

CFD applied in the Trouble Shooting and Design of Reactors

Computational Fluid Dynamics has evolved over the years in dealing with complex multiphysics and flows. With the rapid advancement in computing power it has now become an accessible and affordable resource for troubleshooting in the petrochemical and refining industry to study problems with increasingly complex geometries.

This presentation focuses on the application of CFD as a tool for reactor troubleshooting and design. Success in problem solving relies on understanding the actual problem and making the right simplifications to develop a CFD model that is both tractable and useful. This will be illustrated via examples. These examples include single/multiphase flows in packed bed and bubble column reactors. Relevant issues related to reactor scale-up and design – advantages and limitations of CFD - will also be touched upon.