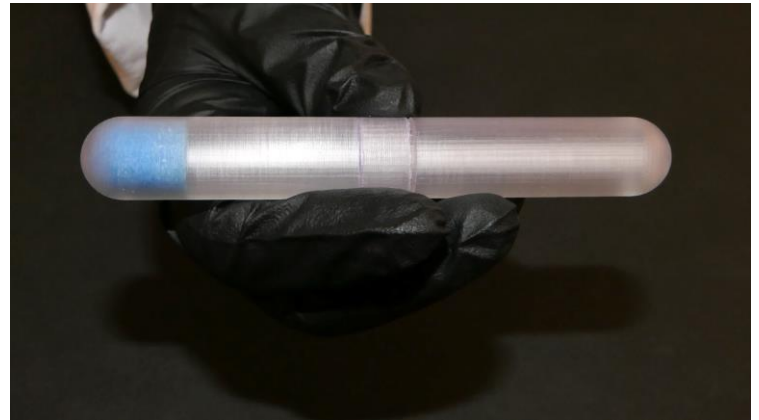


Double Bottom Test Tube

Inventors: [Elizabeth Sams](#)

[US Patent 11,090,647](#)

TRL 4



Double Bottom Test Tub with sample swab enclosed

Context

Recent events have only emphasized the importance of public health monitoring for disease control. Saliva can be used as an effective, non-invasive, self-administered tool for monitoring population health. Under standard monitoring conditions a sample swab is placed into a test tube with an ordinary flat lid after sampling. When the sample is shipped to a laboratory for testing, a technician must open the tube and invert the sample swab so that the swab is at the top of the tube for centrifugation and sample/swab separation.

Summary

EPA researcher Sams invented a double bottom test tube to overcome many of the issues associated with sample processing from standard, flat lid test tubes. The double bottom test tube eliminates the need for manual inversion of sample swabs, saving time and reducing the risk of sample contamination by eliminating the need to open the tube.

The double-bottom test tube is inexpensive, simple to use, and can be safely mailed to homes. It can also collect at least 1mL of fluid and can withstand centrifuge forces of up to 2500 revolutions per minute. In laboratory testing, the streamlined flipping process saved 22 minutes for every 20 tubes processed, an average savings of 1.1 minutes per tube. Over 10,000 tubes, a lab could eliminate more than 180 hours of labor costs.

Potential Applications

- Healthcare and Population Monitoring
- Research and Development
- Consumer Test Kits

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