

Simulation Analysis for Clinker Manufacturing Process and Support of Resolving Production Technical Issues in UBE-Group

TATSURO IZUMI

UBE INDUSTRIES, LTD., Japan

ABSTRACT

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 manufacturing from sea water”, “Silicon nitride synthesized from Silicon tetra-Chloride and Ammonia”, etc.

Above all, application of Fact/ChemApp/KilnSimu interface plays an important role in developing a study of “low-temperature burning system using mineralizer ”in cement clinker manufacturing process. KilnSimu models the chemical reactions and phase changes in a rotary kiln, as well as their thermal and energy balances. First of all, we examined the low temperature clinker burning test by using a mini-plant. Next, we tuned up the simulation parameters to match the results of experiment. At last, we evaluated an effect of energy reduction and an influence on kinetic constants by using mineralizer in the actual plant model.

Also, some other industrial application of FactSage and its family products in UBE-Group are briefly discussed.