# EPSRC supported EngD: Mechanisms and Factors Affecting Deposition in Automatic Dish Wash and Drying

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## Procter & Gamble

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

Effective, efficient, and residue-free washing has long been a result sought by users of automatic dishwashers. Understanding the processes and mechanisms involved in the wash phases of an automatic dishwashing cycle, which lead to the formation of spots and thin film on dishware, is important to enable the development of superior automatic dishwashing products and create consumer delight. This becomes critical as colder and shorter washing cycles become an ordinary practice to fulfill sustainability demand.

This project aims to 1. understand the in-wash transformations that lead to a suite of desired surface characteristics (spotting, film formation) on dishware that impact consumer’s visual and tactile perceptions, and 2. develop suitable methods and models to create the ultimate shine performance. This program will contribute to the understanding of the mechanisms and dynamics of the formation, removal, and prevention of both organic and inorganic films, spots, and deposits on dishware. The quantitative data generated will be the foundation for the development of a modelling tool to predict shine performance (image analysis for counting spots, grit, and clarity index/light scattering) and correlate it with consumer’s experience and feedback on shine.

The researcher will join an extensive collaboration team between P&G (Newcastle & Brussels sites) and UoB, which involves two other EngD students. The individual will benefit significantly from the interactions with P&G team members consisting of a broad range of research and development experiences. Laboratory skills including essential chemistry and engineering lab practice, alongside chemical and physical characterization techniques.

Additionally, summer school and conferences organized specifically for the EngD students will be an excellent opportunity to exchange research experience. The researcher will be encouraged to participate in international conferences and training schools through which the transferrable skills such as communication will be developed.

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). Currently we are only able to accept UK nationals. 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**