

Axisymmetric radiation intensity model for annular reactors

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Abstract

Cylindrical lamps are usually equipped in the tubular UV reactor to offer UV radiation. This paper describes the axisymmetric characteristics of UV radiation from the cylindrical UV lamp. Axisymmetric lamp emission models are developed in a two-dimensional axisymmetric space for the line source, the superficial source and the volumetric source. The present axisymmetric lamp emission models are easy to understand and of simple mathematical expressions. The experimental data in literature is used to validate the present axisymmetric lamp emission models. Good agreements have been obtained between the experimental data and the computations. A comparison show that the present models obtain the identical results as previous models.

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