



Technical Article

## **Hopper Studies at Cambridge University, England: A Review of Ten Years Progress**

Edited by on 2. Jan. 1981

[Published in bulk solids handling, Vol. 1 \(1981\) No. 1](#)

This paper presents a detailed review of a decade of original research undertaken within the Department of Chemical Engineering at the University of Cambridge concentrating primarily on four main aspects of hopper design. The group has made substantial contributions to knowledge in the areas of stress distributions in hoppers discharge rates through orifices velocity distribution and in the effects of interstitial pressure gradients.

### **1. Introduction**

The behaviour of bulk solids in hoppers has been an active topic of research in the Department of Chemical Engineering at the University of Cambridge for the last ten years. During this period there have been six research students working in this field within the department and their work is discussed below. In addition to this, the regulations for the Chemical Engineering Tripos require that final year students undertake research projects. Such projects are expected to take about a fifth of the student's time for two terms and are normally undertaken by a pair of students. Projects are of necessity modest in scope and rarely produce results which are worth publishing in their own right. However, it is found that these projects are invaluable for testing out new ideas and for supplementing the work of research students. One of the objectives of this paper is to give such projects

the publicity they deserve. The date of submission of the thesis or project report is given after the student's name. Where the results have been published references are given in square brackets...