

Temperature Dependant Properties

The measured material was a development product (EP 372) with the material description GM50PP/S and GM40PP/SH. The trend is however the same for all material types, an increased rate or a decreased temperature increases the mechanical data. This was used to extrapolate the data for GM30PP/S at -30°C and $+80^{\circ}\text{C}$.

EP372 (GM50PP/S)

	-30°C	23°C	80°C
Stiffness (MPa)	8900	7600	6900
Strength (MPa)	160	130	100
Elongation to break (%)	2.6	2.2	2.1
Unnotched Charpy (kJ/m²)	140	133	106

GM40PP/SH

	-30°C	23°C	80°C
Stiffness (MPa)	7400	5800	4050
Strength (MPa)	116	96	75
Elongation to break (%)	2.6	2.4	2.3
Unnotched Charpy (kJ/m²)	119	100	80 **

GM30PP/S

	-30°C	23°C	80°C
Stiffness (MPa)	5900 **	4425	2800 **
Strength (MPa)	85 **	68	52 **
Elongation to break (%)	2.2 **	2.1	2.0 **
Unnotched Charpy (kJ/m²)	94 **	73	55 **

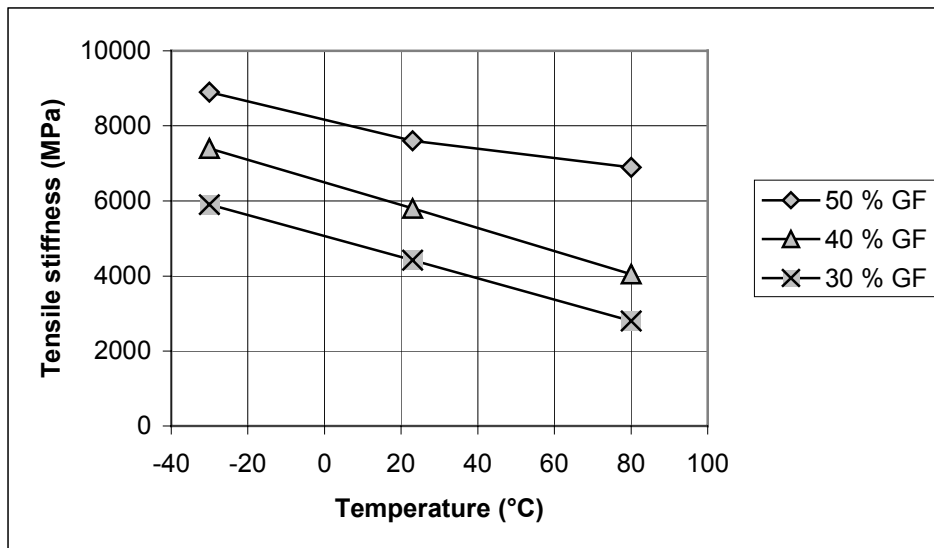
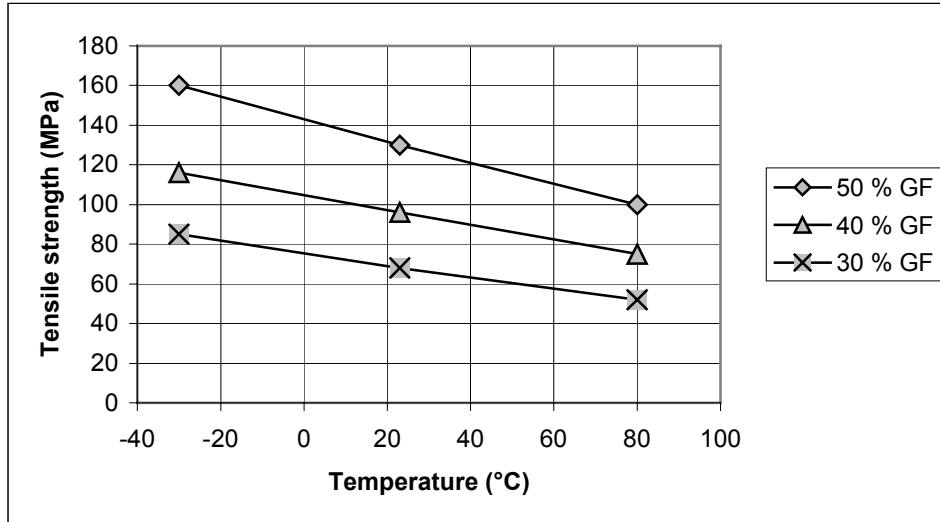
** Extrapolated data, not measured

Comments

- The data is given on the basis of measurements on 6 specimens per condition for tensile tests and 8 specimens per material for impact tests.
- The data shown is the average value of the specimen group.
- All measurements were carried out on plates moulded in a cross-ply configuration from two blanks, which should ensure a close to random fibre structure.

Graphic illustrations

The above Data are given in the figures below, where the strength and the stiffness are given as a function of the temperature.



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