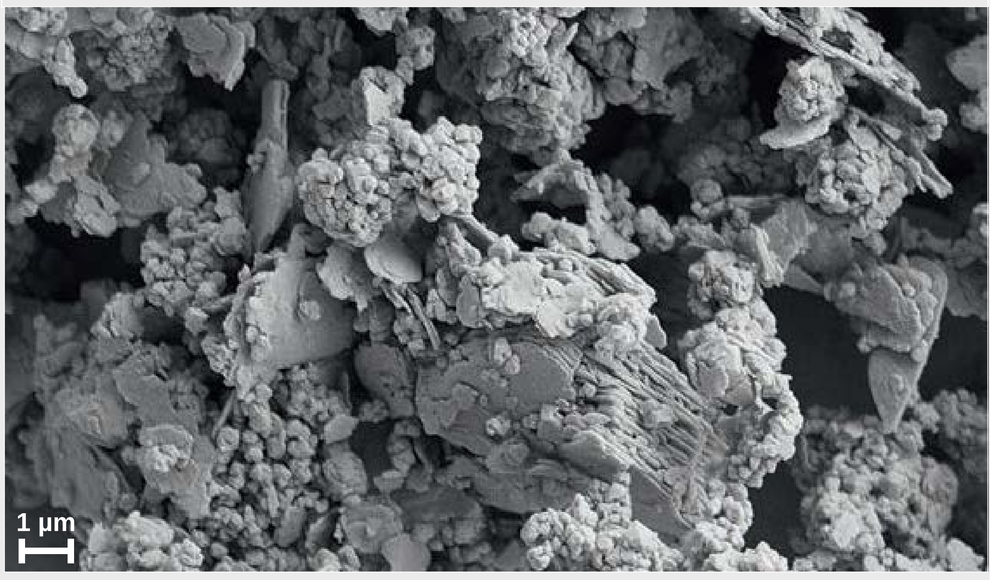
	Full TiO_2	- 20 %			- 30 %		
TiO_2		150			135		
Silfit Z 91	0	40	60	80	60	80	100
Spreading rate / liter		-13.7	-5.1	3.9	10.3	0.7	5.5	10.1
Raw material cost / liter		-9.0	-7.8	-7.2	-6.7	-10.6	-10.0	-9.4
Total efficiency		**- 4.7**	**+ 2.7**	**+ 11.1**	**+ 17.0**	**+ 11.3**	**+ 15.5**	**+ 19.5**

Change vs. Control [%]

RETAINED FEATURES

Without significant difference or minor effects:

- Preparation
  Dissolver equipped with toothed disc (Cowles blade)
  Dispersing 15 m/s for 20 min, water cooling, T max. 60°C
- Viscosity
  at low shear 0.1 s^{-1} 35 – 41 Pa*s
  at high shear 1000 s^{-1} 0.12 – 0.15 Pa*s (Searle, 23°C)
- Storage stability
  low phase separation without settling of sediment,
  easy to homogenize (after 6 months, 23°C)
- Color
- Low gloss
  85°: 3 to 4
- Wet-scrub resistance
  Dry film thickness loss < 20 µm per 200 cycles / ISO11998
  Class 2 DIN EN 13300,
  except for 30% TiO_2 reduction and ≥ 80 parts by weight Silfit Z 91
  → for maintaining Class 2 add up to 2 % of cellulose fiber Arbocel B 600



SUMMARY

Reduction of TiO_2 content without compensation leads to loss in hiding power and spreading rate

Silfit Z 91 gains the following combined benefits

- ✓ **higher hiding power / spreading rates at lower formulation cost**
- ✓ **high TiO_2 reduction and white pigment saving without losing performance**
- ✓ **real cost cutting potential**

HOFFMANN MINERAL