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Gasoline varies in composition, but is commonly a petroleum fraction containing hexanes, heptanes, and octanes with varying amounts of unsaturated, cyclic, and aromatic compounds A cracked gasoline may contain 50 percent or more compounds other than the saturated aliphatic hydrocarbons

If the gasoline consists of saturated and unsaturated aliphatic compounds and cyclic compounds, it will be a narcotic and an irritant to the mucous membranes The main toxic action will be depression of the central nervous system with symptoms of giddiness, dizziness, hilarity, and headache not unlike an alcoholic intoxication Mild symptoms of this sort are apt to be produced by relatively short exposures to concentrations of 500 to 750 ppm of this kind of gasoline In addition, mild blood changes, neuritis, and neurasthenias have been reported

If the gasoline is made from a crude oil containing 40 percent or more of aromatics or is enriched in aromatics by the refining process, the toxicity may be substantially higher

The tetraethyl lead content of gasoline is low enough to make any lead exposures from ordinary handling and dispensing of gasoline in garages and filling stations negligible Tetraethyl lead can, however, present a toxic hazard by inhalation and absorption through the skin when entry is made into tanks and other confined spaces that have contained leaded gasoline See **Lead.**

Germanium, one of the less common metals which have some industrial uses, is employed particularly in the electronics industry for diodes and transistors It appears to be a relatively inert metal and has not been reported as the cause of any occupational diseases in man

In animal experiments, the LD_{50} for rats by intraperitoneal injection was about 750 mg/kg of body weight when germanium oxide was buffered to near the neutral point Food containing 1000 ppm or water containing 100 ppm was fatal to half of the young rats Repeated sublethal doses produced some tolerance to a subsequent lethal dose, but the tolerance declined substantially in six weeks

Graphite has been repeatedly reported to produce a pneumoconiosis in workers in mines, mills, and electrode plants Several investigators have done autopsies on men who died from graphite pneumoconiosis and found their lungs to contain fibrous masses with central necrosis, in addition to emphysema and general fibrosis around the blood vessels and lymph channels The typical X-ray patterns start with a miliary "snow-storm" effect and progress to a pattern of sharply defined masses of various sizes in each lobe.

H

Halogenated hydrocarbons—see also the individual compounds—as used in industry are potent anesthetics and more or less toxic On exposure to high concentrations the most common symptoms are nausea, vomiting, diarrhea, headache, and unconsciousness

If unconsciousness occurs, it may be followed by sudden death due to fibrillation of the heart or respiratory failure, as has frequently been observed in the medical use of these compounds After exposure to amounts which are large but not sufficient to produce sudden death, there may be severe kidney and liver damage eventually leading to death

The most common halogenated hydrocarbons, arranged in the order of increasingly acute toxicity, are vinyl chloride, methyl chloride, ethyl chloride, ethylene dichloride, ethyl bromide, carbon tetrachloride, dichloromethane, methyl chloroform, trichloroethylene, methyl bromide, tetrachloroethylene, pentachloroethane, and tetrachloroethane Tetrachloroethane is about 40 times as strong a narcotic as vinyl chloride

It should be noted that this is the increasing order of their ability to produce narcosis, which is *not* the same as the order of their chronic toxicity, the more common problem in industry An acute exposure to the more narcotic of these compounds may result in unconsciousness for surprisingly long periods, with eventual recovery Unconsciousness for eight weeks has been reported in a case of methyl bromide poisoning.

Tetrachloroethane, the most toxic of the common chlorinated hydrocarbons, has no particular warning signs or symptoms and can produce extremely severe poisonings from continuous exposure to fairly low concentrations Carbon tetrachloride, methyl chloride,