Effect of texture on hydrogen storage at room temperature for MgO- and Ni-templated carbons were investigated focusing on dimension and curvature of carbon hexagonal net. MgO- and Ni-templated samples were synthesized by firing citrate precursors of magnesium and nickel for 1 h in argon gas atmosphere, followed by removing MgO and Ni by 1 M hydrochloric acid solution, respectively. Firing temperature for MgO-templated samples were 500, 700 and 900 ^{o}C and that for Ni-templated sample was 500 ^{o}C. Structural characterization was carried out by N_2 gas adsorption/desorption, X-ray diffraction, Raman and FT-IR spectroscopy, and TEM observation. Hydrogen adsorption/desorption curves at 25 ^{o}C up to 4.5 MPa were measured by volumetric method using PCT apparatus.

Dimension of carbon hexagonal net of MgO-templated samples increased with the increase of firing temperature, but Ni-templated sample had a larger one than that of MgO-templated sample fired at 900 ^{o}C in spite of its lower firing temperature of 500 ^{o}C.

MgO-templated samples fired at 500, 700, and 900 ^{o}C stored 0, 0.18, and 0.21 wt% of hydrogen, respectively and the capacity of Ni-templated sample fired at 500 ^{o}C was almost 0 wt%. For MgO-templated samples fired at 900 and 700 ^{o}C, specific surface area being 1900 and 1020 $m^2\ g^{-1}$, the hydrogen storage capacity per unit surface area were 1.2×10^{-4} and 1.8×10^{-4} wt% m^{-2} g. These results indicated that hydrogen storage capacity at room temperature is influenced by not only surface area but also by texture and there is a suitable texture for hydrogen adsorption.