

Relationship Between Exothermic Heat and Carbon Contents of Pitch-based Carbon Fiber

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Pitch-based carbon fiber was prepared from naphtha cracking bottom oil by reforming, melt spinning, stabilization, and carbonization. Carbonization was carried out from 700 to 1500°C by changing the conditions. Carbon contents and crystallinities of carbon fibers were investigated.

Relationship between exothermic heat and crystallinity was investigated. The carbon contents and crystallinities were 86.8~93.8 wt% and 33.7~40.1%, respectively, which were linearly increased as the increase of carbonization temperature. The exothermic heat of fiber tows was measured in a short time using specially designed apparatus. The exothermic heat was between 800~2000°C, linearly increased as increasing the carbonization temperature, and which suggested the indirect relationship between carbonization temperature and crystallinity of pitch base carbon fibers.