

Synthesis of VEC *via* Coupling Reaction Catalyzed by Ruthenium Phosphine Complexes

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The idea of converting naturally abundant CO₂ into useful chemicals has been a great challenge for the last two decades. One promising methodology is the chemical fixation of CO₂ into organic compounds such as epoxides, which affords cyclic carbonates, is an important process, as it allows the transformation of CO₂ into useful raw materials for engineering plastics, polar solvents and biomedical applications. Among these cyclic carbonates, vinyl ethylene carbonate (VEC) 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 ruthenium catalyzed coupling reaction for the synthesis of VEC from carbon dioxide and butadiene monoxide (BMO) under mild conditions. High selectivity and high yield of VEC was achieved. A plausible reaction mechanism has been proposed for the catalytic action. Acknowledgment This work was supported by the Korea Research Foundation Grant funded by the Korean Government (KRF-2010-0016445).