

MARINE Advanced Materials SELECTOR GUIDE

For plug, mould, finished parts and repairs, Huntsman Advanced Materials enhances value to customers by providing new patented technologies, together with high quality and reliable products. Since the 1950's we have been the preferred partner of both designers and ship builders involved in the manufacture of small leisure craft, power boats and large luxury vessels. Our advanced composite materials and adhesives have proven their reliability in the most arduous of marine conditions.



HUNTSMAN

Tooling materials

Master model / Plug

Product	Colour	Mix Ratio (pbw)	Minimum Cure Schedule	Density (g/cm ³)	Hardness Shore D ISO 868	Coefficient of Thermal Expansion ISO 11359 (10 ⁻⁶ K ⁻¹)*	Deflection Temp. ISO 75 (°C)*	Compres. Strength ISO 604 (MPa)*	Flexural Strength ISO 178 (MPa)*
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Marine paste

XD 4618-1 R/H	Light grey	100:50	Machinable after 2 days (RT**curing)	0.85-0.95	65-75	45-50	47	51	29
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* After 7 days at 25°C • ** Room Temperature = 25 °C

Mould production with wet lay-up or RTM processes (Heat resistance up to 120°C)

Product	Colour	Mix Ratio (pbw)	Pot Life 250 ml at 25 °C (min)	Demoulding Time (hr)	Density (g/cm ³)	Hardness Shore D ISO 868	Deflection Temp. ISO 75 (°C)
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Surface coat

RenGel® SW 18 / Ren® HY 2404	Green	100:20	10-15	12	1.3	85-90	85
RenGel® SW 18 / Ren® HY 5159	Green	100:16	25	12	1.3	85-90	100
XD 4615 / Ren® HY 5159	Black	100:15	25	12	1.3	85-90	120

Coupling layer

Coupling Coat P99 / Ren® HY 5159	Grey	100:11	30	12	1.5	90	120
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Product	Colour	Mix Ratio (pbw)	Pot Life at 25 °C (min)	Demoulding Time (hr)	Density (g/cm ³)	Deflection Temp. ISO 75 (°C)
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Back construction

RenLam® LY 113 / Ren® HY 97	Yellowish	100:32	80 (500 ml)	24	1,1	120
RenLam® LY 113 / Ren® HY 98	Clear to pale yellow	100:30	190 (500 ml)	24	0.95	120
Araldite® LY 3297 / Aradur® 3298	Clear colourless	100:40	120-135 (100 g)	24	1	100
Araldite® LY 3297 / Aradur® 3299	Clear colourless	100:40	40-50 (100 g)	24	1	100

Mould production with prepreg process (Heat resistance up to 180°C)

Product	Colour	Mix Ratio (pbw)	Pot Life at 25°C (hr)	Demoulding Time (hr)	Density (g/cm ³)	Hardness Shore D ISO 868	Tg** (°C)
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Surface coat

RenGel® SW 5200 / Ren® HY 5212	Black	100:20	10 (500 ml)	–	1.5	90	200
RenGel® SW 5200 / Ren® HY 5213	Black	100:16	4.5 (250 ml)	7 days @ RT* or 14 @ 40 °C	1.6	90	185

* Room Temperature = 25 °C • ** IEC 1006, DSC, 10K/min

Product	Colour	Mix Ratio (pbw)	Viscosity at 25°C (mPas)	Pot Life 500 ml at 25°C (hr)	Demoulding Time (hr)	Density (g/cm ³)	Tg** (°C)
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Back construction

RenLam® LY 5210 / Ren® HY 5212	Amber	100:40	2 000	12	–	1.1	238
RenLam® LY 5210 / Ren® HY 5213	Amber	100:32	1 800	3-3.5	3-4 days @ RT* or 14 @ 40 °C	1.1	180

