

Evaluating and Re-Designing Medical Plastic Products for an Australian Circular Economy

Project Description:

Medical plastic waste is a growing environmental challenge, with variability in material types and compositions complicating recycling efforts. This project addresses the need for a sustainable approach to managing medical plastics by mapping and analyzing waste streams for selected hard and soft plastics at the Queensland Children's Hospital. By understanding the variability in plastic properties and compositions across suppliers and batches, the project aims to identify high-potential medical products for cost-effective recycling and propose redesign guidelines to improve recyclability. These outcomes will drive better procurement practices, product stewardship, and contribute to developing a circular economy for medical plastics in Australia.

Academic supervisor(s): Professor Stefanie Feih, Griffith University

Industry partner(s): Queensland Children's Hospital

Remuneration: Eligible for Top-up (\$15,000 per year tax free stipend on top of University Scholarship stipend + \$10,000 per year expenses years 1-3) or Full Scholarship (\$38,982 tax free stipend per year for 3.5 years + \$10,000 per year expenses years 1-3)

Location: Griffith University Nathan Campus

Eligibility criteria:

This program is open to Australian citizens and permanent residents only. Applicants must meet the academic and professional requirements outlined by the partner universities offering the placements.

Selection criteria:

Candidates applying for this PhD project should hold or be completing an Honours or Master's degree in one of the following areas (or closely related fields):

- Materials Science or Engineering
- Polymer Science or Chemistry
- Environmental Science

Applicants should demonstrate or possess the following **technical knowledge and research skills:**

- Familiarity with plastics, polymers, or material properties, particularly in the context of recyclability or environmental impact.
- Ability to critically review literature and synthesize findings relevant to medical plastics and sustainability.
- Strong skills in data collection, material characterization, and statistical analysis to assess variability in materials and processes.
- Proficiency in using analytical tools and software relevant to material science and data analytics

For more information or to apply: Interested applicants should apply by contacting Professor Stefanie Feih, Griffith University at s.feih@griffith.edu.au.

