



Tooling products

OBO-Werke GmbH & Co. KG is
Master Distributor for Huntsman
Advanced Materials for tooling
products in Europe*

* excluding France & Turkey



OBO and Huntsman Advanced Materials: We bundle our strengths

For many years OBO has been manufacturing RenShape® Polyurethane products for Huntsman Advanced Materials.

Since 2014 OBO also manufactures and supplies RenPaste™ Modelling Pastes and RenShape® Epoxy Boards under licence of Huntsman Advanced Materials.

In addition and based on the long-term partnership Huntsman Advanced Materials has appointed OBO as its master distributor for the distribution of its full range of tooling liquids in almost all European markets (apart from France and Turkey). Thus OBO becomes a full service provider for the European Tooling Market.

We deliver: 100 % quality, 100 % service, 100 % flexibility



OBO-Werke GmbH & Co. KG: Your strong business partner

145 years OBO: It was a long way from a sawmill for tropical timber to a supplier of a broad range of tooling products for model, tool and mould making.

Today we are your competent partner with a team of service oriented professionals for the implementation of your ideas. No matter if you are looking for standard blanks, glued blocks, close contour cast blocks, tooling resins and modelling pastes according to your requirements – individual solutions combined with flexible quantities are our strengths!

Please contact us. We will be happy to advise you of PU and Epoxy boards, modelling pastes and tooling liquids.

OBO-Werke GmbH & Co. KG: Facts and Figures

- established 1869 as sawmill for tropical timber

Development process:

- 1930th: technical plywood for aviation industry
- 1950th: manufacturing of school table tops, seatshells and well pipes
- 1970th: manufacturing of impregnated compressed wood
- 1980th: delivery of the first obomodulan® boards made of polyurethane
- since 2000th: implementing further production facilities for PU. Since 2003 subsidiary of MBB Industries AG. Since 2006 certified according to DIN EN ISO 9001 standard. Employees: more than 70

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Huntsman Corporation is a publicly traded global manufacturer and marketer of differentiated chemicals with 2013 revenues of over \$11 billion. Huntsman chemical products number in the thousands and are sold worldwide to manufacturers serving a broad and diverse range of consumer and industrial end markets. Huntsman operates more than 80 manufacturing and R&D facilities in 30 countries and employ approximately 12,000 associates within 5 distinct business divisions.

For more information about Huntsman, please visit the company's website at www.huntsman.com.advanced_materials

RenGel® EP gelcoats

standard types and packing units

technical data
Measured average values, given for information purposes only.



Product	A	B	A	B	A	B	A	B	A	B	B	A	B	B	A	B	B
Type	RenGel® P 99	Ren® HY 5159	RenGel® SV 410	Ren® HY 2404	RenGel® SV 412	Ren® HY 2404	RenGel® SW 419-1	Ren® HV 2419	RenGel® SW 10	Ren® HY 2404	Ren® HY 5159	RenGel® SW 18	Ren® HY 2404	Ren® HY 5159	RenGel® SW 56	Ren® HY 2404	Ren® HY 5159
Mix ratio	100	11	100	14	100	16	100	13	100	10	8	100	20	16	100	13	10
Colour	grey		white		white		black		white			green			caramel		
Properties	<ul style="list-style-type: none"> strong interlayer adhesion between gelcoat and backing materials good mechanical strength 		<ul style="list-style-type: none"> chemical resistant polishable abrasion resistant 		<ul style="list-style-type: none"> good strength over sharp edges machinable polishable 		<ul style="list-style-type: none"> abrasion resistant hard, but easy to machine 		<ul style="list-style-type: none"> easily machinable polishable low odour 			<ul style="list-style-type: none"> good chemical resistance polishable heat resistant after temper process 			<ul style="list-style-type: none"> chemical resistant polishable heat resistant after temper process 		
Application	<ul style="list-style-type: none"> coupling coat between gelcoat and backing 		<ul style="list-style-type: none"> jigs foundry patterns laminating moulds working models for the ceramic industry 		<ul style="list-style-type: none"> jigs foundry patterns 		<ul style="list-style-type: none"> sheet metal tools foundry patterns models and tools 		<ul style="list-style-type: none"> negative moulds jigs pattern tools for the ceramic industry 			<ul style="list-style-type: none"> vacuum forming tools RTM moulds polyester moulds 			<ul style="list-style-type: none"> vacuum forming tools RTM moulds polyester moulds foaming moulds pattern tools for the ceramic industry 		
Pot life at 23°C in min.	30		20 - 25		15 - 25		15 - 20			20	60		10 - 15	25		10 - 15	25 - 30
Demoulding time after hours	12		6 - 8		8 - 12		12			12	12		12	12		12	12
Density approx. g/cm³	1,5		1,4		1,3		2,3			1,5	1,5		1,3	1,3		1,5	1,5
Hardness (ISO 868) Shore-D	90		85 - 90		80 - 85		85 - 90			85 - 90	85 - 90		85 - 90	85 - 90		90	90
Deflection temperature* (ISO 75) °C	120		60 - 70		60 - 65		60 - 70			60 - 70	60 - 70		85	100		100	120
Deflection temperature* TG (DSC) °C	-		-		-		-			-	-		-	-		-	-
Packing units Article	2,2 kg LG V 0567808	6 x 0,8 kg LH V 0900208	2 x 7,15 kg LG V 0837608	6 x 1 kg LH V 0899008	2 x 6,25 kg LG V 0838108	6 x 1 kg LH V 0899008	2 x 13,5 kg LG V 0814308	2 x 1,8 kg LH V 0836408	12 x 0,3 kg LG V 0814508	6 x 1 kg LH V 0899008	6 x 0,8 kg LH V 0900208	12 x 0,25 kg LG V 0568508	6 x 1 kg LH V 0899008	6 x 0,8 kg LH V 0900208	12 x 0,385 kg LG V 0568908	6 x 1 kg LH V 0899008	6 x 0,8 kg LH V 0900208
Packing units Article			6 x 0,36 kg LG V 0837708	6 x 0,05 kg LH V 3505908 (1X)		6 x 0,05 kg LH V 3505908 (1X)			3 kg LG V 0568308	6 x 0,05 kg LH V 3505908 (1X)		2 x 5 kg LG V 0568708	6 x 0,05 kg LH V 3505908 (1X)		7,7 kg LG V 0563108	6 x 0,05 kg LH V 3505908 (1X)	
Packing units Article																	

* Results after curing and heat treatment. Please also see our product data sheet. The technical data relating to the material and its processing has been compiled carefully and is correct to the best of our knowledge. The information cannot, however, be taken to be legally binding nor as any commitment that the material has certain properties or is suited for any particular purposes.

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RenGel® EP gelcoats

standard types and packing units

technical data

Measured average values, given for information purposes only.



