2,4-D RED Facts

June 30, 2005

EPA-738-F-05-002

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. To implement provisions of the Food Quality Protection Act (FQPA) of 1996, EPA considers the special sensitivity of infants and children to pesticides, as well as aggregate exposure of the public to pesticide residues from all sources, and the cumulative effects of pesticides and other compounds with common mechanisms of toxicity. The Agency develops any mitigation measures or regulatory controls needed to effectively reduce each pesticide's risks. EPA then reregisters pesticides that meet current human health and safety standards and can be used without posing unreasonable risks to human health and the environment.

When a pesticide is eligible for reregistration, EPA explains the basis for its decision in a Reregistration Eligibility Document (RED) document. This fact sheet summarizes the information in the RED document for the amines, esters, and salts of 2,4-D, and the 2,4-D acid (Chemical Code Numbers: 2,4-D acid 030001; 2,4-D sodium salt 030004; 2,4-D diethyl amine 030016; 2,4-D dimethylamine salt 030019; 2,4-D isopropyl acid 030025; 2,4-D triisopropyl acid 030035, 2,4-D butoxyethyl ester 030053; 2,4-D ethylhexyl ester 030036; 2,4-D isopropyl ester 030066), (Case No. 0073).

Use Profile

2,4-D is an herbicide in the phenoxy or phenoxyacetic acid family that is used post-emergence for selective control of broadleaf weeds. 2,4-D is registered for use on a variety of food/feed sites including field, fruit, and vegetable crops. 2,4-D is also registered for use on turf, lawns, rights-of-way, aquatic sites, forestry applications, and is used as a plant growth regulator in citrus. Residents and professional applicators may use 2,4-D on home lawns.

Annual domestic 2,4-D usage is approximately 46 million pounds, with 30 million pounds (66%) used by agriculture and 16 million pounds (34%) used non-agriculture settings. In terms of pounds, total

2,4-D usage is allocated mainly to pasture/rangeland (24%), lawn by homeowners with fertilizer (12%), spring wheat (8%), winter wheat (7%), lawn/garden by lawn care operators/landscape maintenance contractors (7%), lawn by homeowners alone (without fertilizer) (6%), field corn (6%), soybeans (4%), summer fallow (3%), hay other than alfalfa (3%) and roadways (3%). Agricultural sites with at least 10% of U.S. acreage treated include spring wheat (51%), filberts (49%), sugarcane (36%), barley (36%), seed crops (29%), apples (20%), rye (16%), winter wheat (15%), cherries (15%), oats (15%), millet (15%), rice (13%), soybeans (12%) and pears (10%). For 2,4-D, rates per application and rates per year are generally less than 1.5 pounds acid equivalents per acre (lbs ae/A) and 2.0 pounds lbs ae/A, respectively. 2,4-D is used predominantly in the Midwest, Great Plains, and Northwestern United States. 2,4-D is used alone and is also commonly formulated with dicamba, mecoprop, mecoprop-p, MCPA, and clopyralid, among others.

Regulatory History

2,4-D has been registered in the United States since 1948. 2,4-D was the subject of a Registration Standard and a Registration Standard Guidance Document dated February 16, 1988 and September 1, 1988, respectively. Several data call-ins (DCIs) have been issued for 2,4-D. In 1980, a DCI was issued requiring registrants to submit studies on acute toxicity, oncogenicity in the rat and mouse, reproductive effects, teratogenicity, neurotoxicity, and metabolism. Another DCI was issued with the Registration Standard Guidance Document in 1988 that required studies on toxicity to aquatic organisms, acute toxicity, oncogenicity, teratogenicity, and a two-generation reproduction in rats, among others. During the second phase of reregistration, the Agency conducted a review of the scientific data base underlying pesticide registrations and identified missing or inadequate studies. Subsequent Data Call-Ins (DCIs) were issued in 1994 and 1995 for 2,4-D for information on agriculture re-entry exposure and outdoor residential exposure. Additionally, 2,4-D was subject to two DCIs in 1987 that called in product chemistry and analytical chemistry data on polyhalogenated dibenzo-p-dioxins/dibenzofurans.

