Study of CO_2 utilization by using ionic CO_2 solution and its reuse

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It is known that CO2 is the most common greenhouse gas, and most of the CO2 gas is emitted due to human activities. The methods for reducing CO2 emission can be divided into physical, chemical, and biochemical methods. Among the physical and chemical methods, carbon capture and storage (CCS) is a well-known reducing technology; however, it has many disadvantages, one of which is the required storage area. In general, CCS requires capture and storage parts. In this study, we propose a method of reusing the absorbed CO2 either in nature or in industry. The emitted CO2 is changed to ionic CO2 by a conversion solution. It is then made into a carbonate by combining the conversion solution and metal ions at normal temperature and pressure. The resulting carbonate was analyzed using FT-IR and XRD. Further, we certified the possibility of reusing the conversion solution by repeating the same process twice.