Product	A	B	B	A	B	A	B	B	B	B	A	B
Type	RenGel® SW 404	Ren® HY 2404	Ren® HY 5159	RenGel® SW 5155	Ren® HY 5159	RenGel® SW 5200	Ren® HY 5158	Ren® HY 5211 (slow)	Ren® HY 5212 (fast)	Ren® HY 5213	XD 4558	Ren® HY 2404
Mix ratio	100	10	8	100	10	100	12,5	20	20	16	100	10
Colour	blue			grey		black					blue	
Properties	<ul style="list-style-type: none"> • very good mechanical strength and qualities • good chemical resistance • very hard abrasion resistant surface 			<ul style="list-style-type: none"> • good strength over sharp edges • heat resistant 			<ul style="list-style-type: none"> • very high temperature resistance after post curing 	<ul style="list-style-type: none"> • very high temperature resistance after post curing • very long pot life with variable speed of cure control 	<ul style="list-style-type: none"> • high temperature resistance after post curing 	<ul style="list-style-type: none"> • covers sharp edges • very strong edge strength • very hard and abrasion-resistant 		
Application	<ul style="list-style-type: none"> • foundry patterns • copy-milling models • foaming and concrete-casting moulds • tools and tooling aids 			<ul style="list-style-type: none"> • vacuum deep-drawing tools • foam and laminate lay-up tools 			<ul style="list-style-type: none"> • pre-preg tools 	<ul style="list-style-type: none"> • pre-preg tools • very large tools • tools requiring heat resistance 	<ul style="list-style-type: none"> • pre-preg tools • tools requiring heat resistance 	<ul style="list-style-type: none"> • foundry patterns • copy-milling models • foaming moulds • concrete-casting moulds 		
Pot life at 23°C in min.		15	25	30 - 45			120	18 hours	10 hours	4,5 hours	25 - 30	
Demoulding time after hours		12	12	24			7 days at room-temperature or 14 hours at 40 °C	for the curing time please see our data sheet	for the curing time please see our data sheet	7 days at room-temperature or 14 hours at 40 °C	12 - 16	
Density approx. g/cm³		1,8	1,8	1,34			1,6	1,6	1,5	1,6	1,8 - 1,9	
Hardness (ISO 868) Shore-D		85 - 90	85 - 90	88			90	90	90	90	85 - 90	
Deflection temperature* (ISO 75) °C		80	100	120 - 125			160 - 170	195	198	–	70 - 75	
Deflection temperature* TG (DSC) °C				–			–	200	200	185	–	
Packing units Article	6 x 0,5 kg LG V 0839808	6 x 1 kg LH V 0899008	6 x 0,8 kg LH V 0900208	10 kg LG V 0839208	6 x 0,8 kg LH V 0900208	200 kg LG V 2154608	6 x 1 kg LH V 0900008 (49)	20 kg LH V 0888108	20 kg LH V 0888208	20 kg LH V 0967208	2 x 10 kg LG V 0846308	6 x 1 kg LH V 0899008
Packing units Article	2 x 10 kg LG V 0835608	6 x 0,05 kg LH V 3505908 (1X)				2 x 5 kg LG V 0839308	6 x 1 kg LH V 0900108 (59)		165 kg LH V 1708708	165 kg LH V 1708808	6 x 0,5 kg LG V 0890708	6 x 0,05 kg LH V 3505908 (1X)
Packing units Article							6,25 kg LH V 0899908					

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RenGel® EP gelcoats

standard types and packing units

technical data

Measured average values, given for information purposes only.

Product	A	B	B
Type	XD 4615	Ren® HY 5159	Ren® HY 5212
Mix ratio	100	15	24
Colour	black		
Properties	<ul style="list-style-type: none"> • highly polishable • high surface quality • heat resistance after post curing • excellent inter layer adhesion to epoxy infusion systems 		
Application	<ul style="list-style-type: none"> • RTM moulds • moulds for vacuum infusion • vacuum deep-drawing tools • foaming moulds 		
Pot life at 23°C in min.		25 - 30	80 - 90
Demoulding time after hours			
Density approx. g/cm³		1,2	1,25
Hardness (ISO 868) Shore-D		80 - 90	85 - 90
Deflection temperature* (ISO 75) °C		120	150
Deflection temperature* TG (DSC) °C		-	-
Packing units Article	2 x 5 kg LG V 0703808	6 x 0,8 kg LH V 0900208	20 kg LH V 0888208
Packing units Article			165 kg LH V 1708708

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RenCast® EP casting resins

standard types and packing units

technical data

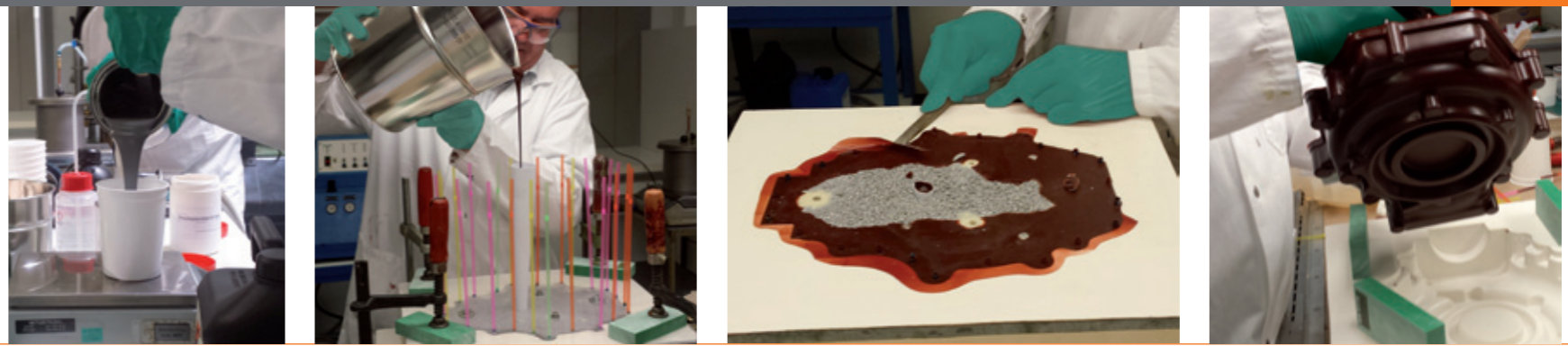
Measured average values, given for information purposes only.



