

ABSTRACT

REACTOR WITH IMPROVED RESISTANCE TO FOULING

5 The present disclosure relates to a single shell open interstage reactor
("SSOI"). The SSOI comprises a first reaction stage, an interstage heat exchanger, an
open interstage region, and a second reaction stage. The SSOI may be configured for
upflow or downflow operation. Further, the open interstage region of the SSOI may
comprise a supplemental oxidant feed. When the open interstage region comprises a
10 supplemental oxidant feed, the SSOI may further comprise a supplemental oxidant
mixing assembly. Processes for producing acrylic acid through the oxidation of
propylene are also disclosed.

FIG. 8