

FlowCAT

Total flexibility

Catalytic Flow Reaction Platform from Screening to Scale-up

- | Miniature unit (about the size of a GC)
for virtually any chemistry
- | Easily switch applications
- | Handles gas, liquid and two phase flow
reactions with no need for adjustment



Continuous Flow Catalytic Reactions with FlowCAT

The FlowCAT delivers high-pressure flow chemistry in a compact, bench-top unit. The flexible design allows screening, optimisation, development and scale-up of both homogenous and heterogeneous chemistry in the same unit and can incorporate a combination of gas and liquid feeds.

Switch between applications easily:

- | Hydrogenation
- | Oxidation
- | Carbonylation
- | Polymerization
- | Bio-fuel research
- | Fisher-Tropsch synthesis
- | Refinery unit operations

Run under fixed-bed, trickle-flow conditions, as well as all-liquid feeds and homogeneous catalysis. It is also simple to use it in “bubble flow” mode where the reagents are fed at the bottom of the reactor.



Different reactor types and sizes can be used and interchanged easily, to suit user's requirement and chemistry

Feed combinations

Available choices include:

- | Multiple gas feeds
- | Multiple liquid feeds (including high viscosity ones)
- | Combination of gases and liquids



Excellent mixing with no gas or liquid channelling



Reactor in form of metal coils for slower reactions



PTFE coated reactor for lower pressure and inert requirements

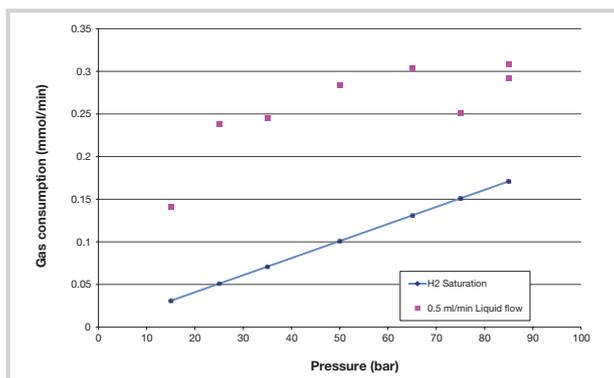


Classic tubular reactor for fixed-bed trickle-flow mode for heterogeneous reactions

Pressure regulation

Miniature computer controlled back-pressure regulation valve handles single and multiple phase of gases and liquids WITHOUT any adjustment.

The system also handles a wide range of working pressures making it simple to alter conditions.



Process conditions can be controlled via the software, allowing rapid optimisation



FlowCAT is a complete system with product collection after back-pressure regulator

Vent gas measurement

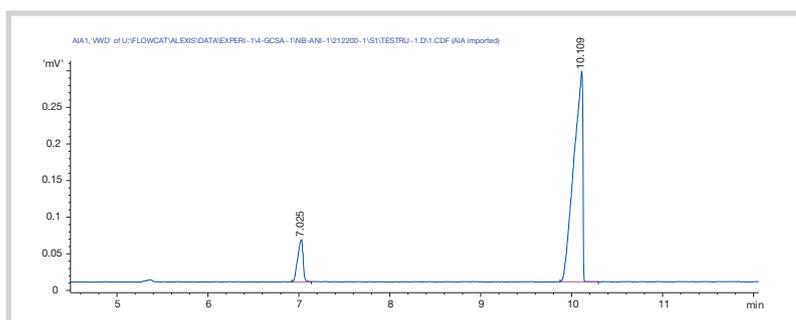
Gas leaving the reactor (product or excess feed) can be measured and recorded to enable complete mass balance.



Digital wet gas meter and other sensors can be used for vent gas measurement

Link to GC and PAT probes

Product can be metered and injected into client supplied GCs if necessary. Also, a range of on-line analytical devices (such as FTIR probes) can be integrated to provide real time analysis.



Client supplied GC, LC and spectroscopic probes can be readily integrated with the FlowCAT system

FlowCAT product specifications

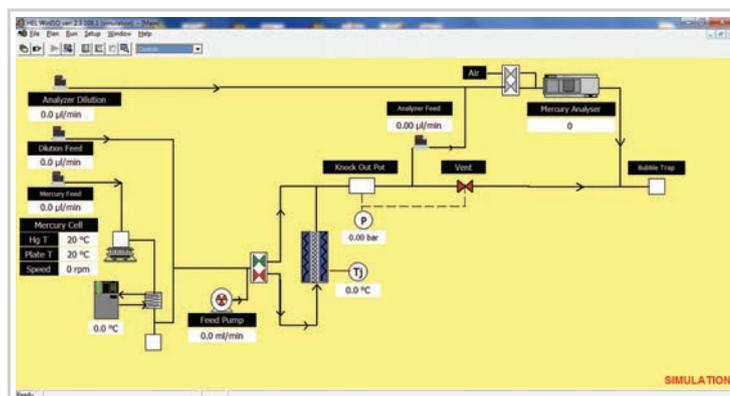
PARAMETER	STANDARD LIMITS	COMMENTS
Temperature	300°C (higher optional)	Heating zone 10cm to suit 15cm length reactors as standard Much higher temperature and larger sizes possible
Reactor sizes	Tubular: Reactor diameter 6mm or 12mm Working (hot) volume: 3 or 12mL Coil: Length to suit 1/8" or 1/16" diameter	Available in 316SS or Hastelloy (interchange with coil) Metal or PTFE (interchange with tubular)
Pressure	100bar (higher optional)	Robust and precise control valve, suitable for liquids, gases and two-phase mixture, provides back pressure control. 200 and 300 bar versions possible.
Feeds	1 gas 1 liquid	Optionally, any number of separate and independent feeds can be controlled

FlowCAT users include:

- Albermarle
- Cambridge University
- Pfizer
- Procter & Gamble
- PetroChina
- Süd-Chemie
- University of Science Malaysia
- and more...

Customise your specification

FlowCAT can be modified to suit custom applications. Contact us to discuss your requirements.



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