

The dielectric fluid LIHT-T1, a 60:40 mixture of tetrachlorobenzyltoluene and trichlorobenzene, is used in electrical transformers. The acute inhalation toxicity of its thermal decomposition products was assessed in rats. Askarel-T1, a 60:40 mixture of 6 chlorobiphenyl and trichlorobenzene, and a paraffinic mineral oil were also tested for comparison purposes. Animals (6 per group) were also exposed for one hour to atmospheres resulting from heating the fluids to 500 degrees and 700 degrees C. They were followed for 14 days after exposure.

No mortality occurred in the LIHT-T1 group. Only slight and transient respiratory discomfort was noticed during exposure. The effects on growth were virtually nil, expected for some slight initial retardation during the first two days post-exposure.

The effects induced by Askarel-T1 were similar, if a little more pronounced. Initial retardation of growth lasted longer, respiratory impairment was more important, and small lesions consisting of hemorrhagic areas were observed. The difference would not seem to be attributable to a greater degree of thermal degradation, since both Askarel-T1 and LIHT-T1 were only moderately decomposed.

In contrast to these chlorinated fluids, the Mineral oil decomposed strongly at both 500 degrees C and 700 degrees C. All exposed rats died after short periods of great respiratory distress.

Their lungs exhibited extensive lesions, with hemorrhages and oedema. Carboxyhemoglobinemia in the exposed rats was high, but not sufficiently to be the only cause of death, especially in the test at 500 degrees C.