

US EPA ARCHIVE DOCUMENT



R.E.D. FACTS

DCPA

Pesticide Reregistration

All pesticides sold or distributed in the United States must be registered by EPA, based on scientific studies showing that they can be used without posing unreasonable risks to people or the environment. Because of advances in scientific knowledge, the law requires that pesticides which were first registered before November 1, 1984, be reregistered to ensure that they meet today's more stringent standards.

In evaluating pesticides for reregistration, EPA obtains and reviews a complete set of studies from pesticide producers, describing the human health and environmental effects of each pesticide. The Agency develops any mitigation measures or regulatory controls needed to effectively reduce each pesticide's risks. EPA then reregisters pesticides that can be used without posing unreasonable risks to human health or the environment.

When a pesticide is eligible for reregistration, EPA explains the basis for its decision in a Reregistration Eligibility Decision (RED) document. This fact sheet summarizes the information in the RED document for reregistration case 0270, DCPA.

Use Profile

DCPA is a pre-emergent herbicide used to control annual grasses and broadleaf weeds on ornamental turf and plants, strawberries, seeded and transplanted vegetables, cotton, and field beans.

Formulations include an emulsifiable concentrate, a flowable concentrate, granular, soluble concentrate/liquid and wettable powder.

DCPA may be applied at planting, transplant, post-emergence, or post-transplant as a soil treatment. It also may be applied as a foliar broadcast treatment or at layby. It can be applied with either ground or aerial equipment.

Use practice limitations prohibit applying DCPA directly to water or wetlands (swamps, bogs, marshes, and potholes) or through any type of irrigation system. They prohibit discharging effluent containing DCPA into sewage systems without notifying the sewage treatment plant authority (POTW) and prohibit discharging effluent containing DCPA into lakes, streams, ponds, estuaries, oceans, or public water (NPDES license restriction). They prohibit feeding clippings, treated foliage, treated screenings or hay to livestock. They also prohibit grazing livestock in treated areas, feeding or grazing forage, silage or fodder grown in treated fields to livestock, grazing treated areas feeding crop refuse to livestock, or using clippings from treated

area for feed or forage. For terrestrial uses, use practice limitations prohibit applying DCPA directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. DCPA also must be left out of lakes, streams, and ponds. For ground water restrictions, see RED.

Regulatory History

DCPA was first registered as a pesticide in the U.S. in 1958 as a selective preemergence herbicide for weed control on turf grasses. The DCPA technical products were subject to a June, 1987 Data Call-In Notice (DCI) requiring analysis for polyhalogenated dibenzo-p-dioxins/dibenzofurans (referred to as dioxin/furans). EPA issued a Registration Standard for DCPA in June 1988 (NTIS# 540/RS-88-084). DCI's were issued in September 1992 and October 1995 requiring DCPA occupational exposure monitoring data. Currently, there are 66 products registered.

Human Health Assessment

Toxicity

DCPA technical is classified under Toxicity Category IV (practically non-toxic) for acute-oral toxicity and dermal irritation and Toxicity Category III (slightly toxic) for dermal LD50, inhalation LC50, and eye irritation. DCPA is not a dermal sensitizer.

DCPA has been classified as a Group C, possible human carcinogen, based on increased incidence of thyroid tumors in both sexes of the rat (although only at an excessive dose in the female), and liver tumors in female rats and mice, at doses which were not excessive.

Dietary Exposure

People may be exposed to residues of DCPA through the diet. Tolerances or maximum residue limits have been established for residues of DCPA in many food and feed crops (see 40 CFR 180.185). EPA has reassessed the DCPA tolerances and found that some are acceptable, others must be revoked because refinements in crop groups must be replaced with new tolerances for the new crop groupings. Acute dietary risk assessments were not necessary since there were no acute toxicological endpoints of concern for DCPA or its impurities. Chronic and carcinogenic dietary risks were assessed, however, due to exposure to DCPA, HCB, and dioxin/furans. Chronic risk estimates for the U.S. population and all subgroups were well below 100% of the RfD for DCPA, HCB, and dioxin/furans. Based on these estimates, the Agency concludes that DCPA use does not pose a significant chronic dietary risk.

Carcinogenic risk estimate for exposure to DCPA, HCB, and dioxin/furans through food were 3.5×10^{-7} , and 7×10^{-8} , respectively. All of these risk estimates are within the range (zero to 1×10^{-6}) generally considered to be negligible by the Agency. Thus, the Agency concludes that DCPA use does not pose a significant excess lifetime cancer risk.

The Agency assessed both chronic (non-cancer) and carcinogenic risk due to exposure to DCPA and its metabolites through contaminated ground and surface water. The Agency used annual contamination averages from five geographic regions as potential drinking water exposure values. The highest annual average was 50 ppb in New York from a turf study. Although this represents approximately 71% of the HA, it only corresponds to 11% of RfD. Even if part of this population were to the maximum 3% of the RfD from other dietary sources, the chronic dietary risk would still be considered minimal.

