Static mixers: Mechanisms, applications, and characterization methods - A review

Submitted by Thierry Lemenand on Mon, 03/23/2015 - 14:40

Titre
Static mixers: Mechanisms, applications, and characterization methods - A review

Type de publication
Article de revue

Auteur
Ghanem, Akram [1], Lemenand, Thierry [2], Della Valle, Dominique [3], Peerhossaini, Hassan [4]

Éditeur
Elsevier

Type
Article scientifique dans une revue à comité de lecture

Année
2014

Langue
Anglais

Date
Jan-02-2014

Numéro
2

Pagination
205-228

Volume
92

Titre de la revue
Chemical Engineering Research and Design

ISSN
0263-8762

Mots-clés
Mixing assessment [5], Multifunctional heat exchanger/reactor [6], Process intensification Passive mixing [7], Static Mixer [8]

Résumé en anglais
Static mixers and multifunctional heat exchangers/reactors (MHE/R) are qualified as efficient receptacles for pro-cesses including physical or chemical transformations accompanied by heat transfer due to their high productivityand reduced energy expenditures. The present work reviews recent conceptual and technological innovations inpassive static mixers and continuous in-line reactors. Current industrial applications are discussed from a processintensification perspective, focusing on mixing and mass transfer performance. Typical experimental techniquesemployed to characterize and quantify the mixing process are explored. The work is complemented by a review of mixing fundamentals, knowledge of which allows the development of theoretical models crucial for the analysis of experimental data, like the chemical probe mixing assessment method. Considering the development of continuous flow equipment in numerous processes, advances in this field will certainly be of increasing interest to the scientific and industrial communities.

URL de la notice

DOI

Lien vers le document

Titre abrégé
Chemical Engineering Research and Design

Liens

Publié sur Okina (http://okina.univ-angers.fr)