



HexPly® 8552 Epoxy Matrix

Mid-Toughened, High Strength,
Damage-Resistant, Structural Epoxy Matrix

Product Data

Description

HexPly® 8552 is an amine cured, toughened epoxy resin system supplied with unidirectional or woven carbon or glass fibers. HexPly® 8552 is recommended for structural applications requiring high strength, stiffness, and damage tolerance. HexPly® 8552 was developed as a low flow system to operate in environments of up to 250°F.

Features

- Service Temperature up to 250°F
- Impact Tolerant
- Low Flow

Neat Resin Properties

Density	0.0470 lb/in ³
T _g dry - RDS 7700	392°F
T _g wet - RDS 7700	309°F
Tensile strength	17.5 ksi
Tensile modulus	0.677 msi
Tensile strain	1.7%
Fracture toughness, K _{1C}	1.475 ksi $\sqrt{\text{in}}$
Strain energy release rate, G _{1C}	3.88 in-lb/in ²
Gel Time at 350°F	13 minutes

Physical Properties

	Material Description	Carbon Tapes	Carbon Fabrics
Prepreg	% Resin content	34-38	36-42
	% Flow	10-22	8-22
	% Volatiles	1.0 max	1.5 max
	Gel (min)	12-22	12-22
Laminate	% Fiber volume	60	58





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Mechanical Properties

Property	Temp°F	Condition	AS4	IM7	A193-PW	A280-5H	SGP196-PW	SGP370-8H
0° Tensile strength, ksi	-67	Dry	276	373	111	120	142	140
0° Tensile modulus, msi	-67	Dry	19.4	23.7	9.5	10.2	12.3	12.5
0° Tensile strength, ksi	77	Dry	310	395	120	127	158	147
0° Tensile modulus, msi	77	Dry	19.6	23.8	9.8	9.7	12.3	12.4
0° Tensile elongation, %	77	Dry	1.55%	1.62%	-	-	-	-
0° Tensile strength, ksi	195	Dry	293	368*	116	131	-	-
0° Tensile modulus, msi	195	Dry	19.1	23.7*	9.6	10	-	-
90° Tensile strength, ksi	-67	Dry	-	25.3	103.0	109	125	131
90° Tensile modulus, msi	-67	Dry	-	2.8	9.6	9.7	11.6	11.7
90° Tensile strength, ksi	77	Dry	11.7	16.1	115.0	116	137	139
90° Tensile modulus, msi	77	Dry	1.39	1.7	9.5	9.5	11.6	11.7
90° Tensile strength, ksi	200	Dry	10.9	13.3*	111.0	112	142*	130*
90° Tensile modulus, msi	200	Dry	1.22	1.5*	9.8	9.4	11.5*	11.5*
± 45 Inplane shear	77	Dry	16.6	17.4	-	15.9	18.3	14.6
± 45 Inplane shear	200	Dry	15.2	15.4*	-	-	15.5*	13.1*
0° Compression strength, ksi	-67	Dry	230	-	139.0	-	-	-
0° Compression modulus, msi	-67	Dry	18	-	8.7	-	-	-
0° Compression strength, ksi	77	Dry	222	245	128.0	134	-	-
0° Compression modulus, msi	77	Dry	18.6	21.7	8.7	9.3	-	-
0° Compression strength, ksi	195	Dry	184	215	110.0	109	-	-
0° Compression modulus, msi	195	Dry	17.7	23.5	8.8	9.7	-	-
0° Compression strength, ksi	160	Wet	203	-	102.0	-	-	-
0° Compression modulus, msi	160	Wet	17.0	-	8.6	-	-	-
0° Compression strength, ksi	195	Wet	184	-	85.0	74	-	-
0° Compression modulus, msi	195	Wet	18.1	-	-	9.9	-	-
Fill compression strength, ksi	-67	Dry	-	-	127.0	150	124	132
Fill compression modulus, msi	-67	Dry	-	-	8.7	9.2	-	-
Fill compression strength, ksi	77	Dry	-	44.2	127.0	129	116	121
Fill compression modulus, msi	77	Dry	-	1.82	9.0	9.1	10.4	10.5
Fill compression strength, ksi	195	Dry	-	32.8*	114.0	-	103*	96*
Fill compression modulus, msi	195	Dry	-	1.57*	8.9	-	10.6*	10.5*
Fill compression strength, ksi	77	Wet	-	34.2	116.0	-	95	94
Fill compression strength, ksi	160	Wet	-	24.6**	101.0	-	81**	88**
Fill compression strength, ksi	195	Wet	-	-	87.0	-	87*	-
Compression after impact, ksi								
after 500 in-in-lb/in impact	77	Dry	50	-	-	-	-	-
after 1,500 in-in-lb/in impact	77	Dry	32	34	-	-	-	-
after 2,000 in-in-lb/in impact	77	Dry	28	-	-	-	-	-
after 2,500 in-in-lb/in impact	77	Dry	27	-	-	-	-	-

