

ABSTRACT

A process for stably and safely producing acetic acid without increasing an internal pressure of a distillation column is provided. The process comprises (1) a carbonylation reaction step for allowing methanol to react with carbon monoxide; (2) a flash step for separating the reaction mixture into a volatile phase and a less-volatile phase; (3) a first distillation step for separating the volatile phase into a first overhead and a crude acetic acid stream rich in acetic acid; and (4) a separation step for separating at least acetaldehyde from the first overhead. The separation step (4) comprises (6) a second distillation step for distilling the first overhead while controlling an internal pressure of a distillation column provided with a pressure control unit 68 to form a second overhead rich in acetaldehyde and methyl iodide and a bottom or lower stream, and (7) an extraction step for extracting acetaldehyde from the second overhead to form an extract rich in acetaldehyde and a raffinate rich in methyl iodide.

