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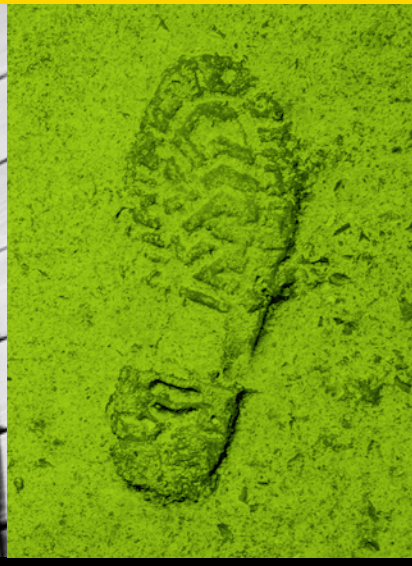
Since 1947



Synres low Carbon Foot Print Alkyds for Decorative Coatings

FOR MANY YEARS SYNRES HAS BEEN DEVELOPING HIGH QUALITY RESINS FOR THE DECORATIVE COATINGS INDUSTRY. OUR URAKYD BRAND IS WELL KNOWN WITHIN THE INDUSTRY, ENSURING TO BRING WHAT YOU NEED FOR AN OPTIMAL AND ECONOMICAL RESULT. NOW, WE OFFER OUR CUSTOMERS THE POSSIBILITY TO ACHIEVE THESE RESULTS WHILE LOWERING THE IMPACT OF OUR PRODUCTS ON THE ENVIRONMENT: THE URAKYD ECO RANGE OF PRODUCTS.

Market drivers for lowering the impact of coatings on the environment

Through the centuries, the coating industry made a lot of improvements in decreasing the impact of their products on the environment. Developments like powder coatings, water borne coatings and high solid coatings helped to lower their environmental impact. The last years, the public concern on possible climate change pushes governments in action mode. Governments are implementing measures on their Industry to lower the environmental impact of their activities. Other market drivers are:

- Reduction of the use of crude oil based raw materials
- Expected price increase for crude oil based raw materials
- Public appreciation for ecological friendly companies
- Consumers rewarding companies, shops and stores if measures are implemented to reduce the environmental impact of their activity and products
- Expected high growth figures for the Green Economy
- Promotion of investments in the Green Economy investments in Green Companies

Lots of discussions are taking place on what measures to implement, how effective this measures are and what targets to set. Among coatings, several approaches could be viable. A very concrete one is lowering the environmental impact following the Carbon Foot Print(CFP) calculation method. Data can be gathered from raw material supplier or international, transparent data banks, which could form the starting point of calculations. After all work, the Carbon Foot Print figure is the concrete value for the magnitude of the environmental impact of the product used. The carbon Foot Print values of the products used to formulate a coating, could be used as the basis to calculate the complete Life Cycle Assessment of the coating. The life Cycle Assessment(LCA) could be used by consumers to compare the ecological impact of the products they use and give the consumer a tool to influence their impact on the environment.

Carbon Foot print

'A measure of the exclusive total amount of carbon dioxide emissions that is directly and indirectly caused by an activity or is accumulated over the life-stages of a product'

$$CO_2eq(\text{cradle-to-grave}) = CO_2eq(\text{cradle-to-gate}) + \frac{CO_{2,C} \bullet n_{fossil}}{n_{total}}$$

$CO_{2,C}$ = carbon dioxide released at full combustion
n_{fossil} = number of fossil carbons in molecule
n_{total} = total number of carbons in molecule

- Use phase (transport and downstream) excluded from cradle-to-grave
- End-of –life includes CO2 released at full combustion

Life Cycle Assessment (LCA)

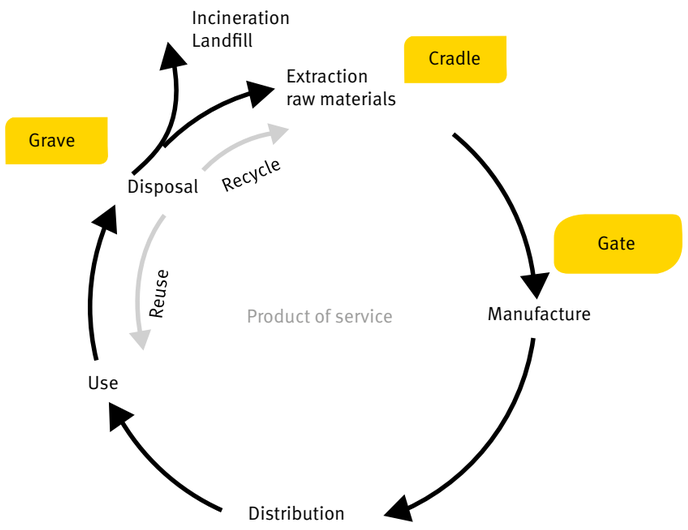


Figure 1. Method for determining environmental impact during its lifecycle

Carbon Foot print

A MEASURE OF THE EXCLUSIVE TOTAL AMOUNT OF CARBON DIOXIDE EMISSIONS THAT IS DIRECTLY AND INDIRECTLY CAUSED BY AN ACTIVITY OR IS ACCUMULATED OVER THE LIFE-STAGES OF A PRODUCT

- Based on best available data, calculations by experienced specialists on LCA.
- We can assist customers with supplying data for a full 14040/44 ISO compliant LCA report on the final paints and stains.
- Energy consumption input from Synres is taken into account, for both the conventional product as for the new low carbon foot print product. The energy consumption for all related products is equal.
- Losses: assumed losses are Xylene not recycled to the reaction vessel. Treatment: incineration with energy recovery (40% heat recovered, HHV = 43.4 MJ/kg).
- Waste water: assume the same amount as reaction water of Urakyd AD44 Q-70 versus the low CFP version.
- CFP in Kg CO2E per kg product: expressed in GWP(Global Warming Potential)

Decorative Paint Market

Urakyd ECO44 Q-70

URAKYD AD44 Q-70 IS THE "WORK HORSE" OF OUR DECORATIVE RESIN PORTFOLIO, HAVING MANY APPROVALS AND APPLICATIONS:

- Wood stains
- TRIM paints (window frames, doors, interior & exterior)
- Wood impregnations

By selecting Urakyd AD44 Q-70 and making a reduced carbon footprint version of it, we aim for volume effect: a substantial lower CFP version of Urakyd AD44 Q-70, can have a big impact due to volume. Choice for main stream impact instead of niche and therefore marginal impact.

