

WaterShed[®] XC 11122

a **DSM** Product

Product Description

DSM Somos WaterShed[®] 11122 is a low viscosity liquid photopolymer that produces strong, tough, water-resistant, ABS-like parts. Most importantly, parts created with WaterShed XC 11122 are nearly colorless, and look more like true, clear engineered plastic.

In addition, WaterShed XC has been formulated with the DSM Somos Oxetane Advantage[™]— an advanced chemistry platform that produces parts with outstanding water resistance and high dimensional stability.

Applications

This ABS-like photopolymer is used in solid imaging processes, like stereolithography, to build three-dimensional parts. WaterShed XC 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 electronic markets and include lenses, packaging, water flow analysis, RTV patterns, durable concept models, wind tunnel testing and investment casting patterns.

Technical Data: Liquid Properties

Appearance	Optically clear, near colorless
Viscosity	~260 cps @ 30° C
Density	~1.12 g/cm ³ @ 25° C

Technical Data: Optical Properties

E _c	11.5 mJ/cm ²	[critical exposure]
D _p	6.50 mils	[slope of cure-depth vs. ln(E) curve]
E ₁₀	54 mJ/cm ²	[exposure that gives 0.254 mm (.010 inch) thickness]



WaterShed XC 11122 is an optically clear resin with ABS-like properties and good temperature resistance. It produces near-colorless, functional, accurate parts.

Key Product Benefits:

- High clarity
- Water-resistant
- Extremely dimensional stable

(continued)

For technical service, please visit: <http://www.dsmsomos.com>

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WaterShed® XC 11122

Technical Data: Mechanical Properties

ASTM Method		WaterShed® XC 11122 UV Postcure		ABS (transparent)*		Polybutylene* Terephthalate	
		Metric	Imperial	Metric	Imperial	Metric	Imperial
D638M	Tensile Strength at Break	47.1 - 53.6 MPa	6.8 – 7.8 ksi	45.7 MPa	6,628 psi	55 MPa	7,977 psi
D638M	Elongation at Break	11 - 20%	11 - 20 %	41.6%	41.6 %	20%	20%
D638M	Elongation at Yield	3%	3%	N/A	N/A	3.5 - 9%	3.5 – 9.0%
D638M	Modulus of Elasticity	2,650 - 2,880 MPa	384 – 418 ksi	2,000 MPa	290 ksi	2,700 MPa	391 ksi
D790M	Flexural Strength	63.1 - 74.2 MPa	9.2 - 10.8 ksi	73.5 MPa	10.7 ksi	80 MPa	11.6 ksi
D790M	Flexural Modulus	2,040 – 2,370 MPa	296 - 344 ksi	2,300 MPa	344 ksi	2,500 MPa	362 ksi
D256A	Izod Impact-Notched	0.2 - 0.3 J/cm	0.4 - 0.6 ft-lb/in	1.6 J/cm	1.5 - 2.0 ft-lb/in	1.2 J/cm	0.56 ft-lb/in
D542	Index of Refraction	1.512 - 1.515	1.513 - 1.515	1.52	1.52	N/A	N/A
D1004	Graves Tear	150,288 N/m	833 - 858 ft-lb/in	N/A	N/A	N/A	N/A
D570-98	Water Absorption	0.35%	0.35%	0.20 - 0.45%	0.20 - 0.45 %	0.16%	0.16 %

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

Technical Data: Thermal/Electrical Properties

ASTM Method		WaterShed® XC 11122 UV Postcure		ABS* (transparent)		Polybutylene* Terephthalate	
		Metric	Imperial	Metric	Imperial	Metric	Imperial
E831-05	C.T.E. -40°C - 0°C (-40 °F – 32°F)	66 - 67 $\mu\text{m}/\text{m}^\circ\text{C}$	37 $\mu\text{in}/\text{in}^\circ\text{F}$	60 - 130 $\mu\text{m}/\text{m}^\circ\text{C}$ (no temp range given)	33 - 72 $\mu\text{in}/\text{in}^\circ\text{F}$ (no temp range given)	50-145 $\mu\text{m}/\text{m}^\circ\text{C}$ (no temp range given)	28 - 81 $\mu\text{in}/\text{in}^\circ\text{F}$ (no temp range given)
E831-05	C.T.E. 0°C - 50°C (32°F – 122°F)	90 - 96 $\mu\text{m}/\text{m}^\circ\text{C}$	50 – 53 $\mu\text{in}/\text{in}^\circ\text{F}$				
E831-05	C.T.E. 50°C - 100°C (122°F – 212°F)	170 - 189 $\mu\text{m}/\text{m}^\circ\text{C}$	94 – 105 $\mu\text{in}/\text{in}^\circ\text{F}$				
E831-05	C.T.E. 100°C - 150°C (212°F – 302°F)	185 - 189 $\mu\text{m}/\text{m}^\circ\text{C}$	103 – 105 $\mu\text{in}/\text{in}^\circ\text{F}$				
D150-98	Dielectric Constant 60 Hz	3.9 - 4.1	3.9 - 4.1	3.7	3.7	2.9 - 4.0 (no frequency specified)	2.9 - 4.0 (no frequency specified)
D150-98	Dielectric Constant 1KHz	3.7 - 3.9	3.7 - 3.9	not recorded	not recorded		
D150-98	Dielectric Constant 1MHz	3.4 - 3.5	3.4 - 3.5	3.7	3.7		
D149-97a	Dielectric Strength	15.4 - 16.3 kV/mm	390 - 413 V/mil	13.8 - 19.7 kV/mm	350 - 500 V/mil	14.7 - 30 kV/mil	373 - 762 V/mil
E1545-00	Tg	39 – 46°C	102 – 109°F	not recorded	not recorded	41°C	106°F
D648-98c	HDT @ 0.46 MPa (66 psi)	45.9 - 54.5°C	115 – 130°F	94 - 207°C	201 – 405°F	150°C	302°F
D648-98c	HDT @ 1.81 MPa (264 psi)	49.0 - 49.7°C	120°F	86 - 194°C	187 – 381°F	61°C	142°F

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Tech Tip

USP Class VI Cleaning Procedures

Instructions

To clean WaterShed XC 11122 parts, use the following procedures

1. Use only fresh, clean 99% (or better) isopropanol. Solvent should be contaminate free to assure no residues will be left behind after cleaning.
2. Soak parts for a minimum of 20 minutes. This will allow adequate time for the solvent to breakdown the liquid resin surrounding the part.
3. Use clean towels to scrub any excess resin from the clean parts. This should be down multiple times to ensure there is no liquid resin remaining on the part.
4. The parts need to be dried. Use dry, compressed air to blow excess solvent from the surface of the part. Afterwards, allow the part to dry in a ventilated area for a minimum of 6 hours. For best results allow parts to dry overnight. This will allow adequate time for the excess solvent to evaporate.
5. The parts need to be post-cured. The normal post-cure time for SLA parts is 30 minutes per side. We recommend 1 hour per side to ensure the part is completely cured. Keep in mind that post cure apparatus lamps need to be changed every 2000 hours. All lamps should be inspected before use to ensure they are in good working order.
6. Parts should be inspected to make sure any traces of contaminants are removed. Then they should be placed in clean, sealable plastic bags for storage and shipping.
7. If there are any questions, please contact www.dsmsomos.com/tsfast



Steps

- Use fresh IPA
- Soak parts 20 minutes
- Dry with clean towels
- Dry parts further with compressed air
- PCA parts for appropriate time
- Inspect parts to ensure they are clean
- Contact Somos with any problems

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