

CHAPTER 41

TABLE OF CHEMICAL HAZARDS

Using the table: recognition .	evaluation .	control_____	41-1
Format of the table: listings	definitions	references_____	41-2
Table of chemical hazards_____			41-4

The safety engineer is required to make judgments on the degree of hazard associated with chemical exposures. It is his duty, therefore, to obtain information on the fire and health hazards of these chemicals and use it to evaluate and, where necessary, control the exposures.

This chapter tabulates the basic physical constants of many common industrial chemicals. New chemicals are being introduced and new data on the properties of existing chemicals are constantly being published and revised. For this reason, the safety engineer should also consult the most up-to-date revisions of the references referred to for each chemical.

Using the Table Recognition

The material in this chapter can be used to determine the degree of fire and health hazards in using a new chemical. For example, the safety engineer can compare evaporation rates, vapor volumes, and flash points and choose a solvent that combines the lowest volatility and fire and health hazards consistent with process needs.

Then too, this tabulation can serve as a means of gaining familiarity with the properties of chemicals—liquids, dusts, gases,

vapors, and solids—encountered in the working environment.

Evaluation

Also in this chapter is the fundamental information needed for a preliminary evaluation of a chemical hazard. The more complex problems require the services of an industrial hygienist.

The following is an example in which the degree of health hazard resulting from a solvent exposure is to be evaluated using data from the Table in this chapter.

Trichloroethylene is being used in a metal-finishing workroom 20 by 10 by 20 ft. In an 8-hr workday, 5 gal of the solvent is lost through evaporation. There are two air changes per hour. Is there a potential health hazard?

Solution Assuming there is complete mixing of the trichloroethylene throughout the workroom, then

$$\text{Volume of room} = 20 \times 10 \times 20 = 4,000 \text{ cu ft}$$

This chapter was revised by Grant Shibley, based upon reviews by selected members of the National Safety Council.