Modeling and Optimization of catalyst decomposition of Oxo process

김형동, 이태용*, 김영섭[1], 윤창한[1], 이상구[2]
한국과학기술원; [1]한화환경연구소; [2]한화석유화학
(tylee@kaist.ac.kr*)

The oxo process refers to the catalyzed conversion of olefin, carbon monoxide and hydrogen to butyraldehyde(normal or iso form). Among two forms of isomers, the normal form is commercially preferred because the valuable 2−ethylhexanol is only made of normal form. To increase regioselectivity for normal form TPPTS(triphenylphosphinetrisulfonate) is added and normal/iso ratio is up to 12:1.

On operation of real process the TPPTS is poisoned or leaked from the reactor and it brings regioselectivity and reaction rate lower. As a result, it necessitates frequent replacement of catalyst and leads to high production cost.

The goal of this study is setting up the model of oxo process of propylene and finding the optimal operation condition that is reducing the cost of butyraldehyde production.