Urakyd ECO97

URAKYD AD97 IS ORIGINALLY DESIGNED FOR STAINS AND WOOD OILS. SINCE THE INTRODUCTION OF THE EUROPEAN VOC 2010 LEGISLATION IT IS ALSO USED AS CO-BINDER TO DECREASE THE VOC OF PAINTS AND STAINS:

- Wood stains
- TRIM paints (window frames, doors, interior & exterior)
- Wood impregnations
- Alkyd resin emulsions in water

By selecting Urakyd AD97 and making a reduced carbon footprint version of it, we offer customers the possibility to formulate a VOC2010 compliant high solid coating or stain with a decreased carbon footprint. Urakyd AD97 has a good hydrolytic stability, so is very suitable for formulating stains and paints which include water. Water is further reducing the cradle to grave carbon footprint of the related coating.

Urakyd ECO62 Q1-85

URAKYD AD62 Q1-85 IS A RELATIVELY NEW VERSATILE PRODUCT OF OUR DECORATIVE RESIN PORTFOLIO, IT ENABLES OUR CUSTOMERS TO USE ONE RESIN FOR LOTS OF EU VOC2010 COMPLIANT COATINGS:

- Wood stains
- TRIM paints (window frames, doors, interior & exterior)

By selecting Urakyd AD62 Q1-85 and making a reduced carbon footprint version of it, we offer our customers the possibility to reduce the carbon foot print of their coatings. Urakyd AD62 Q1-85 is especially designed to be stable in coating formulations which contain water.

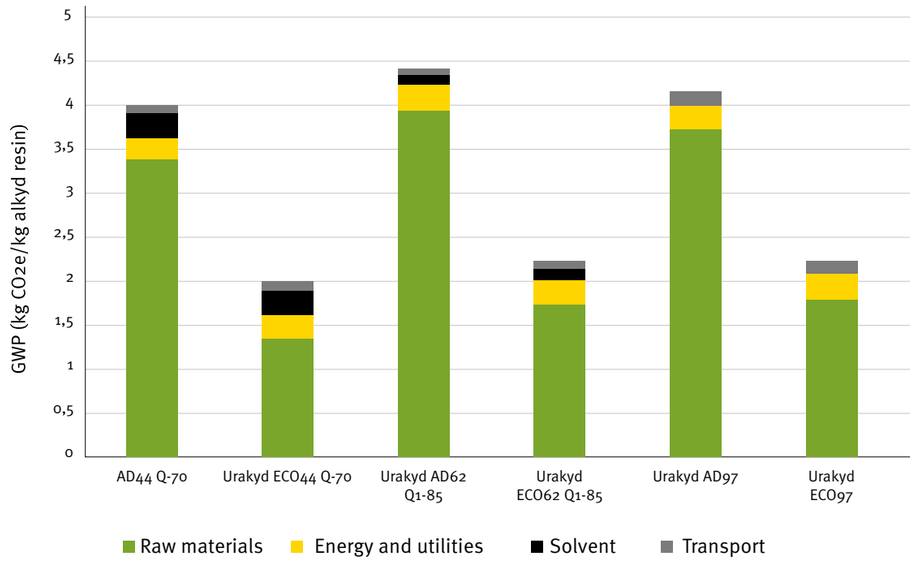
Tool Box for lowering carbon footprint

STARTING POINT: URAKYD ECO SHOULD BE A DROP IN FOR THE URAKYD AD REFERENCE PRODUCT.

- Replace part of the crude oil based backbone of the alkyds by Puralact B3 from Corbion
- Guarantee local(EMEA, preferably Europe) sourcing of raw materials
- Implemented tweaks to obtain equal hydrolytic stability to reference product

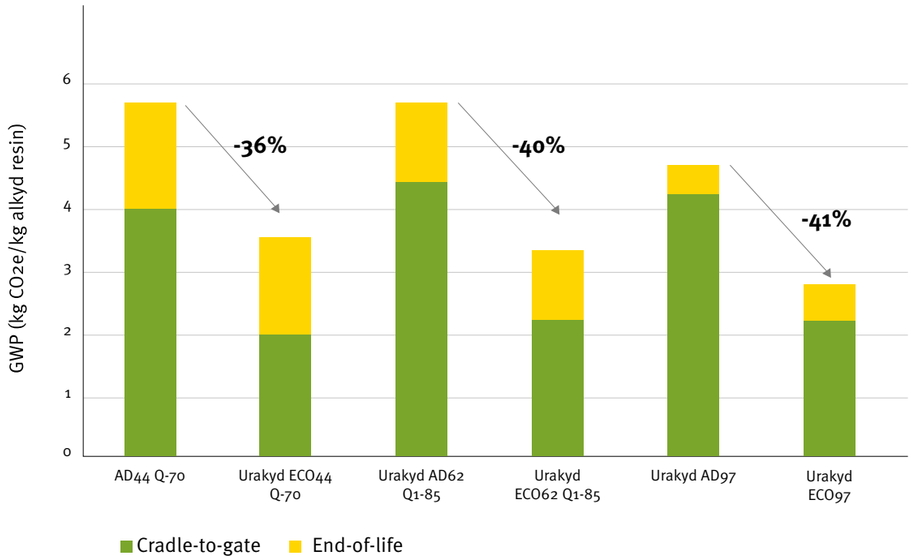
RANGE OF URAKYD ECO LOW CARBON FOOTPRINT ALKYDS

	SUPPLY FORM	VISCOSITY (dPa.s @ 23°C)	ACID VALUE (mg KOH/g SOLID RESIN)	OIL TYPE	OIL LENGTH (%)	DESCRIPTION	MAIN FEATURE	INTERIOR	EXTERIOR	PRIMER	TOPCOAT	STAINS	FURNITURE	HS EC VOC 2010	WOOD IMPREGNATION
Urakyd™ ECO44 Q-70	70D40	50-68	7-12	Linoleic rich fatty acids	63	Universal long oil alkyd with low carbon footprint	Universal long oil alkyd with low carbon footprint	•	•	•	•	•		•	
Urakyd™ ECO97	100% solids	20-30	max 12	Linoleic rich fatty acids	83	Low viscosity long oil alkyd with low carbon footprint	Low viscosity long oil alkyd with low carbon footprint	•	•	•	•	•		•	•
Urakyd™ ECO62 Q1-85	85D60	65-80	max 12	Linoleic rich fatty acids	70	High solid alkyd with low carbon footprint	High solid alkyd with low carbon footprint	•	•	•	•	•	•	•	



