# EPSRC supported EngD. The effects of cleansing on skin microbiota

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## Innospec

## Tax free bursary of £ 25,000 p.a. plus fees paid

As the largest organ of human being, skin acts as a barrier to the external environment, and accommodates a diverse microbiota comprised of bacteria, fungi, viruses, and microeukaryotes. Most of such skin microbes are harmless or commensal organisms that play essential roles in inhibiting colonization by pathogenic microbes or modulating innate and adaptive immune systems. A disruption to the microbiome could cause inflammation, irritation, dry and itchy skin, dermatitis, and skin diseases (in the worse scenario). As such, a delicate balance between skin hygiene (e.g. removing dead skin cells, sebum and sweat) and the disruption to skin microbiota requires careful consideration for developing skin cleansing products and technologies.

Building upon a previous work on skin hygiene, we aim to investigate the effect of cleansing, a complex physical and chemical processes that involves water, cleansing agents, and skin, on skin microbiota in this highly interdisciplinary project. The cleansing process and products would inevitably shape the specific skin microbial communities by changing the chemical environment. Using RNA sequencing method, alongside flow cytometry, we plan establish a comprehensive understanding of the effects of surfactants on skin microbiota.

Working closely with the industrial partner Innospec, a specialty chemical company, the EngD candidate will develop a wide range of knowledge and skills in colloidal and interface science, as well microbiology, whilst establish a broad appreciation of formulation engineering. They will build a portfolio of transferrable skills such as project management, communication and team working, which ensures excellent employability upon completion of the project.

If you have a background in Chemistry, Physics, biology, or Chemical Engineering, and are passionate about sustainability and future fuels, this is an excellent opportunity.

To be eligible for EPSRC funding candidates must have at least a 2(1) in an Engineering or Scientific discipline or a 2(2) plus MSc. To apply please email your cv to [cdt-formulation@contacts.bham.ac.uk](mailto:cdt-formulation@contacts.bham.ac.uk).

For details on the Engineering Doctorate scheme visit the [homepage](http://www.birmingham.ac.uk/schools/chemical-engineering/postgraduate/eng-d/index.aspx).

**Deadline: 12th April 2024**