Chemical preparation of GaAs (100), (110), (111) and (112) substrates with HF:H_2O_2: Citric acid:H_2O

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Chemical preparation of GaAs (100), (110), (111) and (112) substrates was performed by HF:H_2O_2: Citric acid: H_2O solution. The removed layer thickness was evaluated as a function of the constituent concentrations, temperature and the etching time. HF concentration was varied from 0.065 to 5.2 mol, H_2O_2 was varied from 1.28 to 3.23 mol and citric acid ($C_6H_8O_7.H_2O$) concentration was maintained constant (1.3 mol) to obtain the etching rate. The temperature of etching was varied of room temperature to 75 °C for the same constituent concentration. The rate of etching and the surface quality were controlled by high resolution optical microscope.

Keywords: surface quality, chemical preparation, rate of etching