

RISK SPECIFIC DOSE ESTIMATES FOR 2,3,7,8-TCDDOVERVIEW

This report re-examines the scientific basis and methods used by the U.S. Environmental Protection Agency for estimating the cancer potency estimate for 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) (U.S. EPA, 1985). The object is to determine if the 1985 assessment should be modified in light of recent data and other plausible risk assessment methods.

This analysis utilizes two different approaches. One examines EPA's earlier analysis in terms of new data and recent reviews that offer scientific bases for re-assessing 2,3,7,8-TCDD cancer risks. The other involves comparing EPA's 1985 analysis with that of other regulatory agencies in this country and elsewhere. For the reasons developed below, the 1985 conclusion that the dose of 0.006 pg/kg/day associated with a upper limit increased cancer risk of one in a million may overstate the cancer risk to humans. Pending further analysis, a 0.1 pg/kg/day will be the dose associated with an upper limit 10^{-6} risk in future EPA cancer risk assessments for 2,3,7,8-TCDD.

New Data and Methods

Although the scientific literature is replete with studies on 2,3,7,8-TCDD, most quantitative discussion and debate on risk focuses on the interpretation and use of a small subset of animal and human studies. Laboratory studies conclusively establish a relationship between exposure to 2,3,7,8-TCDD and cancer in test animals. There is, however, considerable uncertainty and controversy about the