Product	A	B	A	B
Type	RenCast® CW 20	Ren® HY 49	RenCast® CW 47	Ren® HY 33
Mix ratio	100	5	100	15
Colour	blue		grey	
Properties	<ul style="list-style-type: none"> • very good mechanical strength • good chemical resistance • very hard abrasion-resistance surface 		<ul style="list-style-type: none"> • excellent heat resistance up to 210 °C after post-curing • long pot life • layers of up to 100 mm can be cast in a single operation 	
Application	<ul style="list-style-type: none"> • foundry patterns and copy-milling models • sheet metal pressing tools • foaming and concrete casting moulds 		<ul style="list-style-type: none"> • vacuum forming tools • injection moulds for thermoplastics • tools for manufacturing pre-preg components up to 120 °C • foam tooling 	
Pot life at 23°C in min.	110		240	
Demoulding time after hours	16		3-4 days RT/14 h 60°C	
Maximum castable layer thickness mm	30		100	
Hardness (ISO 868) Shore-D	85 - 90		90	
Density approx. g/cm³	2,0		1,66	
Viscosity at 25 °C	15000		17000	
Compressive strength* (DIN EN ISO 604) approx. MPa	140		150 - 160	
Compressive modulus* (ISO 604) approx. MPa	11000 - 11500		11000 - 11500	
Flexural strength* (DIN EN ISO 178) approx. MPa	110		120	
Coefficient of thermal expansion (DIN EN ISO 11359) 10 ⁻⁶ ·K ⁻¹	35		50	
Deflection temperature* (ISO 75) °C	65 - 70		210	
Linear shrinkage* mm/m	0,05		1,0	
Abrasion resistance* Taber mm³/100U	22		45 - 50	
Packing units Article	2 x 5 kg LC V 0566608	4 x 1 kg LH V 0565708	25 kg LC V 0567008	4 x 3,75 kg LH V 0565108
Packing units Article	20 kg LC V 0566508			

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RenCast® EP casting resins



standard types and packing units

technical data
Measured average values, given for information purposes only.

Product	A	B	B	A	B	B	B	A	B	B	B	A	B	B	A	B
Type	RenCast® CW 61	Ren® HY 97 blue	Ren® HY 97-1	RenCast® CW 2215	Ren® HY 5160	Ren® HY 5161	Ren® HY 5162	RenCast® CW 2418-1	Ren® HY 5160	Ren® HY 5161	Ren® HY 5162	RenCast® CW 5156-1	Ren® HY 5158	XB 5173 hardener	XW 1050 resin	XW 1049-1 hardener
Mix ratio	100	10	10	100	20	20	20	100	15	15	15	100	8	12	100	100
Colour	grey			yellow				black				grey			light beige	light grey
Properties	<ul style="list-style-type: none"> chemical resistant temperature resistance up to 110 °C high strength at demould easily machinable 			<ul style="list-style-type: none"> suitable for full or face castings cures at room temperature layers up to 80 mm thick can be cast in a single operation after curing very good machinable 				<ul style="list-style-type: none"> hard abrasion resistant surface easily machinable cures at room temperature layers up to 80 mm thickness can be cast in a single operation cure rate determined by choice of hardener 				<ul style="list-style-type: none"> low viscosity long pot life preure at room temperature no disturbing odours 			<ul style="list-style-type: none"> cures at room temperature good adhesive properties sticks also on vertical surface visual mix control due to different coloured resin and hardener 	
Application	<ul style="list-style-type: none"> vacuum forming tools foam moulding tools tools for pre-preg lamination 			<ul style="list-style-type: none"> construction of foundry patterns jigs and fixtures working models for the ceramic industry suitable for a wide range of applications 				<ul style="list-style-type: none"> sheet metal tools casting of dowel bushes full and face casting foundry patterns and copy-milling models mould making in general 				<ul style="list-style-type: none"> construction of vacuum deep-drawing and foam moulding tools construction of heat resistant moulds and tools 			<ul style="list-style-type: none"> to fix and glue from laminating rear machine section 	
Pot life at 23°C in min.		12 - 16	120		120	45	25		120	60	30		60	150	50 - 60	
Demoulding time after hours			24		16	12	10		16	12	10		24	24		
Maximum castable layer thickness mm		1,27	40		80	20	10		80	20	10		80	80 - 100		
Hardness (ISO 868) Shore-D		80 - 85	90		85 - 90	85 - 90	85 - 90		85 - 90	85 - 90	85 - 90		90	75 - 80		
Density approx. g/cm³		60 - 65	1,74		1,6	1,6	1,6		2,3	2,3	2,3		1,62	1,6 - 1,7		
Viscosity at 25 °C		3000	8000		4000	5000	5000		4000	5000	5000		20000 - 30000	8000 - 12000		
Compressive strength* (DIN EN ISO 604) approx. MPa		135	233		80 - 90	80 - 90	80 - 90		80 - 90	80 - 90	80 - 90		140 - 145	130 - 180	80	
Compressive modulus* (ISO 604) approx. MPa		7500	2750		3500 - 4000	3500 - 4000	3500 - 4000		4500 - 5500	4500 - 5500	4500 - 5500		8500	3000 - 3500		
Flexural strength* (DIN EN ISO 178) approx. MPa		95	90		65 - 75	60 - 70	60 - 70		80 - 90	80 - 85	80 - 85		72 - 77	85 - 90		
Coefficient of thermal expansion (DIN EN ISO 11359) 10 ⁻⁶ ·K ⁻¹		45	45		45	45	45		40-45	40-45	40-45		46 - 48	40-45		
Deflection temperature* (ISO 75) °C		110	110		50 - 55	55 - 60	60 - 65		50 -55	55 -60	60 - 65		130	130 - 135		
Linear shrinkage* mm/m		0,4	0,3		0,1	0,7	0,3		0,1	0,8	1,0		test at present	0,19		
Abrasion resistance* Taber mm³/100U		50 - 55	50 - 55		90 - 100	90 - 100	90 - 100		45 - 50	45 - 50	45 - 50		test at present	test at present		
Packing units Article	10 kg LCV 057108	4 x 1 kg LH V 0566408 (49)	5 kg LH V 3575708	6 x 0,75 kg LCV 0835808	4 x 2 kg LH V 0833808	4 x 2 kg LH V 0834708	4 x 2 kg LH V 0901408	6 x 1 kg LCV 0566808 (49)	4 x 2 kg LH V 0833808	4 x 2 kg LH V 0834708	4 x 2 kg LH V 0901408	12,5 kg LCV 0836008	6 x 1 kg LH V 0900008 (49)	4 x 4,5 kg LH V 0890408	10 kg LA V 1777831	10 kg LA V 1777853
Packing units Article		4 x 1 kg LH V 0706308 (59)	20 kg LH V 0920508	10 kg LH V 0835608	20 kg LH V 0833708	20 kg LH V 0834608	20 kg LH V 5821024	6 x 1 kg LCV 0566908 (59)	20 kg LH V 0833708	20 kg LH V 0834608	20 kg LH V 5821024	265 kg LCV 2209508	6 x 1 kg LH V 0900108 (59)	190 kg LH V 0890308		
								13,5 kg LCV 0566708					6,25 kg LH V 0899908			

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RenLam® laminating paste



standard types and packing units

technical data
Measured average values, given for information purposes only.

