NovaUCD

Technology Licensing Opportunity

3D Printed Reactor

- A printed processing unit for use in mixing biological or chemical materials

Opportunity:

Flow reactors are used to produce products by a chemical reaction between materials (typically liquids or gases). As the materials move through the reactor, they mix/interact/react to produce a solution or product. Traditionally they are made from metal or glass as high temperatures, chemical resistance and/or high pressure is required.

Combining these environmental conditions with complicated internal channels means current manufacturing of flow reactors is expensive. 3D printing technology developed by researchers at University College Dublin can overcome these internal design challenges, while maintaining the requirement of high pressure and chemical/temperature stability.

Applications:

Continuous flow reactors allows food and pharmaceutical products and catalytical reactions to be produced continually, with better control over heating/cooling; improved mixing and have a smaller footprint allowing a reduction in the production plant size.

Key Features/Advantages:

- Novel design, materials and advanced additive manufacturing can produce reactor designs to meet the needs of various materials being processed in harsh environmental conditions.
- Printed continuous flow systems successfully run with high pressure (500 psi) and high temperature stability (>200° C) achieved.

FUNDERS: Science Foundation Ireland sfi For what's next

Value Proposition:
A high pressure, chemical resistant 3D printed flow reactor. A rapidly manufactured tunable system which enables flow chemistry reactions in harsh environmental conditions.

Markets:
Chemical manufacturers or research facilities for the development of green chemistry, catalytic reactions, polymer chemistry, pharmaceuticals production.

Lead Inventors:
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