The modified ECO recipes potentially reduce the footprint of alkyd resins by 50% at cradle-to-gate

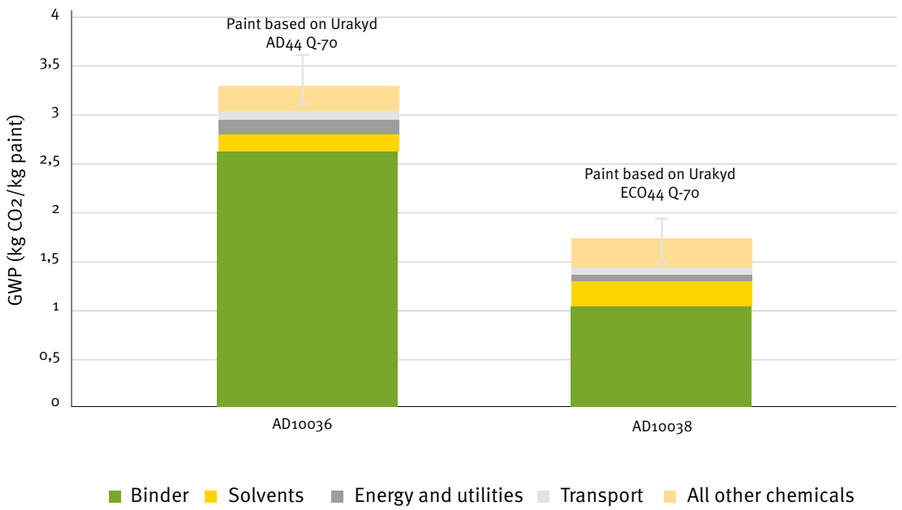
Figure 2. Cradle to Gate Carbon Foot Print Urakyd ECO products versus Urakyd AD references



Use phase (transport and downstream) excluded from Cradle-to-grave End-of-life considers CO2 released at full combustion

Figure 3. Cradle to Grave Carbon Foot Print Urakyd ECO products versus Urakyd AD references

Recipe changes for lowering carbon footprint



The modified Urakyd ECO based recipes potentially reduce the footprint of paints up to 50% at Cradle-to-Gate

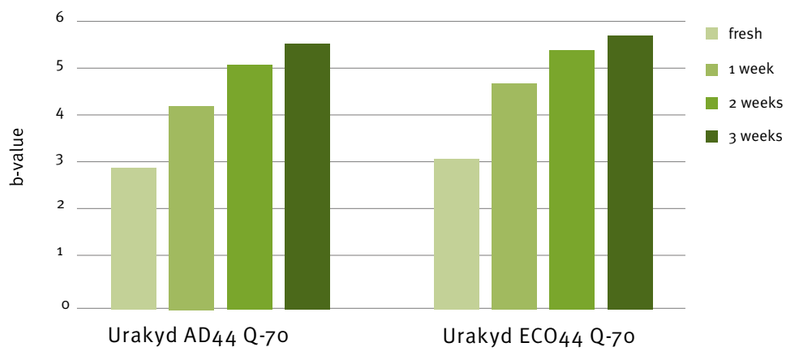
Figure 4. Critical factor: 13% of the chemicals used in the formulation do not have a specific emission factor ("other chemicals", including drier, color paste, etc.). They are included in the LCA model as "generic chemicals" and have an associated high uncertainty.

Urakyd ECO Low Carbon Foot Print Resins

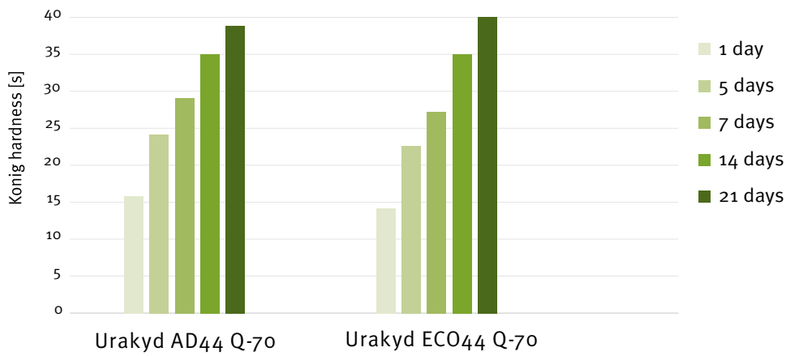
- Urakyd ECO product range potentially reduces the Carbon footprint of alkyd resins by 50% at cradle-to gate
- Properties of Urakyd ECO products are close to the reference products
- Due to the lower acid value of the Urakyd ECO products, driers might need fine tuning.
- By developing the Urakyd ECO range of products, we offer our customers a tool to lower their impact on the environment and improve the acceptance of coatings to the public and governmental bodies.

