Surface Specialties

Liquid Coating Resins

Product Guide

Asia Pacific

Contents

About us

Surface Specialties is a global leader in the development and production of technically innovative products for surface applications. With a strong market focus and broad product portfolio, the organisation is keenly focused on providing value-added solutions for customers throughout the world.

Surface Specialties has three main business units : Coating Resins & Additives,Adhesives and Technical Resins.

Coating Resins & Additives

We have the broadest range of speciality resins and additives for coatings and inks, especially for high-performing eco-friendly systems (water, UV, powder, high solids).

Sustained innovation comes from our application and development know-how, coupled with our leadership in research and development.

Adhesives

We are the world leader in the production of high performance pressure-sensitive adhesives for labels, tapes and medical.

Technical Resins

Our Technical Resins serve more than 20 markets, including tyres, sanitary products, textile coatings, abrasives and woodboard panels. Tailor-made solutions and fast response logistics augment our leading position in melamine, polyurethane, phenolic and unsaturated polyester resins in Europe.

Surface Specialties is part of the Belgium-based UCB Group that also has substantial global interests in pharmaceutical development and production (allergy / asthma and neurology).

Resins and Additives

In addition to the broad range of liquid coating resins described in this brochure, **Surface Specialties** has an extensive range of other ingredients for formulating high performance coating systems. Please refer to our other brochure on amino crosslinkers.

Additives

Surface Specialties offers a broad range of specialty resins and additives to the coatings market. Our portfolio includes additives for solventborne, high solids, waterborne and powder coating systems. Additives play a key role in developing high performance coatings for automotive, architectural, industrial and specialty coating segments.

- *Modaflow*™ and *Multiflow*™ flow modifier and defoamer resins
- *Additol*™ additives for flow and leveling, defoaming, wetting and pigment dispersing
- *Modacure*™ cure enhancing additive for thermoset coatings

Solvents

Surface Specialties *Santosol*™ family of environmentally-friendly dimethyl ester solvents are used as high-boiling tail solvents in coil and container coatings and as ingredients in paint strippers and industrial cleaners.

Nomenclature and Trade Names

Trade names	Nomenclature	
Beckopox™	EH, VEH	Solvent-borne and water-borne hardeners for epoxy resins
	EP, VEP	Solvent-borne and water-borne epoxy resins
	EM, VEM	Solvent-borne and water-borne modified epoxy resins
Daotan™	VTW, TW	Water-borne polyurethane dispersions (physically drying/self-crosslinking/carboxyl and hydroxyl functional)
Duroftal™	VPI	Solvent-borne hydroxylated polyesters for isocyanate crosslinking
	VPE	Solvent-borne hydroxylated polyesters for amino resin crosslinking
Duroxyn™	EF, VEF	Solvent-borne and water-borne epoxy ester resins
Macrynal™	SM, VSM	Solvent-borne and water-borne acrylic polyols for isocyanate crosslinking
Phenodur™	PR, VPR, VPW	Solvent-borne and water-borne phenolic resins
Resydrol™	AF, VAF	Solvent-borne and water-borne fatty acid modified alkyd resins
Vialkyd™	AL, VAL	Solvent-borne and water-borne linseed oil modified alkyd resins
	AM, VAM	Solvent-borne and water-borne mixed fatty acid/oil modified alkyd resins
	AN, VAN	Solvent-borne and water-borne polyester resins for baking systems
	AS, VAS	Solvent-borne and water-borne sunfloweroil modified alkyd resins
	AX, VAX	Water-borne modified epoxy alkyd resins
	AY, VAY	Water-borne modified acrylic alkyd resins
	AZ, VAZ	Water-borne modified urethane alkyd resins
Viacryl™	SC, VSC	Solvent-borne and water-borne physically drying/self-crosslinking and baking acrylic resins

Key Words and Abbreviations

Key words	Abreviation
ABS	Acrylonitrile butadiene styrene
Ac	Acetone
Aro 100	Aromatic 100
Aro 150	Aromatic 150
AV	Acid value
BA	Butyl acrylate
BDG	Dibutoxyethanol
BG	Butyl glycol
BP	Butoxy propanol
BuAc	Butyl Acetate
CED	Cathodic electrodeposition
DACA	Diacetone alcohol
DBGE	Dipropylene glycol methylether
DGDDA	Dipropylene glycol diacrylate
DIY	Do It Yourself
DMEA	Dimethylethanol amine
DTM	Direct to metal
EDG	Ethylene diglycol
EEP	Ethoxy ethoxy propanol
EG	Ethylene glycol
EP	Ethoxy-propanol
EPAc	Ethoxy propyl acetate
EtAc	Ethyl acetate
HDDA	Hexanediol diacrylate
HEW	Hydrogen equivalent weight
HPMA	Hydroxypropyl methacrylate
IP	Isopropanol
Iso H	Isopar H
Isobut	Isobutanol
MB	Methoxy butanol
MeAc	Methyl acetate

Key words	Abreviation
MFFT	Minimum film formation temperature
MMA	Methyl methacrylate
MP	Methoxy propanol
MPAC	Methoxy propyl acetate
MPP	Methoxy-propoxy propanol
n-BuAc	Butyl acetate
n-But	n-Butanol
NH_3	Ammonia
NMP	n-methyl-pyrrolidone
OH	Hydroxyl number
PA	Polyamide
PC	Polycarbonate
PMA	Propoxy methyl acetate
PMMA	Polymethyl methacrylate
PP flamed	Polypropylene flamed treated
PS	Polystyrene
PVC	Polyvinyl chloride
SCA	Sag control agent
Tol	Toluene
TEA	Triethylamine
Tg	Glass transition temperature
TMPFA	Trimethylolpropane formalacrylate
TPGDA	Tripropylene glycol diacrylate
WA	Water
Xyl	Xylene

