






Marcos Fallanza Torices

Dr. in Chemical and Process Engineering

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o ACADEMIC FORMATION

2009-2013 **PHD IN CHEMICAL ENGINEERING** "PhD Program in Chemical and Process Engineering". Universidad de Cantabria

2010-2011 **MASTER IN INTEGRATED MANAGEMENT OF QUALITY, ENVIRONMENTAL AND OCCUPATIONAL HAZARDS**. European Institute of Business studies

2009-2010 **MASTER IN CHEMICAL ENGINEERING** "Sustainable Production and Consumption". Universidad de Cantabria

2009-2010 **DEGREE IN INDUSTRIAL ENGINEERING. SPECIALITY IN CHEMICAL INDUSTRY**.
Universidad de Cantabria
Solvay S. A. Final Project Award

2004-2009 **DEGREE IN CHEMICAL ENGINEERING**. Universidad de Cantabria
Solvay S. A. Final Project Award

o EXPERIENCE

September 2013- Present **NEW PRODUCT AND TECHNOLOGY RESEARCHER**. GVS spa
(Marie Curie Grant) Main activities and responsibilities:

Working in the research Project: "Prototype artificial kidney device for continuous removal of uremic toxins".

- Development of a novel PVDF hydrophobic membrane used as venting in filters for the removal of Heparin.

September 2009- July 2013 **RESEARCHER**. Universidad de Cantabria

Main activities and responsibilities:

Working in the research Project: "Investigación y desarrollo de separaciones reactivas. Contribución al desarrollo tecnológico sostenible".

- Development of new separation processes of olefin/paraffin gas mixtures.
- Development of mathematical models for process simulation and optimization.
- Supervision of future researchers and master students.

November 2011- December 2011. RESEARCH INTERNSHIP. Universidad Autónoma de Madrid

Main activities and responsibilities:

- Screening of ionic liquids by COSMO-RS for propane/propylene separation.

February 2012 – April 2012. RESEARCH INTERNSHIP. Imperial College London

Main activities and responsibilities:

- Manufacturing and characterization of ceramic hollow fibers.
- Application of ceramic hollow fiber membrane contactors for the separation of propane/propylene gas mixtures by reactive absorption.

- **LANGUAGES**

Spanish: Native

English: Advanced

Italian: Advanced

- **PUBLICATIONS**

1. **Effect of liquid flow on the separation of propylene/propane mixtures with a gas/liquid membrane contactor using Ag⁺-RTIL solutions.** M. Fallanza, A. Ortiz, D. Gorri, I. Ortiz. Desalination and Water Treatment 27 (2011) pages 123-129.
2. **Improving the mass transfer rate in G-L membrane contactors with ionic liquids as absorption medium. Recovery of propylene.** M. Fallanza, A. Ortiz, D. Gorri, I. Ortiz. Journal of Membrane Science 385-386 (2011), pages. 217-225.
3. **Experimental study of the separation of propane/propylene mixtures by supported ionic liquid membranes containing Ag⁺-RTILs as carrier.** M. Fallanza, A. Ortiz, D. Gorri, I. Ortiz. Separation & Purification Technology 97 (2012), pages 83-89.
4. **Using membrane reactive absorption modelling to predict optimum process conditions in the separation of propane-propylene mixtures.** M. Fallanza, A. Ortiz, D. Gorri, I. Ortiz. Industrial & Engineering Chemistry Research 52 (2013), pages 8843-8855..
5. **Screening of RTILs for propane/propylene separation using COSMO-RS methodology.** M. Fallanza, A. Ortiz, D. Gorri, I. Ortiz. Chemical Engineering Journal 220 (2013), pages 284-293.
6. **Long term stability of PTFE and PVDF membrane contactors in the application of propylene/propane separation using AgNO₃ solution.** Rami Faiz, Marcos Fallanza, Somnuk Boributh, Ratana Jiratananon, Inmaculada Ortiz, K. Li. Chemical Engineering Science 94 (2013), pages 108-119.
7. **Olefin/paraffin separation using ceramic hollow fiber membrane contactors.** Rami Faiz, Marcos Fallanza, Inmaculada Ortiz, K. Li. Industrial & Engineering Chemistry Research 52 (2013), pages 7918-1929.
8. **Propylene and propane solubility in ionic liquids containing a silver salt.** M. Fallanza, A. Ortiz, D. Gorri, I. Ortiz. Journal of Chemical and Engineering Data DOI:10.1021/je301368x.
9. **Polymer-ionic liquid composite membranes for propane/propylene separation by facilitated transport.** M. Fallanza, A. Ortiz, D. Gorri, I. Ortiz. Journal of Membrane Science 444 (2013), pages 164-172.