Product	A	B	A	B	A	B
Type	RenLam® LV 06	Ren® HY 06	RenLam® LV 10	Ren® HY 97 blue	RenLam® LV 573-2	Ren® HY 2959
Mix ratio	100	15	100	20	100	15
Colour	grey/blue		grey/blue		grey/blue	
Properties	<ul style="list-style-type: none"> • can be used up to 15 mm layer thickness • easy to mix and apply by hand • shorter process time compared with wet lay-up laminating 		<ul style="list-style-type: none"> • good heat resistance • easy to apply by hand • light paste 		<ul style="list-style-type: none"> • laminated shell structures up to 20 mm thick can be built up in a single operation • formulated to back RenGel® gelcoats • high rigidity coupled with low weight 	
Application	<ul style="list-style-type: none"> • laminated shells for general tool making 		<ul style="list-style-type: none"> • light, stiff laminated shells and backing structures 		<ul style="list-style-type: none"> • construction of jigs and fixtures • foundry patterns and foam moulds • stiffening and coupling of supporting aids 	
Pot life at 23°C in min.	90		60		45 - 60	
Demoulding time after hours	16		16		20 - 24	
Maximum castable layer thickness mm	15		10		20	
Hardness (ISO 868) Shore-D						
Density approx. g/cm³	1,1		0,75		1,1 - 1,2	
Viscosity at 25 °C						
Compressive strength* (DIN EN ISO 604) approx. MPa						
Compressive modulus* (ISO 604) approx. MPa						
Flexural strength* (DIN EN ISO 178) approx. MPa	55		46		37 - 41	
Coefficient of thermal expansion (DIN EN ISO 11359) 10 ⁻⁶ ·K ⁻¹	32		26		38	
Deflection temperature* (ISO 75) °C	70		125		40 - 45	
Linear shrinkage* mm/m	1		1,4		0,02 - 0,04	
Abrasion resistance* Taber mm³/100U						
Packing units Article	15 kg LL V 0569208	4 x 2,25 kg LH V 0564708	5 kg LL V 0864408	4 x 1 kg LH V 0566408 (49)	3 x 10 kg LL V 0507508	4 x 4,5 kg LH V 0828408
Packing units Article				4 x 1 kg LH V 0706308 (59)		

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RenCast® laminating paste



standard types and packing units

technical data
Measured average values, given for information purposes only.

Product	A	B	filler
Type	RenCast® 5146 isocyanate	RenCast® 5146 polyol	DT 081
Mix ratio	80	100	200
Colour	grey workable paste		
Properties	<ul style="list-style-type: none"> • very stiff and very light (density: 0,77 g/cm*) • easy to mix by hand (up to 3 kg) or machine • workable and easy to apply paste (without glass fibres) • Processable with coupling layer P99 with EP-PU or VE-gelcoats • can be applied to a thickness of 10 - 40 mm • low exothermic reaction and therefore minimal shrinkage • heat resistant up to 80 °C 		
Application	<ul style="list-style-type: none"> • build-up of moulds using the shell build-up technique • support shells • tools and any form of auxiliaries 		
Pot life at 23°C in min.	30 - 40		
Demoulding time after hours	10 - 14		
Maximum castable layer thickness mm	300		
Hardness (ISO 868) Shore-D	--		
Density approx. g/cm³	0,77		
Viscosity at 25 °C	thixotropic paste		
Compressive strength* (DIN EN ISO 604) approx. MPa	85 - 90		
Compressive modulus* (ISO 604) approx. MPa	3000		
Flexural strength* (DIN EN ISO 178) approx. MPa	35 - 40		
Coefficient of thermal expansion (DIN EN ISO 11359) 10 ⁻⁶ ·K ⁻¹	40 - 50		
Deflection temperature* (ISO 75) °C	80		
Linear shrinkage* mm/m	0,1		
Abrasion resistance* Taber mm³/100U			
Packing units Article	20 kg LC V 0837108	25 kg LC V 0837408	20 kg LA V 1699962
Packing units Article			

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RenLam® laminating resins

standard types and packing units

technical data

Measured average values, given for information purposes only.



Product	A	B	B	B	A	B	A	B	B	A	B	
Type	RenLam® CY 219	Ren® HY 5160	Ren® HY 5161	Ren® HY 5162	RenLam® LW 5157	Ren® HY 5159	RenLam® LY 113	Ren® HY 97-1	Ren® HY 98	RenLam® LY 5138-2	Ren® HY 5138	
Mix ratio	100	50	50	50	100	11	100	30	30	100	23	
Colour	beige				grey		yellowish			slightly opaque		
Properties	<ul style="list-style-type: none"> • high mechanical strength at room temperature • tack-free at room temperature • highly compatible with glass fabrics and fillers • tack-free with choice of pot life and curing rate according to hardener • can be filled with mineral or metal materials 				<ul style="list-style-type: none"> • good wetting properties • long pot life • can be pre-cured at room temperature • enhanced dimensional stability under heat up to approximately 130 °C 		<ul style="list-style-type: none"> • very low viscosity • excellent strength at room temperature • excellent wetting properties • high temperature resistance, up to 125 °C after post curing 			<ul style="list-style-type: none"> • low viscosity • contains neither solvent nor reactive dilutant • very little colour • long pot life • no tackiness even after curing at room temperature • thermal stability at 70 - 80 °C with appropriate post curing 		
Application	<ul style="list-style-type: none"> • construction of jigs, foundry patterns and tooling aids • general tool building • wet lay-up tools using glass ply • backing structures 				<ul style="list-style-type: none"> • construction of vacuum deep-drawing and foam moulding tools • ancillary tooling and fixtures 		<ul style="list-style-type: none"> • structural and special applications • wet lay-up laminating • resin infusion technique • laminated tools for RTM or RIM • composite components using glass, carbon or Aramid ply 			<ul style="list-style-type: none"> • wet lay-up • resin infusion technique • resin transfer moulding (RTM) 		<ul style="list-style-type: none"> • general mould and tool making, where increased thermal stability is required
Pot life at 23°C in min.		80	40	20	40			80	90 - 100	60 - 90		
Demoulding time after hours		16	12	12	24			24	24	20 - 24		
Maximum castable layer thickness mm												
Hardness (ISO 868) Shore-D												
Density approx. g/cm³		1,1	1,1	1,1	1,3			1,0	0,92	1,1		
Viscosity at 25 °C		900 - 1000	1000 - 1200	1000 - 1100	2500 - 3000			390	300 - 320	500 - 700		
Compressive strength* (DIN EN ISO 604) approx. MPa												
Compressive modulus* (ISO 604) approx. MPa												
Flexural strength* (DIN EN ISO 178) approx. MPa												
Coefficient of thermal expansion (DIN EN ISO 11359) 10 ⁻⁶ ·K ⁻¹												
Deflection temperature* (ISO 75) °C		45 - 50	50 - 55	55 - 60	130			121	125	75 - 80		
Linear shrinkage* mm/m												
Abrasion resistance* Taber mm³/100U												
Packing units Article	25 kg LL V 1684353	4 x 2 kg LH V 0833808	4 x 2 kg LH V 0834708	4 x 2 kg LH V 0901408	27 kg LL V 0829908	6 x 0,8 kg LH V 0900208	20 kg LL V 0569508	6 kg LH V 0920608	20 kg LH V 0888308	25 kg LL V 0830208	20 kg LH V 1704264	
Packing units Article	225 kg LL V 1774971	20 kg LH V 0833708	20 kg LH V 0834608	20 kg LH V 5821024			200 kg LL V 0569408	20 kg LH V 0920508		225 kg LL V 0830108		

* Results after curing and heat treatment. Please also see our product data sheet. The technical data relating to the material and its processing has been compiled carefully and is correct to the best of our knowledge. The information cannot, however, be taken to be legally binding nor as any commitment that the material has certain properties or is suited for any particular purposes.