Beckopox ™ Amine Hardeners for Epoxy Resins and Dispersions

Product	Type	Non-Volatile %	Solvent	Viscosity at 23°C mPa.s	HEW (H) on F O D	Amine value	Iodine Color	Low temperature cure	High reactivity	Low reactivity	Pigment wetting	Flexibility	Shear stable	Impact	Adhesion	Chemical resistance	Water resistance	Low yellowing	Low viscosity	Corrosion resistance	Concrete sealer	Concrete primer	Concrete topcoat	Metal primer	Aluminium primer	Pipe coatings	Mastic/Trowel	Low color	Container	Tank liner	Packaging
EH 613w/80WA	Aliphatic polyamine adduct	80	Water	23000 - 31000	145	230	10		●		●		●		●	●	●			●	●	●	●	●							
EH 623w/80WA	Aliphatic polyamine adduct	80	Water	12000 - 21000	200	210	20			●	●	●	●	●	●						●	●	●								
EH 625	Mannich-based aliphatic polyamine adduct	100		900 - 1400	73	415	3	●	●				●		●	●	●			●	●	●	●			●		●	●	●	
EH 628	Mannich-based aliphatic polyamine	100		480 - 720	75	370	<=5	●	●						●	●	●			●	●	●	●	●	●	●	●				
EH 629	Mannich-based aliphatic polyamine adduct	100		2500 - 4400	70	470	5	●	●				●		●	●	●			●	●		●	●		●			●	●	
EH 637	Cycloaliphatic polyamine adduct	100		90 - 120	100	325	2			●			●		●			●	●		●	●	●			●		●	●	●	
EH 659w/50WA	Polyamidoamine	50	Water	17000 - 27000	215	160	70			●	●	●	●		●					●	●	●	●	●							
VEH 2106w/80WA	Aliphatic polyamine adduct	80	Water	14000 - 25000	142	230	20		●		●		●		●					●											
VEH 2188w/55WA	Aliphatic polyamine adduct	55	Water/ Proxyethanol	6000 - 14000	380	135	25			●		●			●					●	●	●	●	●							
VEH 2626	Mannich-based aliphatic polyamine adduct	100		1100 - 1700	73	420	300	●	●				●		●	●	●			●	●	●		●							
VEH 2849w/80WA	Aliphatic polyamine adduct	80	Water	18000 - 25000	134	255	<=10				●		●		●																

Beckopox™ Solvent-borne Epoxy Resins and Water-borne Epoxy Dispersions

Product	Non-Volatile %	Solvent	Viscosity at 23°C mPa.s	EEW on FOD	Chemical resistance	Corrosion resistance	Adhesion to concrete	Shear stable	Adhesion to metal	Solvent free	Flexibility	Abrasion resistance	Concrete sealer	Concrete primer	Concrete topcoat	Metal primer	Wash primer	Aluminium primer	Zinc rich primer	Pipe coatings	Mastic/Trowel	Coil	Container	Tank liner	White interior coating	Gold lacquer	Drum interior
EM 385w/56WA	56	Water/IP	450 - 1100	850 - 930	●	●			●		●					●	●	●		●							
EM 438/50EEP	50	EEP	2200 - 4500	N.A.	●	●		●	●		●											●			●	●	
EM 440/20LG	20	LG	10 - 20			●			●		●																●
EM 441/60LG	60		13000 - 22000	N.A.	●	●		●	●		●											●					●
EM 444/50 EEP	50	EEP	550 - 1000	N.A.	●	●		●	●		●											●					
EM 460/60IBX	60	Xyl, IB	800 - 1400	N.A.			●	●	●								●					●					
EM 524/60LG	60	LG	3800 - 5800	N.A.	●	●			●		●					●											
EP 116	100		7800 - 11000	175 - 185	●					●		●									●						
EP 117	100		800 - 1200	175 - 185	●		●			●			●	●	●						●						
EP 122w	100		700 - 900	190 - 200			●	●		●			●	●							●						
EP 128	100		900 - 1300	190 - 200	●	●	●	●	●	●		●	●	●	●			●		●	●		●	●			
EP 140	100		11000 - 15500	180 - 190	●	●	●	●	●	●		●	●	●	●			●		●	●		●	●			
EP 147w	100		9000 - 13000	188 - 200						●		●	●	●	●					●							
EP 301/75X	75	xyl	7800 - 13000*	450 - 525	●	●		●	●							●		●		●			●	●			
EP 304	100		650 - 1000*	875 - 1000		●		●	●		●					●						●					
EP 307	100		2000 - 3100*	1400 - 1900		●		●	●		●					●						●					
EP 309	100		3400 - 12000*	2400 - 3500		●		●	●		●					●						●					
EP 384w/53WA	53	Water/MP	400 - 750	980		●	●	●	●			●															
EP 384w/53WAMP	53	Water/MP	400 - 750	980		●	●	●	●			●															
EP 401/50LG	50	LG	23000 - 35000	N.A.	●	●			●		●					●			●								
VEP 2381w/55WA	55	Water/EP	7000 - 12000	910		●	●	●	●			●	●		●	●		●		●							
VEP 2382w/55WA	55	Water/MP	7000 - 12000	910		●		●	●		●		●		●	●		●		●							
VEP 2387w/55WAPE	55	Water/PE	4000 - 9000	2700 - 3600		●			●		●					●		●									
VEP 2390w/75MP	75	MP	3000 - 6000	655					●		●								●								

