



Master Thesis in Chemistry and Process Engineering

Modeling of Degradation Process of Polymers

CHASE is seeking a skilled and motivated young scientist willing to work on future proof topics dealing with sustainability and circular economy. You will be part of a multi-disciplinary team and acquire first-hand information on your selected topic and beyond.

We are offering positions for students with a finished BSc degree, in the field of Chemistry, Physics, Polymer- or Process Engineering, for pursuing their diploma/master thesis, on a part-time basis (10 to 20h/week), limited to 12 months, to strengthen our team at the headquarters in Linz with immediate entry.

CHASE is a European Research and Technology Organization for Chemical Systems Engineering with its headquarters in Austria. We enable companies in the chemical process industry to make their production more energy-efficient, more resource-saving and more sustainable.

We seek a highly motivated researcher to undertake a comprehensive master's thesis which tries to combine infrared spectroscopy with thermal gravimetric analysis (TGA) to better understand the degradation reactions of polymers, particularly polyolefins. By employing these complementary analytical techniques, this work aims to optimize recycling processes for polyolefins and contribute to more sustainable material management. Building on an existing tool for determining reaction kinetics from TGA data. This work will be done on real recycled and virgin material. The thesis seeks to develop a predictive model that can identify optimal processing parameters for unknown polymer samples. This comprehensive approach is expected to enhance the efficiency and quality of recycled polyolefin products and should support the circular economy and reduce environmental impact.

We are looking forward to hearing from you: personal@chasecenter.at

Reference number: 034

Application: until 30. November 2026

CHASE your future

You will contribute to the following tasks:

- Preparation of samples from recycled and virgin polyolefin materials, followed by thermal gravimetric analysis (TGA) and infrared spectroscopy (IR) characterization.
- Analysis of experimental data using chemometric methods to identify patterns and correlations.
- Development and optimization of existing computational tools for degradation modeling and data interpretation.
- Investigation of the degradation mechanisms and reaction pathways of polyolefins under thermal stress conditions.

Your expertise:

- Background in thermal analysis and spectroscopy.
- Skills in software development or interest in learning it.
- Good analytical and problem-solving skills.
- Independent and structured workflow.
- Effective communication skills in both English and German.

CHASE your career

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

- Development of a data-driven predictive model to optimize processing parameters for polyolefin recycling and support circular economy initiatives.
- Acquisition of practical programming skills for chemists and polymer engineers to enhance their computational and data analysis capabilities.
- Work alongside academic professionals and industry partners building your expertise in polymer analytics, materials science and sustainability.
- Earn a competitive salary while making impactful contributions to innovative research. The expected monthly salary is EUR 2.658,00 on a basis of 40h/week.

For further information, please contact:

Gunnar Spiegel, Area Manager – Circular Process Streams
gunnar.spiegel@chasecenter.at

We look forward to receiving your application (cover letter, CV, academic certificates, employment references), including the reference number of the job posting, to the following email address: personal@chasecenter.at

By submitting your application documents, you expressly consent to the transmission of your application documents to the partners involved in CHASE.

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