2,4-D has been in pre-Special Review status since September 22, 1986, because of carcinogenicity concerns. More specifically, there were concerns for epidemiological links of 2,4-D to non-Hodgkin's lymphoma from both occupational and residential exposure. A proposed decision not to initiate Special Review was published (53 FR 9590) on March 23, 1988 based on findings that such a link could not be established. The final decision was deferred until reregistration. In part to address these concerns, the 2,4-D Task Force agreed to risk reduction measures in September, 1992, that included an exposure reduction plan effected through modifications of technical and manufacturing-use product labels and implementation of a user education program.

A Science Advisory Board/Scientific Advisory Panel Special Joint Committee reviewed available epidemiological and other data on 2,4-D in 1992 and concluded that "the data are not sufficient to conclude that there is a cause and effect relationship between exposure to 2,4-D and non-Hodgkin's lymphoma." 2,4-D was classified as a Group D, not classifiable as to human carcinogenicity. The

Agency requested further histopathological examinations of rat brain tissues and mouse spleen tissues in question. These exams were submitted and reviewed, and on March 16, 1999, the Agency notified the 2,4-D Task Force that the Agency would continue to classify 2,4-D as a Group D carcinogen.

The Agency has twice recently reviewed epidemiological studies linking cancer to 2,4-D. In the first review, completed January 14, 2004, EPA concluded there is no additional evidence that would implicate 2,4-D as a cause of cancer (EPA, 2004). The second review of available epidemiological studies occurred in response to comments received during the Phase 3 Public Comment Period for the 2,4-D RED. EPA's report, dated December 8, 2004 and authored by EPA Scientist Jerry Blondell, Ph.D., found that none of the more recent epidemiological studies definitively linked human cancer cases to 2,4-D.

Final notice of the Agency's decision not to initiate Special Review will be issued at the completion of the reregistration process.

Human Health Assessment

- Toxicity

In acute studies, 2,4-D generally has low acute toxicity (Toxicity Category III or IV) via the oral, dermal and inhalation routes of exposure. 2,4-D is not a skin irritant (Toxicity Category III or IV), nor a skin sensitizer. Although the 2,4-D ester forms are not eye irritants (Toxicity Category III or IV), the acid and salt forms are considered to be severe eye irritants (Toxicity Category I).

In longer-term studies, at dose levels above the threshold of saturation for renal clearance, 2,4-D is toxic to the eye, thyroid, kidney, adrenals, and ovaries/testes. Rat lowest observed adverse effect levels (LOAELs) are based on gait abnormalities in a neurotoxicity study, skeletal abnormalities in pups in a developmental study, and decreased weight gain in a chronic toxicity study. Dogs show a LOAEL based on decreased body weight gain and decreased food consumption, and rabbits show a LOAEL based on ataxia, decreased motor activity, and abortions.

2,4-D has been classified as a Category D chemical, i.e., not classifiable as to human carcinogenicity, by the EPA Cancer Peer Review Committee in 1996. A Science Advisory Board/Scientific Advisory Panel Special Joint Committee reviewed available epidemiological and other data on 2,4-D in 1992 and concluded that "the data are not sufficient to conclude that there is a cause and effect relationship between exposure to 2,4-D and non-Hodgkin's lymphoma." The Agency has twice recently reviewed epidemiological studies purporting to link cancer and 2,4-D. Findings of the review concurred with the conclusions drawn by the Science Advisory Panel/Scientific Advisory Board in 1992. The second recent review of available epidemiological studies found that none of the more recent epidemiological studies definitively linked human cancer cases to 2,4-D. The Agency recently reviewed the available toxicology data on diethanolamine (DEA) and related compounds. The Agency concluded that it was not likely

that exposure to the DEA salt of 2,4-D resulting from its limited use would pose a carcinogenic risk to humans.

Neurotoxicity was demonstrated following exposure to 2,4-D at relatively high dose levels. Clinical signs of neurotoxicity (ataxia, decreased motor activity, myotonia, prostration, lateral recumbency, impaired/loss of the righting reflex, and skin cold to the touch) were observed in pregnant rabbits following exposure to 2,4-D and its amine salts and esters. Neuropathology (retinal degeneration) was observed following 2,4-D exposure in several studies in female rats. A developmental neurotoxicity study in the rat is required for 2,4-D.

Developmental toxicity was observed in the rat following exposure to 2,4-D and its amine salts and esters. The developmental effects observed included increased incidence of skeletal abnormalities in the rat following exposure at or above the threshold of saturation of renal clearance. Based on currently available toxicity data, which demonstrate effects on the thyroid and gonads following exposure to 2,4-D, there is concern regarding its endocrine disruption potential. There have been no studies on 2,4-D that specifically assess its endocrine disruption potential. The Agency has determined that a repeat 2-generation reproduction study using the current protocol is required to address both the concern for thyroid effects (comparative assessment between the young and adult animals) and immunotoxicity, as well as a more thorough assessment of the gonads and reproductive/developmental endpoints.

