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News and updates from HEL Group

Process Chemistry News

FACT FILE

flowCAT's Fast Facts:

Temperature:

300 c or higher

Reactor sizes:

Tubular: Reactor diameter 6mm or 12mm
Coil: Length to suit. 1/8 or 1/16 diameter

Pressure

100bar (higher optional)

Feeds

1 or more gases
1 or more Liquids

TECHNOLOGY IN BRIEF: Déjà vu for Thermal Hazards and Calorimetry

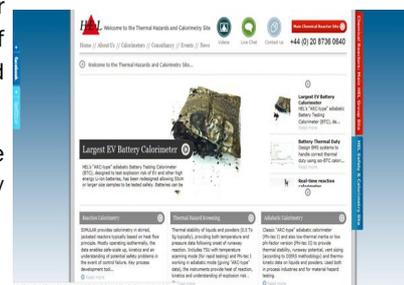
Interest in Process safety and calorimetry was widely considered to have peaked in the early 1990s – prompted by major industrial accidents (such as Bhopal in India and Seveso in Italy) that led to widespread legislation in Europe and USA. This gave rise to companies such as HEL and after more than a decade of decline in safety related calorimeter sales, the market has changed again. This is due to the dual effects of the growing markets in China and India plus new applications – in particular li-ion battery safety for EV and other applications.



HEL is in the unique position of being a supplier during the original upsurge and now the leading player after 20 years. Our range of calorimeters is uniquely comprehensive and

covers applications from sample screening to reaction calorimeter and then adiabatic calorimeters that include a modern version of the classic “ARC” for chemical testing, plus a custom designed calorimeter that can handle battery packs larger than 0.5m in size.

To serve this market better, we have recently launched a website dedicated to our safety and calorimeter capability (www.hazards.co).



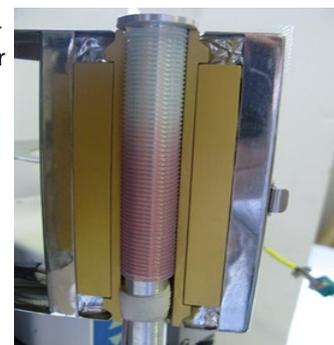
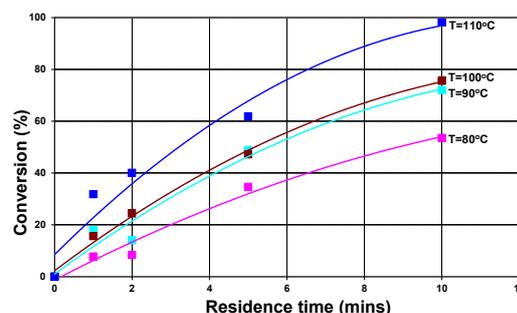
PRODUCT IN BRIEF: Versatile Flow Chemistry Platform

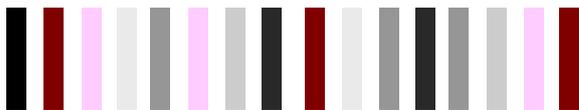
HEL's flowCAT's position as the market leader for catalyst research under flow conditions, especially in packed bed reactors at elevated pressure, is flattering but suggests that the product is much more limited than is in fact the case. While applications to date have been dominated by heterogeneous catalytic hydrogenations, the flowCAT is in fact extremely versatile as recent published data shows.

For example, the chart on the right shows that liquid-liquid reactions are easily accommodated and this was demonstrated by the hydrogenation of nitrobenzene using cyclohexene (rather than hydrogen gas) as the hydrogen source.

Slower liquid-liquid reactions requiring longer residence time can also be performed in the flowCAT by using lengths of coiled tubing in place of the tubular reactor, a switch easily achieved. The photograph on the right illustrates this with a coiled PTFE reactor in which benzil and diphenylacetone (a clear mixture) react at atmospheric pressure, to give a product that becomes deeper in colour with increasing reaction time.

Other important fixed bed reactions under pressure that have recently been reported include carbonylation and oxidation – the latter by Pfizer.





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BUSINESS IN BRIEF: HEL expansion in major world markets

The growth in demand for HEL products outside the main English-speaking markets (UK, USA and India) is reflected in our investment in these regions, exemplified most recently by dedicated websites in Chinese, German and Russian languages.

HEL's growth in China is well into double digit percentages - far higher than the market growth generally and the Chinese website (www.helchina.com) should ensure continued expansion. Our strong position in China is due to our wide range of tools for process development and safety, combined with the ability to provide customisation. The German speaking (so-called DACH) market is extremely important but it has also a number of established local competitors. HEL's strong position in this market is again largely due to our product range, but we are hopeful that the new website (www.helgroup.de) will strengthen our presence and make HEL more accessible to new clients in this region. Finally, we are pleased to expand further into Eastern Europe and recently launched a Russian language website (www.helgroup.ru). This launch complements our new partnership with established local supplier SOCTRADE with headquarters in Moscow. Contactable at the e-mail address: asl@soctrade.com



COMING EVENTS: visit http://www.helgroup.com/events

HEL's 12th Conference in Cambridge on Flow & Batch Process Development for Hydrogenation and other catalytic reactions in September 2011 was used as a launch pad for our widely acclaimed FlowCAT.

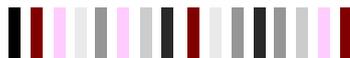


HEL Road Show

HEL will be having more open days in the USA. Learn and explore, hands on, how HEL automates a range of chemistry applications at this Road Show on March 20th at Le Meridien Hotel, Cambridge MA or on March 22nd at the Marriott Courtyard, Newark NJ Airport.

Come visit our stand at the following events this year:

- 5-7 March, Netherlands Catalysis and Chemistry conference, Noordwijkerhout, Netherlands
14 March, Lab supply 2012, Rhein, Germany
19-21 March, Continuous Flow Technology in Industry 2012, York, UK.
23-24 April, Battery Congress, Ann Arbor, US
1 May, Advances in Synthesis and Medicinal Chemistry, Welwyn Garden City, UK



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