

38—Industrial Toxicology

inent or from the United States, although in both areas there have been several extensive investigations of this question

Teflon resins are available in two types the TFE resin (tetrafluoroethylene polymer) and the FEP resin (fluorinated ethylene-propylene polymer) Both are physiologically inert The products of pyrolysis of Teflon below 392 F are nonhazardous, but above this temperature, several fluorocarbon gases, hydrogen fluoride, and a sublimate are formed These do not appear to be toxicologically significant until about 482 F

At 716 F, small amounts of toxic gases, which have caused death by pulmonary edema in experimental animals, are evolved The only known difficulty in human exposure has occurred when Teflon resins are processed at 644–725 F At these temperatures, a condition somewhat like metal fume fever is exhibited, but recovery is rapid, usually in 48 hours or less All operations that can lead to the pyrolysis of Teflon resins should therefore be prohibited, particularly smoking where the tobacco may be contaminated with Teflon dusts

Tellurium is found as a trace element in various minerals and is used in small amounts in a number of industries, especially the glass industry It increases the machinability of some metals and improves the toughness of rubber hose and cable and the hardness of lead

In man, the absorption of even a very small amount of tellurium in any form is immediately followed by the production of a garlicky odor in the breath and the sweat, due to the elimination of minute amounts of tellurium as methyl telluride This elimination is likely to continue for weeks or months

Hydrogen telluride, a poison gas similar to arsine and hydrogen selenide, destroys the red corpuscles It is believed to be more toxic than either, but is not so often encountered in industry

In an investigation of workmen in a foundry who had been exposed to 0.1 to 1.0 mg of tellurium per 10 cu m of air, a large percentage of the men showed the garlic odor of the breath and sweat and also complained of dryness of the mouth and a metallic taste

Men with the highest exposures, who also had the highest rate of tellurium excretion, showed drowsiness starting in the early afternoon and later becoming more severe Complaints of appetite loss and nausea at these relatively low exposures were less common

TEPP (tetraethyl pyrophosphate) is the active ingredient in an insecticide mixture that goes by the same name Since the estimated fatal dose for a human being is approximately 600 mg taken orally, it is in the class of highly toxic materials

In its use, toxic dust respirators or supplied air respirators and protective clothing which will completely prevent skin contact should be worn Anyone with a severe headache or a feeling of tightness or constriction in the chest should leave or be removed immediately

1,1,2,2-Tetrabromoethane (acetylene tetrabromide) is a high-boiling, heavy, yellowish liquid used as an indicator liquid in gages and for separating minerals by density Its low vapor pressure at room temperature makes it safer to handle than might be expected The LD₅₀ for rabbits and guinea pigs is about 0.4 gm per kg of body weight Exposure to the vapor causes respiratory irritation and damage of the liver appearing a few days after a single acute exposure

1,1,2,2-Tetrachloroethane (acetylene tetrachloride) is an excellent solvent for a number of paints and lacquers It is also a very dangerous compound since inhalation of it at a concentration that is barely perceptible by odor can lead to extensive liver damage

Tetrachloroethylene (perchloroethylene) is a chlorinated solvent used primarily for degreasing It is similar in its properties to trichloroethylene except that its boiling point is slightly above that of water so that boiling degreasers containing it automatically keep themselves dry without loss of solvent

Its most important toxic effect is depression of the central nervous system In experimental exposures of human subjects, those exposed to concentrations greater than 200 ppm promptly suffered central nervous system symptoms, while those exposed to about 100 ppm did not