

38—Industrial Toxicology

DDT can be absorbed by ingestion, inhalation, or application of an oil solution directly to the skin. Rabbits have been acutely poisoned by a 5 percent oil solution of DDT applied to the skin.

In the practical application of DDT as an insecticide, experience has been good. Reported cases of human poisoning have resulted from accidents rather than from proper application of the material. Contacts with the oil solution should be avoided, and with power sprayers it is advisable to use an approved respirator if considerable spray kicks back into the operator's breathing zone.

Decaborane—see Boron hydrides.

Derris is a powdered plant root, which contains rotenone as its main active ingredient. See Rotenone.

Diacetone alcohol is a flammable solvent. Exposure of laboratory animals to the saturated vapor, 2100 ppm, resulted in irritation of the eyes, running of the nose, excitement, and then sleepiness in about 20 minutes. There are no cases of human poisoning on record.

This solvent is liable to be a fire hazard because the commercial material often contains acetone as an impurity in concentration great enough to substantially lower the flash point.

Diatomaceous earth is a form of silica in the amorphous state. Although it apparently is not as active in producing silicosis as its high content of free silica would lead one to expect, there have been a number of reports of silicosis from handling the material where the dust concentrations were high (see Chapter 37, "Industrial Hygiene").

If the temperature is raised to about 1000 F (538 C) in a calcining operation, the material readily changes to cristobalite, which is a vigorous producer of silicosis. It should be handled with the same precautions against dust used with other forms of free silica.

Diborane—see Boron hydrides.

1,2-Dibromoethane (ethylene dibromide) is used mainly as a constituent of fumigation mixtures and of "leaded" gasoline. To a

limited extent, it has also been used as a fire extinguishing agent and solvent. As an industrial hazard, it is toxic by ingestion, by skin contact, and by inhalation.

On experimental animals it produces local irritation of the eyes and skin if applied directly, but produces severe burns and is absorbed through the skin if it is confined in contact. On ingestion and inhalation, it injures the lungs, liver, and kidneys and depresses the central nervous system.

Dichlorobenzene occurs as the three isomers ortho, meta, and para. All are flammable liquids with low vapor pressures, but they are sufficiently volatile to produce toxic symptoms if handled in the open in a confined area. They are used primarily as insecticides, as intermediates in the dye industry, and to some extent as solvents. Development of cataract and of liver symptoms from chronic exposure to these compounds in industry has been reported.

Dichlorodifluoromethane (Refrigerant 12) is about as physiologically inert a substance as one could find. It has no real toxic effects until the concentration becomes high enough to reduce the oxygen content of the atmosphere. Since it is a refrigerant gas normally under fairly high pressure, it will freeze tissue upon which it is directed. It may also decompose if brought into contact with an open flame or a red-hot surface and produce irritating and toxic decomposition products.

1,1-Dichloroethane (ethyldene chloride) was formerly used as an inhalation anesthetic but has been completely displaced by safer materials. It is still used to some extent as a solvent in industry. Its acute effect is that of an anesthetic and narcotic, and chronically it characteristically produces symptoms and signs of digestive and central nervous system irritations.

1,2-Dichloroethane (ethylene dichloride) is a commonly used, low-boiling solvent. Qualitatively, its effects are very similar to those of 1,1-dichloroethane.

1,2-Dichloroethylene (acetylene dichloride) is a widely used solvent of low fire hazard and