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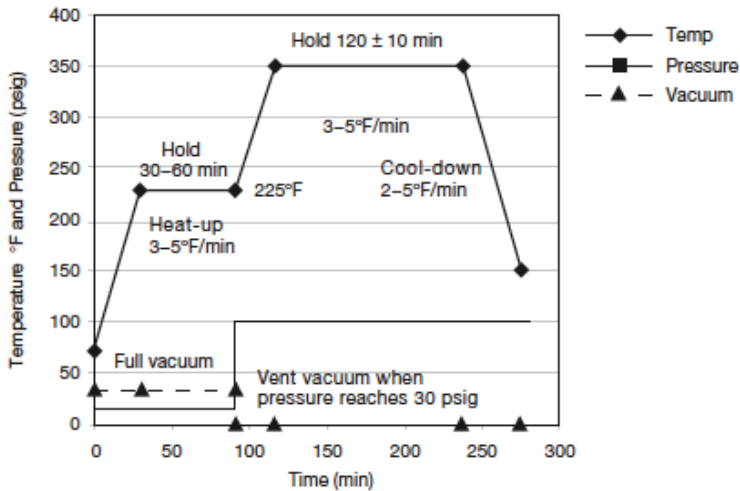
Mechanical Properties

Property	Temp°F	Condition	AS4	IM7	A193-PW	A280-5H	SGP196-PW	SGP370-8H
0° Short beam shear, ksi	-67	Dry	23.8	-	14.6	-	-	-
0° Short beam shear, ksi	77	Dry	18.5	19.9	12.2	11.4	12.7	13
0° Short beam shear, ksi	195	Dry	24.7	13.6*	10.2	6.9	10*	10.8*
0° Short beam shear, ksi	77	Wet	16.9	16.7	10.9	10	11.6	12.1
0° Short beam shear, ksi	160	Wet	12.2	11.6**	10.4	-	8.8**	9.1**
0° Short beam shear, ksi	195	Wet	11.3	-	8.5	-	-	-
Fill short beam shear, ksi	-67	Dry	-	-	10.8	13.7	-	-
Fill short beam shear, ksi	77	Dry	-	-	11.8	11.7	-	-
Fill short beam shear, ksi	195	Dry	-	-	10.2	-	-	-
Fill short beam shear, ksi	77	Wet	-	-	11.4	-	-	-
Fill short beam shear, ksi	195	Wet	-	-	8.5	-	-	-
0° Flexural strength, ksi	77	Dry	274	270	-	150	165	164
0° Flexural modulus, msi	77	Dry	18.4	22	-	8.5	11.1	10.8
Quasi-Isotropic 25/50/25								
Tensile strength, ksi	77	Dry	107	-	-	-	-	-
OHT strength, ksi	77	Dry	63.5	62.1	-	51	56.7	58.3
OHC strength, ksi	78	Dry	-	48.8	-	53.7	52.1	49.2
CAI strength, ksi	77	Dry	34.6	31	-	40.8	42.5	40
CBI strength, ksi	77	Dry	91.2	-	-	76.3	-	-

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Cure Cycle

Cure Procedure



Autoclave

1. Apply full vacuum and 15 psig pressure.
2. Heat at 3–5°F/minute to 225°F.
3. Hold at 225°F for 30–60 minutes.
4. Raise pressure to 85–100 psig; vent vacuum when pressure reaches 30 psig.
5. Raise temperature to 350°F at 3–5°F/minute.
6. Hold at 350°F for 120 ± 10 minutes.
7. Cool at 2–5°F to 150°F and vent pressure.

Alternative cure cycles available upon request.

Handling and Safety Precautions

Hexcel recommends that customers observe established precautions for handling resins and fine fibrous materials. Operators working with this product should wear clean, impervious gloves to reduce the possibility of skin contact and to prevent contamination of the material. Material Safety Data Sheets (MSDS) have been prepared for all Hexcel products and are available to company safety officers on request from the nearest Hexcel Sales Office.



HexPly® 8552 Epoxy Matrix *Product Data*

Prepreg Storage Life

Tack Life:	10 days at RT (23°C/73°F) minimum
Out Life (mechanical):	30 days at RT (23°C/73°F)
Shelf Life:	12 months at -18°C/0°F (from date of manufacture)

Definitions:

Shelf Life:	The maximum storage life for HexPly prepreg, when stored continuously, in a closed moisture-proof bag, at -18°C/0°F. To accurately establish the exact expiration date, consult the box label.
Tack Life:	The time, at room temperature, during which prepreg retains enough tack for easy component lay-up.
Out Life:	The maximum accumulated time allowed at room temperature between removal from the freezer and cure.

Shipping

Prepreg is generally shipped in a sealed polyethylene in refrigerated transportation or in containers with dry ice.

Disposal of Scrap

Disposal of this material should be in a secure landfill in accordance with state and federal regulations.

Important

Hexcel Corporation believes, in good faith, that the technical data and other information provided herein is materially accurate as of the date this document is prepared. Hexcel reserves the right to modify such information at any time. The performance values in this data sheet are considered representative but do not and should not constitute specification minima. The only obligations of Hexcel, including warranties, if any, will be set forth in a contract signed by Hexcel or in Hexcel's then current standard Terms and Conditions of Sale as set forth on the back of Hexcel's Order Acknowledgement.

For More Information

Hexcel is a leading worldwide supplier of composite materials to aerospace and other demanding industries. Our comprehensive product range includes:

- Carbon Fiber
- RTM Materials
- Honeycomb Cores
- Continuous Fiber Reinforced Thermoplastics
- Carbon, Glass, Aramid and Hybrid Prepregs
- Structural Film Adhesives
- Honeycomb Sandwich Panels
- Engineered Core
- Reinforced Fabrics

For US quotes, orders and product information call toll-free 1-800-688-7734. For other worldwide sales office telephone numbers and a full address list please click here: <http://www.hexcel.com/contact/salesoffices>.

