umicore
materials for a better life

+core5000

Medium Oil Alkyd Emulison at 50% Solids

CROSSCORE 5000
Medium oil alkyd emulsion at 50 % solids

WHY ALKYD EMULSIONS ?

Alkyds have many benefits. They are based on renewable raw materials. Alkyds cross-link to form a tough and hard film.

They have a high gloss potential.

Alkyds have a good open-time and thus an easy workability. They show a nice flow, good film formation and show excellent adhesion on various substrates. They have good scratch and abrasion resistance.

Alkyd emulsions comply with the strict VOC regulations and don't need co-solvents to dry. There is no further VOC release after through drying and hardening.

Alkyd emulsions perfectly fit in the over-all picture of ecological and bio sourced paints.

Alkyd emulsions can formulate an answer to the increased interest in CO2 neutral coatings.

Umicore has gained great knowledge on emulsification chemistry and technology. Umicore has developed the CROSSCORE 5000.

CROSSCORE 5000 APPLICATIONS

. Interior and exterior primers and topcoats for wood and metal
. Primers and topcoats for joinery application
. Corrosion resistant primers

CROSSCORE 5000 SPECIFICATIONS

Medium to short oil alkyd emulsion
Oil length 40%
Appearance milky white
Solids 50%
Oil type Soybean Fatty Acid
Co-solvent and Amine free
Particle size +/- 200nm
Viscosity 20mPa.s at 23°C
pH +/- 7

STORAGE

Crosscore 5000 should be stored indoors in the original unopened and undamaged packaging, at storage temperatures between 5°C and 30°C. Exposure to direct sunlight should be avoided.

WHITE GLOSS PAINT BASED ON CROSSCORE 5000

PAINT FORMULATION 1

	Component	Function	%	Supplier
Phase 1	Water	solvent	3,27	
	Disperbyck 190	wetting and dispersing additive	1,21	Byk
	Tego Foamex 830	anti-foam	0,10	Evonik
	Acrysol RM-8W	rheology modifier	0,64	Dow Chemical
	Kronos 2300	TiO2	23,22	Kronos
Phase 2	Crosscore 5000	binder (50% solids)	66,99	USMB
	Acrysol RM-8W	rheology modifier	0,98	Dow Chemical
	Acrysol RM2020	rheology modifier	1,71	Dow Chemical
	Tego Airex 901W	deaerator	0,15	Evonik
	Tego Glide 450	flow additive	0,49	Evonik
	Byk 348	silicone surfactant	0,49	Byk
	ECOS Mix 265 Neo Aqua	drier	0,75	USMB
	Total		100,00	

Mix phase 1 under high shear until desired dispersion is obtained
Add phase 2 and mix until homogeneous

PVC: 15,4%

Viscosity @ 25 °C
@ 10 s-1: 21,3 P
@ 7000 s-1: 5,0 P

Wet film 90 micron
Gloss 20 ° (7 DAYS): 79
Gloss 60 °(7 DAYS): 90

Color:
L: 92,52*
A: -0,72*
B: -0,39*

WHITE GLOSS PAINT BASED ON CROSSCORE 5000

PAINT FORMULATION 2

	Component	Function	%	Supplier
Phase 1	Water	solvent	5,71	
	Disperbyck 190	wetting and dispersing additive	1,17	Byk
	Tego Foamex 830	anti-foam	0,63	Evonik
	Acrysol RM-8W	rheology modifier	0,10	Dow Chemical
	Kronos 2300	TiO2	22,44	Kronos
Phase 2	Crosscore 5000	binder (50% solids)	66,32	USMB
	Acrysol RM-8W	rheology modifier	0,97	Dow Chemical
	Acrysol RM2020	rheology modifier	1,11	Dow Chemical
	Tego Viscoplus 3060	deaerator	0,10	Evonik
	Tego Twin 4100	silicone surfactant	0,92	Evonik
	ECOS ND15 Aqua	drier	0,53	USMB
	Total		100,00	

Mix phase 1 under high shear until desired dispersion is obtained
Add phase 2 and mix until homogeneous

