

Green Chemistry with Microwave-synthesized Nanoporous Catalysts

박상언*

인하대학교 화학과

(separk@inha.ac.kr*)

Green catalysis is becoming crucial in every chemical reactions which require reactions more atomic efficient, reducing wastes, saving energies, and mild reaction condition with high activities and selectivities. Such green catalysis can be achieved through the functionalization with catalytically active species onto nanoporous materials.

Catalytic nanostructured materials of both microporous and mesoporous materials were proven to follow supramolecular templating mechanisms which were accelerated by the microwave synthesis. Nanoporous materials with the pore size of several nanometers or less can be effectively fabricated under the microwave irradiation. With the irradiation, several transition metals can be incorporated efficiently in the nanoporous material and active organic moieties can also be accommodated with high dispersion. Functionalization of nanoporous materials has been obtained through metal incorporation, grafting using tethering group, or direct synthesis with functional groups which were also assisted by microwave to get highly functionalized nanoporous materials.