

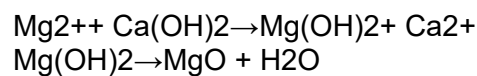
## Simulation for burning process of magnesia clinker

Tatsuro Izumi

UBE INDUSTRIES, LTD.

UBE INDUSTRIES, LTD. and our group companies have many business fields that handle high temperature processes. Some of them are "Cement clinker manufacturing", "Electric furnace steel manufacturing", "Magnesia clinker (Dead burned magnesia) manufacturing from seawater", "Silicon nitride synthesized from SiCl<sub>4</sub> and NH<sub>3</sub>", etc.

Our group company, UBE MATERIAL INDUSTRIES, LTD. (UMT) manufactures magnesia clinker (MgO) by "seawater-lime process". This unique process is a reaction of lime milk and seawater, and MgO is one of the main products of UMT.



Sediment of Mg(OH)<sub>2</sub> separated by thickener is dried and burned at 1,500 to 2,000 degrees Celsius in a rotary kiln, but behavior of inside of rotary kiln is not clear. To optimize the removal method of minor component derived from seawater, we studied the operation analysis of rotary kiln by KilnSimu.

In past studies of cement clinker manufacturing process, we worked for the upgrading of KilnSimu. So we applied this technology to the study of MgO manufacturing. At first, we modelled the burning process, and tuned up the simulation parameters to match the actual plant data. Next, we simulated the removal methods of minor component, and characterized the mechanism and amount of effect.

In the future, we plan to optimize the operation condition of MgO rotary kiln.