* Room Temperature = 25 °C • ** IEC 1006, DSC, 10K/min

Parts production

Wet lay-up systems

Product	Pot Life 100 g at 23°C (min)	Gel Time at 80°C (min)	Gelation start in thin layer at 23°C	Mix Viscosity (mPas)	Tg** Max (°C)	Flexural Strength ISO 178 (MPa)	Ultimate Flexural Elongation (%)	Comments
Araldite® LY 3505 / Hardener XB 3403	600-720	36-48	14-16 hr	300-400	81-86	110-130	10.5-13.0	Adjustable reactivity
Araldite® LY 3505 / Hardener XB 3404-01	80-100	11-18	5-7 hr	550-800	77-82	125-145	6.5-9.5	Adjustable reactivity
Araldite® LY 3505 / Aradur® 3405	26-36	5-11	2-3 hr	1 000-1 200	85-89	135-155	7.0-9.0	Adjustable reactivity
Araldite® LY 3297 / Aradur® 3298	120-135	18-26	320-360 min	320-380	92-98	125-130	7.0-8.2	Very good cure at RT,* good toughness
Araldite® LY 3297 / Aradur® 3299	40-50	10-16	150-190 min	350-400	98-105	123-128	9.0-12.0	Very good cure at RT,* good toughness

* Room Temperature = 25 °C • ** IEC 1006, DSC, 10 K/min

Thixotropic systems

Product	Pot Life 100 g at 23°C (min)	Gel Time at 80°C (min)	Gelation start in thin layer at 23°C (min)	Mix Viscosity (mPas)	Tg** Max (°C)	Flexural Strength ISO 178 (MPa)	Ultimate Flexural Elongation (%)	Comments
Resin XB 3517 / Hardener XB 3418	35-50	10-13	80-100	~12 000	85-92	102-112	7.5-12.0	RT* very good toughness
Resin XB 3517 / Hardener XB 3419	100-130	22-26	160-200	~10 000	81-88	110-120	6.0-7.0	RT* very good toughness

* Room Temperature = 25 °C • ** IEC 1006, DSC, 10 K/min

Repair system

Product	Pot Life 100 g at 23°C (min)	Gel Time at 80°C (min)	Gelation start in thin layer at 23°C (min)	Mix Viscosity (mPas)	Tg* Max (°C)	Flexural Strength ISO 178 (MPa)	Ultimate Flexural Elongation (%)	Comments
Resin XB 3585 / Hardener XB 2958	14-18	2-4	60-120	> 500	110-120	120-140	4.5-6.5	High reactivity system

* IEC 1006, DSC, 10 K/min

Injection infusion systems

Product	Pot Life 100 g at 23°C (min)	Gel Time at 80°C (min)	Gelation start in thin layer at 23°C (min)	Mix Viscosity (mPas)	Tg* Max (°C)	Flexural Strength ISO 178 (MPa)	Ultimate Flexural Elongation (%)	Comments
Araldite® LY 1564 / Aradur® 3486	560-620	33-43	980-1120	200-300	82-86	118-130	10.5-12.5	Adjustable reactivity
Araldite® LY 1564 / Aradur® 3487	130-160	18-25	400-460	220-230	80-84	118-130	10.0-12.0	Adjustable reactivity

* IEC 1006, DSC, 10 K/min

Assembly

Product	Mix Ratio (pbw)	Mix Aspect	Pot Life 100 gr at 23°C (min)	Recommended Cure Schedule (°C)	Lap Shear Strength (N/mm ²)	Typical Cured Tg* (°C)	Gap Filling (mm)
Araldite® AV 4076-1 / HV 5309-1	100:116	Thixotropic paste	60	Ambient or 4 hr @ 60	24	78	0-10
Araldite® 2013	100:60	Thixotropic paste	50-80	10 hr @ 23 or 6 min @ 100	18 (aluminium)	44-47	5
Araldite® 2015	100:100	Thixotropic paste	30-40	10 hr @ 23 or 35 min @ 70	17 (aluminium)	65	10
Araldite® 2022	100:94	Liquid	10	30 min @ 23 or 12 min @ 600	25 (aluminium)	-	0-4

* IEC 1006, DSC, 10 K/min

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