COST ACTION GREENERING – DATA COLLECTION

First name, Family Name: Marcus Petermann
Type (Academic or Industrial): Academic
Country: Germany
Leadership position in the COST: Co-leader of WG 3 on CA18224
Working Group in which you are involved: WG 3
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Laboratory/Company:
Chair of Particle Technology, Department of Mechanical Engineering, Ruhr-University Bochum, Germany

Laboratory/Company info:
We are working with high pressure to improve people's lives.

- We are fascinated by high pressure and are thus developing innovative technologies and resource-saving processes for designing better products.
- In order to be able to actively shape the future of our society, the training of young people as responsible engineers and scientists is of particular concern to us.
- A hallmark is that we pursue our goals in cooperation with national and international partners from science, industry and society.

Link to the home page of the Laboratory/Company:
www.fvt.rub.de

Fields of expertise:

- Supercritical Fluids Technology
- Electrochemical Carbon Dioxide Activation and Hydrogen Formation
- High Pressure Process Development
- Process Technology in Geological Surroundings
- Enhancement of Engineering Education

5 Main publications or patents:

- M. Petermann, Supercritical Fluid-assisted Sprays for Particle Generation, Elsevier, Journal of Supercritical Fluids, DOI 10.1016/j.supflu.2017.12.020, 2017
- O. Melchaeva, P. Voyame, V. C. Bassetto, M. Prokein, M. Renner, E. Weidner, M. Petermann, A. Battistel, Electrochemical Reduction of Protic Supercritical CO2 on Copper Electrodes, ChemSusChem 10.1002/cssc.201701205, 2017
- S. Marcos, M. Meinecke, A. Kilzer, M. Petermann, Study of L-L water-in-oil dispersions generated in SMX-Plus static mixers with dissolved CO_2 under high pressure, Elsevier, Journal of Supercritical Fluids, DOI: 10.1016/j.supflu.2017.05.026
- L. Wollenweber, S. Kareth, M. Petermann, Polymorphic Transition of Lipid Particles obtained with the PGSS Process for Pharmaceutical Applications, Elsevier, Journal of Supercritical Fluids, DOI: 10.1016/j.supflu.2017.06.009

- L. Huang, P. Noeres, M. Petermann, C. Doetsch, Experimental study on heat capacity of paraffin/water phase change emulsio, Elsevier, Energy Conversion and Management, 51, 1264–1269, 2010

Collaborations:
With various national and international scientific and industrial partners

Facilities:
- High pressure lab for thermo and fluid dynamic (density, surface tension, viscosity, solubility etc.) data up to 1000 bar
- High pressure spray plants for particle generation
- High performance computing for flows under high pressure
- PIV and other imaging systems to investigate sprays
- Pilot plants to produce products in the scale of some kilograms up to 100 kilograms