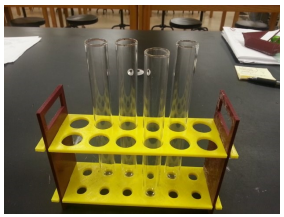
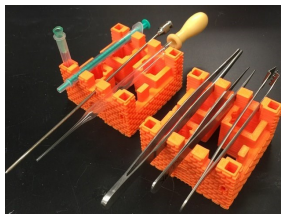
3D Printing in the Laboratory

Chrom Solutions
Knowledge When You Need It

3D Printing - Functional Prototype to Finished Product

The accessibility of 3D printing is revolutionising the production of functional prototypes which can be very quickly and easily turned into finished products and reproduced in great numbers, if required. This process used to cost thousands of pounds at each stage of development. Now, a designer and a 3D printer can complete the full process from start to finish at a fraction of the cost.

There are a wide variety of suitable materials to choose from when it comes to make these new products. All have there own set of properties so the designer can blend strength/durability/abrasion resistance/ colour/chemical inertness etc into the design. Some laboratory 3D printed products can be fairly simple and obvious as shown below, test tube rack, tool holder, sample vial holder:


More complex devices are currently possible. We have recently made a flow cell to fit an CTC headspace sample to enable automatic sampling of gases for calibrations or samples.

Future uses may not be so obvious, e.g. chromatography.
Some ideas on the future of 3D printing: are listed below.

- 3D printed HPLC Columns.
- 3D printed stationary phases.
- New column geometries, including highly complex column designs, 3D printed in metal

Product Development 3D Printing.

As a starting point a discussion is conducted to decide what is required and if it is possible via 3D printing. Also, what advantages can be gained by developing the product this way. From this, we get the following development work flow:

- Design: Develop from scratch via CAD. Can also recreate objects from measurements or scanning.
- Prototype: Produce a working / functional copy of the product.
- Test: Evaluate this functional prototype, modify design if required.

This is an iterative procedure and may be repeated a number of times. The prototype can be designed and built in any material. Once the design is completed a suitable material can be chosen to give the finished product the required properties.

Conclusion

3D printing gives access to a finished product that would be very difficult to produce by any other means. The ability to make a functional prototype that enables testing and development of the product without the use of expensive tooling or materials. This is a very cost effective rapid way to develop a wide range of finished products.

ChromSolutions Ltd

What we offer at ChromSolutions is our wealth of experience in analytical instrumentation, (over 110 years distributed through the members of our company). We use this experience and independent advice to provide clear concise guidance for 3D product design and printing. We can help you from defining your requirements through to producing your design as a single or multiple items.

For more information on 3D printing please contact us:

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