

## Catalytic CO<sub>2</sub> Hydrogenation to Produce Monomers for Greener Resin Production

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A Japanese multi-national engineering company, IHI Corporation, and a Singapore Research Institute, Institute of Chemical Engineering and Sciences (ICES), A\*STAR, are extensively conducting a collaborative R&D project to develop a novel catalytic process to convert CO<sub>2</sub> to monomer such as lower olefins to produce resins in much more greener way than the conventional naphtha based process. In the R&D project, catalyst synthesis, characterization, and activity testing were continuously conducted to improve the catalyst performance. Precisely controlled nano-structured Fe based catalysts were found to be effective for the CO<sub>2</sub> hydrogenation and to produce C<sub>2</sub> to C<sub>4</sub> light olefins selectively. Very stable performance over several 100 hours has been achieved in the laboratory by using H<sub>2</sub> and CO<sub>2</sub> as a feed gas. Our efforts to improve the performance of the catalysts and the reaction system will be widely presented in the presentation together with the aim of future deployment.