



Ruben Halfwerk

Competencies and skills:

- Crystallization
- Microscopy
- Particle size analysis
- Population balance modelling

Languages

- Dutch (Native)
- English

Computer skills:

- Matlab®
- Microsoft Office
- Adobe Photoshop

Personal profile

As a process engineer, I have a practical approach and a good theoretical knowledge to solve problems. My interest lie in the field of water technology, energy technology and environmental issues. In my PhD I did research on eutectic freeze crystallization as a novel separation method for the recovery of lactose. My phd research both entailed experimental work in the laboratory as well as modeling of a population balance. During my postdoc I worked on multiple viability studies in the different themes of Wetsus among which Natural flocculants, Sulfur theme, Desalination & Concentrates and Sustainable carbon cycle.

Work experience

2024-Present	Scientific project manager Wetsus European Centre of Excellence for Sustainable Water Technology
2023-2024	Postdoctoral Researcher Wetsus European Centre of Excellence for Sustainable Water Technology
2018-2023	Phd Candidate on Eutectic Freeze crystallization Wageningen University and Research Wetsus European Centre of Excellence for Sustainable Water Technology
2017-2018	Advisor energy and process technology KWA Bedrijfsadviseurs
2014- 2016	Student-assistant University of twente Support of the staff members of the research group thermal engineering
Feb. – Jul. 2013	Graduation project at HoSt Energiesystemen, Enschede Research on the different applications of CO ₂ produced by a biogas upgrading facility
Feb. - Jul. 2012	Project at Cirmac BV, Apeldoorn Investigation of a biogas upgrading plant and P&ID module of AutoCad Plant3D
Feb. – Jul. 2011	Internship at Waterschap Groot Salland, Zwolle Investigation of the use of a thermal storage system at a sewage treatment plant

Followed courses:

Technical:

- Applied statistics
- Downstream Processing
- Introduction to R
- Particulate products
- Rheology course

Personal development:

- Business development course
- Communication styles
- Illustrations for scientific publications
- Presentation course
- Supervision course
- Talent course
- Scientific writing course

Hobbies/Interests:

- Climbing
- Travelling
- Nature and environment
- Nature photography
- Hiking

Education

2018-2023

Phd Candidate on Eutectic Freeze crystallization

Wageningen University and research
Wetsus European Centre of Excellence for Sustainable Water Technology

2013-2016

Master Mechanical Engineering

University of Twente, Enschede, Netherlands
Specialisation: Thermal Engineering

2009 - 2013

Bachelor Werktuigbouwkunde

Windesheim University of applied science,
Zwolle, Netherlands

2003 - 2009

VWO

Thomas a Kempis College, Zwolle, Netherlands

Publications

Halfwerk, R., Yntema, D., Contreras-Davila C., Sudmalis, D., Concentrating and drying microbial flocculants (EPS): a comparison between forward osmosis, freeze concentration, evaporation and freeze drying and their effects on flocculation. *To be submitted*

Halfwerk, R., Verdonk, L., Yntema, D., Van Spronsen, J., Van der Padt, A., 2023. Scaling up continuous eutectic freeze crystallization of lactose from whey permeate: A pilot plant study at sub-zero temperatures. *Food Res. Int.* 168, 112764.

Halfwerk, R., Yntema, D., Van Spronsen, J., & Van der Padt, A. (2023). Recovery of lactose from simulated delactosed whey permeate by a low-temperature crystallization process. *Journal of Dairy Science*, 106(9), 5958–5969.

Halfwerk, R., Yntema, D., Van Spronsen, J., Keesman, K., Van der Padt, A., 2023. Crystallization kinetics of lactose recovered at sub-zero temperatures: A population balance model combining mutarotation, nucleation and crystal growth. *J. Food Eng.* 111412.

Halfwerk, R., Yntema, D., Van Spronsen, J., Van der Padt, A., 2021. A sub-zero crystallization process for the recovery of lactose. *J. Food Eng.* 308, 110677.

Louwes, A.C., Halfwerk, R.B., Bramer, E.A., Brem, G., 2019. Experimental Study on Fast Pyrolysis of Raw and Torrefied Woody Biomass. *Energy Technol.* n/a, 1900799.