

SURFACE TREATMENTS OF GaSb AND RELATED MATERIALS FOR THE PROCESSING OF MID-INFRARED SEMICONDUCTOR DEVICES

E. PAPIS-POLAKOWSKA

Institute of Electron Technology, al. Lotników 32/46, 02-668 Warszawa, Poland

Received January 30, 2006; accepted June 23, 2006; published July 18, 2006

ABSTRACT

Various chemical treatments of GaSb and related compounds has been studied with the aim to develop procedures of polishing of GaSb substrates, preparation of their surfaces for deposition of metal and dielectric films, for liquid phase epitaxial growth, and finally fabrication of passivating coatings on surfaces of GaSb and its alloys. A broad spectrum of surface characterisation techniques has been used to analyse morphology of the surface and its chemical composition after each of the treatments applied. This allowed us to elaborate a complete set of technological procedures necessary for the fabrication of the efficient GaSb-based photo- and light emitting diodes operating in the mid-infrared wavelength range.