



Material Specification Print Sheet

Polyvinyl Alchohol

PVA

Various



Pre and Post Processing:

This **MUST** be dry when being printed. See the notes section for further information. Sticks reasonably to a glass build plate, does not stick to masking tape.

After production, store these parts in a reasonably dry area, as humidity can still damage this. Alternatively, submerge in water, at which point it will begin dissolution.

HAZARDS (rating 1-10)

Dispose of PVA infused water down a drain with copious quantities of water. Do not drink.



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|--|--|------------|------------|--------------|--------------|---------------|---------------|-----------------------------|-----------------------------|
| <p style="text-align: center;">Settings to print with</p> <p>Temp Range: 205°C</p> <p>Recommended flow multiplier: 1.25</p> <p>Recommended layer size: .2</p> <p>Build Plate Temp: Build plate sufficient.</p> <p>Recommended Fan: 100%</p> | <p style="text-align: center;">Prime/Unprime:</p> <table border="1"> <tr> <td>Steps: 100</td> <td>Steps: 100</td> </tr> <tr> <td>Rate: 10,000</td> <td>Rate: 10,000</td> </tr> <tr> <td>Time (ms): 25</td> <td>Time (ms): 20</td> </tr> <tr> <td>Primes after Tool Change: 1</td> <td>Primes after Tool Change: 1</td> </tr> </table> | Steps: 100 | Steps: 100 | Rate: 10,000 | Rate: 10,000 | Time (ms): 25 | Time (ms): 20 | Primes after Tool Change: 1 | Primes after Tool Change: 1 |
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| <p style="text-align: center;">How well it handles prints</p> <p>Overhangs: 45°</p> <p>Retraction: 3</p> <p>Circles: 4</p> <p>Layer change: 4</p> <p>Fine detail: 4</p> <p>Curling: 5</p> | <p style="text-align: center;">Properties of Material</p> <p>Modulus of Elasticity:</p> <p>Yield Strength:</p> <p>Fracture Point:</p> <p>Modulus of Elasticity in Bending:</p> <p><i>All parts done with a ___% infill</i></p> | | | | | | | | |

| | | | | | | |
|--------------------------------|------------|---------|----------|----------------|---------------|---------------|
| Chemical | Water | Vinegar | HCl | Acetone | HF | Sulfuric Acid |
| Resistance (High/Limited/None) | None | None | None | | None | None |
| Chemical | Aqua Regia | Bleach | Gasoline | Methyl Alcohol | Ethyl Alcohol | NaOH |
| Resistance (High/Limited/None) | None | | | | | None |

Images (Left to right, top to bottom): Single walled vase, Artifact/Feature size test, Retraction/Feature size test, arch, top of overhang test, bottom of overhang test.

Overhang: Minimum angle to the horizontal at which layers are relatively unperturbed.

Print handling parameters: 5-optimal, 4-very good, 3-fair, 2-passable, 1-very poor

Chemical Resistance: High-no observable affect after a long period of time, Limited-Slight affects over time (swelling, discoloration, slight softening, etc), None-very severely affected by chemical.



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NOTES:

-Keeping the filament dry is very important. A couple of notes to help with this:

-If the filament is left exposed to humidity, place it in an area heated to $\sim 85^{\circ}\text{C}$ for 4 or 5 hours. Lower temperatures can also help, if given sufficient time, higher temperatures may also work, however you may cause the filament to merge into itself.

-A good method to print without exposing to excessive amounts of humidity is to take the filament and place in a bag with two slots in it, through which you thread whatever rod is being used to hold the spool. Then fill the bag with silica and close the opening to just barely allow the filament to escape. (Note that when printing is completed, placing the filament in a more airtight container is suggested.)

-When dissolving PVA, simply place into water. This may take several hours, during which time you may have to switch out the water when it becomes saturated (it will be whitish and have a thick consistency). Warm water and stirring may speed this process.