

# IMPLEMENTATION OF SI UNITS IN CHEMICAL ENGINEERING EDUCATION

GORDON R. YOUNGQUIST  
*Clarkson College of Technology*  
*Potsdam, New York 13676*

**R**ECENT LEGISLATION passed by Congress and signed by President Ford provides for the voluntary conversion to the SI system of units in the United States. No time limit was set for the changeover, but considerable progress has already been made, especially in industries which are international.

The American Institute of Chemical Engineers has established a Metrication Committee to examine the problems of conversion to metric practice by the chemical industries. In January 1976, on behalf of this Committee, a questionnaire was sent to all U.S. Chemical Engineering Departments on the AIChE Faculties list to assess implementation of SI in chemical engineering education in the United States. 92 departments have responded and the results of the survey are summarized below. Of those responding:

- 30% indicated that their engineering schools have established policy with respect to use of SI in its courses, while an additional 15% will establish such policy in the near future.
- Where such engineering school policy exists, the policy is typically weak: the use of SI in courses is urged, but at the instructor's option. Only 3 schools indicated that some use of SI was required in all engineering courses.
- 30% of engineering schools have made some concerted efforts to introduce SI, usually by distribution of pamphlets, but also through short courses, films, seminars, and committees to respond to questions and provide other assistance.
- 49% of the ChE Departments have made some special efforts to introduce SI to their curricula, usually in at least one course (e.g., material and energy balances) and along with other systems of measurements.
  - 5 departments require some use of SI in all their courses (none use it exclusively).
  - 28% urge (but don't require) their faculty to use SI where possible.
  - 13% have distributed pamphlets or other written information on SI.
  - 26% intend to make stronger efforts in the future especially as more textbooks in SI become available.
  - 64% introduce SI along with other systems of measurement at the option of instructors.

—68% said that at least some of its faculty write up their research and are conducting current research using SI.

—54% indicated that their support staff (secretaries, technicians, e.g.) no working knowledge of SI, with 37% having some working knowledge.

—51% indicated that their present seniors have a working knowledge of SI, an additional 15% a limited knowledge.

- 40% of the ChE departments thought it appropriate for accreditation groups to encourage implementation of SI, 60% did not (some quite vehemently!).
- 10% have encountered or foresaw no problems in implementing SI; the remainder cited as problems:
  - 60%, lack of texts and reference materials in SI.
  - 24%, faculty resistance.
  - 23%, faculty unfamiliar with SI.
  - 16%, lack of resource materials which explain system.
  - 15%, lack of AIChE guidance.
  - 36%, lack of national legal requirement.
  - 4%, apathy.
  - 10%, SI a lousy system.
- 17% favored immediate changeover to SI for all AIChE publications, 68% did not.
- 73% favored a phased changeover to SI for AIChE publications, 14% did not.
- 52% favored encouragement from AIChE to publishers to provide textbooks and reference materials in SI, 22% did not, and a few favored dual notation.
- 67% favored publication of an AIChE guide to metric practice, 17% did not. (The cost of such guide was questioned several times.)

## SOME COMMENTS

*It is evident that the transition to SI is well under way in a large number of ChE departments in the U.S., although some resistance to the SI system still exists. Most departments seem to view SI as yet another system of measurement that chemical engineers must be able to deal with, and feel that chemical engineers will need to be conversant in a variety of systems for some years to come. The major deterrent to increased use of SI in ChE education appears to be the lack of textbooks and reference materials which make use of SI. Several who responded questioned whether industrial demands for employees with SI training existed. In this respect it should be noted that some companies (Exxon, for example) have essentially completed their conversion to SI, while others have not yet addressed the problem. □*