A. Toxic Chemicals

(1) Amiton, $C_{10}H_{24}NO_3PS$
CAS No. 78-53-5
HS No. 29.31.00.90
NIOSH/RTECS No. TF 0525000
Merck 502

Synonyms: S-[-2-(Diethylamino)ethyl] phosphorothoic acid O,O-diethyl ester; O,O-diethyl S-2-diethylaminoethylphosphorothiolate; tetram; chipman 6200, Chipman R-6199, Citram, Metramak, Metramac.

Physical properties: MW: 269; $bp_{0.2}$: 110°C; n_o^{27} 1.4655, liquid

Synthesis: Prepared by the thermal rearrangement of O,O-diethyl-O-2-diethylaminoethyl phosphorothionate [T.R. Fukato and E.M. Stafford, JACS, 79, 6083(1957); R. Ghosh and J.F. Newman, Chem. and Ind., 118(1955)].

Toxicology: A deadly poison LD_{50} 0.5 mg/kg (oral, human) and 5.4 mg/kg (oral/rat), cholinesterase inhibitor.

Uses: It was used as an insecticide but withdrawn commercially because of its great toxicity. It was also sold as amiton oxalate ($C_{10}H_{24}NO_3PS.C_2H_2O_4$, MW: 359.42, mp:98-99°, CAS No. 3734-97-2, NIOSH: TF 1400000, LD_{50} 3 mg/kg (rat).

Suppliers: There are no commercial suppliers at this time.

Literature survey: Only 6 papers have appeared in the Chemical Abstract literature since 1985 (32 in total since 1967). The distribution is UK(2), PRC (2), Germany (1), and Russia (1).