

ELEMENTS OF INDUSTRIAL TOXICOLOGY

Mercury and its compounds are not nearly so widely used as are lead compounds and consequently mercury poisoning is not so well known nor so often seen as is lead poisoning.

Mercury metal is a liquid at room temperature with a vapor pressure high enough to produce poisoning if a considerable area of the metal surface is exposed to air. If mercury gets into the cracks of a wood or tile floor or into the pores of a concrete floor, the contamination may become so great as to necessitate replacement or sealing of the floor before the plant or laboratory can be safely used again. Although it cannot be removed, mercury can be sealed into such floors by covering them completely with an asphalt mastic, preferably after the vapor pressure of the mercury has been reduced by flooding the whole area with a lime sulfur spray.

To prevent such inconvenience, metallic mercury should be handled over impervious tables or containers with the surfaces depressed and arranged to drain to a central point. Spilled mercury can then be collected and returned to stock.

A number of volatile mercury compounds are used in seed disinfection. Examples are ethyl mercury chloride and phosphate and the corresponding phenyl mercury compounds. These materials are highly toxic. When used without adequate enclosure and dust control, they can rapidly produce severe mercurial intoxication. These seed-treating compounds are also strong primary skin irritants and will cause itching, burning, and blistering on direct contact. Such irritations heal slowly.

The type of mercury intoxication common to industry is characterized by a tremor of the hands, irritation of the mucous membranes of the mouth, excessive flow of saliva, and changes in the personality. Poisoning by one of the volatile compounds may be more rapid so that personality changes are not so likely to be seen.

Inhalation of mercury vapor, usually in very high concentrations, may produce metal fume fever, which may disappear with no other apparent symptoms, or may be followed by a pneumonitis or other symptoms of mercurialism.

The ordinary toxic dust respirator does not protect against intoxication by metallic mercury or by the volatile seed-treating

compounds, since they are in the form of vapor rather than dust. A gas mask offers some protection, but if enclosure and local exhaust are not possible, the only effective protection is a supplied air respirator.

See Industrial Data Sheet 203 and *Hygienic Guide*.

Mesityl oxide is a high-boiling, unsaturated ketone which is thought to be somewhat more toxic than the ketones of lower molecular weights.

Metal hydrides (primary types) are compounds of hydrogen and the alkali metals sodium, potassium, lithium, magnesium, calcium, and strontium. Information on the health hazards of metal hydrides is limited. Since they react with water to form caustic hydroxides, they are irritating to the eyes, skin, and mucous membranes. They also release a large amount of heat on reaction with the moisture of the skin.

See Industrial Data Sheet 462 and *Hygienic Guide*.

Methanol (methyl alcohol) poisoning is usually produced by swallowing the liquid or inhaling high concentrations of vapor in an enclosed place such as a tank. The signs of poisoning include headache, nausea, vomiting, violent abdominal pains, aimless and erratic movements, dilated pupils, sometimes delirium, and such eye symptoms as pain, tenderness on pressure, and occasionally blindness.

Direct action of the liquid or the vapor on the skin and mucous membranes may produce an irritation and inflammation.

One of the peculiarities of methanol poisoning is its exceptionally severe action on the optic nerve. About one-half of all the serious cases of methanol poisoning result in some impairment of vision, which is usually permanent and may vary from dimness or blind spots scattered through the visual field to total blindness.

See Industrial Data Sheet 407 and *Hygienic Guide*.

Methoxychlor (2,2-di(p-methoxyphenyl)-1,1,1-trichloroethane) is a synthetic insecticide which is closely related to DDT in its action. It is, however, about 1/8 to 1/10 as toxic as DDT. Consequently, the hazard from inhalation of the dust or mist of sprays of this insecticide is remote.

Methoxychlor is not absorbed through