Production of 2-pyrrolidone from γ-aminobutyric acid (GABA) by High pressure reactor

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γ-aminobutyric acid (GABA) is produced primarily by the enzyme glutamate decarboxylase (GAD), which catalysis the irreversible decarboxylation of L-glutamate to GABA. Nylon 4 (Polyamide 4) is a polymer of γ-aminobutyric acid (GABA) and is synthesized from 2-pyrrolidone, a cyclic compound of GABA, by ring-opening polymerization. From conventional studies it is known that GABA can cyclize rather easily, for example in boiling toluene, catalyzed by silica using a soxhlet set-up for water removal. In this work, we studied production of 2-pyrrolidone from GABA in without water removal by high pressure reactor. When GABA was heated in methanol and acetonitrile present, conversion yield of 2-pyrrolidone was 98.5%.