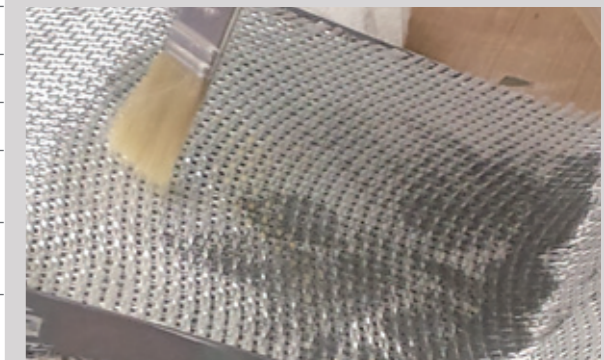
* Results after curing and heat treatment. Please also see our product data sheet. The technical data relating to the material and its processing has been compiled carefully and is correct to the best of our knowledge. The information cannot, however, be taken to be legally binding nor as any commitment that the material has certain properties or is suited for any particular purposes.

RenLam® laminating resins

standard types and packing units

technical data
Measured average values, given for information purposes only.

Product	A	B	B	A	B	A	B	B	A	B	B
Type	RenLam® LY 5210	Ren® HY 5211	Ren® HY 5212	RenLam® LY 5210	Ren® HY 5213	RenLam® LY 5210	Ren® HY 5158	XB 5173 hardener	RenLam® M-1	Ren® HY 956	Ren® HY 956
Mix ratio	100	40	40	100	32	100	25	42	100	20	
Colour	clear liquid pale yellowbrown			clear liquid pale yellowbrown		clear liquid pale yellowbrown			clear liquid pale yellow		
Properties	<ul style="list-style-type: none"> • variable speed of cure-control • excellent fiber wet-out properties due to low viscosities • partial cure at room temperature completed with indicated post cure • excellent inter layer adhesion 			<ul style="list-style-type: none"> • good wetting properties • long pot life • partial curing at room temperature completed with indicated post cure • exceptional heat resistance 		<ul style="list-style-type: none"> • for heat-resistant tools with glass or carbon fibre fabrics • heat resistant up to 170 - 200 °C 			<ul style="list-style-type: none"> • low shrinkage and high dimensional stability • high mechanical strength • highly compatible with glass fabrics and fillers 		
Application	<ul style="list-style-type: none"> • extremely large tools can be produced due to very long pot life • tools requiring heat resistance up to 200° C • fast and medium hardener allow better control over reaction • for heat resistant tools used with glass or carbon fibres • pre-preg lay-up tools 			<ul style="list-style-type: none"> • for heat resistant tools with glass or carbon fibre fabrics • pre-preg lay-up tools • parts and structures • in combination with an appropriate Gelcoat system to construct high temperature tool 		<ul style="list-style-type: none"> • for heat-resistant tools and moulds • pre-preg lay-up tools • vacuum forming tools • foaming moulds 			<ul style="list-style-type: none"> • construction of jigs • foundry patterns and tooling aids 		
Pot life at 25°C and 500 ml		24 hours	12 hours		3 - 3,5 hours		4 hours	6 hours		30 minutes	
Demoulding time after		5 - 6 days	5 - 6 days		2 - 3 days		14 hours at 40°C	24 hours at 40°C		24 hours	
Maximum castable layer thickness mm											
Hardness (ISO 868) Shore-D		85	85								
Density approx. g/cm³		1,1	1,1		1,1		1,1	1,1		1,1	
Viscosity at 25 °C		2400	2000				~ 2400	~ 500		1200	
Compressive strength* (DIN EN ISO 604) approx. MPa		130	153		1800						
Compressive modulus* (DIN EN ISO 178) approx. MPa		3300	3500								
Flexural strength* (DIN EN ISO 178) approx. MPa		110	88								
T.g. (DIN EN ISO 11357-2) °C		200	238		180						
Deflection temperature* (ISO 75) °C		190	223				~ 170	~ 200		50	
Impact strength*Charpy KJ/m²		2,5	3								
Abrasion resistance* Taber mm³/100U											
Packing units Article	25 kg LL V 0831608	20 kg LH V 0888108	20 kg LH V 0888208	25 kg LL V 0831608	20 kg LH V 0967208	25 kg LL V 0831608	6 x 1 kg LH V 0900008 (59E)	4 x 4,5 kg LH V 0890408	4 x 5 kg LL V 0821908	6 x 1 kg LH V 0829608	25 kg LH V 0829108
Packing units Article	1000 kg LL V 0831508		165 kg LH V 1708708	1000 kg LL V 0831508	165 kg LH V 1708808	1000 kg LL V 0831508	6 x 1 kg LH V 0900108 (49E)	190 kg LH V 0890308	25 kg LL V 0822208	4 x 5 kg (1X) LH V 0829408	200 kg LH V 0829008
Packing units Article							6,25 kg LH V 0899908		225 kg LH V 0822108	4 x 5 kg (2D) LH V 0829508	



RenPim® Parts In Minutes polyurethane



standard types and packing units

technical data

Measured average values, given for information purposes only.