* diluted at 40% in BG
N.A.: non applicable

Daotan ™ Water-borne Polyurethane Dispersions

Product	Urethane type	Backbone type	Modification	Non-volatile %	% NMP	Viscosity at 23°C mPa.s	pH at 10% in water	% Elongation	Neutralization amine	OH number on solids	Physically drying	Self-crosslinking	Crosslinking with NCO	Oxidative cure	Crosslinking with aziridine	Fast drying	Pigment wetting	Shear stable	Sag resistance	Chemical resistance	Corrosion resistance	Interior	Exterior	Humidity resistance	Gloss	Solvent-free	Abrasion resistance	Surface hardness	Flexibility	Adhesion to plastic	Primer/Surfacer	Metallic basecoat	Topcoat/Clearcoat	CARC/Military/Aerospace	Wood flooring	Soft feel	Strippable	Blend with water-borne UV	Blend with acrylic emulsion	Electronic cabinetry and equipment	Inks for plastics	Concrete topcoat	Construction/Heavy equipment	OEM Primer/Surfacer	DTM	Adhesion to rubber	Stone chip resistance	Single Coat	Anticorrosion
VTW 1235/36WAN/M	Ar	Polyester		36	13.6	10 - 400	7.0 - 8.5		TEA		●							●				●							●	●								●								●			
VTW 1236/40WANMP	Aliphatic	Polycarbonate		40	14.7	1000 - 2000	7.0 - 9.0	600	TEA		●				●			●				●							●	●	●	●						●	●		●					●			
VTW 1237/32WANMP	Aliphatic	Polyester		32	12	10 - 60	7.3 - 8.6	200	TEA		●				●			●				●	●		●				●	●	●							●		●	●					●			
VTW 1250/40WA	Aromatic	Fatty acid		40	4.6	1800 - 3200	6.8 - 8.0		NH3					●		●				●	●	●	●	●				●	●		●									●									●		●
VTW 1252/42WA	Aliphatic	Fatty acid		42	3	500 - 1500	7.0 - 9.5		NH3					●		●	●	●	●	●	●	●	●		●	●	●	●	●				●												●					●		●
VTW 1262/35WA	Aliphatic	Polyester	Acryl hybrid	35	0	5 - 50	7.5 - 8.4		DMEA	32	●		●		●	●	●	●												●		●	●									●								●			
VTW 1265/36WA	Aliphatic	Polyester	Acryl hybrid	36	0	10 - 150	7.0 - 8.0	400	DMEA	24		●	●			●	●	●		●		●	●				●		●		●				●						●											
TW 6431/45WA	Aliphatic	Polybutadiene		45	0	50 - 1500	8.0 - 9.0	1000	TEA		●				●	●	●	●		●		●		●		●			●							●															
VTW 6462/36WA	Aliphatic	Polyester	Acryl hybrid	36	0	25 - 120	7.4 - 8.4		DMEA	29	●	●	●		●	●		●	●	●		●	●	●	●	●	●	●	●	●	●	●	●		●			●	●							●			
VTW 6470/39WA	Aliphatic	Polyester/ polyether		39	4.7	100 - 1000	6.5 - 7.5		DMEA	56			●			●	●	●		●			●	●	●		●	●	●			●	●	●	●				●	●		●	●				●		
TW 6472/45WA	Aliphatic	Polybutadiene/ polycarbonate		45		200 - 2000	6.7 - 7.7		TEA/ DMEA				●							●		●	●	●		●			●	●						●											●		●	

Duroftal ™ Solvent-borne Hydroxylated Polyesters

Product	Non-Volatile %	Solvent	Viscosity at 23°C mPa.s	OH number on solid resin	Aliphatic structure	AV on solid resin	Structure	FDA 175.300	High solids	Flexibility	Hardness	Interior	Exterior	Yellowing resistance	Wedgebend	Bake	2K Cure	Pigment Wetting	Impact resistance	Long potlife (in 2K system)	Flow and leveling	Chemical resistance	Corrosion resistance	Humidity resistance	Skydrol resistance	Compatible with acrylic resins	Topcoat/Clearcoat	Primer	Refinishing	Aerospace	Industrial	Humidity resistance	Transportation	Plastic cabinetry	Coil application: Outdoor architectural coil	Coil application: Indoor architectural coil	Coil application: Backcoat	Can application: Interior	Can application: Exterior	Can application: General industrial	Resin for blend
VPI 2801/78BAC	78	n-BuAc	4000 - 17000	220	yes	22	B		yes	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●							●
VPI 2803/78BAC	78	n-BuAc	7000 - 19000	180	yes	22	B		yes	●		●		●			●	●	●	●	●	●		●		●	●	●	●	●	●			●							●
VPE 6104/60MPAC	60	MPAC	4000 - 8000	60	no	8 max	SB	●	no	●		●	●	●	●	●		●	●			●		●											●	●	●	●		
VPE 6128/60SNABG	70	Aro 150/BG	1500-3000	60	no	8 - 12	L		yes	●		●	●		●	●			●								●	●							●	●	●		●	●	

