A. ERPG–3: 5000 ppm (11,000 mg/m$^3$)

The maximum concentration below which it is believed nearly all individuals could be exposed for up to 1 hr without experiencing or developing life-threatening health effects is 5000 ppm. Generally, experiments with humans and animals have shown the acute toxicity of butadiene to be of low order. For example, the 4-hr LC$_{50}$ in rats was reported as 130,000 ppm. At higher concentrations, central nervous system depression observed in animal studies would be expected in humans.

B. ERPG–2: 500 ppm (1100 mg/m$^3$)

The maximum airborne concentration below which it is believed nearly all individuals could be exposed for up to 1 hr without experiencing irreversible or other serious adverse health effects or symptoms that could impair one’s ability to take protective action is 500 ppm. Healthy male subjects showed mild eye irritation and blurry vision when exposed to 2000 ppm of Butadiene. Fetotoxicity was observed in developmental toxicity studies in rats at 1000 ppm and in mice at 200 ppm. However, this was likely due to repeated, daily (6 hrs/day) exposures and effects to the dams. These effects are not expected in a single one-hour exposure. Based on epidemiological studies in workers a one hour exposure below 549 ppm is not expected to pose a significant (1/10,000) carcinogenic risk to humans.

C. ERPG–1: 10 ppm (22 mg/m$^3$)

The maximum airborne concentration below which it is believed nearly all individuals could be exposed for up to 1 hr without experiencing any effects other than odor perception is 10 ppm. At this level, the odor is detectable (0.2 to 1.1 ppm) but is considered an aromatic odor and not objectionable until higher concentrations are reached.

VIII. REFERENCES


22. **European Centre for Ecotoxicology and Toxicology of Chemicals:** 1,3-Butadiene Criteria Document (ECETOC Special Report No. 4.) 1992.


24. **Himmelstein, M.W., M.J. Turner, B. Asgharian, and J.A. Bond:** Comparison of Blood Concentrations of 1,3-Butadiene and Butadiene Epoxides in Mice and Rats Exposed to 1,3-Butadiene by Inhalation. *Carcinogenesis* 15:1479-1486 (1994).