Individual excess lifetime cancer risk from the New York turf site was 1.7×10^{-6} . The next highest risk estimate is based on data from Suffolk County, New York. The risk estimate from that site is 9.7×10^{-7} . DCPA's registrant has voluntarily withdrawn from selling the product in Suffolk, New York. Exposure values from all other sites resulted in risks below the Agency's cancer benchmark of 1×10^{-6} .

Based on these estimates, the Agency concludes that DCPA and its metabolites do not currently pose a significant cancer or chronic non-cancer risk from non-turf uses to the overall U.S. population from exposure through contaminated drinking water.

Occupational and Residential Exposure

DCPA is currently registered for commercial and residential use. Risk assessments were performed to assess the individual excess lifetime cancer risk from DCPA and HCB resulting from occupational and residential exposure to DCPA. The Agency will not generally allow non-dietary risks to exceed 10^{-4} , except in cases where EPA has determined that benefits exceed the risks.

Risk was estimated for occupational exposures to both DCPA and HCB. The highest risk for both commercial applicators and private applicators is associated with the use of the wettable powder formulation. For the commercial applicator, the highest risk for DCPA was estimated to be 7.5×10^{-5} and for HCB (in DCPA) to be 1.9×10^{-4} . The Agency is requiring mixer/loader/applicators using DCPA wettable powders to wear a dust-mist respirator fitted with a TC-21 filter to mitigate this risk. Wearing a dust-mist respirator reduces the risks to 4.0×10^{-5} and 1.3×10^{-4} for DCPA and HCB respectively.

For the private applicator, the highest risk for DCPA was estimated to be 1.6×10^{-6} and for HCB (in DCPA) to be 4.6×10^{-6} .

Risks to children playing on a treated lawn were assessed for exposure to DCPA and HCB. The risks from DCPA and HCB to children playing on an irrigated lawn are 5.6×10^{-7} and 3.9×10^{-7} , respectively. The risks from DCPA and HCB to children playing on non-irrigated lawns are 2.0×10^{-6} and 2.7×10^{-6} , respectively. The Agency is conducting a risk/benefit assessment to determine whether the turf use is eligible for reregistration. However, in the interim, the Agency is requiring that residential lawns be watered after DCPA product use and that reentry not occur until sprays have dried, in an effort to mitigate risks to children.

Risk from exposure to DCPA and HCB through worker reentry into a cucumber field was assessed. Harvesting cucumbers immediately after application resulted in risk estimates of 1.8×10^{-4} for DCPA and 3.2×10^{-4} for HCB. Delayed reentry periods only minimally reduced risk estimates. However, the Agency believes that the worker exposures are overestimates. These scenarios were based solely on a foliar dissipation study, not on dermal exposure studies. DCPA's registrant is a member of a task force which will address dermal exposure for hand labor tasks required by various crops, such as cucumber harvesting. The risk assessment will be refined when the task force submits its dermal exposure data.

Human Risk Assessment

DCPA and its metabolites generally are of low acute and chronic toxicity. DCPA has been classified as a Group C, possible human carcinogen. Many food crop uses are registered, however, dietary exposure to DCPA residues in foods is at a low level, as is the cancer risk posed to the general population.

Of greater concern is the risk posed to DCPA handlers, particularly mixers/loaders/applicators, and field workers who come into contact with treated areas following application of this pesticide. Exposure and risk to workers will be mitigated by the use of Personal Protective Equipment required by the Worker Protection Standard. Because the pesticide is a possible human carcinogen, the Agency is requiring mixer/loader/applicators using DCPA wettable powder to wear a dust-mist respirator fitted with a TC-21 filter to mitigate this risk.

Environmental Assessment

Environmental Fate

Biodegradation is the primary dissipation process for DCPA. Under laboratory conditions, the half-life is approximately 15-30 days, but longer half-lives have been reported in the field. Parent DCPA is not especially persistent or mobile. Tetrachloroterephthalic acid (TPA or di-acid) is the only significant DCPA metabolite, with monomethyl tetrachloroterephthalic acid (mono-acid) as a minor metabolite. TPA is unusually mobile and persistent in the field. Data suggest that TPA will leach to groundwater wherever DCPA is used, regardless of soil properties.

Volatilization from soil is also a major dissipation route for parent DCPA. Volatilization appears to be the source of DCPA residues on crops to which it has not been applied. The maximum distance that DCPA may move following volatilization is not known, but drift has been reported in the published literature. Under warm conditions in fields with high soil moisture levels, volatilization may be the major dissipation route for DCPA. More typically volatilization probably accounts for 20-40 percent of DCPA loss. For TPA leaching is the major dissipation route.