L = Linear B = Branched SB = Slighly Branched

Duroxyn ™ Solvent-borne and Water-borne Epoxy Ester Resins

Product	Non-Volatile %	Solvent	Viscosity at 23°C mPa.s	Iodine color	AV on solid resin	pH at 10% in water	Oil length %	Oxidative drying	Adhesion to metal	Flexibility	Corrosion Resistance	High stability in water	Fast drying time	Good gloss	Primer	Industrial paint	Recoatability	Hardness	High pigment loading	Temperature resistance	Water resistance	Zinc dust paint
EF 900/60X	60	Xylene	3000 - 4500	< = 8	< 3	N.A.	42	●	●	●	●				●	●		●	●	●	●	●
VEF 2406w/45WA	45	Water	100 - 2000	opaque	N.A.	4 - 6	N.A.				●	●	●		●	●	●	●		●	●	
VAX 6127w/42WA	42	Water/MB	500 - 3000	Beige opaque	N.A.	8.5 - 10.0	38	●	●	●	●	●	●	●	●	●	●	●	●			

N.A. = non applicable

Hostaflex ™ - PVC Resins

Product	Type	K-Value DIN EN ISO 1628-2	Chlorine content (Wickbold) DIN 53474	Iodine color number DIN 6162	Viscosity (20% MEK) at 20°C in mPa.s	Tg /°C	Internally plasticized
CM 131	Terpolymer based on vinyl chloride (84%), vinyl acetate (15%) and dicarbonic acid (1%)	45	47.7		35 - 45	76	
CM 133	Terpolymer based on vinyl chloride (84%), vinyl acetate (15%) and dicarbonic acid (1%)	48	47.7		50 - 70	79	
CM 150	Copolymer based on vinyl chloride and vinyl acetate	50	48.3		60 - 80	74	
CM 158	Copolymer based on vinyl chloride and acrylic acid ester with reactive hydroxyl group	48	42.6		38 - 52	61	
CM 630	PVC-copolymer, based on vinyl chloride / isobutyl ether, medium viscosity	35		<=3 (20% T)	30 - 40 (20% T) at 23°C		●
CM 640	PVC-copolymer, based on vinyl chloride / isobutyl ether high viscosity	35		<=3 (20% T)	40 - 50 (20% T) at 23°C		●

Macrynal ™ Hydroxylated Solvent-borne Polyols and Water-borne Dispersions for Isocyanate Crosslinking

Solvent-borne resins

Product	Non-Volatile %	Solvent	Viscosity at 23°C mPa.s	Color scale	OH content on solid resin %	OH number on solid resin	OH equivalent on solid resin	Fast dying	Fast initial hardness development	Sandability	Hardness	Flow and leveling	Flexibility	Yellowing resistance	Exterior durability	High gloss	Long potlife	Chemical resistance	Humidity resistance	Adhesion to Al	Adhesion to Zinc	Adhesion to plastic	Scratch resistance	High solids	Metal primer/Surfacer	Plastic primer	Pigmented topcoat	Clearcoat	Transportation	Wood paint	Refinishing	Plastics	Aluminium primer	Airless /Airmix application	Single coat /Direct to metal	For blending	High film build
SM 510n/60LG	60	n-BuAc/ Aro 100/ Xyl	2400 - 3600	80 max	4.5	150	378	●		●	●	●	●	●	●	●	●	●	●			●	●			●	●	●		●		●			●		
SM 510n/65BACX	65	Xyl/ BuAc	3500 - 7000	200 max	4.5	150	378	●		●	●	●	●	●	●	●	●	●	●	●			●	●			●	●	●	●	●	●	●			●		
SM 513/60LG	60	n-BuAc/ Aro 100/ Xyl	2400 - 4000	50 max	3.6	120	472	●	●	●	●		●				●	●	●						●	●			●		●	●					
SM 515/70BAC	70	n-BuAc	3600 - 6000	100 max	4.5	150	378	●		●	●	●			●	●		●	●			●	●	●	●	●	●		●		●	●					
SM 516/70BAC	70	n-BuAc	7000 - 11000	200 max	4.5	150	378				●	●	●	●	●	●	●	●	●					●			●	●							●		
SM 540/60X	60	Xyl/ BuAc	1400 - 2400	200 max	1.4	45	1214	●					●				●			●	●		●		●	●				●	●	●	●		●	
SM 548/50X	50	Xyl/ n-BuAc	600 - 1200	70 max	2.0	65	850	●	●	●	●							●							●	●				●	●				●	
VSM 1001/60XBAC	60	Xyl/ BuAc	650 - 1500	100 max	3.6	120	472	●				●		●	●	●								●	●	●		●		●	●	●				●
VSM 1007/70LG	70	Xyl/ BuAc / Tol	5000 - 13000	100 max	3.1	103	548	●				●		●	●	●								●	●	●		●		●	●	●				●
VSM 1509/60LG	60	BuAc/ Aro 100	5000 - 7000	200 max	3.0	100	561	●	●	●	●		●												●					●						
VSM 2570/70BAC	70	n-BuAc	2200 - 3800	80 max	2.4	80	700				●	●	●	●	●	●	●			●	●		●	●		●	●	●	●		●	●	●	●	●		●
VSM 2706/60X	60	Xyl	1500 - 3500	200 max	2.6	85	653	●		●	●	●		●	●	●	●			●					●	●	●	●	●	●		●			●		
VSM 2800/70BAC	70	n-BuAc	2000 - 5000	100 max	4.4	145	387				●	●	●	●	●	●	●			●				●	●	●	●	●		●	●	●	●			●	
VSM 2805/80BAC	80	n-BuAc	4000 - 8500	200 max	4.3	142	395				●	●	●	●	●	●	●						●	●	●	●	●	●	●		●	●		●		●	●