Application test results Urakyd AD44 Q-70 versus Urakyd ECO 44 Q-70

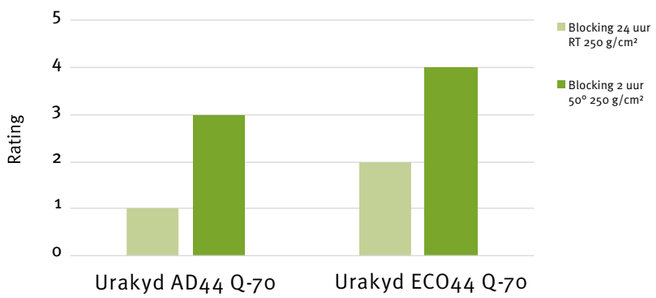
Dark Yellowing, b-value



Konig Hardness (100 um) wft

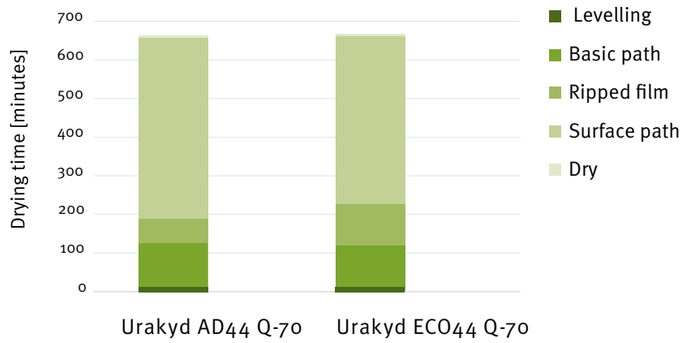


Blocking resistance

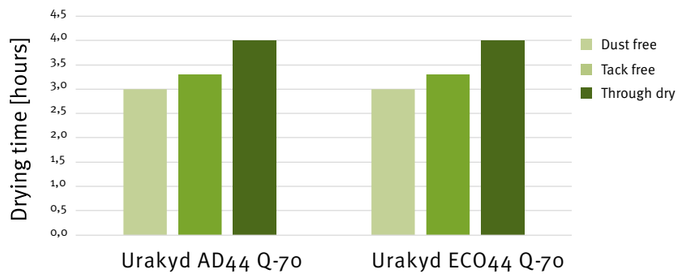


Application test results Urakyd AD44 Q-70 versus Urakyd ECO 44 Q-70

BK drying recorder



Cotton wool drying



- Equal performance as reference
- Low CFP Urakyd ECO44 Q-70 has lower acid value, noticed in difference in acceptation of universal colorants

Code: AD07124

Starting formulation for: Primer for wood (10% water)
Based on: Urakyd ECO44 Q-70
Date of issue (dd-mm-yyyy): 05-03-2019

RAW MATERIALS	WEIGHT%	VOLUME% (OVERALL)	FUNCTION	SUPPLIER
DISPERSE AT HIGH SPEED				
Urakyd ECO44 Q-70	20,43	26,91	Binder	Synres
Exxsol D 40	4,66	7,45	Solvent	Exxon Chemical
Nuosperse FA 601	0,89	1,12	Wetting agent	Elementis Specialties
Octa-Soligen Calcium 5 neutral	0,53	0,67	Drier	OMG Borchers GmbH
Finntalc M15	7,32	3,34	Extender	Mondo Minerals
Microdol A 1	14,23	6,15	Extender	Omya
Tioxide TR 92	14,99	4,62	Colour pigment	Venator
Bentone SD 1	0,27	0,23	Rheology modifier	Elementis Specialties
ADD WHILE STIRRING				
BYK 052	0,04	0,06	Anti foaming agent	BYK Chemie
LPR76	1,16	1,47	polysaccharide resin	Lorama Group
Demineralized water	9,87	12,16		
DISPERSE AT HIGH SPEED STIR FOR 30 MINUTES				
Urakyd ECO44 Q-70	16,78	22,11	Binder	Synres
Exxsol D 40	5,00	7,99	Solvent	Exxon Chemical
Ecos ND 15	0,34	0,43	Drier	Ecos
Octa-Soligen Zirconium 12	0,81	1,01	Drier	OMG Borchers GmbH
EZ Blox	0,27	0,41	Anti skinning agent	AdvanSix
ADJUST THE VISCOSITY				
Exxsol D 40	2,43	3,88	Solvent	Exxon Chemical
	100,00	100,00		

COMPOSITION DATA

DENSITY	1232	KG/M3
PVC	30,6	%

RATIO´S:	WEIGHT%	VOLUME%
Colour pigments	15,0	4,6
Extenders & Fillers	21,5	9,5
Binders	26,8	32,0
Other solid materials	0,9	0,8
SUBTOTAL: SOLID MATERIALS	64,3	47,0
Volatile organic solvents	24,2	38,8
Other liquid materials	11,6	14,3
SUBTOTAL: LIQUID MATERIALS	35,8	53,0

APPLICATION DATA

APPLIED LAYER THICKNESS:	100	µm WET
Wet layer thickness	100	µm
Dry layer thickness	47	µm
RESULTING YIELDS:		
Weight	123	gram/ m2
Volume	100	ml/ m2
Area	8,1	m2/ kg
	10,0	m2/ liter
COLOUR PIGMENTS:		
Contents	185	g/ liter
Yield, indicated layer th.	18,5	g/ m2
Yield, 100 µm dry layer	39,4	g/ m2
VOLATILE ORGANIC SOLVENTS:		
Contents	299	g/ liter
Emission, indicated layer th.	29,9	g/ m2
Emission, 100 µm dry layer	63,6	g/ m2

Code: AD09119

Starting formulation for: High gloss white topcoat
Based on: Urakyd ECO44 Q-70/ Urakyd ECO97
Date of issue (dd-mm-yyyy): 05-03-2019

RAW MATERIALS	WEIGHT%	VOLUME% (OVERALL)	FUNCTION	SUPPLIER
Urakyd ECO44 Q-70	29,10	36,99	Binder	Synres
Nuosperse FA 601	0,29	0,35	Wetting agent	Elementis Specialties
Tioxide TR 92	28,97	8,61	Colour pigment	Venator
Exxsol D 40	1,93	2,98	Solvent	Exxon Chemical
DISPERSE AT HIGH SPEED				
ADD WHILE STIRRING				
Urakyd ECO44 Q-70	11,88	15,10	Binder	Synres
Urakyd AD97	14,49	17,11	Binder	Synres
Ecos ND 15	0,60	0,74	Drier	Ecos
Octa-Soligen Calcium 5 neutral	1,61	1,95	Drier	OMG Borchers GmbH
Octa-Soligen Zirconium 12	2,90	3,48	Drier	OMG Borchers GmbH
EZ Blox	0,39	0,58	Anti skinning agent	AdvanSix
Exxsol D 40	5,55	8,57	Solvent	Exxon Chemical
ADJUST THE VISCOSITY				
Exxsol D 40	2,29	3,54	Solvent	Exxon Chemical
	100,00	100,00		

COMPOSITION DATA

DENSITY	1189	KG/M3
PVC	14,6	%

RATIO´S:	WEIGHT%	VOLUME%
Colour pigments	29,0	8,6
Extenders & Fillers		
Binders	43,5	50,6
Other solid materials	2,2	1,9
SUBTOTAL: SOLID MATERIALS	74,7	61,1
Volatile organic solvents	25,0	38,5
Other liquid materials	0,3	0,4
SUBTOTAL: LIQUID MATERIALS	25,3	38,9