Ecological Effects

DCPA is practically nontoxic to birds on both an acute and a subacute dietary basis. New avian reproduction studies are required to determine its chronic toxicity to birds. DCPA is practically nontoxic to small mammals and bees, is probably no more than slightly toxic to fish, and is slightly toxic to practically nontoxic to aquatic invertebrates. DCPA is moderately to highly toxic to nontarget estuarine and marine organisms. Seedling emergence and vegetative vigor studies (tier II) are required to assess toxicity of DCPA to nontarget, offsite plants.

Ecological Effects Risk Assessment

Ecological effects risk assessments indicate that non-turf uses of DCPA, labeled and used as specified in the RED, will not pose unreasonable risks to birds, insects, fish and estuarine species, or nontarget plants. However, the Agency is requiring additional data in the areas of avian toxicity and reproduction, vegetative vigor, and seedling emergence to confirm these conclusions. The Agency has concerns regarding chronic risks to mammalian species and acute risks to mollusk species as a result of DCPA use on turf. Once the benefits assessment on turf has been completed, the Agency will determine whether this use is eligible for reregistration.

Risk Mitigation

EPA is requiring the following risk mitigation measures for DCPA:

Residential Risk Mitigation - Interim risk reduction measures are being implemented to reduce exposure to children playing on treated lawns. Labels will require that residential lawns be watered after DCPA product use and that reentry not occur until sprays have dried.

Groundwater Contamination Risk Mitigation - The registrant has voluntarily agreed to limit manufacture of DCPA technical grade active ingredient for use within the United States to current production levels. This will help insure that groundwater contamination rates do not significantly increase in the future. Additionally, DCPA labels must bear a groundwater advisory statement.

Occupational Risk Mitigation - In addition to the personal protective equipment, reentry intervals and application restrictions required by the Worker Protection Standard, the Agency is requiring mixer/loader/applicators using DCPA wettable powders to a wear dust-mist respirator fitted with a TC-21 filter. This will reduce risks from exposure to both DCPA and HCB.

Ecological Risk Mitigation - To minimize potential harm to endangered mammals and mollusks from exposure to DCPA the Agency is developing an Endangered Species Protection Program. This program is intended to implement mitigation measures that will eliminate adverse impacts to endangered species from pesticides.

Spray Drift Risk Mitigation - To reduce the possibility of risk to non-target animals and plants and surface water contamination from spray drift, the

Agency is requiring label precautions, as well as, application restrictions and prohibitions intended to reduce spray drift potential. A surface water advisory statement is also required on DCPA labels.

Additional Data Required

EPA is requiring the following additional generic studies for DCPA to confirm its regulatory assessments and conclusions: Avian Reproduction (qual and duck); Seed Germination and Seedling Emergence; Vegetative Vigor; Nature of Residue, livestock; and Storage Stability.

The Agency also is requiring product-specific data including product chemistry and acute toxicity studies, revised Confidential Statements of Formula (CSFs), and revised labeling for reregistration.

Product Labeling Changes Required

All DCPA end-use products must comply with EPA's current pesticide product labeling requirements and with the following. For a comprehensive list of labeling requirements, please see chapter V of the DCPA RED document.

Products Intended Primarily for Occupational Use (WPS and nonWPS)

Minimum (Baseline) PPE/Engineering Control Requirements

The minimum (baseline) PPE for some occupational uses of DCPA. These minimum (baseline) PPE as established by EPA are listed below. PPE for all formulations not listed below will be based on the toxicity of the end-use products as assessed during product reregistration.

For liquid concentrate formulations:

Mixers and loaders must wear:

- Long-sleeve shirt and long pants,
- Socks plus shoes,
- Chemical-resistant gloves*.

For wettable powder formulations:

Mixers, loaders, and applicators must wear:

- Long-sleeve shirt and long pants,
- Socks plus shoes,
- Chemical-resistant gloves*.
- a dust mist respirator with a TC-21C filter

For applications using a shaker can or backpack sprayer:

Applicators must wear:

- Long-sleeve shirt and long pants,
- Socks plus shoes,
- Chemical-resistant gloves*.

* For the glove statement, use the statement established for DCPA through the instructions in Supplement Three of PR Notice 93-7.

Products Intended Primarily for Homeowner Use

Minimum (baseline) PPE Requirements

EPA is not establishing active-ingredient-based minimum (baseline) handler PPE for DCPA end-use products that are intended primarily for homeowner use.

Products Intended Primarily for Occupational Use

WPS Uses

Restricted-entry interval:

A 12-hour restricted-entry interval (REI) is required for uses within the scope of the WPS on all DCPA end-use products.

