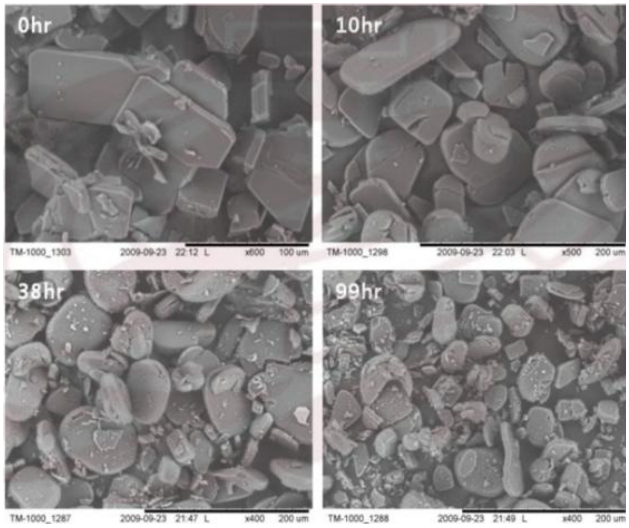
LCTR-Series

Laminar Continuous Taylor Reactors

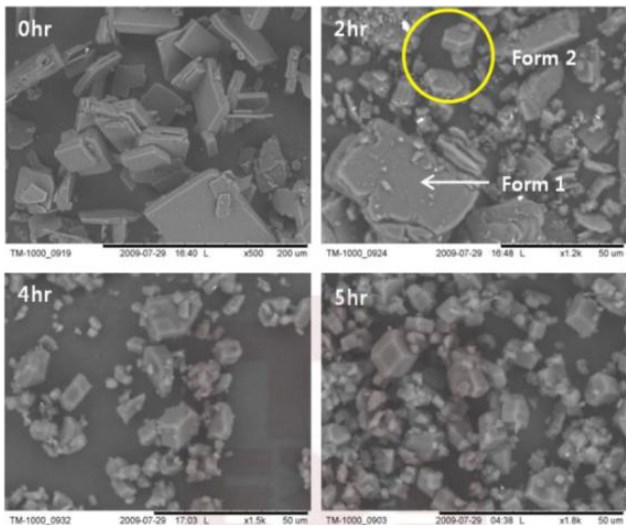
Laminar Continuous Taylor Reactors (LCTRs) are a patented chemical reactor series that produce **high-purity**, **uniform substances** using **Taylor Fluid Flow**.

The Laminar Taylor flow reactor uses a jacketed cylindrical vessel with a central, rotating agitation bar to produce taylor flow mixing along the length of the vessel. Reagents are pumped at a controlled rate into the vessel and the reaction efficiency is maximised through specific turbulent mixing before the products are collected at the end of the vessel.

Conventional Reactor



Laminar Reactor



Sulfamerazine: conventional method vs. Laminar reactor. Controlled particle sizes and desired phase transformation in significantly less time

LCTR Benefits

✓ **Reduced reaction times** – order of magnitude decreases in reaction time, depending on application

✓ **Increased purity** – higher purity products through uniform mixing

✓ **Fully controlled** – controlled particle size and distribution in crystallisation & precipitation reactions

✓ **Scalable process** – continuous process, scalable from low-volume laboratory bench top reactors to production scale (working volume 0.02 – 1,000 litres)

Key Applications

- **Pharmaceutical API crystallisation**
- **Graphene oxide manufacturing**
- **Li-ion battery material manufacturing**
- **OLED material purification**
- **CNT washing**
- **Amino acid purification**
- **Recycling phosphoric Acid**
- **Precipitation/crystallisation of inorganic compounds**
- **Recrystallisation for high purity**

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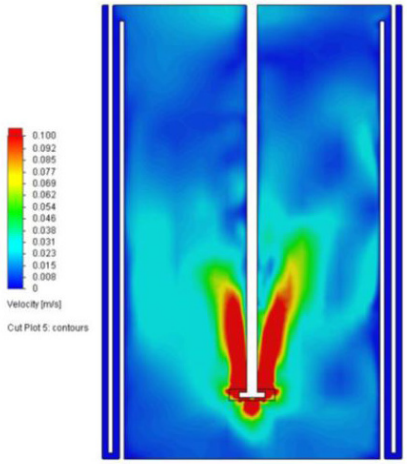
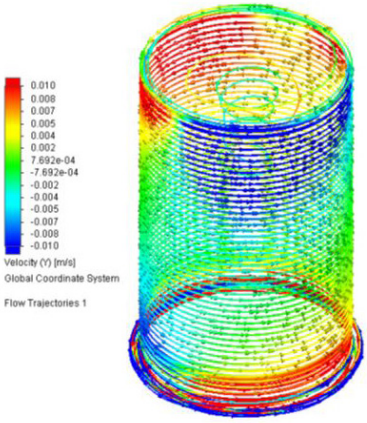
Conventional vs Laminar Reactor



Conventional Reactor



Laminar Reactor

Uniform mixing illustrated by LFD comparison with conventional stirred tank

The LCTR - Lab II: a Laminar Continous Taylor Reactor for laboratories

Advantages of Taylor Flow Reactors

- ✓ Flow reactor designed around exploiting specific turbulent mixing through Taylor flow
- ✓ Significantly higher mixing force and mass transfer velocity than conventional batch reactors
- ✓ Combines the advantages of tank and tubular type reactors in the production of high-purity materials under continuous flow

For more information, or to discuss your requirements, please contact us on 01954 232 776

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