Kinetics of boride layer growth and tensile behaviour in borided commercial-purity nickel was investigated. Boriding was carried out in a solid medium consisting of Ekabor-II powders at 1173, 1223 and 1273 K for periods of 3, 5 and 8 h. Scanning electron microscopy (SEM) and optical microscopy showed column morphology in the boride layer. X-ray diffraction (XRD) analyses indicated that the boride layer formed on the surface consisted mainly of Ni2B, with precipitates of Ni6Si2B. A parabolic relationship between layer thickness and processing temperature was observed. The obtained results showed that although the boride layer thickness increased with increasing boriding temperature and time, boriding parameters had no significant effect on the hardness of the boride layer or the matrix. Tensile properties were negatively influenced by the boriding treatment; both yield and tensile strength values decreased due to the presence of the hard yet brittle surface coating. In addition, the growth kinetics of boride layers was also analysed. The results showed a nearly parabolic relationship between the layer thickness and the process temperature, with activation energy of 47.3 kJ mol\(^{-1}\).