Early-entry personal protective equipment (PPE):

The PPE required for early entry is:

- coveralls,
- chemical-resistant gloves, and
- shoes plus socks.

NonWPS uses

Entry restrictions:

For liquid applications:

"Do not enter or allow others to enter the treated area until sprays have dried."

For granular applications:

"Do not enter or allow others to enter the treated area until dusts have settled. If soil incorporation is required following the application, do not enter or allow others to enter the treated area (except those persons involved in the incorporation) until the incorporation is complete. If the incorporation is accomplished by watering-in, do not enter or allow others to enter the treated area until the surface is dry following the watering-in."

Products Intended Primarily for Homeowner Use

Entry Restrictions for Home Use Products

For liquid and granular formulations:

"This product must be watered in following application. Do not allow persons or pets to enter the treated area until the grass is dry following watering-in."

Placement in labeling: Place the appropriate entry restrictions in the Directions for Use, under the heading "Entry Restrictions."

Other Labeling Requirements for End-Use Products

Products Intended Primarily for Occupational Use

The Agency is requiring the following labeling statements to be located on all end-use products containing DCPA that are intended primarily for occupational use:

Application Restrictions:

"Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application."

User Safety Requirements:

{Registrants: select this if coveralls are required for pesticide handlers on the end-use product label:}

"Discard clothing or other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them."

{Registrants: select this always:}

"Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry."

User Safety Recommendations:

"Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet."

"Users should remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing."

"Users should remove PPE immediately after handling this product. As soon as possible, wash thoroughly and change into clean clothing."

Engineering Controls:

"When handlers use closed systems, or enclosed cabs or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR 170.240(d)(4-6), the handler PPE requirements may be reduced or modified as specified in the WPS."

Soil Incorporation Statement:

Registrants must add the following statement to their labeling in the "Agricultural Use Requirements" box immediately following the restricted entry interval:

"Exception: if the product is soil-incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated."

Products Intended Primarily for Home Use

Application Restrictions

"Do not apply this product in a way that will contact any person or pet, either directly or through drift. Keep people and pets out of the area during application."

User Safety Recommendations

"Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet."

"Users should remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing."

{Registrants: select this only if gloves and/or protective eyewear are required for homeowner users: }

"Users should remove protective clothing and equipment immediately after handling this product. Wash the outside of gloves before removing. Keep and wash protective clothing and equipment separately from other laundry."

ADDITIONAL LABELING REQUIREMENTS

The use directions for DCPA on beans prohibit grazing in treated areas and the feeding of treated plant material or refuse to livestock. Under current Agency policy, label restrictions prohibiting the feeding of bean forage and straw/hay to livestock are inappropriate. The registrant must delete restrictions prohibiting the feeding of bean forage and hay/straw to livestock from all labels. However, the registrant may restrict the uses of DCPA on beans to those varieties that are used for human consumption only.

When end-use product DCIs are developed (e.g., at issuance of the RED), EPA should require that all end-use product labels (e.g., multiple active ingredient labels, SANS, and products subject to the generic data exemption) be amended such that they are consistent with the basic producer labels.

Regulatory Conclusion

The use of currently registered products containing DCPA, except those registered for turf use, will not pose unreasonable risks or adverse effects to humans or the environment when used in accordance with approved labeling. Therefore, all uses, except use on turf, of these products are eligible for reregistration.

Eligible DCPA products will be reregistered once the required product-specific data, revised Confidential Statements of Formula, and revised labeling are received and accepted by EPA.

For More Information

EPA is requesting public comments on the Reregistration Eligibility Decision (RED) document for DCPA during a 60-day time period, as announced in a Notice of Availability published in the Federal Register. To obtain a copy of the RED document or to submit written comments, please contact the Pesticide Docket, Public Response and Program Resources Branch, Field Operations Division (7506C), Office of Pesticide Programs (OPP), US EPA, Washington, DC 20460, telephone 703-305-5805.

Electronic copies of the RED and this fact sheet are available on our website at www.epa.gov/REDS.

Printed copies of the RED and fact sheet can be obtained from EPA's National Center for Environmental Publications and Information (EPA/NCEPI), PO Box 42419, Cincinnati, OH 45242-0419, telephone 513-489-8190, fax 513-489-8695.

Following the comment period, the DCPA RED document also will be available from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, telephone 703-605-6000.

For more information about EPA's pesticide reregistration program, the DCPA RED, or reregistration of individual products containing DCPA, please contact the Special Review and Reregistration Division (7508C), OPP, US EPA, Washington, DC 20460, telephone 703-308-8000.

For information about the health effects of pesticides, or for assistance in recognizing and managing pesticide poisoning symptoms, please contact the National Pesticides Telecommunications Network (NPTN). Call toll-free 1-800-858-7378, between 9:30 am and 7:30 pm Eastern Standard Time, Monday through Friday.