- **CONTRIBUTIONS TO INTERNATIONAL CONFERENCES**

1. **Propylene/propane separation using RTIL containing silver salt in gas-liquid membrane contactors.** A. Ortiz, M. Fallanza, D. Gorri, I. Ortiz. Conference on Molten Salts and Ionic Liquids 2010 (EUCHEM2010). Bamberg (Germany). March 2010. Oral presentation.
2. **Intensification of separation processes of propylene/propane mixtures with a gas-liquid membrane contactor using Ag⁺-RTIL solution.** A. Ortiz, M. Fallanza, D. Gorri, I. Ortiz. VII Ibero-American Conference on Membrane Science and Technology (CITEM2010). Sintra (Portugal). April 2010. Oral presentation.

3. **Separation of gaseous olefin/paraffin mixtures by reactive absorption in a membrane contactor.** A. Ortiz, **M. Fallanza**, D. Gorri, I. Ortiz. EUROPEAN MEMBRANE SOCIETY – XXVII SUMMER SCHOOL. Bucharest (Romania). June 2010. Poster.
4. **Comparison of gas/liquid stirred tank and membrane contactors for the separation processes of propylene/propane mixtures using Ag+-RTIL solution.** A. Ortiz, **M. Fallanza**, D. Gorri, I. Ortiz. 19th International Congress of Chemical and Process Engineering (CHISA2010). Prague (Czech Republic). September 2010. Oral presentation.
5. **On the use of membrane contactors for the separation of gaseous mixtures of olefins and paraffins.** A. Ortiz, **M. Fallanza**, D. Gorri, I. Ortiz. 5th Conference on the Membrane Science and Technology (PERMEA2010). Tatranské Matliare (Slovakia). September 2010. Oral presentation.
6. **Separation of gaseous olefin/paraffin mixtures by reactive absorption in a membrane contactor.** A. Ortiz, **M. Fallanza**, D. Gorri, I. Ortiz. XIX INTERNATIONAL Conference on Chemical Reactors (CHEMREACTOR-19). Vienna (Austria). September 2010. Oral presentation.
7. **Solvent potential Improvements of the reactive ionic liquids for the olefin/paraffin gas mixture separation.** **M. Fallanza**, A. Ortiz, D. Gorri, I. Ortiz. 2nd Iberian Meeting on Ionic Liquids (2IMIL). Santiago de Compostela y La Coruña (Spain). July 2011. Oral presentation.
8. **The use of membrane contactors for the separation of paraffin/olefin mixtures by absorption into RTILs reactive media.** **M. Fallanza**, A. Ortiz, D. Gorri, I. Ortiz. International Congress on Membranes and Membrane Processes (ICOM2011). Amsterdam (The Netherlands). July 2011. Oral presentation.
9. **Advanced processes for the separation of olefin/paraffin mixtures. Integrated use of Ag+- RTIL reactive media and membrane contactors.** **M. Fallanza**, A. Ortiz, D. Gorri, I. Ortiz. 8th European Congress of Chemical Engineering (ECCE-8). Berlin (Germany). September 2011. Poster.
10. **New challenges on the use of Ag+-RTIL reactive media for the separation of olefin/paraffin gas mixtures.** **M. Fallanza**, A. Ortiz, D. Gorri, I. Ortiz. 1st International Conference on Ionic Liquids in Separation and Purification Technology (ILSEPT2011). Sitges (Spain). September 2011. Poster.
11. **On the use of supported ionic liquid membranes containing silver ions for the separation of propylene/propane gas mixtures.** A. Ortiz, **M. Fallanza**, D. Gorri, I. Ortiz. 1st International Conference on Ionic Liquids in Separation and Purification Technology (ILSEPT2011). Sitges (Spain). September 2011. Oral presentation.
12. **Innovative process design using membrane contactors for the separation of olefin/paraffin mixtures.** **M. Fallanza**, A. Ortiz, D. Gorri, I. Ortiz. 12th Mediterranean Congress of Chemical Engineering. Barcelona (Spain). November 2011. Oral presentation.
13. **New challenges in the separation of olefin/paraffin mixtures. Integrated use of RTIL and membrane contactors.** **M. Fallanza**, A. Ortiz, D. Gorri, I. Ortiz. International congress on Green process Engineering (GPE3). Kuala Lumpur (Malaysia). December 2011. Oral presentation.
14. **New research and developments in olefin/paraffin separation by absorption into RTILs reactive media in a membrane contactor.** **M. Fallanza**, A. Ortiz, D. Gorri, I. Ortiz. VIII Congreso Ibero-Americano en Ciencia y Tecnología de Membranas (CITEM 2012), Salta (Argentina). April 2012. Oral presentation.
15. **Propylene/propane separation by facilitated transport mechanism in mobile and fixed site carrier membranes.** A. Ortiz, **M. Fallanza**, D. Gorri, I. Ortiz. VIII Congreso Ibero-Americano en Ciencia y Tecnología de Membranas (CITEM 2012), Salta (Argentina). April 2012. Oral presentation.

