

# Chloramben

133-90-4

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## Hazard Summary

Chloramben is used as a herbicide on a number of crops. Limited information is available on the health effects of chloramben. Acute (short-term) exposure to high levels of chloramben in humans results in mild to moderate dermal irritation. No information is available on the chronic (long-term) effects of chloramben in humans. Animal studies have reported effects on the liver from chronic oral exposure to chloramben. A National Toxicology Program Study reported that oral exposure to chloramben caused liver tumors in mice, but not in rats. EPA has not classified chloramben for potential carcinogenicity.

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Please Note: The main sources of information for this fact sheet are EPA's [Integrated Risk System \(IRIS\)](#) (3), which contains information on oral chronic toxicity and the RfD and a [National Toxicology Program](#) bioassay report on the carcinogenicity of chloramben (5).

## Uses

- Chloramben is used as a herbicide to control grasses and broadleaf weeds on soybeans, dry beans, lima beans, asparagus, pumpkins, squash, corn, tomatoes, peppers, and sweet potatoes. (1)

## Sources and Potential Exposure

- Exposure to chloramben may occur through inhalation or by dermal contact during its use as a herbicide. (1)
- The general population may be exposed to chloramben from contaminated drinking water or food. (1)

## Assessing Personal Exposure

- No information was located on measurement of personal exposure to chloramben.

## Health Hazard Information

### Acute Effects:

- Acute exposure to high levels of chloramben in humans results in mild to moderate dermal irritation. (1)
- Acute animal tests in rats have shown chloramben to have moderate acute toxicity from oral and dermal exposures. (2)

### Chronic Effects (Noncancer):

- No information is available on the chronic effects of chloramben in humans.
- Animal studies have reported effects on the liver from chronic oral exposure to chloramben. (3)
- The Reference Dose (RfD) for chloramben is 0.015 milligrams per kilogram body weight per day (mg/kg/d) based on hepatocyte degeneration in mice. The RfD is an estimate (with uncertainty spanning perhaps an order of magnitude) of a daily oral exposure to the human population (including sensitive subgroups) that is likely to be without appreciable risk of deleterious noncancer effects during a lifetime. It is not a direct estimator of risk but rather a reference point to gauge the potential effects. At exposures increasingly greater than the RfD, the potential for adverse health effects increases. Lifetime exposure above

the RfD does not imply that an adverse health effect would necessarily occur. (3)

- EPA has medium confidence in the study on which the RfD was based because it appears to be of acceptable quality; medium to low confidence in the database because there is a data gap existing for chloramben and other studies did not show effects at much higher dose levels; and, consequently, medium to low confidence in the RfD. (3)
- EPA has not established a Reference Concentration (RfC) for chloramben. (3)

#### Reproductive/Developmental Effects:

- No information is available on the reproductive or developmental effects of chloramben in humans.
- Reduced ossification of skeletal bones was reported in the fetuses of rats orally exposed to chloramben. (3)

#### Cancer Risk:

- No information is available on the carcinogenic effects of chloramben in humans.
- A National Toxicology Program study reported that oral exposure to chloramben caused liver tumors in mice but not in rats. (5)
- EPA has not classified chloramben for potential carcinogenicity. (3)

