

AMCA31: Integrated design of the process and the control of supercritical extraction plants with re-circulation.

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Abstract

The automation of supercritical fluid extraction (SFE) plants with re-circulation shows a high complexity due to, negative effects of the re-circulation, the coupling between control loops and the strong no-linearity of the change in the state of the fluid.

The CARTIF (Centre for Automatics, Robotics and Technologies of Information and Manufacturing) has developed and tested three pilot plants obtaining experience and know-how on this matter.

When scaling-up this technology the necessity of applying integrated design and control of plants is strongly recommended, as well as the use of recycle compensator devices (RCD).

This paper shows and discusses basic aspects of the integrated design and it applies them to the optimization and scaling-up of a plant partially.