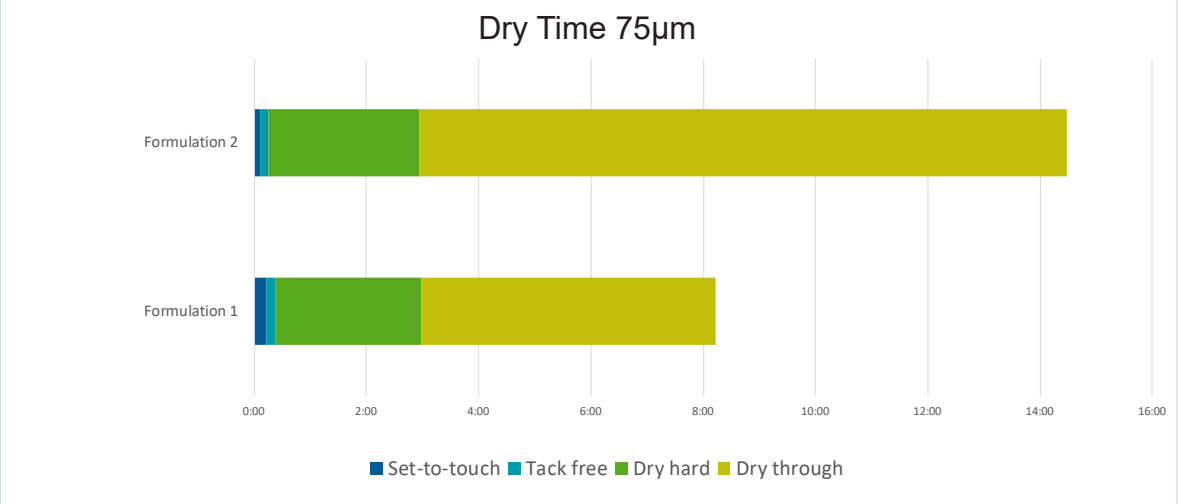
PVC: 15,1%

Viscosity @ 25 °C
@ 10 s-1: 11,1 P
@ 7000 s-1: 0,6 P

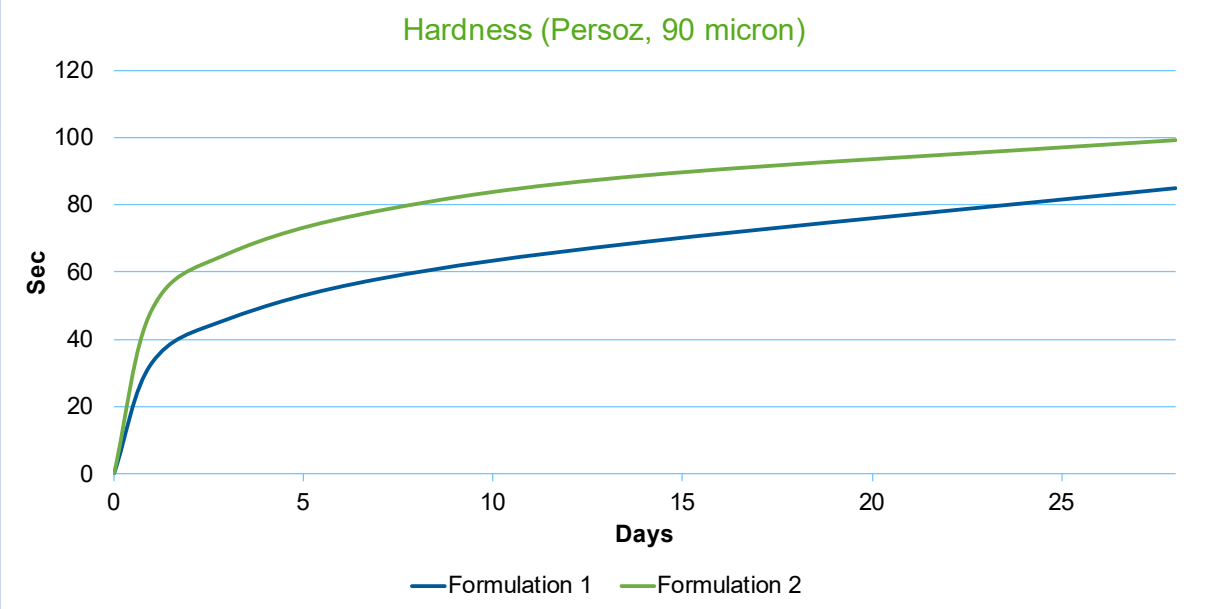
Wet film 90 micron
Gloss 20 ° (7 days): 92
Gloss 60 °(7 days): 97

Color:
L: 92,64*
a: -0,96*
b: -0,96*

CROSSCORE 5000: PAINT FORMULATIONS - DRYING TIME



CROSSCORE 5000: PAINT FORMULATIONS - HARDNESS



ADDITIVES - COMPATIBILITY

Additives make or break a coating formulation! Use as little additives as possible.
Dose the lowest amount possible. Always check compatibility of the additives with the alkyd emulsion and check the inter-compatibility between the additives.

OVERVIEW ADDITIVES TESTED

	Compatible
Dispersants (pigment wetting)*	EFKA 4580 Disperbyk 2015 Anti-Terra 250 Silco Sperse HLD-5 Disperbyk 190 Disperbyk 199
* impact on the gloss	
Thickeners	Acrysol RM-8W Acrysol RM-55 Acrysol RM-2020E Tego Viscoplus 3030 Tego Viscoplus 3060
Pay attention to the inter-compatibility of thickeners. E.g. Acrysol RM-55 and Acrysol RM-8W have compatibility issues. Salts of acrylates are unfavorable.	
Defoamers	Tego Airex 901W BYK 1710 Tego Foamex 830
Wetting agents (levelling)	BYK 348 Tegotwin 4100 BYK 333
TIO2	Kronos 2300 Kronos 2360
Ti02: 12 --> 15,5 --> 23	
Driers	ECOS ND® 15 Aqua ECOS Mix 353 Neo Aqua ECOS MIX 265 Neo Aqua
A drier concentration of 0,04 to 0,06% Co metal on the binder solids is recommended.	

CROSSCORE 5000

ALKYD EMULSION AT 50% SOLIDS

MEDIUM TO SHORT OIL ALKYD +/- 40% OIL LENGTH

FAST DRYING

GOOD HARDNESS BUILD-UP

EXTREME GLOSS LEVELS

Crosscore Production

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For inquiries and additional information please contact us.

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