ACETIC ACID PLANT FROM METHANOL AND
CARBON MONOXIDE BY CARBONILATION PROCESS
(MONSANTO)

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Abstract

Acetic acid can be made from methanol and carbon monoxide. This plant uses a process of carbonylation in the presence of rhodium complexes \([\text{Rh (CO)}_2\text{I}_2]^-\) catalysts and has a capacity of 130303 kg/day. Location of new factories in East Kalimantan, Bontang selected based on the availability of raw materials, water and ease of transportation. Acetic acid has a characteristic liquid shape and colorless.

Acetic acid manufacturing process starting from the step of the reaction in the reactor with the addition of a catalyst and an iodide promoter that operate at 175°C temperature conditions, pressure of 30 atm. The next step is the separation of the catalyst in the flasher and the last step of the purification of acetic acid in a distillation column which includes the Light End Column, Dehydration Column and Heavy Ends Column for acetic acid produced products reached 97% purity.

The factory is planned to operate semi-continuously for 330 days/year and 24 hours/day. Raw material methanol required for 126201.958 kg/day and carbon monoxide required for 236776.656 kg/day with supporting materials are rhodium complexes \([\text{Rh (CO)}_2\text{I}_2]^-\) catalysts and promoters HI. Water utility needs are sanitation, cooling water and boiler feed water which amounted to 57.6 m³/day, 13360.426 m³/day, and 176.770 m³/day.

Key words : Acetic acid, carbon monoxide, methanol, monsanto.