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2,4,5-Trichlorophenoxyacetic acid

2,4,5-Trichlorophenoxyacetic acid (2,4,5-T), a synthetic [auxin](#), is a chlorophenoxy acetic acid [herbicide](#) used to [defoliate](#) broad-leaved plants. It was developed in the late 1940s and was widely used in the agricultural industry until being phased out, starting in the late 1970s due to toxicity concerns. [Agent Orange](#), a defoliant used by the U.S. in the Vietnam War, was equal parts 2,4,5-T and 2,4-D.

2,4,5-T itself is of only moderate toxicity, with oral LD₅₀ of 389 mg/kg in mice and 500 mg/kg in rats. However, the manufacturing process for 2,4,5-T contaminates this chemical with trace amounts of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD). TCDD is reported to be extremely toxic to humans. With proper temperature control during production of 2,4,5-T, TCDD levels can be held to about .005 ppm. Before the TCDD risk was well-understood, early production facilities lacked proper temperature controls and individual batches tested later were found to have as much as 60 ppm of TCDD.

In 1970, the United States Department of Agriculture halted the use of 2,4,5-T on all food crops except rice, and in 1985, the EPA terminated all remaining uses in the US of this herbicide. The international trade of 2,4,5-T is restricted by the [Rotterdam Convention](#). 2,4,5-T has since largely been replaced by [dicamba](#) and [triclopyr](#).

Apart from agricultural uses, 2,4,5-T was also a major ingredient in [Agent Orange](#), a herbicide blend used by the U.S. military in Vietnam between January 1965 and April 1970 as a defoliant. Because of TCDD contamination in the 2,4,5-T component, it has been blamed for serious illnesses in many veterans who were exposed to it. Agent Orange often had much higher levels of TCDD than 2,4,5-T used in the US.

References

External links

2,4,5-T - Identification, toxicity, use, water pollution potential, ecological toxicity and regulatory information

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