APPLICATION DATA

APPLIED LAYER THICKNESS:	100	µm WET
Wet layer thickness	100	µm
Dry layer thickness	61	µm
RESULTING YIELDS:		
Weight	119	gram/ m2
Volume	100	ml/ m2
Area	8,4	m2/ kg
	10,0	m2/ liter
COLOUR PIGMENTS:		
Contents	345	g/ liter
Yield, indicated layer th.	34,5	g/ m2
Yield, 100 µm dry layer	56,4	g/ m2
VOLATILE ORGANIC SOLVENTS:		
Contents	297	g/ liter
Emission, indicated layer th.	29,7	g/ m2
Emission, 100 µm dry layer	48,6	g/ m2

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Code: AD09122

Starting formulation for: High gloss white Top Coat (15% water) EI-method
Based on: Urakyd ECO44 Q-70
Date of issue (dd-mm-yyyy): 05-03-2019

RAW MATERIALS	WEIGHT%	VOLUME% (OVERALL)	FUNCTION	SUPPLIER
DISPERSE AT HIGH SPEED				
Urakyd ECO44 Q-70	28,29	33,87	Binder	Synres
Nuosperse FA 601	0,25	0,29	Wetting agent	Elementis Specialties
Tioxide TR 92	23,29	6,52	Colour pigment	Venator
Exxsol D 40	2,06	2,99	Solvent	Exxon Chemical
ADD WHILE STIRRING				
Urakyd ECO44 Q-70	12,34	14,77	Binder	Synres
Exxsol D 40	0,90	1,31	Solvent	Exxon Chemical
Ecos ND 15	0,45	0,52	Drier	Ecos
Octa-Soligen Calcium 5 neutral	1,20	1,37	Drier	OMG Borchers GmbH
Octa-Soligen Zirconium 12	1,43	1,62	Drier	OMG Borchers GmbH
EZ Blox	0,25	0,35	Anti skinning agent	AdvanSix
PREMIX:				
Urakyd ECO44 Q-70	3,80	4,55	Binder	Synres
Exxsol D 40	4,88	7,09	Solvent	Exxon Chemical
BYK 052	0,05	0,06	Anti foaming agent	BYK Chemie
LPR76	1,77	2,04	polysaccharide resin	Lorama Group
Demineralized water	15,11	16,91		
DISPERSE AT HIGH SPEED STIR FOR 30 MINUTES, ADD TO THE ABOVE				
ADJUST THE VISCOSITY				
Exxsol D 40	3,94	5,73	Solvent	Exxon Chemical
	100,00	100,00		

COMPOSITION DATA

DENSITY	1120	KG/M3
PVC	15,8	%

RATIO´S:	WEIGHT%	VOLUME%
Colour pigments	23,3	6,5
Extenders & Fillers		
Binders	32,2	35,0
Other solid materials	1,3	1,1
SUBTOTAL: SOLID MATERIALS	56,8	42,6
Volatile organic solvents	26,8	38,9
Other liquid materials	16,6	18,6
SUBTOTAL: LIQUID MATERIALS	43,3	57,4

APPLICATION DATA

APPLIED LAYER THICKNESS:	100	µm WET
Wet layer thickness	100	µm
Dry layer thickness	43	µm
RESULTING YIELDS:		
Weight	112	gram/ m2
Volume	100	ml/ m2
Area	8,9	m2/ kg
	10,0	m2/ liter
COLOUR PIGMENTS:		
Contents	261	g/ liter
Yield, indicated layer th.	26,1	g/ m2
Yield, 100 µm dry layer	61,3	g/ m2
VOLATILE ORGANIC SOLVENTS:		
Contents	300	g/ liter
Emission, indicated layer th.	30,0	g/ m2
Emission, 100 µm dry layer	70,4	g/ m2

Code: AD09123

Starting formulation for: High gloss white Top Coat (15% water)
Based on: Urakyd ECO44 Q-70
Date of issue (dd-mm-yyyy): 05-03-2019

RAW MATERIALS	WEIGHT%	VOLUME% (OVERALL)	FUNCTION	SUPPLIER
DISPERSE AT HIGH SPEED				
Urakyd ECO44 Q-70	28,29	33,87	Binder	Synres
Nuosperse FA 601	0,25	0,29	Wetting agent	Elementis Specialties
Octa-Soligen Calcium 5 neutral	1,20	1,37	Drier	OMG Borchers GmbH
Tioxide TR 92	23,29	6,52	Colour pigment	Venator
Exxsol D 40	2,06	2,99	Solvent	Exxon Chemical
ADD WHILE STIRRING				
BYK 052	0,05	0,06	Anti foaming agent	BYK Chemie
LPR76	1,77	2,04	polysaccharide resin	Lorama Group
Demineralized water	15,11	16,91		
DISPERSE AT HIGH SPEED STIR FOR 30 MINUTES				
ADD WHILE STIRRING				
Urakyd ECO44 Q-70	16,14	19,32	Binder	Synres
Exxsol D 40	5,78	8,40	Solvent	Exxon Chemical
Ecos ND 15	0,45	0,52	Drier	Ecos
Octa-Soligen Zirconium 12	1,43	1,62	Drier	OMG Borchers GmbH
EZ Blox	0,25	0,35	Anti skinning agent	AdvanSix
ADJUST THE VISCOSITY				
Exxsol D 40 E	3,94	5,73	Solvent	Exxon Chemical
	100,00	100,00		

COMPOSITION DATA

DENSITY	1120	KG/M3
PVC	15,8	%

RATIO´S:	WEIGHT%	VOLUME%
Colour pigments	23,3	6,5
Extenders & Fillers		
Binders	32,2	35,0
Other solid materials	1,3	1,1
SUBTOTAL: SOLID MATERIALS	56,8	42,6
Volatile organic solvents	26,8	38,9
Other liquid materials	16,6	18,6
SUBTOTAL: LIQUID MATERIALS	43,3	57,4

