

IM-94-10

**OREGON OCCUPATIONAL SAFETY AND HEALTH DIVISION
DEPARTMENT OF CONSUMER & BUSINESS SERVICES**

INDEXED MEMO

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SUBJECT Dioxin (TCDD) Information

AFFECTED CODES/DIRECTIVES: Air Contaminants, OAR 437-02-1910.1000(a)

(1) PURPOSE: To inform compliance officers of the OSHA National Office Memorandum concerning dioxin (TCDD).

(2) BACKGROUND: A. Description - 2, 3, 7, 8, Tetrachlorodibenzo-p-dioxin (TCDD) is one of a family of dioxins with marked toxicity, dependent upon the number and location of the chlorine atoms in their molecular structure.. TCDD is formed as a contaminant in the commercial synthesis of trichlorophenol, and has been found in the herbicide 2, 4, 5-T. Generally less toxic dioxins are formed in other polychlorinated derivatives of the chlorophenols. Additional information on TCDD can be provided by Dr. Dave Logan (ITS 523-7047), OSHA office of Technical Support.

B. Industrial Applications - Commercial chlorinated phenolic products are commonly used as slime-killing agents in paper pulp manufacture, and as stabilizers or fungicidal agents that are incorporated in a wide range of products including adhesives, water-based or oil-based paints, varnishes and lacquers, and paper and paper coatings. One such product is pentachlorophenol, a widely used wood preservative often contaminated with dioxins, or dioxin precursors of varying toxicity.

C. Animal Toxicity - TCDD is possibly the most potent small molecule toxin and teratogen known. It is a confirmed lung and liver carcinogen in rats, and is mutagenic in some strains of bacteria.

D. Human Toxicity - Long-term health effects due to several large acute doses of TCDD, or repeated small intermittent or chronic exposures are not known. The most commonly recognized toxic effect of TCDD in humans is chloracne, a severe skin disease characterized by multiple eruptions of pustules on extensive portions of the body which persist months or years. Onset of clinical lesions is usually two to four

weeks after initial contact, but may be several months. Other recognized toxic effects of TCDD exposure include: porphyria cutanea tarda (PCT), a disorder of heme pigment metabolism characterized by skin sensitivity and accumulation of porphyrin pigments in the liver; peripheral neuropathy with symptoms of pain and weakness in the lower extremities; elevated serum cholesterol and triglyceride values.

(3) ACTION:

Compliance officers should be aware and evaluate the potential hazards from dioxins when inspecting establishments manufacturing or using substances which may contain TCDD. Two firms in Oregon have been listed as manufacturers of herbicides that may contain TCDD. Charles H. Lily Co. (produced 2, 4, 5-T and Silvex 1977-1978), 7737 N.E. Killingsworth, Portland OR, EPA Est. No. 802-OR-01, and Webfoot Fertilizer Co., Inc. (produced Silvex 1977-1978), 201 SE Washington, Portland OR, EPA Est. No. 79230R01.

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