

# R&D Scientist (Organic chemist, Chemical Engineer for catalyst development and scale-up)



**Location:** Warwickshire, UK

**Salary:** £25,000 - £40,000 pa

**Hours:** Full Time

**Contract Type:** Fixed Term contract for 24 months; extension to permanent

**Closing Date:** 23:59, 20 January 2019

**Interview Date:** 28 January – 2 February 2019

**Anticipated start date:** 1 March 2019 preferred; later possible

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We recruit a strong organic chemist, material scientist or a chemical engineer to work on development, demonstration, and scale-up of catalyst-coated tube reactors for fine chemicals and pharmaceutical synthesis in flow. Several posts are available.

You will work around our catalyst-coated tube reactors in their development – synthesis of catalyst coatings containing platinum-group metals, testing of their performance in multiphase (gas-liquid) chemical reactions, catalyst characterisation using physico-chemical methods, study structure-activity relationship, catalyst longevity, and optimisation of catalyst regeneration methods. This work requires extensive hands-on knowledge of the organic chemistry and flow chemistry and heterogeneous catalysis.

The catalysts developed will be scaled-up to produce a mini-plant with a production rate of 30-50 kg liquid product per day. You will design and manufacture internal reactor structures to improve radial heat transfer in the catalytic packings. You will perform hydrodynamic study to obtain information about RTD and liquid hold-up in the reactor and perform catalytic tests for the reactor performance. You will be involved in two Pilot tests with the miniplant in collaboration with our commercial partners. Based on the data obtained, you will perform techno-economic analysis to optimise the manufacturing costs. The knowledge of multiphase reactor engineering and relevant experimental skills are vital.

You will also undertake research in other areas related to heterogeneous catalysis and perform material characterisation. Your work combines independent and collaborative research on catalysis and you will be expected to write product specifications, research papers, progress and planning reports and prepare presentations. Your role will also include dealing with customers, any management and administrative issues that may arise from the project ensuring that all project objectives and deadlines are met.

The initial contract is for 24 months (subject to the successful completion of a 6 month probationary period). People eligible to work in the UK are welcome. Being a small company, we would struggle to handle immigration matters to the UK, but exceptional overseas candidates are welcome. These candidates must clearly demonstrate their exceptional performance.

The successful candidate should hold a PhD in Organic Chemistry, Materials Science, Chemical Engineering or a related discipline. Excellent knowledge of reaction engineering, heterogeneous catalysis or organic chemistry are required.

To apply for this position please submit your CV and a cover letter by **23:59, 20 January 2019** by email to [hr@stolicatalysts.com](mailto:hr@stolicatalysts.com). You can also send queries about the application and position to that email.

More details including main duties and responsibilities, essential requirements can be found in the separate file: <http://www.stolicatalysts.com/shared/Research%20Scientist.pdf>

## Main duties and Responsibilities:

- Perform synthesis, optimisation and characterisation of the catalytic coatings: (1) optimise the coating procedure and parameters; (2) obtain catalytic coatings based on metal oxides, carbon, mixed oxide materials on various materials.
- Perform testing and characterisation of the catalyst-coated tubes in terms of reaction performance, mechanical stability, and physical properties.
- Development of scale-up methodology for the demonstration of reactor performance in a gas-liquid reaction
- Writing weekly progress reports describing the main results. Presentation of results. Prepare product notes, application notes and research plans.
- Perform health and safety assessment, outline safe operational procedures which identify and take into account all relevant hazards, manage and organise the safe disposal of hazardous substances
- Manage orders for consumables and equipment with approvals from the line manager. Maintain the workspace in a safe condition, free from hazards and other dangers to the employee and equipment.
- Participate in marketing activities, research papers, and trade expos.

## PERSON SPECIFICATIONS

<b>REQUIREMENTS</b> The post holder must be able to demonstrate:	<b>ESSENTIAL (E) or DESIRABLE (D) REQUIREMENTS</b>	<b>MEASURED BY</b> a) Application Form b) Interview c) Presentation
Good honours degree (2.1 minimum) or equivalent in a relevant subject	E	a
A PhD or equivalent in a relevant discipline	E	a
Proven ability in research and evidence of quality research output in a relevant field	E	a, b, c
Ability to learn quickly and master unfamiliar research areas	E	b, c
A developing research profile with the ability to publish and/or produce high-quality research output.	E	a, b
Sufficient breadth or depth of specialist knowledge in the discipline and of research methods and techniques to work within established research programmes.	E	a, b, c
Good IT skills including Microsoft Office and proven ability to use IT to write technical research papers and presentations	E	a, b, c
Able to evidence excellent interpersonal skills with relevant experience of working independently and as part of a team.	E	a, b, c
Able to evidence strong time management and organisational skills	E	a, b
Strong communication skills including the ability to communicate effectively in English, both verbally and in writing.	E	a, b, c
The ability to contribute to the development of funding proposals in order to generate external funding	D	a, b, c
Relevant experience to work with multiphase (gas-liquid) reactions	D	a,b,c