APPLICATION DATA

APPLIED LAYER THICKNESS:	100	µm WET
Wet layer thickness	100	µm
Dry layer thickness	43	µm
RESULTING YIELDS:		
Weight	112	gram/ m2
Volume	100	ml/ m2
Area	8,9	m2/ kg
	10,0	m2/ liter
COLOUR PIGMENTS:		
Contents	261	g/ liter
Yield, indicated layer th.	26,1	g/ m2
Yield, 100 µm dry layer	61,3	g/ m2
VOLATILE ORGANIC SOLVENTS:		
Contents	300	g/ liter
Emission, indicated layer th.	30,0	g/ m2
Emission, 100 µm dry layer	70,4	g/ m2

Code: AD09129

Starting formulation for: Outdoor high gloss white topcoat (Cobalt free)
Based on: Urakyd ECO44 Q-70/ Urakyd ECO97
Date of issue (dd-mm-yyyy): 05-03-2019

RAW MATERIALS	WEIGHT%	VOLUME% (OVERALL)	FUNCTION	SUPPLIER
Urakyd ECO44 Q-70	30,10	38,79	Binder	Synres
Nuosperse FA 601	0,30	0,37	Wetting agent	Elementis Specialties
Tioxide TR 92	30,00	9,04	Colour pigment	Venator
Exxsol D 40	2,00	3,13	Solvent	Exxon Chemical
DISPERSE AT HIGH SPEED				
ADD WHILE STIRRING				
Urakyd ECO44 Q-70	8,78	11,31	Binder	Synres
Urakyd AD97	16,50	19,75	Binder	Synres
Nuodex Drycoat	0,50	0,75	Drier	Venator
Octa-Soligen Calcium 5 neutral	1,67	2,05	Drier	OMG Borchers GmbH
Octa-Soligen Zirconium 12	3,00	3,65	Drier	OMG Borchers GmbH
EZ Blox	0,40	0,60	Anti skinning agent	AdvanSix
Exxsol D 40	5,75	9,00	Solvent	Exxon Chemical
ADJUST THE VISCOSITY				
Exxsol D 40	1,00	1,57	Solvent	Exxon Chemical
	100,00	100,00		

COMPOSITION DATA

DENSITY	1205	KG/M3
PVC	15,1	%

RATIO´S:	WEIGHT%	VOLUME%
Colour pigments	30,1	9,1
Extenders & Fillers		
Binders	43,6	51,3
Other solid materials	2,3	2,0
SUBTOTAL: SOLID MATERIALS	75,9	62,5
Volatile organic solvents	23,8	37,2
Other liquid materials	0,3	0,4
SUBTOTAL: LIQUID MATERIALS	24,1	37,5

APPLICATION DATA

APPLIED LAYER THICKNESS:	100	µm WET
Wet layer thickness	100	µm
Dry layer thickness	62	µm
RESULTING YIELDS:		
Weight	121	gram/ m2
Volume	100	ml/ m2
Area	8,3	m2/ kg
	10,0	m2/ liter
COLOUR PIGMENTS:		
Contents	362	g/ liter
Yield, indicated layer th.	36,2	g/ m2
Yield, 100 µm dry layer	58,0	g/ m2
VOLATILE ORGANIC SOLVENTS:		
Contents	287	g/ liter
Emission, indicated layer th.	28,7	g/ m2
Emission, 100 µm dry layer	45,9	g/ m2

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Code: AD09135

Starting formulation for: Semi gloss paint
Based on: Urakyd ECO62 Q1-85
Date of issue (dd-mm-yyyy): 05-03-2019

RAW MATERIALS	WEIGHT%	VOLUME% (OVERALL)	FUNCTION	SUPPLIER
Urakyd ECO 62 Q1-85	26,88	33,45	Binder	Synres
Nuosperse FA 601	0,28	0,35	Wetting agent	Elementis Specialties
Exxsol D 60	2,80	4,39	Solvent	Exxon Chemical
Tioxide TR 92	27,67	8,36	Colour pigment	Venator
DISPERSE AT HIGH SPEED				
Urakyd ECO 62 Q1-85	20,72	25,78	Binder	Synres
Acematt OK 412	5,00	2,75	Extender	Evonik
Ecos ND 15	0,70	0,88	Drier	Ecos
Octa-Soligen Zirconium 12	1,59	1,94	Drier	OMG Borchers GmbH
Octa-Soligen Calcium 5 neutral	1,21	1,49	Drier	OMG Borchers GmbH
Exxsol D 60	7,65	12,01	Solvent	Exxon Chemical
EZ Blox	0,37	0,56	Anti skinning agent	AdvanSix
ADJUST THE VISCOSITY				
Exxsol D 60	5,13	8,05	Solvent	Exxon Chemical
	100,00	100,00		

COMPOSITION DATA

DENSITY	1208	KG/M3
PVC	18,6	%

RATIO´S:	WEIGHT%	VOLUME%
Colour pigments	27,7	8,4
Extenders & Fillers	5,0	2,7
Binders	41,0	48,9
Other solid materials	1,4	1,2
SUBTOTAL: SOLID MATERIALS	75,1	61,2
Volatile organic solvents	24,6	38,4
Other liquid materials	0,3	0,3
SUBTOTAL: LIQUID MATERIALS	24,9	38,8

APPLICATION DATA

APPLIED LAYER THICKNESS:	100	µm WET
Wet layer thickness	100	µm
Dry layer thickness	61	µm
RESULTING YIELDS:		
Weight	121	gram/ m2
Volume	100	ml/ m2
Area	8,3	m2/ kg
	10,0	m2/ liter
COLOUR PIGMENTS:		
Contents	335	g/ liter
Yield, indicated layer th.	33,5	g/ m2
Yield, 100 µm dry layer	54,7	g/ m2
VOLATILE ORGANIC SOLVENTS:		
Contents	298	g/ liter
Emission, indicated layer th.	29,8	g/ m2
Emission, 100 µm dry layer	48,6	g/ m2

Code: AD09136

Starting formulation for: High gloss paint
Based on: Urakyd ECO62 Q1-85
Date of issue (dd-mm-yyyy): 05-03-2019