Product	A	B	A	B	A	B	A	B	A	B	A	B	A	B
Type	RenPim® 5213-1 isocyanate	RenPim® 5213-1 polyol	RenPim® 5215/17/18 isocyanate	RenPim® 5215 polyol	RenPim® 5212/16/19 isocyanate	RenPim® 5216 polyol	RenPim® 5215/17/18 isocyanate	RenPim® 5217 polyol	RenPim® 5215/17/18 isocyanate	RenPim® 5218 polyol	RenPim® 5212/16/19 isocyanate	RenPim® 5219 polyol	RenPim® 5222 isocyanate	RenPim® 5222 polyol
Mix ratio	65	100	80	100	80	100	80	100	80	100	80	100	100	70
Colour	crème/brown		black		pigment able		black		black		pigment able		black	
Properties	<ul style="list-style-type: none"> • flame retardant system • approved to UL 94V-0 • high impact strength • high thermal resistance • good dimensional stability 		<ul style="list-style-type: none"> • high temperature resistance • black system • for high temperature applications • simulates ABS/PP 		<ul style="list-style-type: none"> • translucent, pigmentable system • high impact resistance • good dimensional stability • simulates ABS/PP 		<ul style="list-style-type: none"> • black system • high impact resistance • good dimensional stability • simulates ABS 		<ul style="list-style-type: none"> • black system • high flexural modulus • good dimensional stability • simulates ABS/PP 		<ul style="list-style-type: none"> • pigmentable • low reactivity system • suitable for hand or machine processing • for modification of other parts in minutes polyurethanes • high flexural modulus 		<ul style="list-style-type: none"> • high impact system • good flexibility • black system • simulates high density polyethylene 	
Application	Parts In Minutes® polyurethanes simulate the appearance and physical characteristics of engineering thermoplastics for prototyping and short production runs. They can be used to produce functional prototype parts suitable for use in all major industrial areas including automotive, aerospace, consumer goods, electronic and leisure applications.						Parts In Minutes® polyurethanes simulate the appearance and physical characteristics of engineering thermoplastics for prototyping and short production runs. They can be used to produce functional prototype parts suitable for use in all major industrial areas including automotive, aerospace, consumer goods, electronic and leisure applications.							
Gelation time at 25 °C	approx. 50 - 90		approx. 45 - 60		approx. 45 - 60		approx. 45 - 65		approx. 100 - 130		approx. 40 - 60		approx. 60 - 80	
Demoulding (dependent on layer thickness) min.	approx. 15 - 30		approx. 10 - 15		approx. 15 - 20		approx. 10 - 15		approx. 20 - 30		approx. 16 - 18 hours		approx. 20 - 30	
Maximum castable layer thickness mm	3		4		5		5		4		20		4	
Hardness (ISO 868) Shore-A/D	78 - 83		75 - 80		75 - 80		75 - 80		75 - 80		78 - 83		55 - 65	
Density approx. g/cm³	1,2		1,2		1,2		1,2		1,2		1,2		1,2	
Impact strength kJ/m²	> 27		> 40		> 40		> 70		> 30		> 40		approx. 175 - 185 (Charpy)	
Flexural strength* (DIN EN ISO 178) approx. MPa	1300 - 1500		1000 - 1200		1100 - 1300		1000 - 1400		1800 - 2000		2700 - 2900		635 - 775	
Flexural modulus* (DIN EN ISO 178) approx. MPa	> 55		50 - 60		45 - 50		> 55 (elastic limit)		60 - 70		> 95		25 - 30	
Elongation at break* (DIN EN ISO 527) approx. MPa	8 - 12		5 - 15		20 - 40		8 - 18		15 - 30		10 - 14		150 - 165	
Tensile modulus (DIN EN ISO 527) approx. MPa														
Tensile strength (DIN EN IOS 527) approx. MPa	35 - 40		30 - 40		30 - 35		35 - 40		40 - 45		60 - 70		25 - 30	
Deflection temperature* (ISO 75) °C	90		130 - 140		80		85 - 90		90 - 100		70 - 75		75	
Tg °C (6 up to 60 °C + 12 h at 100 °C) TMA	99		136		90		98		92		77		46	
Linear shrinkage* mm/m	approx. 4		approx. 5		approx. 6,5		approx. 4,4		approx. 6,5		at 5 mm approx. 0,5 mm at 10 mm approx. 1 mm at 20 mm approx. 2 mm		at 1 mm approx. 1,27 mm at 3 mm approx. 2,29 mm at 4 mm approx. 2,95 mm	
Packing units Article	16,25 kg LP V 0846408	25 kg LP V 0846708	20 kg LP V 0844308	25 kg LP V 0843908	4 x 4 kg LP V 0843008	25 kg LP V 0844808	20 kg LP V 0844308	25 kg LP V 0845108	20 kg LP V 0844308	25 kg LP V 0847208	4 x 4 kg LP V 0843008	4 x 5 kg LP V 0847508	25 kg LP V 0848308	17,5 kg LP V 0848408
Packing units Article			220 kg LP V 0844408	200 kg LP V 0843808	20 kg LP V 0842908		220 kg LP V 0844408		220 kg LP V 0844408		20 kg LP V 0842908	25 kg LP V 0847408		

* Results after curing and heat treatment. Please also see our product data sheet. The technical data relating to the material and its processing has been compiled carefully and is correct to the best of our knowledge. The information cannot, however, be taken to be legally binding nor as any commitment that the material has certain properties or is suited for any particular purposes.

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RenCast® PU fast cast resins

standard types and packing units

technical data
Measured average values, given for information purposes only.



Product	A	B	A	B	A	B	A	B	filler	A	B	A	B	filler	A	B	
Type	RenCast® FC 50 isocyanate	RenCast® FC 50 polyol	RenCast® FC 51 isocyanate	RenCast® FC 51 polyol	RenCast® FC 52/53 isocyanate	RenCast® FC 52 polyol	RenCast® FC 52/53 isocyanate	RenCast® FC 52 polyol	DT 082	RenCast® FC 52/53 isocyanate	RenCast® FC 53 polyol	RenCast® FC 52/53 isocyanate	RenCast® FC 53 polyol	DT 082	RenCast® FC 54 isocyanate	RenCast® FC 54 polyol	
Mix ratio	20	100	100	100	100	100	100	100	300	100	100	100	100	300	100	100	
Colour	white		grey		beige		beige			beige		beige		beige		blue	
Properties	<ul style="list-style-type: none"> • very good flowability • fast curing • filled two-component casting system • low shrinkage • easily machinable 		<ul style="list-style-type: none"> • very good flowability • fast curing • filled two-component casting system • low shrinkage • easily machinable 		<ul style="list-style-type: none"> • low viscosity • can be filled with all types of dry fillers/pigments • opaque neutral colour for easy colouring 		<ul style="list-style-type: none"> • low viscosity • can be filled with all types of dry fillers/pigments • opaque neutral colour for easy colouring 			<ul style="list-style-type: none"> • low viscosity • can be filled with all types of dry fillers/pigments • opaque neutral colour for easy colouring 		<ul style="list-style-type: none"> • low viscosity • can be filled with all types of dry fillers/pigments • opaque neutral colour for easy colouring 		<ul style="list-style-type: none"> • low viscosity • can be filled with all types of dry fillers/pigments • opaque neutral colour for easy colouring 		<ul style="list-style-type: none"> • can be cast up to a thickness of 100 mm • very low shrinkage • medium setting speed for casting large components • filled two-component casting system 	
Application	<ul style="list-style-type: none"> • prototypes • models • templates • replicas 		<ul style="list-style-type: none"> • foundry patterns • moulds • retaining jig • prototypes 		<ul style="list-style-type: none"> • foundry patterns • moulds • retaining jig • prototypes 		<ul style="list-style-type: none"> • foundry patterns • moulds • retaining jig • prototypes 			<ul style="list-style-type: none"> • foundry patterns • moulds • retaining jig • prototypes 		<ul style="list-style-type: none"> • scale models • moulds • negatives • templates • prototypes 		<ul style="list-style-type: none"> • scale models • moulds • negatives • templates • prototypes 		<ul style="list-style-type: none"> • castings • foundry models • templates 	
Pot life at 25°C in min.	4 - 5		5 - 7		6 - 8		10			3 - 4		5 - 6		8			
Demoulding time after minutes	30 - 40		20 - 40		60 - 90		180			30 - 40		60 - 90		120 - 240			
Maximum castable layer thickness mm	10		30		30		100			10		60		100			
Hardness (ISO 868) Shore-D	85 - 90		80		70 - 75		80 - 85			70 - 75		80 - 85		85 - 90			
Density approx. g/cm³	1,6		1,6		1,0		1,6			1,1		1,6		1,7			
Viscosity at 25 °C mPas	1800		2000		70		paste			80		paste		3400			
Compressive strength* (DIN EN ISO 604) approx. MPa	73		63		35		38			41		44		71			
Compressive modulus* (ISO 604) approx. MPa	3400		3000		1000		2100			1150		2400		3000			
Flexural strength* (DIN EN ISO 178) approx. MPa	85 - 90		31		25		26			41		34		45			
Deflection temperature* (ISO 75) °C	45 - 50		80		80		85			85		90		95			
Linear shrinkage* @ 5 mm @ 10 mm @ 20 mm @ 100 mm	0,6 1,0 -- --		0,6 1,0 1,5 --		5 5,5 -- --		0 0,1 0,6 --			3,4 6,4 -- --		0 0,3 1 --		1,4 1,4 1,6 1,6			
Packing units Article	1 packing LCV 0560608		1 packing LCV 0561008		4 x 4,5 kg LCV 0561308 4 x 4,5 kg LCV 0561508		4 x 4,5 kg LCV 0561308 4 x 4,5 kg LCV 0561508 15 kg LCV 1684364			4 x 4,5 kg LCV 0561308 4 x 4,5 kg LCV 0562008		4 x 4,5 kg LCV 0561308 4 x 4,5 kg LCV 0562008 15 kg LCV 1684364		1 packing LCV 0562108			
Packing units Article					20 kg LCV 0561208 20 kg LCV 0561408		20 kg LCV 0561208 20 kg LCV 0561408			20 kg LCV 0561608 20 kg LCV 0561908		20 kg LCV 0561608 20 kg LCV 0561908					
Packing units Article										1 packing LCV 0561608		1 packing LCV 0561608					

