

Welcome to the **Flow Synthesis Online** newsletter.

This publication is released bi-monthly and will showcase new applications, events, and equipment in the Flow Synthesis world.

In this issue

Applications - *Ozonolysis in the Vapourtec R series, Vapour Pressure of Solvents at High Temps*

Product News - *Pumping of BuLi now possible*

Events - *Where and when to see Vapourtec systems in action*

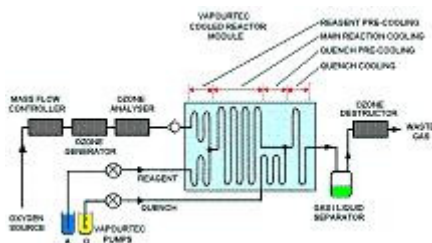
Publications - *5 new flow chemistry publications from the last few weeks*

Enjoy.

Vapourtec sent this email to you because you have in the past expressed an interest in Vapourtec products. If you do not want to receive future issues of this newsletter, you may unsubscribe now by scrolling to the bottom of this email and clicking on the unsubscribe link. If you think a colleague may be interested, please feel free to forward it.

Applications

Flow Ozonolysis



Scientists at University College London have been using a Vapourtec R Series system with the new cooled reactor (launched in January) for continuous flow ozonolysis. Find out how !

[Click here to read about it](#)

Free Laminated Vapour Pressure Chart

One of the key advantages of flow chemistry is the ability to run at elevated pressures, allowing volatile solvents to be heated way above their usual boiling points while remaining in the liquid state. But what pressure does a given solvent require to prevent it boiling ? And did you know that some websites purporting to calculate this for you actually give wildly inaccurate results ?

Help is at hand - Vapourtec have a free laminated chart showing the correct values for all commonly used solvents.

[Click here to find out more](#)

Product News

Pumping of BuLi now possible

Anyone who has tried will know that organometallic reagents such as BuLi are extremely challenging to pump in a flow chemistry system.

But as a result of extensive development work and some new add on equipment, the Vapourtec R series can now be used for stable, reliable handling of these reagents.

[Click here for more details](#)



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Is it your first time ?

If this is the first issue of the newsletter that you've received, you might like to take a look at what you've missed in some previous issues.

[click here to see newsletter archive](#)

Events

Attendees of the following events will be able to see the latest Vapourtec Flow Chemistry equipment in action, and no doubt talk to other users.

Eleventh Annual Symposium on Chemical Synthesis: Advances and Applications

25th June 2010, The CMLD at Boston University

[Click here for details](#)

American Chemical Society Fall 2010 National Meeting & Exposition

22-26 August, Boston USA

[Click here for full details of this event](#)

1st RSC/SCI Symposium on Continuous Processing and Flow Chemistry

3-4 November, GlaxoSmithKline Stevenage, Herts, UK

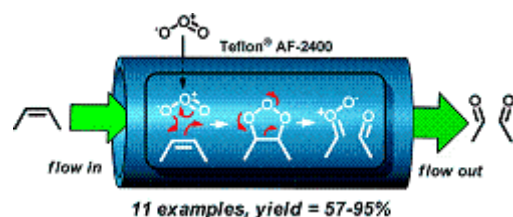
[Herts, UK Click here for full details of this event.](#)

UK Automated Synthesis Forum (UKASF)

16-17 November, MSD, Newhouse, UK

Publications

Flow Ozonolysis Using a Semipermeable Teflon AF-2400 Membrane To Effect Gas-Liquid Contact



Matthew O'Brien, Ian R. Baxendale and Steven V. Ley*

Whiffen Laboratory, Department of Chemistry, University of Cambridge, Lensfield Road, Cambridge, CB2 1EW, U.K.

A flow-through chemistry apparatus has been developed which allows gases and liquids to contact via a semipermeable Teflon AF-2400 membrane. In this preliminary investigation, the concept was proven by application to the ozonolysis of a series of alkenes.

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

Continuous Flow Palladium(II)-Catalyzed Oxidative Heck Reactions with Arylboronic Acids

Luke R. Odell ¹, Jonas Lindh ¹, Tomas Gustafsson ², Mats Larhed ¹ *

¹*Organic Pharmaceutical Chemistry, Department of Medicinal Chemistry, Uppsala University, Sweden*

²*AstraZeneca R&D Mölndal, Sweden*

Palladium(II)-catalyzed oxidative Heck reactions were investigated under continuous flow conditions. Selective, fast and convenient protocols for the coupling of arylboronic acids with electron-rich and electron-poor olefins were developed by using a commercially available flow reactor.

