

EDITORIAL – DISTILLATION AND ABSORPTION 2018

This special issue of Chemical Engineering Research and Design features selected papers from the international conference on Distillation & Absorption held in Florence on 16–19 September 2018. The conference was organised by AIDIC on behalf of the European Federation of Chemical Engineers (EFCE) and its Working Party on Fluid Separations. The first conference in this series took place in Brighton in the UK in 1960. The conferences are now held every 4 years, last in Friedrichshafen in 2014, and showcase the most recent and important developments in distillation and absorption technology.

At the heart of most chemical plants lie separation processes based on distillation and absorption. The Distillation & Absorption conferences provide a platform for showcasing innovative research and novel developments within these technologies, ranging from measurement of thermodynamic properties to intensified equipment design and operations. Distillation and absorption are used to produce both petroleum-based and bio-fuels; to treat most of our natural gas; and are a critical element in a host of processes making the chemicals and other products that we are all relying on as part of modern life. Our understanding of the behaviour of distillation and absorption processes is constantly improving, resulting in new methods of control, better process integration, more effective equipment, as well as novel process configurations for reactive, extractive and hybrid processes. As the equipment is generally large in scale, and heavy in energy usage, there are great incentives to introduce new and improved methods and equipment to increase the efficiency and sustainability of these operations.

The Distillation & Absorption 2018 conference covered all aspects of distillation and absorption and was arranged around nine major themes:

1. Basic data and fundamental principles
2. Carbon capture and absorption
3. Conceptual process design and life cycle analysis
4. Modelling and simulation
5. Control, operation, troubleshooting and manufacturing excellence
6. Reactive and hybrid processes
7. Emerging separations and technology
8. Equipment design
9. Energy efficiency and technology

A total of 153 contributions were featured during the three days, presented as either oral or poster contributions. All authors were invited to contribute extended versions of their conference contributions to this special issue. The efforts of the reviewers in processing all these manuscripts within the short time scale are greatly appreciated as it has been a difficult task to distill the submissions down to the ones featured here.

Finally, we would like to highlight the challenge for the future, in terms of an unprecedented need for technological innovation within separations based on distillation and absorption. The current level, although impressive, is still not sufficient, and real fundamental step changes will be required to meet future efficiency and sustainability demands – but we will let that be the focus of the Distillation & Absorption 2022 conference.

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