



Personalized resins
Since 1947

Thixotropic Direct To Metal Coatings

The relation between layer thickness, and corrosion resistance

Synres
Coating Resins for
Solvent Based
Paints
and Coatings



Synres History



1947

Synres (SYNthetic RESins) is Established in Hoek van Holland
Initial focus:
Production of alkyds

1962

Synres launched styrene-modified alkyd resins

1963

Start production of amino resins

1970

Synres became part of DSM

1973

Solvent-borne acrylic resins are added to the portfolio

1982

Start production of Thixotropic resins

1983

DSM acquired the Scado resin group from Unilever, further boosting the capabilities and output of Synres.

1985

Acrylic resins for printing inks and alkyd emulsions were introduced, reinforcing Synres' brand recognition in an increasingly crowded market.

1991

Launch of first generation of high solid alkyd resins

2008

Launch second generation of high solid alkyd resins

A tradition of excellence in synthetic resins



Our end-user segments

Your markets, our support



Decorative

Industrial wood

Agriculture,
Construction
& Earthmoving

Car refinish

Marine & Protective



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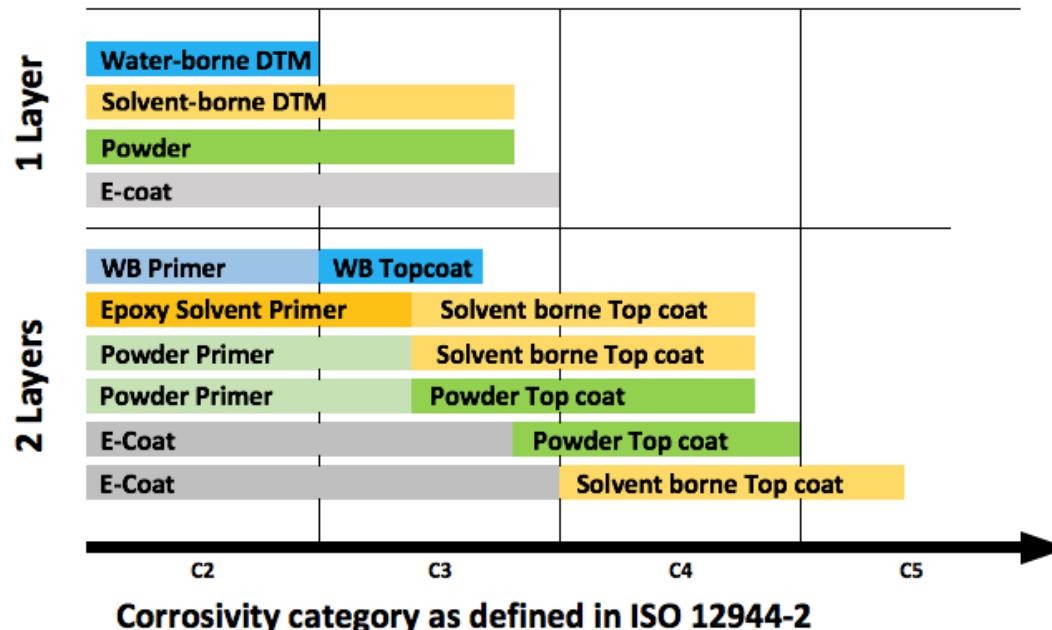
How to increase performance of DTM Coatings?

*Bench mark: epoxy primer in combination
with solvent borne 2 K topcoat*



ACE Technical market analysis | Technologies in the market

Technologies in the market and corrosion protection





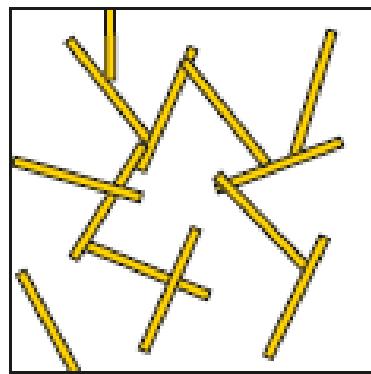
Poly-Urea modified thixotropic resins

Figure 6. Portfolio Urathix products.

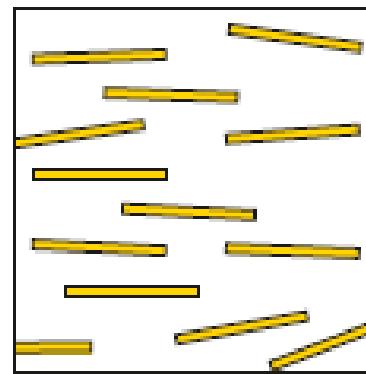
Resin	Acid value (mg KOH/g solid resin)	OH % (on solid resin)	Base resin	OH % base resin (on solid resin)
Acrylate				
Urathix F1200 60X-BAc	0-5	1.0	Uracron F12 60X-BAc	1.3
Urathix F1204 60X-BAc	Below 10	1.0	Uracron F12 60X-BAc	1.3
Urathix F2200 60BAc	0-5	1.9	Uracron F22 60BAc	2.2
Urathix F2200 60X	Below 5	1.9	Uracron F22 60X	2.2
Urathix F2702 60SOLA	Below 5	2.5	Uracron F27 60SOLA	2.7
Urathix F2702 60X	0.5	2.5	Uracron F27 60X	2.7
Urathix F3300 70 BAc	Max. 5	3.2	Uracron CY134-E70	3.4
Alkyd				
Urathix NT5002 60BAc	0-12	4.7	Uralac NT50 60BAc	5
Urathix B3200 60BAc	Below 15	1.7	Uralac B32 75BAc	1.9
Urathix B3201 60X	0-15	1.7	Uralac B32 60X	1.9



