

Chlorpropham; CASRN 101-21-3

Human health assessment information on a chemical substance is included in the IRIS database only after a comprehensive review of toxicity data, as outlined in the [IRIS assessment development process](#). Sections I (Health Hazard Assessments for Noncarcinogenic Effects) and II (Carcinogenicity Assessment for Lifetime Exposure) present the conclusions that were reached during the assessment development process. Supporting information and explanations of the methods used to derive the values given in IRIS are provided in the [guidance documents located on the IRIS website](#).

STATUS OF DATA FOR Chlorpropham

File First On-Line 06/30/1988

| Category (section) | Assessment Available? | Last Revised |
|----------------------------------|-----------------------|--------------|
| Oral RfD (I.A.) | yes | 06/30/1988 |
| Inhalation RfC (I.B.) | not evaluated | |
| Carcinogenicity Assessment (II.) | not evaluated | |

I. Chronic Health Hazard Assessments for Noncarcinogenic Effects

I.A. Reference Dose for Chronic Oral Exposure (RfD)

Substance Name — Chlorpropham

CASRN — 101-21-3

Primary Synonym — CIPC

Last Revised — 06/30/1988

The oral Reference Dose (RfD) is based on the assumption that thresholds exist for certain toxic effects such as cellular necrosis. It is expressed in units of mg/kg-day. In general, the RfD is an estimate (with uncertainty spanning perhaps an order of magnitude) of a daily exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime. Please refer to the Background Document for an elaboration of these concepts. RfDs can also be derived for the noncarcinogenic health effects of

substances that are also carcinogens. Therefore, it is essential to refer to other sources of information concerning the carcinogenicity of this substance. If the U.S. EPA has evaluated this substance for potential human carcinogenicity, a summary of that evaluation will be contained in Section II of this file.

I.A.1. Oral RfD Summary

| Critical Effect | Experimental Doses* | UF | MF | RfD |
|--|-------------------------------|-----|----|----------------|
| Kidney, spleen, liver, and bone marrow toxicity | NOEL: 1000 ppm (50 mg/kg/day) | 300 | 1 | 2E-1 mg/kg/day |
| 2-Generation Rat Reproduction Study | LEL: 3000 ppm (150 mg/kg/day) | | | |
| PPG Industries, 1983a | | | | |

*Conversion Factors -- 1 ppm = 0.05 mg/kg/day (assumed rat food consumption)

I.A.2. Principal and Supporting Studies (Oral RfD)

PPG Industries, Inc. 1983a. MRID No. 00129545, 00125691. Available from EPA. Write to FOI, EPA, Washington, DC 20460.

CIPC doses of 0, 1000, 3000, and 10,000 ppm were administered in the diet to CD (Sprague-Dawley derived) rats. Dosing began with F0 weanlings and proceeded throughout the study. The F0 animals (60 males and 120 females; 15 males, 30 females per group) were dosed for 14 weeks prior to mating and during the mating, gestation, and lactation periods (total of 164 to 165 days). The F0 rats were sacrificed after weaning the F1 generation. From the weanlings, 180 (15 males, 30 females per group) were selected to produce the F2 generation. Nearly all effects were observed at the two highest dose levels. At 3000 ppm the following effects were observed: slow weight gain; microscopic lesions in kidneys, spleen, liver and marrow; gross splenic lesions; organ weight changes in the liver and spleen.

Measurements of cholinesterase levels in the brain, plasma, and erythrocytes of the F1 rats did not reveal any significant changes.

I.A.3. Uncertainty and Modifying Factors (Oral RfD)

UF — An uncertainty factor of 100 was used to account for inter- and intraspecies differences. An additional UF of 3 was used to account for the lack of an adequate database for chronic toxicity.

MF — None

I.A.4. Additional Studies/Comments (Oral RfD)

Data Considered for Establishing the RfD:

- 1) 2-Generation Reproduction - rat: Principal study - see previous description; core grade guideline
- 2) 1-Year Feeding - dog: NOEL=0.2%, 2000 ppm, (50 mg/kg/day); LEL=2%, 20,000 ppm (500 mg/kg/day) (anorexia, decreased weight gain, decreased hematocrit and hemoglobin values, and elevated spleen and liver weights); core grade supplementary (Columbia-Southern Chemical Corp., 1959a)
- 3) 2-Year Feeding - rat: NOEL=0.2%, 2000 ppm (100 mg/kg/day); LEL=2%, 20,000 ppm (1000 mg/kg/day) (decreased hemoglobin and hematocrit values, increased liver and spleen weight ratios, and increased mortality in male rats); core grade supplementary (Columbia-Southern Chemical Corp., 1959b)
- 4) 90-Day Feeding - rat: NOEL=17 mg/kg/day; LEL=63 mg/kg/day (increased liver body weight ratios); core grade supplementary (PPG Industries, 1954)
- 5) Teratology - rat: Maternal NOEL=100 mg/kg/day; LEL=350 mg/kg/day (pale extremities and enlarged darkened spleens); core grade guideline (PPG Industries, 1981)
- 6) Teratology - rabbit: Fetotoxic NOEL=125 mg/kg/day; LEL=250 mg/kg/day (increased resorption); core grade guideline (PPG Industries, 1983b)

Data Gap(s): Chronic Rat Feeding Study; Chronic Dog Feeding Study; 90-Day Rat Feeding Study; 90-Day Dog Feeding Study; Oncogenicity Studies (two species)

I.A.5. Confidence in the Oral RfD

Study — High
Database — Medium
RfD — Medium

The critical study is of good quality and is given a high confidence rating. Since the existing database on chronic toxicity is incomplete, the database is given a medium confidence rating. Medium confidence in the RfD follows.

