



# Sapphire News

## **The Sapphire Group Assisted in the Publication of a New Study on Dioxin and Cancer.**

J. A. Popp, E. Crouch, and E. E. McConnell. A Weight-of-Evidence Analysis of the Cancer Dose-Response Characteristics of 2,3,7,8-Tetrachlorodibenzodioxin (TCDD). *Toxicol Sci* 89 (2):361-369, 2006.

Cancer risk assessment for TCDD and other compounds must focus on the cancer dose-response relationship and corresponding potency for the range of human doses before it can have relevance to the human exposure environment. Major differences of opinion exist over whether the dose-response curve for TCDD and other dioxin congeners is non-linear (incorporating a threshold dose region below which tumors are unlikely to be elicited) or linear (implying that any exposure has a statistical likelihood of causing cancer). The World Health Organization and others strongly support a non-linear dose-response relationship for TCDD and cancer, whereas USEPA characterizes the dose-response function as linear. This review critically summarizes the available information on TCDD dose-response relationship for cancer utilizing a weight-of-evidence approach. This assessment concludes that the available data support a non-linear dose-response relationship as being most likely and appropriate for human cancer risk assessment, i.e. the evidence suggests that a biological threshold exists in the dose-response. While proof of a threshold is not absolute, and never can be, the level of certainty for TCDD is substantial because of the concordance of many lines of evidence and the consistency of repeated observations pointing to non-linearity.