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(54) Title: INTEGRATED PROCESS FOR THE PRODUCTION OF VINYL ACETATE FROM ACETIC ACID VIA ACETALDEHYDE

(57) Abstract: This invention provides an integrated multistep economical process for the production of vinyl acetate monomer (VAM) from acetic acid in the vapor phase. First, acetic acid is selectively hydrogenated over a hydrogenating catalyst composition to form acetaldehyde. Acetaldehyde so formed can be converted to ethylidene diacetate via reaction with acetic anhydride. In a subsequent step so formed ethylidene diacetate is thermally decomposed to form VAM and acetic acid. Alternatively, acetaldehyde formed in the first step can selectively be reacted with ketene to form VAM. In an embodiment of this invention reaction of acetic acid and hydrogen over platinum and iron supported on silica selectively produces acetaldehyde in a vapor phase at a temperature of about 300°C, which is selectively hydrogenated over platinum supported catalyst to form ethanol and dehydrated over NAFION catalyst to form ethylene at a temperature of about 185°C, which is mixed with molecular oxygen, acetic acid and reacted over a palladium/gold/potassium catalyst supported on titania to form VAM at a temperature of about 150°C to 170°C.

