

Elements of Industrial Toxicology

similar to the better known "zinc chills" or "zinc shakes" caused by inhalation of freshly formed zinc oxide fumes

Heavy exposure to magnesium oxide is irritating to the eyes and nose and throat, but the material is not a severe primary irritant

Finely powdered magnesium is a fire hazard, and severe injuries and deaths have occurred from ignition of powdered magnesium in the clothing of workers who have done hand grinding on magnesium alloys. Also, fires and dust explosions have occurred in exhaust systems carrying powdered magnesium from grinding operations

Exhaust systems should go as directly as possible to a dust separator which will remove the magnesium powder and trap it under water without permitting it to get into the main exhaust system. The wet powder from these dust collectors and turning-chips that are wet with coolant should be removed from the plant as soon as they are taken from the collecting equipment

Workers in magnesium-grinding operations should be provided with and required to wear flame-resistant clothing

Massive pieces of magnesium in the form of castings or machined work are not a severe fire hazard because they are hard to ignite. When once ignited, however, the metal in the massive forms will burn vigorously

See Industrial Data Sheet 426 and *Hygienic Guide*

Malathion (O,O-dimethyl dithiophosphate of diethyl mercaptosuccinate) is one of the organic phosphate insecticides. Like the others of its class, its principal toxic action on warm-blooded animals is its inhibition of acetylcholinesterase. It seems to be one of the least toxic of this type of insecticide. Inhalation of 5 ppm (56 mg/cu m) by dogs and guinea pigs produced no effects except tears and a slight decrease in the plasma cholinesterase activity

Maleic anhydride is an irritant to the skin and mucous membranes, especially in the presence of moisture. Maleic anhydride does not usually cause an immediate burning sensation upon contact with the skin, especially if the skin is dry. If not removed by washing, it will cause reddening and, occasionally, blistering, if the exposure is prolonged and severe. Maleic anhydride dust and vapors

are exceedingly irritating and severe acute exposures are not voluntarily tolerated. Upon inhalation of dust or vapors, coughing and sneezing, together with burning and irritation of the throat may occur. The eyes are particularly sensitive to the dust and vapors. Maleic anhydride is not a serious industrial hazard provided workers are adequately instructed and effectively supervised in the proper handling of the chemical. Employees should be instructed to report any signs of irritation or burning of skin, eyes, or mucous membranes

Because maleic anhydride is a combustible solid having a flash point of 102 C, care must be exercised in handling and storage to keep it away from flame or sparks. Dust and the vapors from the molten product are also flammable

Manganese is found in a wide variety of minerals. The dioxide is its most common inorganic compound and is used as a chemical intermediate, enamel additive, and drier

The probability of contracting manganese poisoning is low, but the effects are severe—total disablement may result from a few months' exposure to high concentrations. This effect, however, is more likely to occur after prolonged and repeated exposures above 30 mg/cu m

The main hazard is usually from the inhalation of manganese dioxide, which may produce neurological lesions. The symptoms are many and are similar to Parkinson's syndrome. Symptoms include weakness, instability, difficulty in walking, immobility of facial expression, monotonous and intermittent speech, spasmodic laughter, and other grotesque signs. Exposures to finely divided dusts of manganese dioxide may produce pneumonitis

See Industrial Data Sheet 306 and *Hygienic Guide*

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