- Dietary Exposure and Risk

The 2,4-D dietary risk assessment considered both acute and chronic risks from residues in food based on field trials. The acute and chronic dietary (food) risks are less than 100% of the Acute Population Adjusted Dose (aPAD) and Chronic Population Adjusted Dose (cPAD) for all population subgroups and are not of concern.

The Agency estimates potential surface water and ground water pesticide contamination using models and monitoring data. The maximum surface water modeling concentration of 118 parts per billion (ppb), or micrograms per liter (ug/l), was used for the acute drinking water exposure estimate and the surface water EDWC. The ground water EDWC and chronic drinking water exposure value is based on a ground water monitoring value of 15 ppb. Both the surface water and ground water EDWC values are below the drinking water level of concern (DWLOCs) of 450 ppb and 47 ppb for acute and chronic exposure, respectively, and are not of concern.

- Residential Exposure and Risk

Residential handlers may be exposed to 2,4-D during and after application to home lawns, or after applications at golf courses, parks, cemeteries, and other grassy areas. Exposure may also occur to recreational swimmers while swimming in waters treated with 2,4-D for aquatic weeds. 2,4-D products

are marketed for homeowner use on residential lawns and turf. 2,4-D containing products are also marketed for use by professional applicators on residential turf, golf courses, and on other turf such as recreational or commercial areas.

For the residential use of 2,4-D, EPA is concerned about any Margin of Exposure (MOE) less than 1000, which incorporates an uncertainty factor of 10x for interspecies variation, a 10x for intraspecies variation, and a 10x for database uncertainty.

2,4-D has been assessed for the mixing/loading/applicator (or "handler") exposure for applications by residents to home lawns. For post-application exposure, 2,4-D has been assessed for toddlers playing on treated turf, adults performing yardwork on treated turf, adults playing golf on treated turf, and children and adults swimming in bodies of water treated with 2,4-D for aquatic weed control. All residential handler and postapplication MOEs are greater than 1000 and therefore risks to residential handlers are not of concern. The risk to recreational swimmers is discussed below.

- Swimmer Exposure and Risk

2,4-D is also applied to water bodies in the acid, amine or BEE forms for control of aquatic weeds. Adults and children may be exposed to 2,4-D while swimming in these bodies of water. Because the 2,4-D water concentrations can vary depending upon the application rate and site conditions, Maximum Swimming Water Concentrations (MSWCs) were calculated. The MSWC is the water concentration at which the combined dermal and ingestion MOE meets or exceeds the target MOE of 1000. The MSWCs for 2,4-D acid and amines forms range from 3.6 ppm to 9.8 ppm, and for the 2,4-D BEE form ranges from 0.9 ppm to 2.4 ppm.

The Acute MSWC of 9.8 ppm for exposures to 2,4-D acid or amine is greater than the master label application rate of 4.0 ppm, therefore, acute exposures to acid or amine are not of concern. The short term MSWC of 3.6 ppm for short term exposures to acid or amine is also not of concern because some dissipation or dispersion is likely to occur which would cause the 7-day average of 2,4-D concentrations to be less than 3.6 ppm.

The MSWCs for 2,4-D BEE are less than the master label application rate of 4 ppm, but they are unlikely to be of concern because 2,4-D BEE degrades rapidly by abiotic hydrolysis; 2,4-D BEE degrades to 2,4-D acid by microbial hydrolysis; and modeling predicts direct water application of 2,4-D BEE will yield surface water concentrations of 2,4-D BEE in a standard pond of 0.624 ppm for peak (24 hour average), 0.03 ppm for the 21-day average, and 0.010 ppm for the 60-day average. Although the risk characterization above indicates that the risk estimates 2,4-D BEE are conservative, a 24-hour postapplication restriction on swimming is necessary to ensure the safety of children swimming in treated water.

- Aggregate Risk

An aggregate risk assessment looks at the combined risk from dietary exposure (food and drinking water pathways), as well as exposures from non-occupational sources (e.g., residential uses). In the preliminary and revised risk assessments, the estimated acute and short-term exposures exceeded the Agency's level of concern. As a result, 2,4-D registrants agreed to reduce the maximum application rate to turf and residential lawns from 2.0 pounds acid equivalent per acre (lbs ae/A) to 1.5 lbs ae/A per application. The current risk assessment considers exposures from the reduced application rate for residential turf.

