

PERFORMANCE PREDICTION OF RISER TERMINATION DEVICES USING BARRACUDA

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In fluidized bed reactors, one of the locations where attrition is significant is cyclones. One way to reduce the attrition in cyclones is to reduce the amount of catalyst going into the cyclones. This is achieved by separating the catalyst particles from the combined gas solid flow before the stream enters the cyclones. Using a riser flow along with a riser terminator, some of the catalyst particles can be separated from gas stream. In this work, we will discuss how Barracuda has been used at The Dow Chemical Company to investigate two riser termination devices for separating catalyst particles from gas phase. The two types of riser terminators simulated are (1) flat disk and (2) slots-elbow, as shown below in Figure 1. The results indicate that the slots-elbow type terminator has an overall separation efficiency of more than 95% whereas the disk terminator has approximately 80% efficiency.

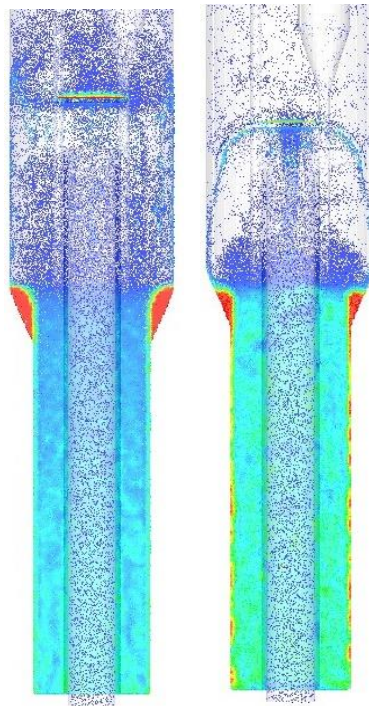


Figure 1. Particles colored by volume fractions in the two types of riser termination devices