
# Master Thesis in Chemistry and Chemical Technology

## Modeling depolymerization of polyhydroxyalkanoates in melt hydrolysis

We are seeking skilled and motivated young scientists willing to work on future proof topics dealing with sustainability and circular economy. You will be a part of a multi-disciplinary team and acquire first-hand information on your selected topic and beyond. We are offering positions for students with finished BSc degree in the field of Chemistry, Polymer or Process Engineering for pursuing their diploma/master's thesis on a part-time basis (10 to 20h/week), limited to 12 months. The expected monthly salary is EUR 2.407,00 (on a basis of 40h/week).

This master thesis explores the kinetics of polyhydroxyalkanoates (PHA) depolymerization during melt hydrolysis, with a focus on building upon and refining existing simulation-assisted kinetics model. By leveraging detailed data on depolymerization products, this project aims to enhance the predictive accuracy of simulation assisted kinetics model, particularly for low molecular weight and water-soluble depolymerization products. A core component involves investigating the e'ects of Brønsted acids as catalysts including acids stemming from the hydrolysis itself. Moreover, the nuances of the type of polyhydroxyalkanoates on the depolymerization outcome in conjunction with depolymerization kinetics will underpin the research of bio polyester recycling.

For further details see next pages

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# CHASE your future

You will contribute to the following tasks:

- Refine and expand existing depolymerization models, focusing on accurately predicting low molecular weight and water-soluble products.
- Conduct melt hydrolysis experiments to validate model predictions.
- Study the impact of Brønsted acids on the depolymerization of PHA.
- Explore how different types of PHA influence depolymerization outcomes.

Your expertise:

- Experience in data analysis and polymer chemistry
- Knowledge in chemical kinetics and developing models
- Good analytical and problem-solving skills
- Independent and structured workflow
- Effective communication skills in both English and German

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# CHASE your career

We are committed to providing a framework for your professional growth:

- Contribute to the foundation of data-driven modeling in sustainable polymer recycling.
- Collaborate with leading experts to advance your skills in chemical kinetics, analytical methods, and polymer chemistry.
- Earn a competitive salary while making impactful contributions to innovative research.
- Support sustainable recycling solutions by refining models that enhance predictive accuracy in polymer depolymerization.

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