RAW MATERIALS	WEIGHT%	VOLUME% (OVERALL)	FUNCTION	SUPPLIER
Urakyd ECO 62 Q1-85	23,80	29,18	Binder	Synres
Nuosperse FA 601	0,30	0,36	Wetting agent	Elementis Specialties
Exxsol D 60	2,95	4,56	Solvent	Exxon Chemical
Tioxide TR 92	29,65	8,82	Colour pigment	Venator
DISPERSE AT HIGH SPEED				
Urakyd ECO 62 Q1-85	27,20	33,35	Binder	Synres
Octa-Soligen Cobalt 10	0,30	0,34	Drier	OMG Borchers GmbH
Octa-Soligen Zirconium 12	1,70	2,04	Drier	OMG Borchers GmbH
Octa-Soligen Calcium 5 neutral	1,30	1,58	Drier	OMG Borchers GmbH
Exxsol D 60	8,20	12,68	Solvent	Exxon Chemical
EZ Blox	0,40	0,59	Anti skinning agent	AdvanSix
ADJUST THE VISCOSITY				
Exxsol D 60	4,20	6,49	Solvent	Exxon Chemical
	100,00	100,00		

COMPOSITION DATA

DENSITY	1191	KG/M3
PVC	14,8	%

RATIO´S:	WEIGHT%	VOLUME%
Colour pigments	29,7	8,9
Extenders & Fillers		
Binders	43,4	50,8
Other solid materials	1,7	1,5
SUBTOTAL: SOLID MATERIALS	74,7	61,2
Volatile organic solvents	25,0	38,5
Other liquid materials	0,3	0,4
SUBTOTAL: LIQUID MATERIALS	25,3	38,8

APPLICATION DATA

APPLIED LAYER THICKNESS:	100	µm WET
Wet layer thickness	100	µm
Dry layer thickness	61	µm
RESULTING YIELDS:		
Weight	119	gram/ m2
Volume	100	ml/ m2
Area	8,4	m2/ kg
	10,0	m2/ liter
COLOUR PIGMENTS:		
Contents	353	g/ liter
Yield, indicated layer th.	35,3	g/ m2
Yield, 100 µm dry layer	57,8	g/ m2
VOLATILE ORGANIC SOLVENTS:		
Contents	298	g/ liter
Emission, indicated layer th.	29,8	g/ m2
Emission, 100 µm dry layer	48,7	g/ m2

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Code: AD10036

Starting formulation for: Transparent Woodstain
Based on: Urakyd ECO44 Q-70/ Urakyd ECO97
Date of issue (dd-mm-yyyy): 05-03-2019

RAW MATERIALS	WEIGHT%	VOLUME% (OVERALL)	FUNCTION	SUPPLIER
ADD WHILE STIRRING				
Urakyd ECO44 Q-70	62,30	62,91	Binder	Synres
Urakyd AD97	4,25	3,98	Binder	Synres
Dowanol PM	1,68	1,76	Solvent	Dow Chemical Europe
Exxsol D 40	4,19	5,14	Solvent	Exxon Chemical
Bentone SD 1	0,23	0,15	Rheology modifier	Elementis Specialties
DISSOLVE				
Octa-Soligen Cobalt 10	0,34	0,30	Drier	OMG Borchers GmbH
Octa-Soligen Calcium 5 neutral	1,14	1,10	Drier	OMG Borchers GmbH
Octa-Soligen Zirconium 12	1,52	1,45	Drier	OMG Borchers GmbH
Disperfin 450 LH ox. Red	1,67	1,47	Colour paste	Venator
Disperfin 450 LH ox. Yellow	0,45	0,40	Colour paste	Venator
Addipast Black 155 LH	0,09	0,08	Colour paste	Venator
Fungitrol C450	0,18	0,11	Anti mildew agent	Troy Chemical Corporation
Syloid ED 30	7,23	3,10	Extender	Grace
Exxsol D 40	14,46	17,74	Solvent	Exxon Chemical
EZ Blox	0,27	0,32	Anti skinning agent	AdvanSix
	100,00	100,00		

COMPOSITION DATA

DENSITY	944	KG/M3
PVC	6,6	%

RATIO´S:	WEIGHT%	VOLUME%
Colour pigments	0,3	0,1
Extenders & Fillers	7,2	3,1
Binders	49,3	45,3
Other solid materials	1,7	1,2
SUBTOTAL: SOLID MATERIALS	58,7	49,8
Volatile organic solvents	41,2	50,1
Other liquid materials	0,2	0,1
SUBTOTAL: LIQUID MATERIALS	41,3	50,2

APPLICATION DATA

APPLIED LAYER THICKNESS:	100	µm WET
Wet layer thickness	100	µm
Dry layer thickness	50	µm
RESULTING YIELDS:		
Weight	94	gram/ m2
Volume	100	ml/ m2
Area	10,6	m2/ kg
	10,0	m2/ liter
COLOUR PIGMENTS:		
Contents	3	g/ liter
Yield, indicated layer th.	0,3	g/ m2
Yield, 100 µm dry layer	0,7	g/ m2
VOLATILE ORGANIC SOLVENTS:		
Contents	389	g/ liter
Emission, indicated layer th.	38,9	g/ m2
Emission, 100 µm dry layer	78,1	g/ m2

Code: AD10038

Starting formulation for: Transparent Woodstain
Based on: Urakyd ECO44 Q-70/ Urakyd ECO97 with Lorama
Date of issue (dd-mm-yyyy): 05-03-2019

RAW MATERIALS	WEIGHT%	VOLUME% (OVERALL)	FUNCTION	SUPPLIER
ADD WHILE STIRRING				
Urakyd ECO44 Q-70	48,01	47,81	Binder	Synres
Urakyd AD97	3,27	3,03	Binder	Synres
Dowanol PM	1,74	1,79	Solvent	Dow Chemical Europe
Exxsol D 40	4,21	5,09	Solvent	Exxon Chemical
BYK 052	0,20	0,21	Anti foaming agent	BYK Chemie
LPR 76	1,94	1,57	Binder	Lorama Chemicals INC
Octa-Soligen Calcium 5 neutral	0,88	0,83	Drier	OMG Borchers GmbH
Demineralized water	15,50	14,44		
DISSOLVE				
Octa-Soligen Zirconium 12	1,17	1,10	Drier	OMG Borchers GmbH
Nuodex Drycoat	0,37	0,43	Drier	Venator
Disperfin 450 LH ox. Red	1,29	1,12	Colour paste	Venator
Disperfin 450 LH ox. Yellow	0,35	0,31	Colour paste	Venator
Addipast Black 155 LH	0,07	0,06	Colour paste	Venator
Fungitrol C450	0,20	0,12	Anti mildew agent	Troy Chemical Corporation
Ceraflour 1000	6,58	4,90	Matting Wax	BYK Chemie
Exxsol D 40	13,94	16,86	Solvent	Exxon Chemical
EZ Blox	0,28	0,32	Anti skinning agent	AdvanSix
	100,00	**100,00**		