Two methods of aggregate risk calculations were employed in assessing the aggregate risk of 2,4-D. The first method is the drinking water level of concern (DWLOC) method. A DWLOC is the portion of the acute population adjusted dose (PAD) or chronic PAD remaining after estimated dietary (food only) exposures have been subtracted and the remaining exposure has been converted to a concentration (ug/liter or ppb). This concentration value (DWLOC) represents the available or allowable exposure through drinking water. The second method is the forward calculation method. In this approach, food, drinking water, and residential exposures are aggregated and compared to an appropriate endpoint. A population adjusted dose, or PAD, is the reference dose (RfD) adjusted for the FQPA safety factor. A risk estimate that is less than 100% of the acute PAD (aPAD), the dose at which an individual could be exposed over the course of a single day and no adverse health effects would be expected, does not exceed EPA's level of concern. Likewise, a risk estimate that is less than 100% of the chronic PAD (cPAD), the dose at which an individual could be exposed over the course of a lifetime and no adverse health effects would be expected, does not exceed EPA's level of concern.

Acute aggregate risk. The acute DWLOCs are 432 ppb or greater with the most sensitive population being females 13-49 years old. The estimated drinking water concentrations (EDWCs) of 118 ppb for surface water and 15 ppb for groundwater are substantially less than the DWLOCs which means that the risks are not of concern. Using the forward calculation method, the highest risks (58 percent of the aPAD) are for females 13-49 years old. These risks are based upon the lower no-observed adverse effect level (NOAEL) of 25 mg/kg/day from a developmental study in rats. Acute aggregate risk is not of concern to the Agency.

Short-term aggregate risk. The short term DWLOCs were calculated only for females 13-49 and children 1-6 because these population subgroups have the highest exposure and are protective of the other subgroups. The DWLOCs range from 24 to 54 ug/liter. These DWLOCs are all greater than the EDWCs, which range from 15 to 23 ug/liter, and indicate that short term risks are not of concern. Using the forward calculation method, the short term aggregate MOEs indicate that the short term risks are not of concern because the MOEs equal or exceed the target MOE of 1000. The highest exposed subgroups were females 13-49 and children 1-6 years old.

Chronic (non-cancer) aggregate risk. The chronic DWLOCs are 47 ppb or greater with the most sensitive populations being infants and children. The EDWCs, which range from 1.5 to 23 ppb, are less than the DWLOCs which means that the risks are not of concern. With the forward calculation method,

chronic aggregate risks are not of concern because they are less than 100 percent of the cPAD. The highest risks (38 percent of the cPAD) are for children 1-2 years old.

- Occupational Exposure and Risk

Based on current use patterns, occupational handlers (mixers, loaders, and applicators) may be exposed to 2,4-D during and after normal use. The Agency identified 18 handler scenarios resulting from mixing/loading and applying 2,4-D for crop and non-crop uses. For the occupational use of 2,4-D, EPA is concerned about any MOE less than 100, which incorporates uncertainty factors of 10x for interspecies variation and 10x for intraspecies variation.

With the exception of mixing/loading wettable powder, all of the short-term and intermediate-term MOEs exceed the target of 100 with baseline personal protective equipment (PPE) (i.e., long-sleeved shirt, long pants, shoes plus socks, no respirator) or single layer PPE (i.e., long-sleeved shirt, long pants, shoes plus socks, gloves, no respirator) and are not of concern. The MOEs for handling wettable powder are above 100 with engineering controls (i.e. water soluble bags).

- FQPA Considerations

The Agency has concluded that the FQPA Safety Factor for 2,4-D should be removed (equivalent to 1X) based on a complete database for FQPA consideration. The toxicity database for 2,4-D includes acceptable developmental and reproductive toxicity studies. Developmental toxicity studies were conducted in both rats and rabbits for most 2,4-D forms. There is qualitative evidence of susceptibility in the rat developmental toxicity study with 2,4-D acid and DEA salt where fetal effects (skeletal abnormalities) were observed at a dose level that produced less severe maternal toxicity (decreased body-weight gain and food consumption). There is no evidence of increased (quantitative or qualitative) susceptibility in the prenatal developmental toxicity study in rabbits or in the 2-generation reproduction study in rats on 2,4-D. Regarding the 2,4-D amine salt and ester forms, no evidence of increased susceptibility (quantitative or qualitative) was observed in the prenatal developmental toxicity study in rats and rabbits (except for 2,4-D DEA) dosed with any of the amine salts or esters of 2,4-D. There is evidence of increased susceptibility (qualitative) in the prenatal developmental study in rabbits for 2,4-D DEA salt.