Mechanism of Poly-Urea modified thixotropic resins



CONTROLLED FLOCCULATION
(low shear)



NON FLOCCULATED
(high shear)



Solventborne resins ACE | Alkyds

1K & 2ALKYDS - MAINLY USED FOR ACE

	SUPPLY FORM	Viscosity (dPa.s @ 23°C)	ACID VALUE (MG KOH/G SOLID RESIN)	OH% ON SOLID RESIN	OIL LENGTH (%)	OIL TYPE	DESCRIPTION
Urakyd™ AM351 X-50	50X	20-30	26-32		32	TOFA	Phenolic modified short oil alkyds
Urakyd™ AM356 X-60	60X	60-85	10-20		34	Linseed	phenolic modified short oil alkyd
Urakyd™ AM352 X-60	60X	52-58	max 25		37	TOFA	Phenolic modified short oil alkyd
Urakyd™ B-32 75BAC	75BAC	75-110	015	2.4	32	SORA	Chain stopped Short oil alkyd
Urakyd™ AK429 X-60	60X	34-45	5-10	2.7	40	Conjugated/ SORA	Chain stopped medium oil alkyd
Urakyd™ AK436 W-55	55WS	60-80	5-10	1.9	49	SORA	Chain stopped medium oil alkyd



Urakyd AK429 X-60 and Urathix B3201 60X were combined to provide excellent properties for direct to metal application, like adhesion to multiple types of steel, sag resistance and quick drying. Even after 1000 hours of salt spray test blistering and delamination was nihil, which is shown below.



Test specimen of Urakyd AK429 X-60 and Urathix B3201 60X (AK15050) after 1000 h corrosion test: adhesion, blistering and delamination results are shown.

80 microns dry layer
Salt spray 1000 h
Field: 2S3 blisters

“Corrosion class 3”



Code:
Starting formulation for:
Based on:

AK15050
DTM primer top coat for transportation (semi gloss)
Urakyd AK429 X-60 / Urathix B3201 60X



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Raw materials	Weight%	Volume%	Function	Supplier
Urathix B3201 60X	12,08	14,22	binder	Synres
Durham Nuodex Calcium 5	0,34	0,38	Drier	Venator
Anti terra U	1,01	1,17	Dispersing agent	BYK Chemie
Solvesso 100 S	2,01	2,52	Solvent	Exxon Chemical
Bayferrox 130 M	10,06	2,20	Colour pigment	Lanxess
Pigmentan 465 M	5,03	2,49	Anti corrosive pigment	Pigmentan
Finntalo M15	2,01	0,81	Extender	Mondo Minerals
Durcal 2	2,01	0,80	Extender	Omya
Urad AF 21	0,08	0,09	Anti-Foaming agent	Synres B.V.
Disperse at high speed Add while stirring				
Urakyd AK429 X-60	25,76	28,15	Binder	Synres
Nuodex Drycoat	0,10	0,14	Drier	Venator
Durham Nuodex Zirconium 12	0,60	0,67	Drier	Venator
Solvesso 100 S	6,44	8,06	Solvent	Exxon Chemical
Xylene	8,05	10,21	Solvent	
EZ Blox	0,25	0,34	Anti skinning agent	Honeywell
Adjust the viscosity				
Solvesso 100 S	2,01	2,52	Solvent	Exxon Chemical
Xylene	6,04	7,66	Solvent	
100,00		100,00		

Density	1091	kg/m ³
PVC	16,2	%
Ratio's :	Weight%	Volume%
Colour pigments	10,1	2,2
Extenders & Fillers	9,1	4,1
Binders	32,4	32,7
Other solid materials	0,5	0,4
Subtotal: solid materials	52,0	39,4
Volatile organic solvents	47,0	59,4
Other liquid materials	1,0	1,2
Subtotal: liquid materials	48,0	60,6

Date of issue (dd-mm-yyyy): 18-04-2018

Applied layer thickness:	100 µm wet
Wet layer thickness	100 µm
Dry layer thickness	39 µm
Resulting yields:	
Weight	109 gram/ m ²
Volume	100 ml/ m ²
Area	9,2 m ² / kg
	10,0 m ² / liter
Colour pigments:	
Contents	110 g/ liter
Yield, indicated layer th.	11,0 g/ m ²
Yield, 100 µm dry layer	27,9 g/ m ²
Volatile organic solvents:	
Contents	513 g/ liter
Emission, indicated layer th.	51,3 g/ m ²
Emission, 100 µm dry layer	130,1 g/ m ²

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