Water-borne resins

Product	Non-Volatile %	Solvent	Viscosity at 23°C mPa.s	OH number on solid resin	OH equivalent on F O D	AV on solid resin	Neutralization agent	Fast dying	Sandability	HAPs free	Hardness	Flow and leveling	Flexibility	Shear stability (for WB resins)	Yellowing resistance	Exterior durability	High gloss	Long potlife	Chemical resistance	Humidity resistance	Metal primer/Surfacer	Plastic primer	Pigmented topcoat	Clearcoat	Transportation	Wood paint	Refinishing	Plastics	Solid color/Basecoat	Airless /Airmix application	Single coat/Direct to metal	For blending	High film build
VSM 2521w/42WAB	42	Water/n-Butanol	1000 - 4000	140	950	40	DMEA	●	●		●			●		●			●	●	●		●	●		●		●			●	●	
VSM 6299w/42WA	42	Water	800 - 4000	135	990	< 30	DMEA	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●

FOD: form of delivery

Macrynal ™ *Facts*

Isocyanate stoichiometry calculation

NCO equivalent weight = MW / NCO# OH equivalent weight = MW /OH#

OH number = % OH * 33 eq weight OH = 56100 / OH number

Question: Calculate the NCO: OH ratio to crosslink 75 g of Macrynal™ VSM 6299 with a blend of Desmodur™ N3600 - Bahydur VPLS 2319 at a ratio of 1 OH for 1.3 NCO (Usual in the WB systems due to reaction with water)

Resin	solid	OH#	OH eq	NCO#	NCO eq wt
Macrynal VSM 6299	42	135	416		
Desmodur N3600	100				183
Bayhdur VPLS 2319	100				233

75g VSM 6299w x (.42) x 1/416 = 0.0757 OH equivalent

10 g N3600 x 1/183 = 0.0546 NCO equivalent
10 g VPLS 2319 x 1/233 = 0.0429 NCO equivalent

total NCO equivalent = 0.0975 NCO equivalent

0.0975 NCO equivalent / 0.0757 OH equivalent
= 1.3:1 NCO : OH

Curing with polyisocyanates

Based on 100 % conversion of reactive groups the following equation can be used to calculate the quantity of polyisocyanate needed for crosslinking 100 parts Macrynal SM 540 (on solids) :

$$\text{polyisocyanate (f.o.d.)} = \frac{42 \times 100 \times \text{OH\% (solid resin)}}{17 \times \text{NCO\% (f.o.d.)}}$$

42 = molecular weight of the NCO-group
17 = molecular weight of the OH-group

To ensure that optimal properties are obtained it is necessary to have complete crosslinking.
Over - or under - crosslinking is possible within certain limits.

For Stoichiometric (equivalent) crosslinking (NCO : OH = 1:1) - calculated from the equivalent weights - approx. 2025 parts per weight Macrynal SM 540 (f.o.d.) require approx. 255 parts per weight Desmodur N/75%.

Phenodur ™ Phenolic Solvent-borne Resins and Water-borne Dispersions

Product	Non-volatile %	Solvent	Viscosity at 23°C mPa.s	Compatible with epoxy resins	Compatible with PVB (Butvar™) resins	Usual ratio Epoxy:Phenolic / Phenolic:PVB Butvar™	Color	Silver lacquer	Typical baking conditions	Temperature° C	Additol XK 406N	Wedge bend	Erichsen number 2	2% lactic acid	Cysteine test/ 90 min at 121 C	Can	Tubes	Drums	Metal foils	Water-borne	Wash primer
PR 260/68B	68	Butanol	2300 - 3700*		●	90:10	medium		15 min	230		medium	medium	good	medium			●			
PR 263/70B	70	Butanol	390 - 530*	●	●	80:20 to 50:50 / 90:10	medium					N.A.	N.A.	N.A.	N.A.						●
PR 285/55IB/B	55	But/Isobut 4/5	180 - 250	●	●	80:20 to 50:50 / 90:10	dark		15 min	190		very good	good	good	good		●	●			
PR 307/63X/MP	63	X/MP	1000 - 1700	●	●	additive	very dark									coloring resin				●	
PR 308/62MP	62	MP/Butanol	1000 - 2250*	●	●	additive	very dark									coloring resin				●	
PR 373/53BG/B	53	BG/Butanol	1200 - 2500		●	10:1 to 1:1	medium		15 min	200/230		bad	bad	good	medium			●			
PR 401/72B	72	Butanol	800 - 1800*	●		80:20 to 50:50	very light	●	10 - 12 min	180	●	medium	good	good	good	●					
PR 411/75B	75	Butanol	250 - 1500	●		8:2 to 1:1	very light	●	10 - 12 min	200	●	medium	good	good	good	●		●	●		
PR 515/60LG	60	But/Xylene 36:4	230 - 410	●	●	80:20 to 50:50 / 90:10	very light	●	12 min	200	●	medium	good	medium	bad		●				
PR 516/60B	60	Butanol	150 - 500	●	●	4:1 to 2:1 / 90:10	very light	●	10 - 12 min	200	●	good	good	good	good	●	●	●	●		
PR 565/65XB	65	Xyl/Butanol	500 - 2000	●	●	8:2 to 1:1 / 90:10	very light	●	12 - 15 min	200	●	very good	very good	good	very good	●			●		
PR 612/80B	80	Butanol	80 - 125**	●	●	80:20 to 50:50 / 90:10	medium		12 min	200	●	good	very good	good	medium		●		●	●	
PR 722/53BG/B	53	BG/Butanol 3:1	1500 - 4000*	●	●	80:20 to 50:50 / 90:10	medium		12 min	200	●	very good	very good	good	good	●					
PR 723/60BMP	60	Butanol/MP	200 - 380	●	●	80:20 to 50:50 / 90:10	medium		12 min	200	●	good	medium	good	bad	●	●				
PR 898/52BGB	52	BG/Butanol	400 - 1400	●	●	8:2 to 1:1 / 90:10	light		15 - 20 min	200	●	good	good	very good	good	●	●				
VPM 1150/50EPAC	50	EPAC	1500 - 4000	●	N.A.	Co curing resin	clear	●	12 min	200		Depend EP resin		very good	medium	●			●		
VPR 1785/50MP	50	MP	50 - 700	●	●	3:7 and 7:3	medium		12 min	200	●	very good	very good	very good	good	●	●		●		
VPW 1942/52WA	52	Water	100 - 1000	N.A.	N.A.	N.A.	light		12 min	200		good	medium	good	medium	●	●		●	●	