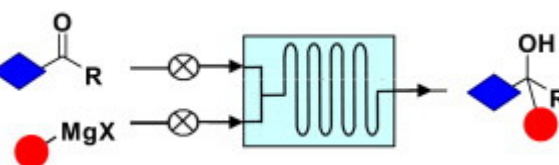
[Click here to go straight to the publication](#)

Reaction of Grignard reagents with carbonyl compounds under continuous flow conditions

E. Riva^a, S. Gagliardi^b, M. Martinelli^b, D. Passarella^a, D. Vigo^b and A. Rencurosi^b

^a *Dipartimento di Chimica Organica e Industriale, Università degli Studi di Milano, Italy*

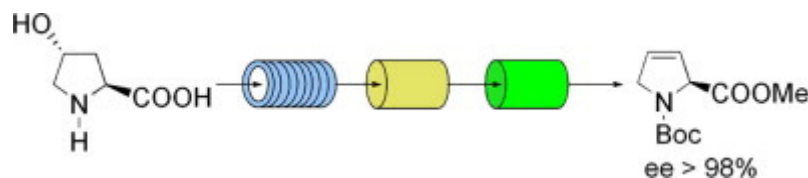
^b *NiKem Research S.r.l., Milano, Italy*



This contribution details how a continuous flow reactor was used to react carbonyl compounds with Grignard reagents at room temperature in an efficient and safe manner. Flow rate, residence time and temperature were optimized for the preparation of a small collection of secondary and tertiary alcohols. Excellent yields and general applicability were observed using the set-up protocol. The procedure was also applied for the preparation of Tramadol, an analgesic drug belonging to the opioid group. The developed conditions allowed the selective addition of Grignard reagents to aldehydes and ketones in the presence of a nitrile function.

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

A highly efficient flow reactor process for the synthesis of N-Boc-3,4-dehydro-l-proline methyl ester



Lucia Tamborini, Paola Conti, Andrea Pinto and Carlo De Micheli

Dipartimento di Scienze Farmaceutiche 'Pietro Pratesi',

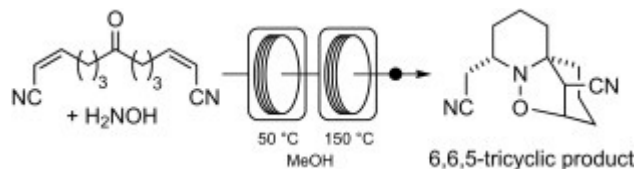
Università degli Studi di Milano, Italy

The multi-step preparation of N-Boc-3,4-dehydro-l-proline methyl ester using a modular flow reactor is reported. The use of immobilised reagents and scavengers in pre-packed glass tubes allows us to obtain the pure product in 87% overall yield, 97% purity, and >98% enantiomeric excess without any additional purification step. Our flow-based protocol enables the rapid multi-gram synthesis (about 9 g/12 h) of the desired product.

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

Flow synthesis of tricyclic spiropiperidines as building blocks for the histrionicotoxin family of alkaloids

Malte Brasholz^a, Brian A. Johnson^b,
James M. Macdonald^a, Anastasios Polyzos^a,
John Tsanaktsidis^a, Simon Saubern^a,
Andrew B. Holmes^{a, b} and John H. Ryan^a



^a CSIRO Molecular and Health Technologies, Australia

^b School of Chemistry, University of Melbourne, Australia

A domino cyclization reaction of the bis-unsaturated ketone **3** with hydroxylamine proceeds with good yield and high stereoselectivity, in a flow reactor system. The tricyclic spiropiperidine products **5** and **2** obtained are valuable building blocks for the synthesis of analogues of the histrionicotoxin alkaloids.

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

The technical articles above are in PDF form and may be immediately downloaded or read online. No registration is required. Enjoy !

Any 3rd Party publications referred to may require a subscription to download.

About Vapourtec Ltd

Vapourtec develop and manufacture the R Series Flow Chemistry Platform, the leading choice of industrial and academic users worldwide. To find out more about the R Series, or about Flow Chemistry generally, go to

<http://www.vapourtec.co.uk>

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