Defoaming in the Process Industry – Examples of successful practice

Stefan Hauke, Siemens, Frankfurt; Dr. Markus Kinzl, Siemens, Frankfurt; André Ohligschläger, Akzo Nobel, Frankfurt; Dr. Tim Rogalinski, Siemens, Frankfurt

Foaming is a phenomena in fluid separation processes (especially in rectification columns), which complicates or even hinders process control. In these cases defoaming is a necessity.

An introduction about foaming is given and common defoaming techniques are shown. Examples will show that defoaming is not a mystery and can be achieved with engineering skills.

Firstly the defoaming of an alkaline Carbon capture desorption process in pilot scale will be examined. The initially used defoaming agent was successfully tested in a laboratory environment, but showed poor results in the pilot plant. The reason had to do with the feeding position. Furthermore parts of the formulation accumulated in a reflux siphon at the top of the column. Lab scaled trials helped in gaining the necessary knowledge to initiate the right mitigations.

Secondly the industrial-scaled defoaming in a demonomerization process of a polymer suspension will be presented. Within the scope of a capacity increase the monomer concentration of the polymer suspension should be decreased to improve the product quality. The existing stripping column was optimized and a pre-demonomizer with a gassing stirrer was added. In the demonomizer vessel a mechanical defoamer was used reducing the amount of defoaming agent in the process.