

## Quantum-ESC

A summary of the LyondellBasell *Quantum-ESC* (Engineered Structural Composites) portfolio.





## Product Information

In a class of its own, our proprietary Quantum Engineered Structural Composites (*Quantum-ESC*) is a series of unique materials with exceptional performance for the most demanding applications. This industry renowned portfolio goes head-to-head with metal in the most challenging environments where high pressure and heat tolerance is required.

Material Reference	Fiber% w/w	Fiber Length (inches / mm) and Type	Description	Features / Benefits / Applications
<i>Vinyl Ester - Fiberglass E Grade</i>				
QC-8560*	60%	0.5 / 13 E glass	Higher heat resistant Vinyl Ester	High temp auto, industrial. Lower cost Aero / Mil
QC-8700	63%	1 / 25 E glass	Increased temperature resistance over the QC-8800	General purpose structural, prosthetics, marine, automotive, industrial, safety. Color and flame retardant versions available.
<i>Vinyl Ester - Carbon Fiber - PAN based std modulus</i>				
AMC-8590*	53%	1 / 25 12K	Widely used across the AMC carbon fiber offerings	Structural automotive, inner panels, brackets, etc. Sporting goods, golf clubs, bicycle components, medical. Designed for structural applications requiring high stiffness and high strength, particularly open- and filled-hole tension and compression.
AMC-8593*	50%	1 / 25 3K	Offering highest properties and lowest Coefficient of Variation	
<i>Epoxy - Fiberglass E grade</i>				
Lytex 9063*	63%	0.5 / 13 E glass	Lytex 9063 is specified by numerous aero and military OEMs. Short cure time for complex geometry molded parts solutions.	Aerospace secondary and tertiary components, fairings, brackets, etc. Industrial, high temperature / high pressure. Suitable for molding thick cross sections (>3"). Flame retardant & low density versions available.
<i>Epoxy - Carbon Fiber - PAN based std modulus</i>				
Lytex 4149*	55%	1 / 25 3K	Lytex 4149 is specified by numerous aero and military OEMs	Aerospace secondary and tertiary structures, components, fairings, brackets, panels. Advantages of Lytex resin system with light weight and stiffness of carbon fiber. Flame retardant version available.
Lytex 64990**	55%	1 / 25 12k	Lytex 64990 is specified for use in Autoclave technology	New carbon fiber aesthetics in different chopped fiber appearances for use in automotive, sports & leisure and luxury goods applications. Also available with 3k and 50k fiber and in different fiber lengths.

\*Global grades available with both European and North American production (European Grades have additional nomenclature to designate EU grades with data supplied from North American supplied material).

\*\*Only available as European Grade



## Product Selection Guide

*Quantum-ESC* addresses complex 3D geometry for the most intricate designs while achieving a lighter weight. When using carbon fiber, this material's unique luxurious look and feel has global appeal. Additionally, it offers faster throughputs together with cost-effective tooling when compared to metal.

Material Reference	SG	Flexural Modulus D-790/ ISO 14125 Machined	Flexural Strength D-790/ ISO 14125 Machined	Tensile Modulus D-638 / ISO 527-4 D-3039 Machined	Tensile Strength D-638/ ISO 527-4 D-3039 Machined	Glass Transition D-7028/ ISO 11357-2 Tan Delta	
	g/cc	GPa	MPa	GPa	MPa	F°	C°
Vinyl Ester - Fiberglass E Grade							
QC-8560	1.89	20	424	21	210	329	165
QC-85560 (EU)	1.81	18	506	17	264	293	145
QC-8700	1.85	21	483	20	242	260	127
Vinyl Ester - Carbon Fiber - PAN based std modulus							
AMC-8590	1.48	28	448	37	162	288	142
AMC-85590 (EU)	1.48	25	390	27	150	284	140
AMC-8593	1.47	31	504	36	290	288	142
AMC-85593 (EU)	1.46	30	524	31	281	284	140
Epoxy - Fiberglass E grade							
<i>Lytex</i> 9063	1.82	18	407	18	193	329	165
<i>Lytex</i> 90563 (EU)	1.76	17	380	17	200	356	170
Epoxy - Carbon Fiber - PAN based std modulus							
<i>Lytex</i> 4149	1.48	32	531	35	221	329	165
<i>Lytex</i> 41549 (EU)	1.48	29	530	34	320	320	160



# ABOUT US

As a leader in the global chemical industry, LyondellBasell strives every day to be the safest, best operated and most valued company in our industry. The company's products, materials and technologies are advancing sustainable solutions for food safety, access to clean water, healthcare and fuel efficiency in more than 100 international markets. LyondellBasell places high priority on diversity, equity and inclusion and is *Advancing Good* with an emphasis on our planet, the communities where we operate and our future workforce. The company takes great pride in its world-class technology and customer focus. LyondellBasell has stepped up its circularity and climate ambitions and actions to address the global challenges of plastic waste and decarbonization. For more information, please visit [www.lyondellbasell.com](http://www.lyondellbasell.com) or follow [@LyondellBasell](https://www.linkedin.com/company/lyondellbasell) on LinkedIn.

**More information about Engineered Composites from LyondellBasell can be found at [www.lyb.com/engineeredcomposites](http://www.lyb.com/engineeredcomposites)**

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