* Results after curing and heat treatment. Please also see our product data sheet. The technical data relating to the material and its processing has been compiled carefully and is correct to the best of our knowledge. The information cannot, however, be taken to be legally binding nor as any commitment that the material has certain properties or is suited for any particular purposes.

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RenCast® PU fast cast resins

standard types and packing units

technical data

Measured average values, given for information purposes only.

Product	A	B	A	B	filler
Type	RenCast® FC 55 isocyanate	RenCast® FC 55 polyol	RenCast® FC 55 isocyanate	RenCast® FC 55 polyol	DT 082
Mix ratio	100	100	100	100	300
Colour	beige		beige		
Properties	<ul style="list-style-type: none"> • low viscosity • fast demoulding time • opaque neutral product 		<ul style="list-style-type: none"> • low viscosity • fast demoulding time • opaque neutral product 		
Application	<ul style="list-style-type: none"> • prototypes • scale models • templates 		<ul style="list-style-type: none"> • prototypes • scale models • templates 		
Pot life at 25°C in min.	3 - 4		3 - 4		
Demoulding time after minutes	20 - 30		60		
Maximum castable layer thickness mm	10		60		
Hardness (ISO 868) Shore-D	70 - 75		80 - 85		
Density approx. g/cm³	1,0		1,6		
Viscosity at 25 °C mPas	60		paste		
Compressive strength* (DIN EN ISO 604) approx. MPa	35		43		
Compressive modulus* (ISO 604) approx. MPa	900		2200		
Flexural strength* (DIN EN ISO 178) approx. MPa	37		26		
Deflection temperature* (ISO 75) °C	85		90		
Linear shrinkage* @ 5 mm @ 10 mm @ 20 mm @ 100 mm	5,2 -- -- --		1,4 1,7 2,6 --		
Packing units Article	4 x 4,5 kg LC V 0562408	4 x 4,5 kg LC V 0562608	4 x 4,5 kg LC V 0562408	4 x 4,5 kg LC V 0562608	15 kg LC V 1684364

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RenCast® masscasting

standard types and packing units

technical data

Measured average values, given for information purposes only.

Product	A	B	A	B	filler
Type	RenCast® 5146 isocyanate	RenCast® 5146 polyol	RenCast® 5146 isocyanate	RenCast® 5146 polyol	DT 082
Mix ratio	80	100	80	100	360 - 480
Colour	milky		crème		
Properties	<ul style="list-style-type: none"> • low exothermic reaction and minimal shrinkage, even in thick sections 		<ul style="list-style-type: none"> • masscasting system used in combination with Filler DT 082 • low exothermic reaction and minimal shrinkage, even in thick sections 		
Application	<ul style="list-style-type: none"> • sheet metal forming tools for steel and aluminium • negative moulds and tooling fixtures • front casting system for large moulds 		<ul style="list-style-type: none"> • sheet metal forming tools for steel and aluminium • negative moulds and tooling fixtures • front casting system for large volume moulds 		
Pot life at 25°C in min.	30 - 40		40 - 50		
Demoulding time after hours	8 - 12		15 - 20		
Maximum castable layer thickness mm	20		100		
Hardness (ISO 868) Shore-D	80		85		
Density approx. g/cm³	1,2		1,6		
Viscosity at 25 °C mPas	1500 - 2000		thick casting paste		
Compressive strength* (DIN EN ISO 604) approx. MPa	85 - 90		90 - 95		
Compressive modulus* (ISO 604) approx. MPa	3000		9500		
Flexural strength* (DIN EN ISO 178) approx. MPa					
Deflection temperature* (ISO 75) °C	75 - 80		75 - 80		
Linear shrinkage* mm/m	2,0		0,6		
Packing units Article	20 kg LC V 0837108	25 kg LC V 0837408	20 kg LC V 0837108	25 kg LC V 0837408	15 kg LA V 1684364

* Results after curing and heat treatment. Please also see our product data sheet. The technical data relating to the material and its processing has been compiled carefully and is correct to the best of our knowledge. The information cannot, however, be taken to be legally binding nor as any commitment that the material has certain properties or is suited for any particular purposes.

RenCast® casting resin (polyurea)

standard types and packing units

technical data

Measured average values, given for information purposes only.

