New equipment for developing polymer materials for additive manufacturing

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The number of additive manufacturing machines continues to grow at Sirris for polymer applications.

The latest acquisitions of polymer 3D printers at Sirris target material development: following an SLS (Selective Laser sintering) printer and an open DLP (Digital Light Processing), a new machine for extrusion has arrived.

The Hydra16a from Hyrel 3D is a multipurpose professional office printer for producing proofs of concept and testing material printability. It can work on the extrusion of molten filaments (FDM, Fused Deposition Modelling) or with more exotic heads, by material UV hardening, by chemical reaction between two components or by a combination of different effects.

Five heads can be fitted on the axis to work together, which for example makes it possible to combine a model material and a support material, or mount a microscope for checking the deposited layers. We can work with:

- FDM extrusion heads, and heads for high performance polymers
- Syringes for fluids and pastes (heated or not)
- A static mixer

- A UV lamp
- etc.

Other heads can be developed on request and other tools can complete the range. In particular a pick & place can be added for positioning electronic components.

As the printer is completely open, the heads and/or processes can be developed on request, which widely extends the range of application fields: bioprinting, printing electronic circuits, printing medicines, silicone printing, etc.

Several scientific studies carried out on this machine are available on this website: http://hyrel3d.net/wiki/index.php/Published_Papers

Sirris has acquired the machine from Hyrel 3D especially to carry out research to find materials for the 3D printing of heart valves as part of a 'Polyvalve' Interreg project.

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