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## Lithium Recovery from Untapped Resources

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Lithium has been used as raw material of rechargeable battery for mobile electric appliances, glass, aluminum alloy. Especially, lithium ion battery is used as an energy source for electric vehicle, due to its high electric capacity. By such situation, the demand of lithium is significantly increased, and the new resources are eager to develop. Lithium is commonly contained in the various brines, and salt lake brine is the most important resource. Additionally, there is a deal of interest in the lithium resource dissolved in seawater. For the recovery of lithium from seawater, overcome of selective recovery of lithium is necessary against the large amounts of cations such as sodium, magnesium and so on.

From the view point of lithium recovery, the characteristics and current achievements of lithium recovery technology, such as the performance of lithium adsorbent of spinel type manganese dioxide ( $\lambda$ - $MnO_2$ ) with high lithium selectivity and effective granulation methods, as well as a lithium recovery process using adsorption columns are summarized. And the application for practical recovery of lithium from seawater using pilot plant is described (1). In addition, as an attractive application of the process we developed, the recovery process of lithium from brine of Salar de Uyuni in Bolivia using adsorption technology is outlined (2).



Pilot plant of lithium recovery from seawater(left) and benchmark plant of lithium recovery from salt lake brine (right)

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