



Technology

O V E R V I E W



Traditionally the process industry has depended upon batch methods of production. In recent years the limitations of this approach has become increasingly apparent, with companies experiencing such issues as; inconsistent product quality, long reaction and cycle times, high inventories, high wastage (with adverse environmental and cost impact), poor supply chain responsiveness, and long lead times to market.

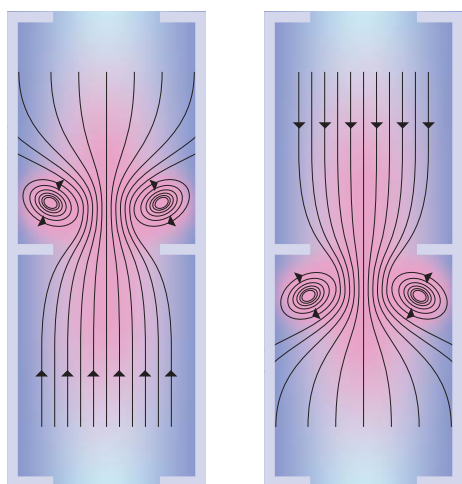
To overcome such problems, companies are increasingly recognising the need to adopt newer manufacturing technologies, it is widely recognised that continuous production methods would assist greatly in this.

A key reason for continued widespread use of batch processes has been that until now there has been a lack of suitable substitute equipment and methods.

NiTech's Continuous Oscillatory Baffled Reactor (COBR™) enables companies to adopt continuous processing, overcoming many of the problems associated with batch processing.



Diagram 1 radial mixing within a baffle



Upstroke

Downstroke

Mixing Mechanism

The basis of the technology is a tubular reactor with the presence of annular-baffles. The figure shows the mixing mechanism in a baffled cell. If a liquid is pushed up through the tube, eddies will be created around the baffles, enabling significant radial motion. Likewise on a downstroke, eddies will be created on the opposite side and the intensity of eddy generation and cessation can be precisely controlled thus; very effective mixing is created (Diagram 1).



A Continuous reactor is created by connecting a series of these baffled cells and controlling inputs (Diagram 2).

Diagram 2

