

## Conversion of butadiene monoxide to VEC Using Ru(II) Phosphine Complexes as Catalysts

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The chemical fixation of CO<sub>2</sub> onto organic compounds such as epoxides, which affords cyclic carbonates, is an important process, as it allows the transformation of harmful waste such as CO<sub>2</sub> into useful raw materials for engineering plastics, cosmetics, polar solvents and biomedical applications. Among these cyclic carbonates, vinyl ethylene carbonate (VEC), which shows promising performance of effective film-forming, has been investigated as an important electrolyte additive in lithium ion batteries. Although preparation of VEC had been reported in the literatures, more convenient and efficient synthetic methods to the VEC are still in need to be developed. Herein, we reported a highly efficient catalyst system of tris (triphenylphosphine)ruthenium(II) dichloride and tetrabutylammonium bromide (TBAB) for the synthesis of vinyl ethylene carbonate from carbon dioxide and butadiene monoxide under mild conditions. High selectivity and high yield of vinyl ethylene carbonate was achieved. Meanwhile a mechanism for the reaction was proposed.