I.A.6. EPA Documentation and Review of the Oral RfD

Source Document — This assessment is not presented in any existing U.S. EPA document.

Other EPA Documentation — Pesticide Registration Files

Agency Work Group Review — 08/12/1987

Verification Date — 08/12/1987

Screening-Level Literature Review Findings — A screening-level review conducted by an EPA contractor of the more recent toxicology literature pertinent to the RfD for Chlorpropham conducted in August 2003 identified one or more significant new studies. IRIS users may request the references for those studies from the IRIS Hotline at hotline.iris@epa.gov or 202-566-1676.

I.A.7. EPA Contacts (Oral RfD)

Please contact the IRIS Hotline for all questions concerning this assessment or IRIS, in general, at (202)566-1676 (phone), (202)566-1749 (FAX) or hotline.iris@epa.gov (internet address).

I.B. Reference Concentration for Chronic Inhalation Exposure (RfC)

Substance Name — Chlorpropham
CASRN — 101-21-3
Primary Synonym — CIPC

Not available at this time.

II. Carcinogenicity Assessment for Lifetime Exposure

Substance Name — Chlorpropham

CASRN — 101-21-3

Primary Synonym — CIPC

This substance/agent has not undergone a complete evaluation and determination under US EPA's IRIS program for evidence of human carcinogenic potential.

III. [reserved]

IV. [reserved]

V. [reserved]

VI. Bibliography

Substance Name — Chlorpropham

CASRN — 101-21-3

Primary Synonym — CIPC

VI.A. Oral RfD References

Columbia-Southern Chemical Corporation. 1959a,b. MRID No. 00057691, 00083153.
Available from EPA. Write to FOI, EPA, Washington DC 20460.

PPG Industries, Inc. 1954. MRID No. 00114698. Available from EPA. Write to FOI, EPA,
Washington, DC 20460.

PPG Industries, Inc. 1981. MRID No. 00093921. Available from EPA. Write to FOI, EPA,
Washington, DC 20460.

PPG Industries, Inc. 1983a. MRID No. 00129545, 00125691. Available from EPA. Write to FOI,
EPA, Washington, DC 20460.

PPG Industries, Inc. 1983b. MRID No. 00129940. Available from EPA. Write to FOI, EPA,
Washington, DC 20460.

VI.B. Inhalation RfD References

None

VI.C. Carcinogenicity Assessment References

None

VII. Revision History

Substance Name — Chlorpropham

CASRN — 101-21-3

Primary Synonym — CIPC

| Date | Section | Description |
|------------|---------|--|
| 10/28/2003 | I.A.6. | Screening-Level Literature Review Findings message has been added. |

VIII. Synonyms

Substance Name — Chlorpropham

CASRN — 101-21-3

Primary Synonym — CIPC

Last Revised — 06/30/1988

- 101-21-3
- BEET-KLEEN
- BUD-NIP
- CARBANILIC ACID, m-CHLORO-, ISOPROPYL ESTER
- CHLOR-IFC

- CHLOR-IPC
- 3-CHLOROCARBANILIC ACID, ISOPROPYL ESTER
- m-CHLOROCARBANILIC ACID, ISOPROPYL ESTER
- CHLORO-IFK
- CHLORO-IPC
- (3-CHLORO- PHENYL)CARBAMIC ACID, 1-METHYLETHYL ESTER
- CHLOROPROPHAM
- Chlorpropham
- CHLORPROPHAME
- CICP
- CI-IPC
- CIPC
- ELBANIL
- ENT 18,060
- FASCO WY-HOE
- FURLOE
- FURLOE 4EC
- ISOPROPYL 3-CHLOROCARBANILATE
- ISOPROPYL meta-CHLOROCARBANILATE
- ISOPROPYL 3-CHLOROPHENYLCARBAMATE
- ISOPROPYL-N-(3-CHLOROPHENYL)CARBAMATE
- ISOPROPYL-N-m-CHLOROPHENYL-CARBAMATE
- ISOPROPYL-N-(3-CHLOROPHENYL)-CARBAMAT
- JACK WILSON CHLORO 51
- LIRO CIPC
- 1-METHYLETHYL(3-CHLOROPHENYL)CARBAMATE
- METOXON
- N-(3-CHLORO-FENYL)-ISOPROPYL CARBAMAAT
- N-(3-CHLORO PHENYL) CARBAMATE D'ISOPROPYLE
- N-(3-CHLOROPHENYL)CARBAMIC ACID, ISOPROPYL ESTER
- N-3-CHLOROPHENYLISOPROPYLCARBAMATE
- N-(3-CHLOR-PHENYL)-ISOPROPYL-CARBAMAT
- N-(3-CLORO-FENIL)-ISOPROPIL-CARBAMMATO
- NEXOVAL
- O-ISOPROPYL N-(3-CHLOROPHENYL)CARBAMATE
- PREVENOL
- PREVENOL 56
- PREVENTOL
- PREVENTOL 56
- PREWEED
- SPROUT NIP
- SPROUT-NIP EC
- SPUD-NIC
- SPUD-NIE
- STOPGERME-S

- TATERPEX
- TRIHERBICIDE CIPC
- UNICROP CIPC
- Y 3