ating the quality and safety of water supplies in industry

It is highly advisable that the documented justification for the various limits or values be consulted for detailed information concerning mode of action and effect of exposure to a particular toxic material Such information is given in References at the end of this chapter

Thus far, the fundamentals of industrial toxicology, toxicity, routes of entry, modes of action, classification of harmful effects, intensity of action, contributions from experimental toxicology, and hygienic air quality standards have been reviewed

The safety professional may well ask how *he can apply this knowledge to his work* A hazardous chemicals information sheet could be prepared to elicit toxicological information from the supplier The information in this questionnaire would be useful to the medical, purchasing, managerial, engineering, and safety departments in setting guidelines for safe use of these materials in industry This information would be very helpful in the event of an emergency

Catalog of Toxic Substances

No attempt has been made to give detailed directions for handling each substance in the following list, since such directions would be repetitious Instead, enough information is given to alert the safety professional to the primary hazard This information should be used in conjunction with the procedures for recognition, evaluation, and control of health hazards discussed in the main body of this Manual

Some of the signs of excessive exposure to toxic substances are indicated in the following list, but these should not be taken as conclusive evidence, particularly in cases of possible chronic exposure To definitely implicate a specific substance requires evidence of both the degree and length of exposure to it and the absence of other causative agents

The following selection is a representative sampling of the toxic substances encountered in industry, but it does not describe each of the substances for which threshold limit values have been established The *Documentation of Threshold Limit Values,* published by the American Conference of Governmental Industrial Hygienists, should be consulted for this type of detailed information Flammable and explosive hazards of many of the following substances are also given in Chapter 39, "Chemical Hazards"

A

Acetaldehyde (acetic aldehyde) is a flammable liquid with a low flash point and a boiling point just at normal room temperature It is, consequently, a fire hazard comparable to ether in intensity If kept in any large quantity, it should be stored with the precautions appropriate for ether

Acetaldehyde processes should be well enclosed and isolated because of its intense irritant properties It affects primarily the skin and the upper respiratory passages because of its relatively high solubility in water A high concentration may produce sudden death from spasm of the throat Lower concentrations produce coughing and inflammation of the nose, throat, and eyes

Paraldehyde, the solid form to which acetaldehyde polymerizes, has long been used in medicine as a narcotic and soporific In this form, its irritant properties are greatly reduced and the narcotic effect can be observed Paraldehyde can cause chronic poisoning involving fatty degeneration of the liver and cardiac muscles, psychic disturbances, and irritation and edema of the respiratory system

Acetanilide is more likely to be seen as a medication, used as an analgesic and antipyretic, than as an industrial material It is an aromatic amine and can affect the blood hemoglobin and so interfere with respiration if it is absorbed in large quantity, particularly if the exposure is chronic Those suffering from chronic overdoses are apt to show severe anemia, reduced white blood cell counts, progressive weakness, and severe headaches

Acetic acid, glacial (concentrated), can readily penetrate the skin, producing blisters, dermatitis, and ulcers Even at room temperature, the vapor is highly irritating to the eyes, nose, and throat If acetic acid is swallowed, it produces a burning taste in the mouth and esophagus, followed by pain in the stomach which may extend rapidly over