COMPOSITION DATA

DENSITY	**931**	KG/M3
PVC	**0,3**	%

RATIO´S:	WEIGHT%	VOLUME%
Colour pigments	0,3	0,1
Extenders & Fillers		
Binders	38,9	35,0
Other solid materials	7,6	5,6
SUBTOTAL: SOLID MATERIALS	**46,8**	**40,7**
Volatile organic solvents	36,2	43,5
Other liquid materials	17,0	15,8
SUBTOTAL: LIQUID MATERIALS	**53,2**	**59,3**

APPLICATION DATA

APPLIED LAYER THICKNESS:	**100**	**µm WET**
Wet layer thickness	100	µm
Dry layer thickness	41	µm
RESULTING YIELDS:		
Weight	93	gram/ m2
Volume	100	ml/ m2
Area	10,7	m2/ kg
	10,0	m2/ liter
COLOUR PIGMENTS:		
Contents	3	g/ liter
Yield, indicated layer th.	0,3	g/ m2
Yield, 100 µm dry layer	0,7	g/ m2
VOLATILE ORGANIC SOLVENTS:		
Contents	338	g/ liter
Emission, indicated layer th.	33,8	g/ m2
Emission, 100 µm dry layer	82,9	g/ m2

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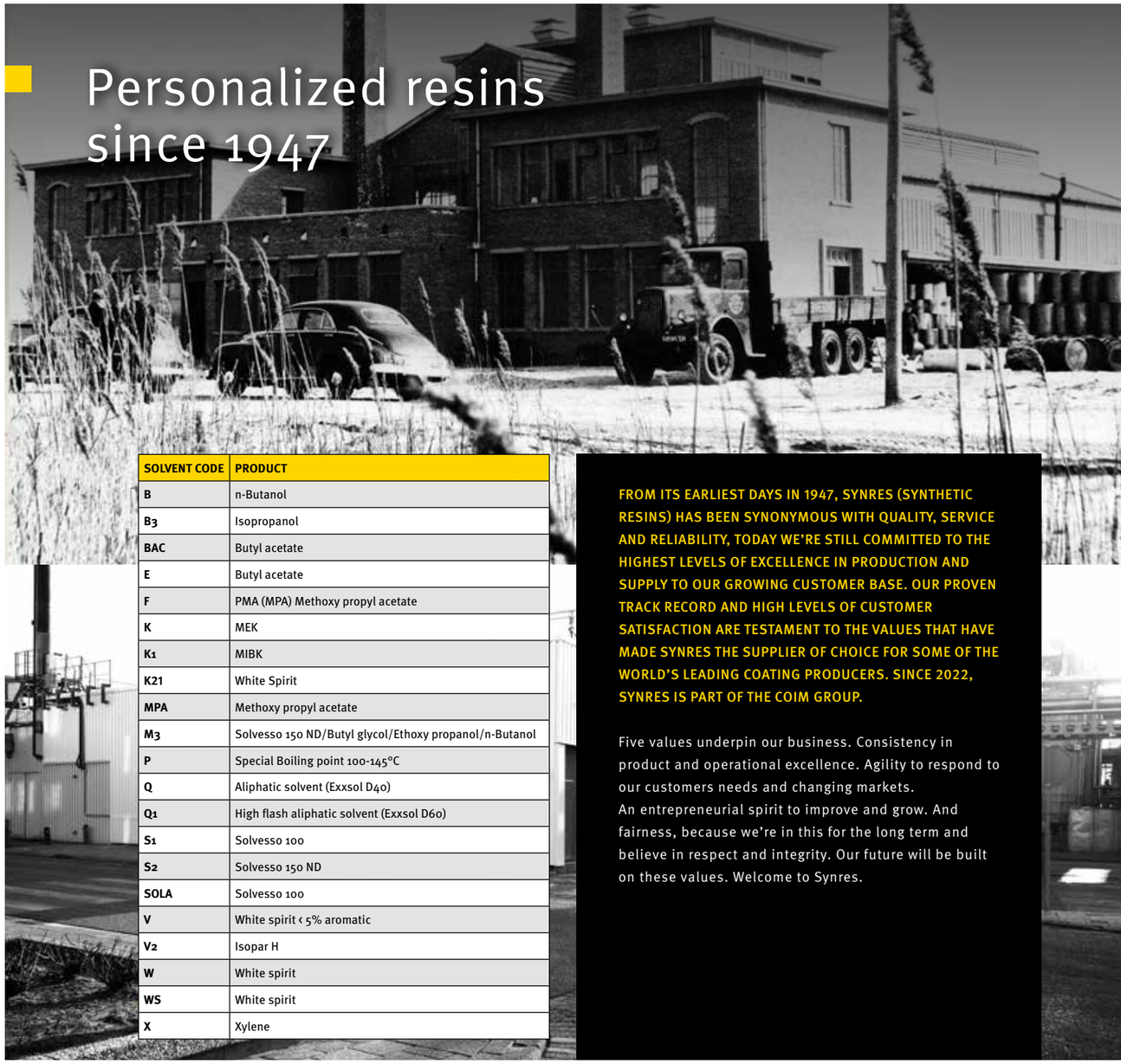

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SOLVENT CODE	PRODUCT
B	n-Butanol
B3	Isopropanol
BAC	Butyl acetate
E	Butyl acetate
F	PMA (MPA) Methoxy propyl acetate
K	MEK
K1	MIBK
K21	White Spirit
MPA	Methoxy propyl acetate
M3	Solvesso 150 ND/Butyl glycol/Ethoxy propanol/n-Butanol
P	Special Boiling point 100-145°C
Q	Aliphatic solvent (Exxsol D40)
Q1	High flash aliphatic solvent (Exxsol D60)
S1	Solvesso 100
S2	Solvesso 150 ND
SOLA	Solvesso 100
V	White spirit < 5% aromatic
V2	Isopar H
W	White spirit
WS	White spirit
X	Xylene

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