

Carbon Dioxide Utilization Based on Wet Absorption Technology using Industrial Wastewater

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Since Industrial Revolution, it is well known that the concentration of the CO₂ in the atmosphere is gradually increasing and this can cause climate change caused by global warming. Due to the fact, many technologies regarding carbon dioxide capture and utilization have been developed. One of the way to reuse carbon dioxide is to convert CO₂ into metal carbonate salts which can be used for various industrial fields including cement making, steel making, paper making or pharmaceutical industries and so on. These are so-called inorganic carbonation technology. One of the main problem is that it is hard to secure metal ion supplying source. In this research, we proposed a novel way to reuse CO₂ by based on wet absorption technology using aqueous absorbent and industrial wastewater containing high concentrations of metal ions such as calcium, magnesium and sodium. This wastewater was obtained from refined salt production facility. Using this, CO₂ capture, utilization and wastewater treatment can be achieved at the same time. The characteristics of carbon dioxide absorption was shown. Purity, crystal structure, shape of the crystals were suggested by using TGA, XRD and SEM.