

## **Application of DEM Simulation to drum type agitation mill for appropriate comminution**

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A computer simulation using discrete element method (DEM) was applied to a comminution/detachment process of waste printed circuit boards (PCBs). Recycling of PCBs is an important subject not only from the treatment of waste but also from the recovery of valuable metals. However, direct simulation method to investigate a comminution/detachment process of PCBs has not yet been established.

This study prepared simulant PCBs on which some capacitors were solder-mounted and used for the comminution test to compare with simulation results. In order to calculate the behavior and comminution/detachment process of PCBs, a PCB was constructed many fine particles and particle based rigid body model was also included to the simulation. This simulation could directly represent the behavior of PCBs in the drum typed agitation mill. Simulation results successfully corresponded to comminution experimental results using drum type mill with agitator.