* Viscosity at 50% diluted with Butanol

** Viscosity at 60% diluted with Butanol

N.A. = non applicable

Resydrol ™ Water-borne Alkyd Dispersions for Air-Drying and Forced Dry Systems

Product	Non-volatile %	Solvent	Viscosity at 23°C mPa.s	Amine neutralization	Appearance	pH at 10% in water	Type of modification	Oil length	VOC free	Fast initial drying	Rapid through drying	Fast development of hardness	Fast sandability	Early water resistance	High hardness coating	Adhesion on non ferrous metal	Water resistance	Corrosion resistance	Flexibility	Pigment wetting	Yellowing resistance	Compatible with acrylic dispersion	Sag resistance	Increase the open time	Wood penetration	Excellent recoatability	Humidity protection	Brushability	Shear stable	Abrasion resistance	High gloss	Weathering resistance	Gloss retention	Primer	Anticorrosion primer	DTM	Industrial topcoat	Dip enamel	Semi transparent stain	Solid color stain	Wood primer	Wood varnishes	Architectural paints	High film build	Plastic coatings
AX 237w/70BG	70	BG	8000 - 14000	N.A.	brown/opaque	N.A.	Epoxy	23%	no	●						●		●		●		●				●			●					●	●			●			●			●	
AY 241w/40WA	40	Water/BG	3000 - 6000	NH_3	white/opaque	8.0 - 9.5	Acrylic	21%	no	●	●		●	●	●	●	●				●	●					●			●		●	●	●		●	●				●				
AY 466w/38WA	38	Water/BG	3000 - 11000	NH_3	brown/opaque	7.5 - 9.0	Acrylic	46%	no	●					●	●	●	●	●	●		●					●	●	●		●	●	●			●	●					●				
AY 466w/45WA	45	Water/NMP	1500 - 6500	TEA	light brown/opaque	7.5 - 9.0	Acrylic	46%	no						●	●	●	●	●	●		●			●		●	●	●		●	●	●			●	●	●								
AY 498w/35WA	35	Water	100 - 1100	TEA	yellow-brown	7.5 - 9.5	Acrylic	47%	yes	●					●	●	●		●	●		●				●		●	●		●	●	●													
AY 586w/38WA	38	Water/BG	2500 - 10000	NH_3	opaque	7.5 - 9.0	Acrylic	58%	no	●					●		●	●	●	●		●		●	●	●	●	●	●		●					●	●		●	●		●	●		
AY 586w/42WA	42	Water	400 - 2500	NH_3	opaque	7.5 - 8.5	Acrylic	58%	yes	●					●		●	●	●	●		●		●	●	●	●	●	●		●					●	●		●	●		●	●		
AY 586w/45WA	45	Water	5000 - 10000	NH_3	opaque	7.5 - 8.5	Acrylic	58%	yes	●					●		●	●	●	●		●		●	●	●	●	●	●		●					●	●		●	●		●	●		
AZ 248w/60SNAMP	60	Aro 100/MP	260 - 530	TEA	yellow-brown	9.0 - 10.0	Urethane	51%	no	●	●	●	●	●	●			●		●		●				●	●		●					●	●									●	
AZ 436w/45WA	45	Water/BG	4000 - 12000	NH_3/DMEA	milky	8.5 - 9.5	Urethane	43%	no	●					●		●	●		●		●	●			●	●	●	●					●	●		●	●						●	
VAF 6111w/60WA	60	Water	400 - 1200	not needed	milky	5.5 - 8.5	None	40%	yes								●		●			●		●				●												●		●	●	●	
VAN 6113w/42WALG	42	Water/BG/MP	500 - 3000	cationic resin	white opaque	3.0 - 5.0	Polyester	N.A.	no	●					●		●		●	●		●					●		●	●	●														●
VAX 6267w/40WA	40	Water	45 - 200	TEA/DMEA	whitish	8.0 - 9.0	Epoxy	7%	yes	●	●	●				●	●	●				●				●								●	●	●									
VAY 6096w/39WA	39	Water/BG	2000 - 8000	NH_3	brown/opaque	7.0 - 9.0	Acrylic	32%	no	●	●	●		●	●		●			●		●				●			●		●					●	●								
VAY 6278w/45WA	45	Water	100 - 900	NH_3	white opaque	7.8 - 8.6	Acrylic	15%	no	●	●	●		●			●				●						●				●	●	●		●				●	●		●		
VAZ 4200w/45WA	45	Water/BG	3000 - 10000	TEA/DMEA	whitish	8.5 - 9.5	Urethane	58%	no				●		●		●	●		●		●	●			●	●		●				●	●			●			●	●		●	
VAZ 6000w/47WA	47	Water	1500 - 7000	AMP		8.0 - 9.5	Acrylic			●						●		●				●				●			●		●	●	●	●	●	●				●	●	●	●	●

