



The
University
Of
Sheffield.

Faculty
Of
Engineering.

Sheffield Engineering Scholarships

PhD full-fees scholarship for China Scholarships Council scholars from Zhejiang University

Project: *Mechanism of exploding agents in tablet*

The purpose of this research is to study the effect of the disintegrant material on the dissolution of food tablets. The research will combine experimental work and Discrete Element Method (DEM) simulation to gain more understanding on the role played by the disintegrant in the dissolution of the food tablets. Results obtained experimentally would be compared with those obtained from simulation. The following variables would be investigated: the amount of the disintegrant in the tablet, the effect of tablet porosity/ packing on the dissolution by varying the compression load and compression speed and disintegrant spatial distribution in the tablet. The effect of the above variables on the tablet strength and resistant to attrition would be investigated. The tablet strength would be measured using the diametric compression. The attrition strength would be measured by friability tests. The dissolution properties of the tablets would be measured, and the method used for this analysis would depend on the nature of the disintegrant. If the disintegrant is electrically conductive, then electrical conductimetry would be used to determine the dissolution rate and profiles of the tablets. High speed video imaging would be used to monitor the interaction between disintegrant particles with water. The evolution of the particle size of the disintegrant as it absorbs water would be monitored. Information obtained from this experiment would be useful in DEM simulation.

Supervisor: Professor A.D. Salman (Chemical and Process Engineering)

Scholarship: Sheffield Engineering scholarships cover the full cost of PhD registration fees for 3 years

Eligibility: Sheffield Engineering scholarships are available to students who secure a CSC scholarship. Applicants must meet the University of Sheffield English Language requirements, full details of which are available at:

http://www.shef.ac.uk/postgraduate/info/notlive_dfiohmihsm.html

Applications: Please send a CV together with a brief covering letter to Professor Geraint Jewell, Faculty of Engineering Director of Research and Innovation at g.jewell@sheffield.ac.uk by **15th March 2009**. Include the title of the project in your covering letter and any English language test results.