



STEREOLITHOGRAPHY - WaterShed™ 11120

WaterShed™ 11120 is a general purpose resin that exhibits phenomenal water and humidity resistance especially in humid conditions. This material is strong and rigid and will retain its properties over a variety of environmental conditions. Other SL materials on offer in the RP market often lose strength and “wilt”.

WaterShed™ offers many properties that mimic traditional engineering plastics including ABS and PBT. This makes the material ideal for many applications in the automotive, medical and consumer electronics markets and include:

Water flow analysis
RTV patterns
Durable concept models

Wind tunnel testing
QuickCast™ patterns
Lightguides

Parts in WaterShed™ come out of the machine with a high level of clarity, like glass - slightly tinted in thicker sections. This material has the benefit of greater stiffness than other SL materials without being brittle. With an elongation to break of between 11 and 20%, WaterShed™ is a great choice for snap fits. It is also a very accurate material with the ability to resolve fine features and detail, and it can be finished clear for prototyping lenses and other parts requiring high clarity. You can also have this material tinted with lacquer techniques in a variety of colours if required.

Applications for WaterShed™ 11120 in Product Development are:

Automotive: Brake system parts, distributor caps, fuel injection modules, grille opening panels

Electronics: Connectors, switches, relays, TV tuners, motors housings, fuse cases

Medical: Specialty syringes, irrigation and wound drainage systems, check valves, catheter housings.

WaterShed™ is not USP (USA Pharmacopeia) approved for patient contact

Miscellaneous: Industrial zippers, power tool housings, hair dryers, calculators, food processing blades, any components that are going to be clear or “glass like” in production



This material can be finished with a variety of surface finishes including matt, satin, spark or high gloss if required

Mechanical Properties (Metric) - Watershed 11120

ASTM Method	Description	Watershed™ 11120	ABS* (transparent)	Polybutylene Terephthalate*
D638M	Tensile Strength	47.1 - 53.6 MPa	45.7 MPa	55MPa
	Elongation at Break	11 - 20 %	41.60%	20%
	Elongation at Yield	3.3 - 3.5 %	N/A	3.5 - 9 %
	Modulus of Elasticity	2,650 - 2,880 MPa	2,000 MPa	2,700 MPa
D790M	Flexural Strength	63.1 - 74.16 MPa	73.5 MPa	80MPa
	Flexural Modulus	2,040 - 2,370 MPa	2,300 MPa	2,500 MPa
D256A	Izod Impact - Notched	0.2 - 0.3 J/cm	1.6 J/cm	1.2 J/cm
D542	Index of Refraction	1.512 - 1.515	1.52	N/A
D2240	Hardness (shore D)	N/A	N/A	98 - 120 (Rockwell R)
D1004	Graves Tear	150,288 N/m	N/A	N/A
D570-98	Water Absorption	0.35%	0.20 - 0.45 %	0.16%

*<http://www.matweb.com>**Thermal & Electrical Properties (Metric) - WaterShed™ 11120**

ASTM Method	Description	Watershed™ 11120	ABS* (transparent)	Polybutylene Terephthalate*
E831-00	C.T.E -40°C - 0°C	66 - 67 $\mu\text{m}/\text{m}\cdot\text{°C}$		
	C.T.E 0°C - 50°C	90 - 96 $\text{mm}/\text{m}\cdot\text{°C}$	60 - 130 $\mu\text{m}/\text{m}\cdot\text{°C}$ (no temp range given)	50 - 145 $\mu\text{m}/\text{m}\cdot\text{°C}$ (no temp range given)
	C.T.E 50°C - 100°C	170 - 189 $\text{mm}/\text{m}\cdot\text{°C}$		
	C.T.E 100°C - 150°C	185 - 189 $\text{mm}/\text{m}\cdot\text{°C}$		
D150-98	Dielectric Constant 60 Hz	3.9 - 4.1	3.7	
	Dielectric Constant 1 KHz	3.7 - 3.9		2.9 - 4.0 (no frequency specified)
	Dielectric Constant 1MHz	3.4 - 3.5	3.7	
D149-97a	Dielectric Strength	15.4 - 16.3 kV/mm	13.8 - 19.7 kV/mm	14.7 - 30 kV/mm
E1545-00	Tg	39 - 46°C		41°C
D648-98c	HDT @ 0.46 MPa	45.9 - 54.5°C	94 - 207 °C	150°C
	HDT @ 1.81 MPa	49.0 - 49.7°C	86.4 - 194 °C	61.3°C

*<http://www.matweb.com>

The mechanical properties can vary according to the positioning of the tensile bars, operating conditions and exposure parameters of the system used. This data is correct according to the current state of our knowledge. They do not give exact characteristics of material and does not represent a guarantee.