Determination of pore sizes from H_2 adsorption isotherm data at 77K

윤민호, 김영채*
한양대학교
(yckimy@hanyang.ac.kr*)

There are greatly informative methods in gas adsorption in determining characters of porous materials such as surface areas, pore size distributions, statistical film thickness. As a general rule, pore sizes were determined on nitrogen adsorption isotherm. Recently, however, it is useful to use H_2 adsorption data. H_2 can access some very small micropores that are not accessible to N_2 at low temperatures due to size restrictions. Hydrogen and Nitrogen adsorption isotherms were measured at 77K using a Sievert's volumetric apparatus made by ourselves. The experiments were tested on reference NaY zeolites. The pore size distributions were calculated by density functional theory to adsorption isotherms. This method is proposed developing capacities of materials for hydrogen storage.