IV

FLUID FLOW TRANSPORT AND APPLICATIONS

This part of the book is concerned with Fluid Flow Transport and Applications. It contains six chapters and each serves a unique purpose in an attempt to treat nearly all the important aspects of fluid transport applications. From a practical point of view, all systems and plants move liquids and gases from one point to another; hence, the student and/or practicing engineer is concerned with several key topics: determining power requirements, designing and sizing pumps and blowers, reviewing the various valves and fittings, gauging and measuring the flow-rate of fluid streams, and estimating costs. The part concludes with Chapters 21 and 22 on academic applications and real-world applications, respectively both chapters of which are essentially extensions of material presented earlier. All receive some measure of treatment in the six chapters contained in this part.

It should be noted that the handling and flow of either gases or liquids is much simpler, cheaper, and less troublesome than solids. Consequently, the engineer attempts to transport most quantities in the form of a gas or liquid whenever possible. It is also important to note that throughout this book, the word "fluid" will always be used to include both liquids and gases. In many operations, a solid is handled in a finely subdivided state so that it stays in suspension in a fluid. Such two-phase mixtures behave in many respects like fluids (see Chapter 16) and are often called "fluidized" solids. This latter topic is treated in Part V, Chapter 26.

Fluid Flow for the Practicing Chemical Engineer. By J. Patrick Abulencia and Louis Theodore