Special Issue

Hydrogen Production via Steam Reforming from Biomass and Waste Derivates

Message from the Guest Editors

The processes for producing hydrogen from biomass and waste are attracting increasingly more attention, with thermochemical routes being those with the best perspectives for their full-scale development. The catalytic steam reforming of biomass and waste-derived products provides an opportunity for producing hydrogen from renewable and sustainable sources. Two types of processes may be considered as direct and indirect routes. On the one hand, direct routes pursue the conversion of biomass and waste into hydrogen in an integrated process, with pyrolysis and in-line reforming being the ones most representative of this strategy. On the other hand, in the indirect approach, an intermediate product (bio-oil) is produced and transported to centralized units for its reforming. Despite the research conducted on these processes in recent years, the studies published are clearly of a preliminary nature, and further research is required for their scaling-up. It should be noted that key aspects of the catalytic reforming step remain unclear, such as the optimization of the reforming catalysts, knowledge of catalyst deactivation, and reactor design and modeling.

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