

Information: Sterilization

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Project folder: <https://drive.google.com/drive/folders/17v80mLmWdSHqmpojCnGb660X7t5SeWA5?usp=sharing>

Project Page: <https://wiki.rivercitylabs.space/covid-19/3d-printed-masks>

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<https://drive.google.com/file/d/1q88C3lJNmO3mrFJA7bNemfwyZMHMTiKp/view?usp=sharing>

Disclaimer: All the following sterilization methods are merely suggestions and all sterilization responsibility and liability falls to the user. No method has any lab testing on the mask with the SARS-CoV-2 virus.

Dry Heat Sterilization

- Max Temperature: 82C / 180F
- Duration: Consult an Expert (If you find credible evidence or professional guidance, please let us know with a form of documentation so we can include it)

Disinfecting with Cleaners/Solvents

- Refer to Document "[Information: Materials](#)" for materials reference. Most solvents will not harm the plastics used in the 3D printed mask parts and Vacuum formed parts.
- It is advised to test the cleaner/solvent on a single mask part first before doing a mass amount of parts and finding out it is detrimental to the mask.
- See "References: Plastics Sterilization Guide"
- CDC Recommended [Disinfecting](#)
 - Use approved disinfectant found in [this list](#) and follow directions for dilution, contact time, and application method.
 - Continue with diluted bleach (4 tsp. Bleach to 1 qt. water) with a contact time of 1+ minutes.
- *If using a 3D printed mask, rough surface texture makes it difficult to sanitize by wiping on disinfectant. Suggested application is spray or submersion, when using all the proper Personal Protection Equipment (PPE) which can be found on the SDS of the specific product.*

UVC Sterilization

- Coming soon.

References:

Plastics Sterilization Guide (Ref: <https://www.industrialspec.com/resources/plastics-sterilization-compatibility/>)

Plastics Sterilization Compatibility Chart						
Polymer	Polymer Abbreviation	Autoclave	Dry Heat	Ethylene Oxide (EtO)	Gamma Irradiation	Electron Beam
Biopolymers						
Polycaprolactone	PCL	Fair	Good	Good	Good	Good
Polyglycolic acid	PGA	Good	Good	Good	Good	Good
Polyhydroxybutyrate	PHB	Poor	Poor	Good	Fair	Fair
Poly(L-lactide)	PLLA	Fair	Good	Good	Good	Good
Poly(lactic-co-glycolic acid)	PLGA	Poor	Poor	Good	Fair	Fair
Poly(lactic acid)	PLA	Poor	Fair	Good	Good	Good
Elastomers						
Copolyester thermoplastic elastomer	TPC	Poor	Good	Good	Good	Good
Ethylene propylene (diene-) terpolymer	EPDM	Good	Good	Good	Good	Good
Olefinic thermoplastic elastomer	TPO	Poor	Fair	Good	Good	Good
Polyamide thermoplastic elastomer	TPA	Poor	Poor	Good	Good	Good
Silicones		Good	Good	Good	Good	Good
Styrenic thermoplastic elastomer	TPS	Poor	Poor	Good	Good	Good
Urethane thermoplastic elastomer	TPU	Poor	Fair	Good	Good	Good
Fluoropolymers						
Chlorotrifluoroethylenevinylidene fluoride	FKM / FPM	Poor	Good	Poor	Poor	Poor
Ethylene chlorotrifluoroethylene	ECTFE	Good	Good	Good	Good	Good
Ethylene tetrafluoroethylene	ETFE	Good	Good	Good	Good	Good
Fluorinated ethylene propylene	FEP	Good	Good	Good	Fair	Fair
Perfluoro alkoxy	PFA	Good	Good	Good	Good	Good
Polytetrafluoroethylene ¹	PTFE	Fair	Fair	Good	Poor	Poor
Polyvinyl fluoride	PVF	Good	Good	Good	Good	Good
Polyvinylidene difluoride	PVF2	Good	Good	Good	Good	Good
High-temperature thermoplastics						
Liquid crystalline polymer	LCP	Good	Good	Good	Good	Good
Polyamide-imide	PAI	Fair	Fair	Good	Good	Good
Polyetheretherketone	PEEK	Good	Good	Good	Good	Good
Polyetherimide	PEI	Fair	Fair	Good	Good	Good
Polyphenylene sulfide	PPS	Good	Good	Good	Good	Good
Polysulfones	PSU	Good	Good	Good	Good	Good
Polyamides						
Aromatic		Good	Good	Good	Good	Good
Nylon 6, Nylon 66	PA6, PA66	Fair	Fair	Good	Fair	Fair
Nylon 12, 6/12	PA12	Poor	Poor	Good	Fair	Fair
Polyesters						
Copolyesters		Poor	Poor	Good	Good	Good
Poly butylene terephthalate	PBT	Fair	Fair	Good	Good	Good
Poly ethylene terephthalate	PET	Poor	Poor	Good	Good	Good
Polyolefins						
Cyclo olefin copolymer	COC	Fair	Fair	Good	Good	Good
High-density polyethylene	HDPE	Poor	Poor	Good	Good	Good
Low-density polyethylene	LDPE	Poor	Poor	Good	Good	Good
Polypropylene ¹	PP	Good	Fair	Good	Fair	Fair
Polypropylene copolymers		Good	Fair	Good	Fair	Fair
Polyvinyl chloride plasticized ^{1,2}	PVC	Fair	Fair	Good	Good	Good
Polyvinyl chloride unplasticized ^{1,2}	PVC	Poor	Poor	Good	Fair	Fair
Ultrahigh molecular weight polyethylene	UHMWPE	Poor	Poor	Good	Good	Good
Polystyrene/styrenics						
Acetals	POM	Good	Good	Good	Poor	Poor
Acrylics ^{1,2}		Poor	Poor	Good	Good	Good
Acrylonitrile butadiene styrene copolymer (ABS)	ABS	Poor	Poor	Good	Good	Good
Acrylonitrile styrene acrylate	ASA	Poor	Poor	Good	Good	Good
High heat polycarbonates		Good	Good	Good	Good	Good
Methacrylate acrylonitrile butadiene styrene copolymer	MABS	Poor	Poor	Good	Good	Good
Polycarbonates ^{1,2}		Fair	Fair	Good	Good	Good
Polystyrene	PS	Poor	Poor	Good	Good	Good
Polyurethanes		Poor	Poor	Good	Good	Good
Styrene-acrylonitrile copolymer (San)	SAN	Poor	Poor	Good	Good	Good
Styrene-butadiene copolymer	SBC	Poor	Poor	Good	Good	Good

¹ Radiation stable grades need to be used for radiation sterilization.

² PVC, acrylics and PC require corrective tint to compensate for discoloration.

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(For Reference Only when printed) https://drive.google.com/open?id=1Ypl_NimrNBdD1M0ZRKel6y71uFnt_XHuzYRLHQ0F3Yk