

Welcome to the May 2011 issue of the Flow Synthesis Online newsletter.

Lots of interesting stuff.

- The new Vapourtec Gas/Liquid Reactor is unveiled
- Another "Case Study" feature
 - CSIRO in Australia
- More new flow chemistry publications, including
 - Nitration with fuming nitric acid at 97g/hr .
 - Total synthesis of Fluoxetine in flow
 - Library synthesis of Trisubstituted Pyrrolidines

We appreciate all your feedback so please keep it coming.

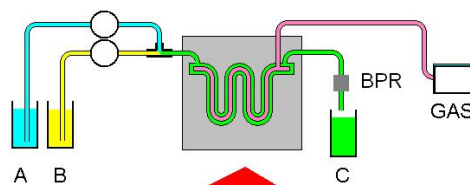
You have received this email because you have in the past expressed an interest in Vapourtec Flow Chemistry products. If you'd prefer not to receive this newsletter any more, use the unsubscribe link at the end of the email.

Product Announcements

New Reactor for Liquid / Gas reactions

One of the most requested features is the ability to carry out gas/liquid reactions (for example hydrogenation or carbonylation).

So Vapourtec are excited to announce a new cost-effective "tube in tube" reactor, immediately compatible with all existing R Series systems, which offers the facility to feed gas into a heated reaction while the reaction progresses.



[Click here for details](#)

Announcements

Vapourtec are pleased to announce the appointment of Tegent Scientific as exclusive distributor in China and Hong Kong, effective June 1st, 2011



[Click here for full contact details](#)

Still reading someone else's copy of the newsletter ?



If you like reading the newsletter but tend to get it forwarded by a colleague, why not sign up for your own copy ?

It will only take a minute, and your email address won't be used for anything else, ever. Each newsletter contains an "unsubscribe" link in case you should change your mind.

[Click here to sign up for your own copy](#)

Case Study

Materials Science and Engineering group, CSIRO, Australia

The Commonwealth Scientific and Industrial Research Organisation (CSIRO) is Australia's national science agency and one of the largest and most diverse research agencies in the world, with ~ 6000 staff in 56 sites across Australia and overseas. The Materials Science and Engineering Group at CSIRO have built up considerable expertise in flow chemistry, including performing RAFT polymerisation in flow.



[Click here to read the case study](#)

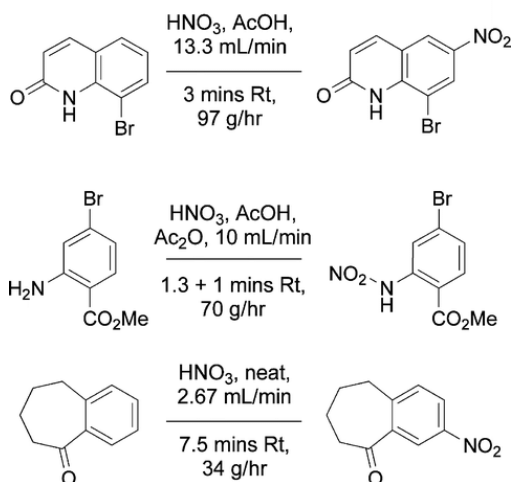
Publications

Nitration Chemistry in Continuous Flow using Fuming Nitric Acid in a Commercially Available Flow Reactor

Cara E. Brocklehurst
Hansjoerg Lehmann
Luigi La Vecchia

*Preparations Laboratories, Novartis,
Basel, Switzerland*

FLOW CHEMISTRY



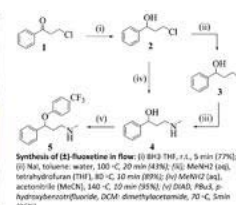
The paper will describe the use of flow chemistry for scaling up exothermic or hazardous nitration reactions. Such reactions often cause time delays to the delivery of larger batches of intermediates or final compounds for medicinal chemistry projects, because considerable time is required for safety evaluation and, if necessary, modification of the procedure so that it can be scaled-up and run in a safe manner. A commercially available continuous flow reactor was used in the scale up of three challenging nitrations including a reaction involving a potentially explosive mixture of acetic acid and fuming nitric acid, with a productivity of 97 g/h.

[Click here to go straight to the publication](#)

Preparation of fluoxetine by multiple flow processing steps

Batoul Ahmed-Omer and Adam J. Sanderson

Eli Lilly and Co. Ltd., Lilly Research Centre, Erl Wood Manor, Windlesham, Surrey, GU20 6PH, UK.

