

AGY Advanced Materials

For Demanding Automotive Applications
We Offer High Performance Glass
Fibre Products As Easy As 1..2..3



S-Series™ High Performance Materials

- **S-1 Glass™ – Industrial Grade Product**

High Volume Applications where E-Glass performance does not deliver

S-1 Glass™ Benefits vs E-Glass

- Higher Tensile Strength
- Higher Tensile Modulus
- Higher Temperature
- Lower Weight

- **S-2 Glass® – High Performance Grade Product**

Higher performance grade product than S-1 Glass™ with a broad range of properties for specification driven applications

- **S-3 Glass™ – Special Grade Product**

Special grade product with properties tailored for high performance niche applications

S-Series™ Added Benefits

- Sizing chemistries that are tailored to a range of thermoplastic and thermoset composite applications
- Ability to be texturised
- Wide range of product forms, sizes and filament diameters available
- Boron Free – environmentally friendly
- AGY multi-site manufacturing capabilities based in the USA
- Global sales and application development support



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Physical Properties				
		E-Glass	S-1 Glass™	S-2 Glass®
Density	g/cc	2.58	2.54	2.46
Softening Point	°C	846	996	1056
Annealing Point	°C	657		816
Strain Point	°C	615	746	766
Tensile Strength				
-196°C	MPa	5310	-	8275
23°C	MPa	3445	4135	4890
371°C	MPa	2620	2930	4445
538°C	MPa	1725	2140	2415
Specific Heat Cap.				
23°C	J/g°C	0.81	0.73	0.74
200°C	J/g°C	1.03	0.94	0.94
Thermal Expansion Coefficient (x10 ⁷)	°C	54	32	16
Young's Modulus				
23°C	GPa	72.3	85.5	86.9
Elongation	%	4.8	4.8	5.7

Chemical Properties						
Strength	Chemical	Period		E-Glass	S-1 Glass™	S-2 Glass®
	H ₂ O	24 hr	% wt loss	0.7	0.4	0.5
	H ₂ O	168 hr	% wt loss	0.9	0.6	0.7
10%	HCl	24 hr	% wt loss	42.0	9.5	3.8
10%	HCl	168 hr	% wt loss	43.0	10.2	5.1
10%	H ₂ SO ₄	24 hr	% wt loss	39.0	9.9	4.1
10%	H ₂ SO ₄	168 hr	% wt loss	42.0	10.9	5.7
10%	Na ₂ CO ₃	24 hr	% wt loss	2.1	3.0	2.0
10%	Na ₂ CO ₃	168 hr	% wt loss	2.1	-	2.1



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