Product	A	B	A	B	A	B
Type	RenCast® 6425 A	RenCast® 5425 B	RenCast® 6427 A	RenCast® 5427 B	RenCast® 6429 A	RenCast® 5429 B
Mix ratio	100	24	100	20	100	80
Colour	brown		light yellow		green	
Properties	<ul style="list-style-type: none"> withstands moisture well, thus also suitable for thin layers high tear strength and elongation high abrasion resistance 		<ul style="list-style-type: none"> flexible high tear strength and elongation withstands moisture well, thus also suitable for thin layers high abrasion resistance 		<ul style="list-style-type: none"> high abrasion resistance good chemical resistance very good interlayer adhesion with epoxy resins withstands moisture well, thus also suitable for thin layers 	
Application	<ul style="list-style-type: none"> foundry patterns core boxes abrasion and impact-resistant parts percussion tools impact protection conveyor rollers machinery parts assembly jigs 		<ul style="list-style-type: none"> abrasion and impact-resistant parts rubberlike prototype parts concrete moulds ceramic industry impact protection conveyor rollers machinery parts assembly jigs vibration absorption 		<ul style="list-style-type: none"> foundry patterns core boxes tools for the ceramic industry (plaster working moulds) negatives, moulds and fixtures assembly jigs percussion tools for working sheet metal 	
Pot life at 25°C in min.	15 - 20		35 - 20		15 - 20	
Demoulding time after hours	20 - 24		16 - 20		12 - 14	
Maximum castable layer thickness mm	10 - 12		70 - 80			
Hardness (ISO 868) Shore-D	60 - 65		70 - 75		60 - 65	
Density approx. g/cm³	1,2		1,1		1,5 - 1,7	
Viscosity at 25 °C mPas	1900 - 2100		1200 - 1300			
Tear propagation resistance (DIN 53356) kN/m	28 - 30		5 - 6			
Tensile strength (ISO 527-2) MPas	30 - 35		5 - 6			
Elongation at break (ISO 527-2) %	130 - 170		200 - 250			
Torsional Test DMA, 2K/Min (ISO 6721) °C	90					
Linear shrinkage* Taber mg	1,8					
Abrasion resistance* Taber mg	1600				1400	
Packing units Article	4 x 5 kg LCV 2302108	4,8 kg LCV 2302208	4 x 5 kg LCV 2538608	4 kg LCV 2550208	6 x 1 kg LCV 2818408	6 x 0,80 kg LCV 2818308



* Results after curing and heat treatment. Please also see our product data sheet. The technical data relating to the material and its processing has been compiled carefully and is correct to the best of our knowledge. The information cannot, however, be taken to be legally binding nor as any commitment that the material has certain properties or is suited for any particular purposes.

Wax sheets

technical data

Measured average values, given for information purposes only.

Type	266
Colour	brown
Manufacturer	Freeman
Deflection temperature °C	up to 130
Properties	<ul style="list-style-type: none"> • self adhesive backing • very smooth
Storage-temperature °C	+2°C bis +40°C
Dimensions mm	610 x 305

Freeman wax sheets are used to simulate sheet metals in the tooling process. It is supplied in a range of thickness to an accuracy of +/- 0,025 mm each.

Type 266 gives resistance of up to 138°C for use with tooling resins that produce some, but not excessive exothermic heat during curing. It provides a firm surface and drapes well at room temperature, without tendency to spring-back.

The sheets have a self-adhesive backing for fast application.

Thickness	Pieces per box	Article
0,25 mm	10	LW V 1519518
0,40 mm	10	LW V 1739541
0,50 mm	10	LW V 1450723
0,60 mm	10	LW V 1739552
0,70 mm	10	LW V 1450734
0,75 mm	8	LW V 1518760
0,80 mm	8	LW V 1450745
0,90 mm	8	LW V 1450756
1,00 mm	8	LW V 1450767
1,20 mm	8	LW V 8499853
1,25 mm	8	LW V 1450778
1,50 mm	8	LW V 1450789
2,00 mm	8	LW V 1450790
2,50 mm	6	LW V 1518782
3,00 mm	4	LW V 1518793
4,00 mm	4	LW V 1518803
5,00 mm	3	LW V 1518814
7,00 mm	2	LW V 5037867
0,125 inch	4	LW V 6964188
0,250 inch	2	LW V 3878567

Putty

technical data

Measured average values, given for information purposes only.

Type	Repair Paste (Polyester Repair-putty) XW 5129	Peroxyde Paste (hardener) XW 5130	Finishing Paste XW 5184	Peroxyde Paste (hardener) XW 5130
Colour	brown	brown	brown	brown
Applications	• used mainly as repair filler.		• used mainly as a fine filler to achieve an extra smooth surface finish.	
Mix ratio (parts per weight)	100 : 1-3		100 : 1-3	
Pot life at 25°C in min	4 - 6		4 - 6	
Cure time in min	25 - 30		25 - 30	
Density approx. g/cm ³	0,7		0,7	
Hardness (ISO 868) Shore-D	60 - 65		60 - 65	
Packing units in kg	8 x 1,26	8 x 0,04	8 x 1,96	8 x 0,04
Article	LA V 1686904	LA V 1685156	LA V 1777996	LA V 1685156

Fillers

Type	DT 081	DT 082	DT 5039 Thixotropic Agent opak
Colour	grey	white	
Properties	• can be used with Epoxy and Polyurethane systems	• can be used with Epoxy and Polyurethane systems	• can't be used with Polyurethane systems
Bulk density g/cm ³	0,35 - 0,4	1,6	0,1 - 0,15
Packing units in kg	20	15	9
Article	LA V 1699962	LA V 1684364	LA V 1684375



Storage: Providing that fillers and ancillaries are stored in a dry place in their original, properly closed containers, at the storage temperatures mentioned in the MSDS they will have the shelf lives indicated on the labels. The technical data relating to the materials and its processing have been compiled carefully and is correct to the best of our knowledge. The information cannot, however, be taken to be legally binding nor as any commitment that the material has certain properties or is suited for any particular purpose.

RenLease® release agent

Type	RenLease® QZ 5101	RenLease® QV 5110	RenLease® QZ 5111
Properties/Applications	<ul style="list-style-type: none"> • film forming Poly-Vinyl-Alcohol (PVA) release agent • can also be used as a sealer for porous surfaces • produces glossy mouldings 	<ul style="list-style-type: none"> • cloth applied wax based release agent for general applications • polishable to lustre 	<ul style="list-style-type: none"> • a liquid suspension of waxes in solvent for the release of general and complex mould surfaces • polishable to lustre
Packing units in kg	6 x 0,9	12 x 1	6 x 0,75
Article	LA V 0507208	LA V 1776621	LA V 1691865
Packing units in kg		20	4 x 3,75
Article		LA V 1690062	LA V 1684562 or LA V 1776665



Storage: Providing that fillers and ancillaries are stored in a dry place in their original, properly closed containers, at the storage temperatures mentioned in the MSDS they will have the shelf lives indicated on the labels. The technical data relating to the materials and its processing have been compiled carefully and is correct to the best of our knowledge. The information cannot, however, be taken to be legally binding nor as any commitment that the material has certain properties or is suited for any particular purpose.

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