After establishing developmental toxicity endpoints to be used in the risk assessment with traditional uncertainty factors (10x for interspecies variability and 10x for intraspecies variability), the Agency has no residual concerns for the effects seen in the developmental toxicity studies. Therefore, the 10X FQPA special safety factor was reduced to 1X.

Based on evidence of developmental neurotoxicity, the Agency has determined that a developmental neurotoxicity (DNT) study in rats is required for 2,4-D. There is also evidence of developmental toxicity. In addition, the Agency determined that a repeat two generation reproduction study using the

most recent Agency protocol is required to address concerns for endocrine disruption. Therefore, the Agency determined that a 10X database uncertainty factor (UF_{DB}) is needed to account for the lack of these studies.

- Tolerance Reassessment

The tolerances for 2,4-D meet the FQPA safety standards for the U.S. population and sensitive populations, including infants and children. EPA find that there is a reasonable certainty of no harm to the general population and any subgroup from the use of 2,4-D.

Environmental Assessment

- Environmental Fate

The 1988 2,4-D Registration Standard proposed an environmental fate strategy for bridging the degradation of 2,4-D esters and 2,4-D amine salts to 2,4-D acid. The bridging data indicate esters of 2,4-D are rapidly hydrolyzed in alkaline aquatic environments, soil/water slurries, and moist soils. The 2,4-D amine salts have been shown to dissociate rapidly in water. However, 2,4-D esters may persist under sterile acidic aquatic conditions and on dry soil. These bridging data indicate under most environmental conditions 2,4-D esters and 2,4-D amines will degrade rapidly to form 2,4-D acid.

A complete database has been assembled for 2,4-D acid. The dissipation of 2,4-D appears to be dependent on oxidative microbial-mediated mineralization, photodegradation in water, and leaching. Data indicates that 2,4-D degrades rapidly in soils (half life = 6.2 days), degrades rapidly in aerobic aquatic environments (half life = 15 days), and is relatively persistent in anaerobic aquatic environments (half life ranges from 41 to 333 days). 2,4-D esters volatilize readily, particularly in conditions of high temperatures and low humidity.

2,4-D has a low binding affinity in mineral soils and sediment. 2,4-D has been detected in groundwater at approximately 15 ppb. This is below the DWLOCs determined to be protective in the human health risk assessment for 2,4-D and is also below the maximum contaminant level (MCL) for 2,4-D set at 70 ppb by the EPA Office of Water.

- Ecological Toxicity

2,4-D is considered to be moderately to practically non-toxic to birds on an acute basis. The avian chronic endpoint is based on the endpoints of eggs cracked and decreased number of eggs laid. 2,4-D is classified as slightly toxic to small mammals on an acute oral basis. The mammalian chronic endpoint is based on decreased maternal body weight gain and changes in hematology.

A honey bee acute toxicity study indicated that 2,4-D is practically non-toxic to the honey bee. 2,4-D is toxic to terrestrial plants; it is more toxic to dicots than to monocots.

2,4-D acid and amine salts have been found to be practically non-toxic to freshwater or marine fish. The 2,4-D esters have been found to be highly toxic to fish. The chronic toxicity endpoint for the acid and amines salts is based on larval length and survival, and the chronic endpoint for the esters is based on fish survival.

Acute toxicity studies on 2,4-D acid and amine salts show these compounds to be slightly toxic to practically nontoxic to aquatic invertebrates. The 2,4-D esters have been found to be very highly toxic to slightly toxic to freshwater and marine invertebrates. The 2,4-D esters may be chronically toxic to freshwater and marine invertebrates. 2,4-D is toxic to aquatic plants; it is more toxic to vascular plants than to non-vascular plants.

- Risks to Terrestrial and Aquatic Organisms

The Agency conducted a screening level ecological risk assessment to determine the potential impact of 2,4-D use on non-target terrestrial and aquatic organisms. The Agency used modeling to evaluate ecological risks for 2,4-D.