N.A. = non applicable

Resydrol ™ Facts

Neutralization equation

$$\frac{R \times AN \times E \times (\% \text{ neutralization})}{56\ 100} = \text{wt.of amine}$$

R = Wt. % Resin solids
AN = Acid number of weight solids
E = Equivalent wt. Amine

56.100 (KOH sol'n equivalent wt., constant)

Question

How many grams of ammonia and TEA are needed to neutralize 100 g of a 70% solids alkyd, acid number = 40. Neutralize 50/50 with ammonia/TEA based on equivalents.

Answer

$$\frac{70 \times 40 \times 101^* \times (.50)}{56\ 100} = 2.5 \text{ g TEA}$$

$$\frac{70 \times 40 \times 61^* \times (.50)}{56\ 100} = 1.5 \text{ g } NH_3$$

* Equivalent wt. of Amine from table below.

Amine	Equivalent weight	Boiling point °C	PKb
Ammonia (26%)	61	-33	9.25
DEA	73	55	10.8
TEA	101	89	11.01
Morpholine	87	128	8.33
DMEA	89	134	9.3
AMP	89	165	9.69

Resydrol ™ Water-borne Alkyd Dispersions for Baking Systems

Product	Non-Volatile %	Solvent	Viscosity at 23° C mPa.s	Amine neutralization	Appearance	pH	VOC free	Modification	Oil length	Hardness	Impact	Yellowing resistance	Metal	Non ferrous substrates	Single coat	High filled topcoat	Stone chip resistance	Corrosion protection	Water resistance	Shear stable	Pigment wetting	High gloss	Weathering	Sag resistance	High reactivity	Heat resistance	For use in blend to increase reactivity	Increase of solid contents	Primer	Anti-corrosion primer	DTM	Dip enamel	Industrial topcoat	Drums coating	OEM primer/surfacer	Low temperature	Textured paint
AM 224w/40WA	40	WaterM/P	100 - 700	DMEA	opaque brown	7.5 - 9.0	no	Fatty acid		●	●	●	●		●			●	●	●	●	●	●	●						●	●	●	●			●	
AX 246w/70BG	70	BG/MP	340 - 690	DMEA	brown	not neutralized	no	Epoxy	22%				●					●		●	●				●	●			●	●		●				●	
AX 247w/70BGMP	70	BG/MP	9000 - 17000	None	brown	not neutralized	no	Epoxy polyester	22%				●	●				●	●	●	●	●			●				●	●	●	●	●			●	
AX 906w/35WA	35	WaterM/P	160 - 560	DMEA	clear opaque	7.0 -8.5	no	Epoxy polyester		●	●		●	●					●	●	●		●		●	●	●			●		●				●	

N.A. = not applicable

Viacryl ™ Solvent-borne Acrylic Resins, Physically Drying/Self-crosslinking and Amino Resins Crosslinking

Product	Non-Volatile %	Solvent	Viscosity at 23°C mPa.s	Tg / °C	AV on solids	OH number on solid resin	OH equivalent on F O D	Physically drying	Crosslink with amino resin	Fast dry	Shear stability	Yellowing resistance	Exterior	Compatible with nitrocellulose	Humidity resistance	Chemical resistance	Metal topcoat	Road paint peroxide curing	Architectural paint	OEM topcoat	OEM clearcoat	Basecoat	Auto refinish
Thermosetting Acrylic																							
SC 303/65XB	65	Xyl/n-Butanol	19000 - 30000		10 - 15	80	455		●	●				●	●		●						●	
SC 341/60SNABAC	60	Aro 100/n-BuAc	1000 - 2000		13 - 20	86	1090		●								●			●	●			
SC 370/75SNA	75	Aro 100	4200 - 7200		8 - 122	120	625		●								●			●	●			
SC 1866/65SNA	65	Aro 100	6000 - 10000		0 - 25	117	738		●						●	●	●			●	●			
VSC 5754/60SNABAC	60	Aro 100/n-BuAc	700 - 1100		5 - 15	82	1140		●								●			●		●		
Cold Plastic																							
VSC 5745	100	MMA/BA	60 - 115		< 25	N.A.	N.A.			●					●			●						
Thermoplastic Acrylic																							
SC 2925/33TMEK	33	Toluene/ MEK	100 - 400	76	< = 7	N.A.	N.A.	●		●	●		●				●		●				●
VSC 6324/46BAC	46	BuAc	4000 - 9000	75	22 - 32	40	3080	●		●		●	●			●	●			●	●	●	●

N.A. = non applicable

Viacryl ™ Water-borne Acrylic Resins, Physically Drying/Self-crosslinking and Hydroxylated Acrylic Dispersions