16. **Innovative separation of propylene/propane gas mixtures. On the use of membrane contactor and pressure swing technique.** M. Fallanza, A. Ortiz, D. Gorri, I. Ortiz. International Congress of Chemical Engineering (ANQUE), Sevilla (Spain). June 2012. Oral presentation.
17. **Olefin/paraffin separation using ceramic hollow fiber membrane contactors.** R. Faiz, M. Fallanza, I. Ortiz, K. Li. (EUROMEMBRANE 2012). London (UK). September 2012. Poster.
18. **Comparison of reactive membranes containing ILs in the separation of gaseous olefin-paraffin mixtures.** M. Fallanza, A. Ortiz, D. Gorri, I. Ortiz. (EUROMEMBRANE 2012). London (UK). September 2012. Oral presentation.
19. **Novel membrane reactor for the separation of olefin/paraffin gas mixtures.** M. Fallanza, A. Ortiz, D. Gorri, I. Ortiz. 22nd International Symposium on Chemical Reaction Engineering (ISCRE22). Maastricht (The Netherlands) September 2012. Poster.
20. **Ag⁺-BmimBF₄ based polymer composite as facilitated transport membranes for propane/propylene separation.** M. Fallanza, A. Ortiz, D. Gorri, I. Ortiz. 5th Congress on Ionic Liquids (COIL5). Algarve (Portugal). April 2013. Poster.
21. **Polymer-Ionic Liquid composite as facilitated transport membranes for propane/propylene separation.** M. Fallanza, A. Ortiz, D. Gorri, I. Ortiz. 9th European Congress of Chemical Engineering (ECCE9). The Hague (The Netherlands). April 2013. Poster.
22. **The role of ionic liquid based selective membrane on the separation of olefin-paraffin mixtures.** M. Fallanza, A. Ortiz, D. Gorri, I. Ortiz. 9th World Congress of Chemical Engineering (WCCE9). Seoul (Korea). August 2013. Oral presentation.
23. **New challenges in membrane technology for gas olefin/paraffin separation.** M. Fallanza, A. Ortiz, D. Gorri, I. Ortiz. XXXIV Reunión Bienal de la Real Sociedad de Química Española (BSQ 2013). Santander (SPAIN). September 2013. Poster.

○ OTHER COURSES

Process Intensification. Dr. Tom Van Gerven. Santander (Spain) April 2011

Energy for sustainable development. Prof. Inmaculada Ortiz and Prof. Juan José Rodríguez. Málaga (Spain) July 2010

Sustainable development and ecologic footprint. Prof. Pablo Arena. Santander (Spain). June 2010

Nanofiltration. An advanced membrane separation process. Prof. Bart Van der Bruggen. Santander (Spain). May 2010

Waste and waste treatment. Prof. Carlo Vandecasteele. Santander (Spain). April 2010

Separation processes for sustainable production. Prof. Joao Crespo. Santander (Spain). March 2010

Applications of activated carbons in catalytic processes. Prof. Juan José Rodríguez.. Santander (Spain). February 2010