Dicloran

(2,6-Dichloro-4-nitroaniline)

Dicloran is a fungicide used on a variety of fruits and vegetables as well as on conifers and various ornamentals. It is also used as an intermediate in the manufacture of dyes. Dicloran has no residential uses. In 2009, 53,766 pounds were applied in California. Top uses included celery (32,270 pounds), head lettuce (8,445 pounds), and leaf lettuce (8,939 pounds). Pesticide applicators, agricultural and industrial workers and consumers may be exposed.

Dicloran passed the animal data screen, underwent a preliminary toxicological evaluation, and is being brought to the Carcinogen Identification Committee for consultation. This is a compilation of the relevant studies identified during the preliminary toxicological evaluation.

Epidemiological data

No cancer epidemiology studies were identified.

Animal carcinogenicity data

- Combined chronic toxicity and carcinogenicity studies.
    - 24-month feeding studies in male and female Wistar rats: U.S. EPA (2006, p. 7)
        - *Increase in benign Leydig cell tumors (by pair-wise comparison and trend, and outside historic control range) in males*
        - *Increase in malignant uterine endometrial adenocarcinomas (by pair-wise comparison) in females*
    - 18-month feeding studies in male and female CD-1 mice: U.S. EPA (2006, p. 2)
        - *No treatment-related increases in males or females*

Other relevant data

- Genotoxicity: U.S. EPA (2006, p. 15; 1988, pp. 2-3)
    - *Salmonella typhimurium* TA 100 and TA 1538 (*positive*), TA 1537 *(negative)* and TA 98 *(positive and negative).*
    - *In vitro* chromosomal aberration assay in human lymphocytes *(negative)*
    - Unscheduled DNA synthesis in primary rat hepatocytes *(negative)*

- Structure activity considerations: U.S. EPA (2006)
    - Dicloran is a chloro- nitro- aniline. Aniline and other anilines are listed as carcinogens under Proposition 65.
    - 2,6-Dichloro-*p*-phenylenediamine, a metabolite of dicloran, induced liver adenomas and carcinomas (combined) in mice of both sexes (NTP, 1982).

References[1]

National Toxicology Program (NTP, 1982). Carcinogenesis Bioassay of 2,6-Dicholoro-*p*-phenylenediamine (CAS No. 609-20-1) in F344 rats and B6C3F_1 (Feed Study), Technical Report Series, TR 219, NTP, Research Triangle Park, NC.

U.S. EPA, 2006. Memorandum. *Report of the Cancer Assessment Review Committee* PC Code 031301. Office of Prevention, Pesticides, and Toxic Substances, Washington DC.

U.S. EPA, 1988. Memorandum, DCNA; Review of Ames Assay, Office of Pesticides and Toxic Substances, Tox Chem 311, Record No. 215047.

[1] Excerpts or the complete publication have been provided to members of the Carcinogen Identification Committee, in the order in which they are discussed in this document.