Version 2

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covid 19 indirect detection thru rise of 100nm filter air resistance V.2

Ladislav Nevery

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Coronavirus Method Development Community XPRIZE Rapid Covid Testing 1 more workspace

Ladislav Nevery

ABSTRACT

By passing saliva sample thru 200nm filter to remove particles larger than 120nm covid 19 virus particles and concentrating resulting fluid to very small 1 mm2 area of 100nm filter. Pores in this small area of100nm filter should be clogged up fast raising filter air resistance. Due to high virus density 5.2 log10 ml saliva of infected person should clogg filter much faster than healthy person. Test is setup in such way that act of compressor automatically turning off after reaching threshold PSI value will indicate high count of particles larger than 100nm of being present in measured filter area.

ATTACHMENTS

PrototypeV8Printable.zip

DOI

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PROTOCOL CITATION

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KEYWORDS

covid, pressure, test

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MATERIALS

NAME	CATALOG #	VENDOR
pragopor 10		pragochema
pragopor 8		pragochema
3d filament		
rubber seal 24x20x2		

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STEPS MATERIALS

NAME	CATALOG #	VENDOR
pragopor 10		pragochema
rubber seal 24x20x2		
Target2™ Nylon Syringe Filter, 0.2µm, 30mm	F2500-2	Thermo Fisher

EQUIPMENT

NAME	CATALOG #	VENDOR
Xiaomi Portable Compressor	00000000	

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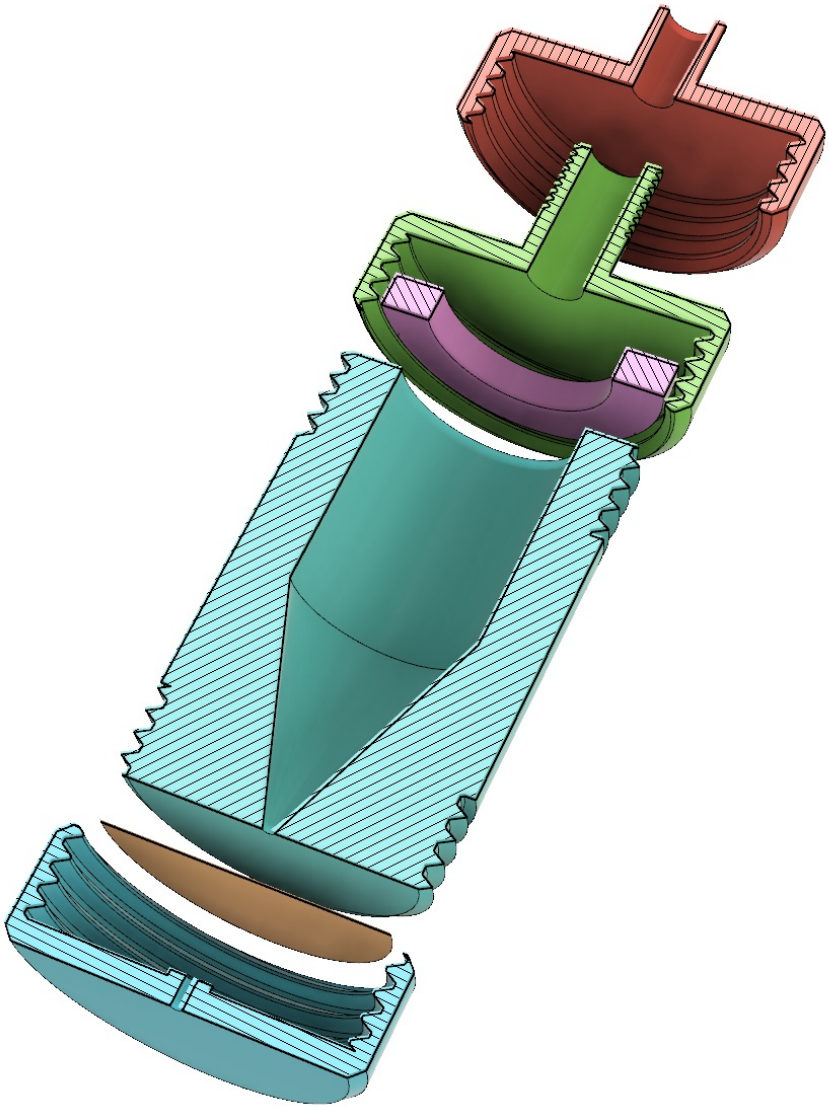
1



3d print all required parts.

2 insert any 100nm 24mm filter like for example

5m

pragopor 10
by pragochema
View

between blueparts and close with red cup

rubber seal 24x20x2

.Place any comon commercial 200nm filter between syringe and red syringe input port. colors are on attached image above

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Target2™ Nylon Syringe Filter, 0.2µm, 30mm
by Thermo Fisher
Catalog #: F2500-2

3 pass sample thru both 200nm and 100nm filter by applying manual pressure on syringe. 5m

4 now that 1 mm2 area of 100nm filter has enough pores clogged up with median 120nm sized virus particles. replace red syringe cap with green compressor input cap.Use any compressor wich can turn itself offwhen reaching set pressure. I used 5m

Xiaomi Portable Compressor
Portable Compressor
Xiaomi 00000000

set compressor to turn off after reaching threshold amount of psi and turn the compressor on.

On sample without covid 19 virus threshold psi should not be reached

. If no compressor with proper psi sensitivity is available then monitor pressure in concentration chamber by any external sensitive manometer

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