

# **MASS TRANSFER ENHANCEMENT IN FLUIDIZED BEDS**

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## **ABSTRACT**

An experimental investigation has been carried out to study the enhancement in mass transfer, by inserting twisted tape promoter in a fluidized bed at the entry region. The effects of particle diameter and geometric parameters of twisted tape pitch, length and width on mass transfer and momentum transfer are studied. The experiments conducted for three particle diameters with thirty-three lengths, three widths and ninety-nine pitches of the twisted tape promoter over the Reynolds number range of 5,657 – 25,340. The obtained results compared with the smooth tube data to assess the improvement in mass transfer. Mass and momentum transfer correlations developed as a function of pitch, length and width of the twisted tape promoter and diameter of the particles. Correlation for mass transfer performance index as a function of Reynolds number developed.

**KEY WORDS:** Mass transfer performance index, twisted tape promoter, entry region, fluidized-bed