Most ecological risk quotient (RQ) values exceed the LOC, with the following exceptions: chronic risk to fish from use of 2,4-D BEE for aquatic weed control, risk to endangered aquatic plants from use of 2,4-D on rice and for aquatic weed control, chronic risk to mammals from use of 2,4-D liquid spray, acute risk to non-endangered and endangered plants from use of 2,4-D liquid spray, and acute risk to non-endangered and endangered plants from use of 2,4-D granules. As noted in the ecological risk characterization, many of the assumptions used in the ecological risk assessment are conservative, and risk to many non-target organisms may be overestimated.

The Agency's screening level risk assessment for 2,4-D concluded that there is a potential for risk to endangered species. Reductions in application rates and/or number of applications will reduce overall risk. The turf rate will be reduced from 2.0 lbs ae/acre per application to 1.5 lbs ae/acre per year. The spray drift control measures are expected to reduce the risk of 2,4-D to non-target plants.

Risk Mitigation

To lessen the risks posed by 2,4-D, EPA and registrants have agreed on the following risk mitigation measures:

- Residential Risk

Reducing the maximum application rate from 2.0 lbs ae/A to 1.5 lbs ae/A for residential turf.

A 24 hour post-application restriction on swimming in water treated with 2,4-D BEE.

- Occupational Risk

Risks from handling wettable-powder products can be mitigated by requiring that wettable powder products be packaged in water-soluble packaging.
The exposure reduction program implemented in 1992 will be replaced with the personal protective equipment described in the label table for 2,4-D.

- Ecological Risk

Measures to control spray drift are expected to reduce the risk of 2,4-D to non-target plants.
The turf rate reduction from 2.0 to 1.5 lbs ae/acre per year will reduce exposure to non-target organisms.
All registrants must conform use rates to those set forth in the 2,4-D master label and reflected in the 2,4-D RED label table. Master label rates are lower than existing rates for several different use sites, including: field corn, popcorn, sweet corn, small grains, fallowland/stubble, non-cropland, turf, aquatic applicaitons (surface), pasture, and soybean. These lower rates will reduce exposure to non-target organisms.

Additional Data Required

EPA is requiring multiple confirmatory data requirements for 2,4-D. For a complete listing of required studies with corresponding guideline number, see Section V of the 2,4-D RED document.

- Ecological Data Requirements

EPA is requiring data on the behavior of 2,4-D BEE under acidic to neutral aquatic conditions in a water/sediment system; terrestrial, aquatic, and forest field dissipation studies; testing with a typical end-use product on estuarine/marine fish and invertebrates, sediment toxicity, and testing on non-target terrestrial plants. The Agency is also requiring registrants to provide information on the proximity of Federally listed freshwater vascular plants, birds, mammals, and non-target terrestrial plants to the 2,4-D use sites.

- Toxicity Data Requirements

The EPA is requiring that registrants submit toxicity data, including a developmental neurotoxicity study in rat; subchronic (28-day) inhalation study; repeat two-generation reproduction study in rat using more recent protocol to addressing concerns for endocrine disruption.

- Chemistry Data Requirments

The Agency has identified several product and residue chemistry requirements. Also, in order to confirm that dioxin levels are within acceptable limits, the Agency is requiring that all technical

products be analyzed for 2,3,7,8-TCDD, 2,3,7,8-TCDF, and their respective higher substituted chlorinated congeners using validated analytical methods.

Product Labeling Changes Required

All 2,4-D end-use products must comply with EPA's current pesticide product labeling requirements and with the labeling changes set forth in Section V of the 2,4-D RED document.

Regulatory Conclusion

EPA has determined that all products containing 2,4-D as the active ingredient are eligible for reregistration, provided changes specified in the 2,4-D RED are incorporated into the label and additional data identified in Section V of the RED confirm this conclusion.

For More Information

Electronic copies of the RED and this fact sheet are available on the Internet. See http://www.epa.gov/pesticides/reregistration/status.htm or http://www.epa.gov/edockets.

For more information about EPA's pesticide reregistration program, the 2,4-D RED, or reregistration of individual products containing 2,4-D, 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 Pesticide Information Center (NPIC). Call toll-free 1-800-858-7378, from 6:30 am to 4:30 am Pacific Time, or 9:30 am to 7:30 pm Eastern Standard Time, seven days a week. The NPIC internet address is http://npic.orst.edu EXIT Disclaimer.