## Physical Properties

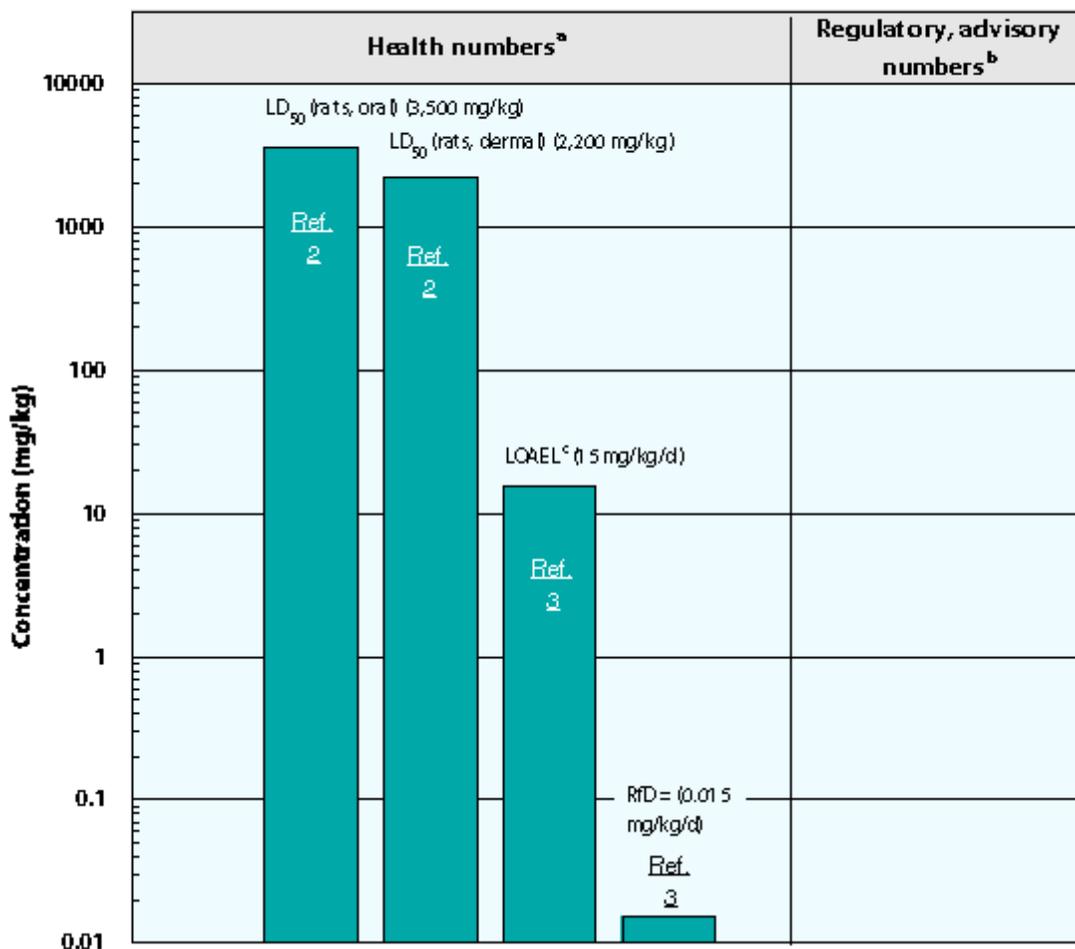
- Chloramben is a colorless, odorless, crystalline solid. (4)
  - The odor threshold for chloramben is not available.
  - The chemical formula for chloramben is  $C_7H_5ClNO_2$ , and the molecular weight is 206.03 g/mol. (4)
  - The vapor pressure for chloramben is  $7 \times 10^{-3}$  mm Hg at 100 °C. (4)
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#### Conversion Factors:

To convert concentrations in air (at 25 °C) from ppm to  $mg/m^3$ :  $mg/m^3 = (ppm) \times (\text{molecular weight of the compound}) / (24.45)$ . For chloramben: 1 ppm = 8.43  $mg/m^3$ .

## Health Data from Oral Exposure

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LD<sub>50</sub> (Lethal Dose<sub>50</sub>)--A calculated dose of a chemical in water to which exposure for a specific length of time is expected to cause death in 50% of a defined experimental animal population.

LOAEL--Lowest-observed-adverse-effect level.

The health values cited in this factsheet were obtained in December 1999.

<sup>a</sup> Health numbers are toxicological numbers from animal testing or risk assessment values developed by EPA.

<sup>b</sup> Regulatory numbers are values that have been incorporated in Government regulations, while advisory numbers are nonregulatory values provided by the Government or other groups as advice.

<sup>c</sup> The LOAEL is from the critical study used as the basis for the EPA RfD.

Summary created in April 1992, updated in January 2000.

## References

1. U.S. Department of Health and Human Services. Hazardous Substances Data Bank (HSDB, online database). National Toxicology Information Program, National Library of Medicine, Bethesda, MD. 1993.
2. U.S. Department of Health and Human Services. Registry of Toxic Effects of Chemical Substances (RTECS, online database). National Toxicology Information Program, National Library of Medicine, Bethesda, MD. 1993.
3. U.S. Environmental Protection Agency. Integrated Risk Information System (IRIS) on Chloramben. National Center for Environmental Assessment, Office of Research and Development, Washington, DC. 1999.
4. The Merck Index. An Encyclopedia of Chemicals, Drugs, and Biologicals. 11th ed. Ed. S. Budavari. Merck and Co. Inc., Rahway, NJ. 1989.

5. National Toxicology Program (NTP). Bioassay of Chloramben (CAS No. 133-90-4) for Possible Carcinogenicity. TR-25. 1977.

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