Material:

HIPS - High impact polystyrene

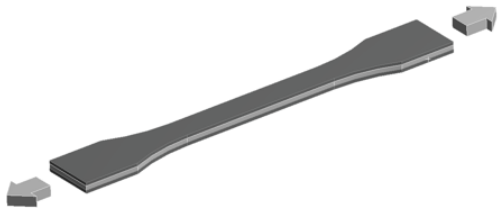
Parameters:

Supplier		Gembird	
Storage time (delivery-to-print)	dt	6	[month]
Filament diameter	d	1.75	[mm]
Layer thickness	h	0.2	[mm]
Perimeter width	w	0.4	[mm]
Flow rate	n	-	[RPM]
Feed rate	v	50	[mm/s]
Extruder temp.	Te	235	[C]
Bed temperature	Tb	100	[C]
Printer		ANET A8	
Specimen type		CSN EN ISO 527, type B	
Test speed	du/dt	1	[mm/min]
Extensometer ref. length	Le	50	[mm]
Extensometer remove dist.	ue	8	[mm]

Material orientation:

Longitudinal orientation:

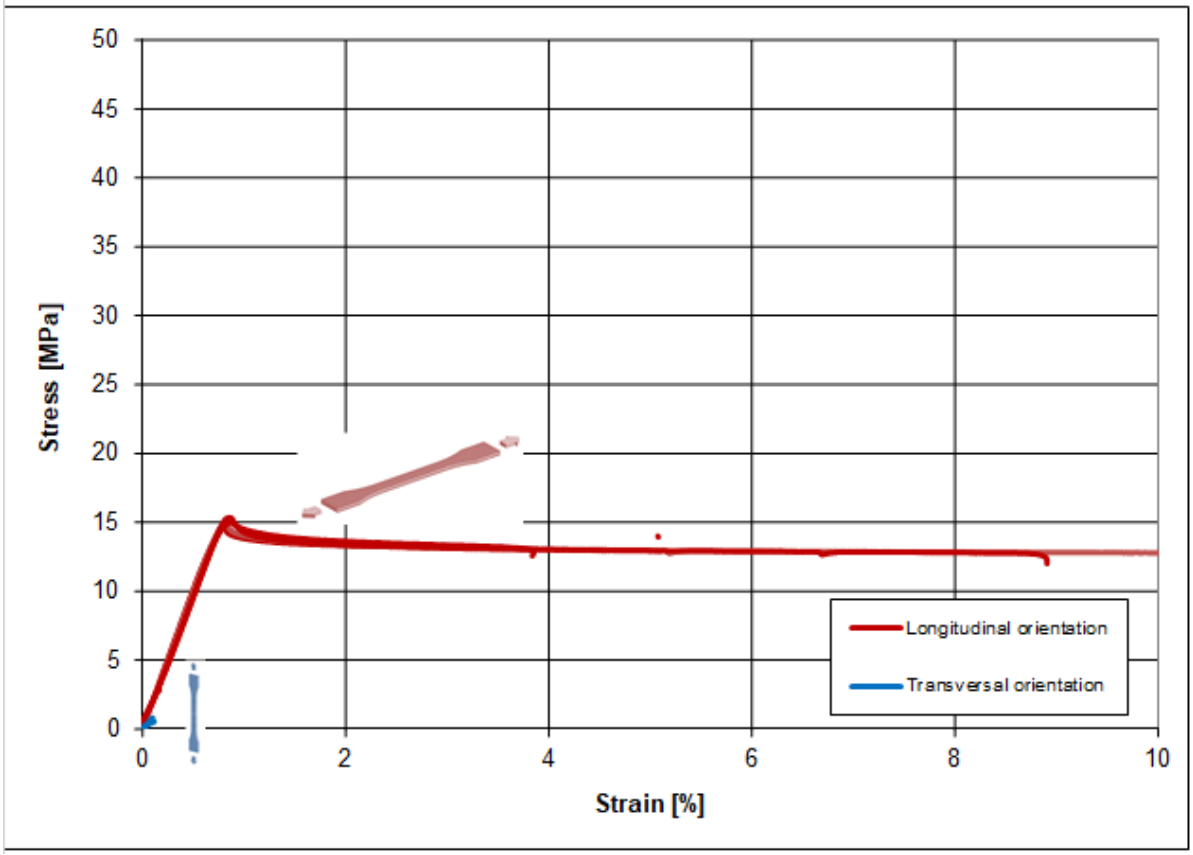
(specimen printed horizontally => in-plane properties)



Transversal orientation:

(specimen printed vertically => out-of-plane properties)

Results:



Results summary:

		Longitudinal orientation:	Transversal orientation:
Tensile modulus	[MPa]	1 970 ± 58	754 ± 137
Tensile strength	[MPa]	15.0 ± 0.2	0.7 ± 0.1
Strain at max. force	[%]	0.8 ± 0.0	0.1 ± 0.0
Stress at break	[MPa]	12.9 ± 0.6	0.7 ± 0.1
Strain at break	[%]	8.2 ± 4.4	0.1 ± 0.0