Product	Non-Volatile %	Solvent	Viscosity at 23°C mPa.s	pH at 10% in water	MFFT in °C	OH number on solid resin	OH equivalent on F O D	Physically drying	Self crosslink	Fast dry	Sandability	High solids	Hardness	Flow and leveling	Flexibility	Shear stability	Yellowing resistance	Exterior	Corrosion resistance	Humidity resistance	Chemical resistance	Stain resistance	Metal primer	Metal topcoat	DTM	Anticorrosion	CED	Soft plastic	Hard plastic	Glass	Architectural paint	Wood furniture	Wood flooring	Solid color stain	Stain block	OEM topcoat	OEM clearcoat	Basecoat	Aluminium	Concrete topcoat
VSC 6254w/40WA	40	Water	150 - 700	8 - 9	45	60	2337	●		●						●	●	●	●	●			●		●					●	●		●	●				●		
VSC 6265w/40WA	40	Water	200 - 1300	8 - 9	26	65	2158	●		●	●		●			●	●	●	●	●	●	●	●	●	●	●		●	●					●	●			●	●
VSC 6279w/45WA	45	Water	280 - 1600	7.5 - 8.5	25	65	1918	●		●	●		●			●	●	●	●	●	●	●	●	●	●	●		●	●					●	●			●	●
VSC 6295w/45WA	45	Water	30 - 600	6.5 - 7.8	30			●	●	●	●		●	●		●	●	●		●	●							●			●	●							

Water-borne Acrylic Resins for 1K Baking Systems or 2K with Isocyanates

VSC 6250w/65MP	65	Methoxy propanol	18000 - 35000	N.A.												●	●	●	●				●	●	●	●	●													
VSC 6800w/47WA	47	Water	300-2000	8 - 9		100	1195					●		●	●	●	●	●						●												●				

Vialkyd ™ Solvent-borne Alkyd Resins

Product	Non-Volatile %	Solvent	Viscosity at 23°C mPa.s	AV on solid resin	Oil length	Oil type or modification	Iodine color at 50% sol	OH number on solids	High solids	Exterior	Fast drying	Air dry/Forced air	Compatible with acrylic resins	2K with isocyanates	Bake enamels	Harness	Chemical resistance	Pigment wetting	Grinding resin	Flexibility	Primer	Topcoat	Gloss	Sanding	Yellowing resistance	Coil coating	Baking topcoat for metal	Anticorrosion primer	Air dry topcoat	Pigment paste	Dipping paint	Blend with Macrynal resins	Metallic basecoat	Tube and can
AC 290/70MPAC	70	MPAc	65 - 210	< 15	29%	Synthetic fatty acid	< 5		●	●			●	●	●			●	●	●			●		●		●		●	●				
AN 950/70X	70	Xyl	2300 - 3100	< 12	Polyester	N.A.	< 5	140							●	●	●					●	●		●	●	●				●	●	●	
VTS 1202/65MPAC	65	MPAc	7500 - 9500	< 10	Silicone modified polyester	N.A	< 10	210		●					●	●	●	●		●		●	●	●		●	●							
AN 908/55SNBMPP	55	Naphta / MPP	300 - 500	< 9	N.A.	Oil free, saturated polyester	<=3			●					●	●	●	●	●		●	●	●				●							●
SAU 550/70WS	70	White spirit	120 - 240	< 6	55	Aluminium compound	<=12			●	●	●						●	●		●	●			●			●	●					

Viapal ™ Unsaturated Polyester Resins (UP Resins)

Grade	From Supplied	Solvent	Viscosity (DIN 53211) (20 °C) (s)	Shrinkage on Curing (%b.v.)	Geltime (in minutes) at 20 °C	Colour	Styrene Compatibility	Key Product Features	Key Applications
Viapal UP 143B/69	69%	Styrene	80-110	4.0 %	16+/-4 (with 2% BPO)	Reddish	Unlimited	Medium viscosity, medium reactivity, pre-accelerated unsaturated polyester resin, excellent adhesion to metals & impact resistance. Room temperature curing can be initiated with benzoyl peroxide.	Most suitable for automotive refinish, esp. for production of fast curing car putties, surfaces & bondings at room temperature.
Viapal VUP 9055/63	63%	Styrene	125-140	4.0 %	6+/-2 (with 4% BPO)	Purple	Unlimited	Medium viscosity, medium reactivity, pre-accelerated unsaturated polyester resin, excellent adhesion to metals & impact resistance. Low temperature curing can be initiated with benzoyl peroxide.	Most suitable for automotive refinish, esp. for production of automotive body patching compound for thick coating & bondings at low temperature.
Viapal VUP 9060/63	63%	Styrene	80-130	4.0 %	10+/-2 (with 4% BPO)	Yellow	Unlimited	Medium viscosity, medium reactivity, pre-accelerated unsaturated polyester resin, excellent adhesion to metals & impact resistance. Low temperature curing can be initiated with benzoyl peroxide.	Most suitable for automotive refinish, esp. for production of automotive body patching compound for thick coating & bondings at low temperature.
Viapal UP 260B/62	62%	Styrene	450-670 DIN EN ISO 3219 at 23 °C mPa.s	6.0 - 7.0 %	3-4 (with 4% BPO)	brownish	1 : 4 (resin : styrene)	Highly reactive hard polyester resin. Good storage stability. Excellent sandability. Room temperature curing can be initiated with benzoyl peroxide.	Sole binder for knifing putties for vehicle and do-it-yourself repair.

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