

Electrified structured catalysts for the intensification of thermochemical hydrogen production processes

In this work the process intensification of Hydrogen production catalytic reactors is proposed by using an innovative structured catalyst which combines two fundamental features (i) a high thermal conductivity, that aim to flatten the thermal profile inside the reactor, and (ii) a direct catalyst heating that allow to perform a direct electricity-driven process. In this way, the energy is directly supplied to the catalyst carrier that simultaneously acted as heating medium and support for the catalyst. In this way, the sense of the heat flux has been inverted with respect to the conventional reformers overcoming the very well-known thermal fluxes limitations.