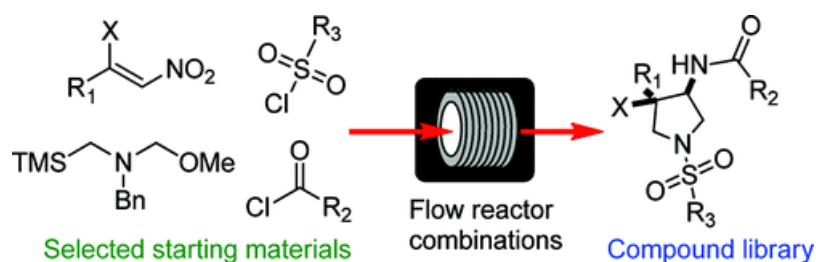


This study focuses on the application of flow chemistry process in performing an efficient multiple step syntheses of (±)-fluoxetine as an alternative to conventional synthetic methods, and one of the few examples of total synthesis accomplished by flow technique.

[Click here to go straight to the publication](#)

Synthesis of a Drug-Like Focused Library of Trisubstituted Pyrrolidines Using Integrated Flow Chemistry and Batch Methods

Marcus Baumann¹,
Ian R. Baxendale¹,
Christoph Kuratli²,
Steven V. Ley¹,
Rainer E. Martin^{*2},
Josef Schneider²



¹ *Innovative Technology Centre, University of Cambridge, U.K.*

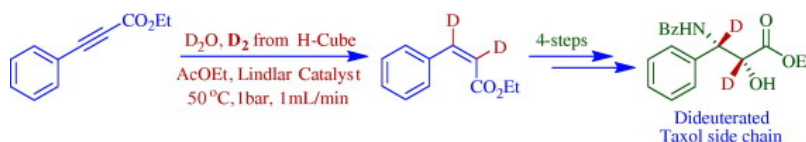
² *F. Hoffmann-La Roche Ltd., Basel, Switzerland.*

A combination of flow and batch chemistries has been successfully applied to the assembly of a series of trisubstituted drug-like pyrrolidines. This study demonstrates the efficient preparation of a focused library of these

pharmaceutically important structures using microreactor technologies, as well as classical parallel synthesis techniques, and thus exemplifies the impact of integrating innovative enabling tools within the drug discovery process.

[Click here to go straight to the publication](#)

Flow chemistry approach for partial deuteration of alkynes: Synthesis of deuterated taxol side chain



S. Chandrasekhar¹
B.V.D. Vijaykumar¹
B. Mahesh Chandra¹
Ch. Raji Reddy¹
P. Naresh²

¹ Organic Chemistry Division-I, Indian Institute of Chemical Technology, Hyderabad, India

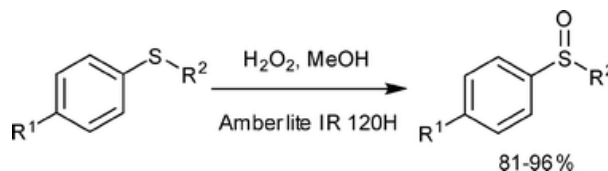
² Center for NMR resonance, Indian Institute of Chemical Technology, Hyderabad, India

The partial deuteration of alkynes proceeds via a flow chemistry approach under Lindlar's heterogeneous catalysis to provide cis-dideuterated olefins in good yields. Further, dideuterated olefin has been successfully utilized for Sharpless asymmetric dihydroxylation followed by Mitsunobu reaction for the synthesis of deuterated taxol side chain.

[Click here to go straight to the publication](#)

Highly chemoselective metal-free oxidation of sulfides with diluted H₂O₂ in a continuous flow reactor

²Raimondo Maggi,
¹Soheila Chitsaz,
¹Stefan Loebbecke,
²Calogero G. Piscopo,
²Giovanni Sartori
¹Maud Schwarzer



¹Fraunhofer Institute for Chemical Technology

²University of Parma, Italy

The oxidation of different aromatic sulfides catalyzed by Amberlite IR 120 H was performed with a very high efficiency in a continuous flow reactor. For the first

time this reaction takes place under mild conditions using only 3% aqueous hydrogen peroxide and no metal catalyst.

[Click here to go straight to the publication](#)

Technical articles are in PDF form. Publications may require a subscription to access.

Thanks for your continued attention. See you in July.