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The invention relates to processes for gallium and arsenic recovery from waste formed after epitaxial growth of semiconductor layers.

The process for gallium and arsenic recovery from waste formed after epitaxial growth of semiconductor layers of the type  $A_3B_5$  includes dissolution of waste in the 33% nitric acid solution in hydrochloric acid, modification of the pH solution from 0,5...1,5 up to 3,0...4,5 by addition of a base solution with further precipitation of the gallium arsenate. The obtained precipitate is filtered, washed with deionized water and dried at the temperature of 90...120°C during 60 min; then it is decomposed into gallium oxide and arsenic oxide. The arsenic is reduced with carbon from oxide at the temperature of 680...780°C, and gallium is reduced into a graphite container at the temperature of 750...860°C in hydrogen flux.

The gallium arsenate precipitate may also be obtained by additional dissolution, up to saturation, of the GaAs plates in the acid solution obtained at the waste dissolution, and the saturated solution is stored during 22 days at the room temperature for spontaneous precipitation of arsenate, afterwards the solution with arsenate is heated up to 60°C, in vacuum, during 2...4 hours.

Claims: 2