United States Environmental Protection Agency | Prevention, Pesticides And Toxic Substances (7508W) | EPA-738-F-96-014 August 1996

R.E.D. FACTS

Coumaphos

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 0018, coumaphos.

Use Profile

Coumaphos is an insecticide/acaricide used to control anthropod pests on beef cattle, dairy cows, goats, horses, sheep, and swine. Formulations include wettable powders, emulsifiable liquids, flowable, ready-to-use, and dusts. Coumaphos is applied by aerosol can, dust bags, hand-held dusters, dip vats, high and low pressure hand-held sprayers, backrubber oiler, mechanical dusters, shaker can, and squeeze applicator. The technical registrant has stated they intend to voluntarily cancel the pour-on formulation and prohibit application of dust formulations using mechanical dusters, which are believed to result in higher applicator exposure.

The U.S. Department of Agriculture (USDA) uses coumaphos in dip vats, located principally along the U.S./Mexico border, to control ticks that carry equine and bovine piroplasmosis (Texas Cattle Fever). Livestock, almost exclusively cattle, are immersed in coumaphos solution by entering and swimming through these large (4000 gallon) trench shaped vats.

Regulatory History

Coumaphos was first registered as a pesticide in the U.S. in 1958. EPA issued a Registration Standard for Coumaphos in 1989 (PB90-122243). In 1989 and 1992 Data Call-In's (DCI) were issued requiring additional residue chemistry, environmental fate, and toxicological data.

Currently, 26 coumaphos products are registered. Two of these products are classified for restricted use due to acute oral toxicity, i.e., the 11.6% EC and the 42% flowable concentrate. Coumaphos is used as a direct animal treatment only; no food, feed, ornamental, or homeowner uses are registered. The predominant use is on beef and dairy cattle with much smaller amounts being used on swine, goats, and horses. All uses of coumaphos are considered to be outside the scope of the Worker Protection Standard for Agricultural Pesticides (WPS).

The Agency currently is requiring additional handler (mixer/loader/applicator) exposure data for coumaphos before it can make a regulatory decision on non-USDA uses of coumaphos. Only the USDA Animal and Plant Health Inspection Service (APHIS) uses of coumaphos for control of ticks, where there is significant economic benefit and employees are in a cholinesterase monitoring program, are considered eligible for reregistration at this time. The Agency is deferring a regulatory decision on all uses other than the USDA uses until handler (mixer/loader/ applicator) exposure data for coumaphos is submitted and reviewed.

Human Health Assessment

Toxicity

In studies using laboratory animals, coumaphos generally has been shown to be of moderate to high acute toxicity. It is highly toxic by the oral and inhalation routes of exposure (Toxicity Category I and II, respectively) and moderately acutely toxic by the dermal route of exposure (Toxicity Category III). Technical coumaphos causes only mild eye and dermal irritation (Toxicity Category III and IV, respectively), and is nonsensitizing. Coumaphos does not produce organophosphate-type delayed neurotoxicity, based on acute neurotoxicity testing in hens.

In vitro microbial studies for gene mutation and DNA damage coumaphos did not cause a mutagenic response. Coumaphos is classified as a Group E carcinogen, indicating that it is non-carcinogenic to humans. Studies utilizing rats and rabbits indicate that coumaphos does not cause reproductive effects. Cholinesterase inhibition (plasma and erythrocyte) is the primary target of coumaphos. Metabolism studies in rats indicate that coumaphos is excreted (76-96%) in the urine and feces within seven days of exposure.

Dietary Exposure

People may be exposed to residues of coumaphos through the diet. Tolerances or maximum residue limits have been established for residues of coumaphos in the meat, fat, and meat by-products of cattle, goats, hogs, horses, poultry and sheep; and in milk fat and eggs (40 CFR 180.189). The registrant has voluntarily cancelled use on poultry and therefore poultry tolerances, including eggs, will be revoked as part of reregistration.

The Anticipated Residue Concentration (ARC) for the overall U.S. population represents 39% of the Reference Dose (RfD), an amount believed not to cause adverse effects if consumed daily over a 70-year lifetime. The most highly exposed subgroup, non-nursing infants - less than one year old, has an ARC which represents 73% of the RfD. This fraction of the allowable RfD is considered to be an acceptable dietary exposure risk.

The Agency also conducted an acute dietary exposure analysis because coumaphos causes neurotoxic effects, i.e., cholinesterase inhibition. Margins of exposure (MOEs), which show how closely estimated exposure comes to a dose of concern, were calculated for the overall U.S. population and several population subgroups including infants (<1 year old) and children (1-6 years old). The Agency conducted this analysis using high end or maximum anticipated residues, i.e., a conservative approach very protective of human health. Infants (<1 year) and children (1-6 years old) are the only subgroups whose exposure may be of concern. However, these risk values represent an unrealistic worst case situation. The Agency used many conservative assumptions in calculating these risks, including: 1) the dose required to produce red blood cell cholinesterase inhibition at three weeks, which would overestimate the dose that would be expected to produce ChE from a single exposure; 2) maximum residue levels present on all registered food items, with no dilution or degradation of residues occurring during preparation or processing of food; 3) all food items were treated with coumaphos. EPA believes it is unlikely that infants and children will be exposed to coumaphos-treated commodities at levels that will result in unacceptable acute dietary risk.

Occupational and Residential Exposure

The primary route of handler exposure to coumaphos is dermal. The Agency's primary concern is acute dermal exposure during mixing, loading, and application of coumaphos, especially in the livestock dip-vat and handheld sprayer uses where large amounts of coumaphos are handled. Livestock dip-vats can hold up to 4000-4500 gallons and require the mixing/loading of up to 95 lbs of active ingredient (ai) to achieve the proper concentration when filling the dip vats from empty. During hand-held sprayer treatment of cattle, up to 40.0 lbs of active ingredient may be handled, an amount sufficient to treat 1000 cattle at maximum application rate of 4.0 lbs ai/100 gallons.

Chemical-specific exposure data for coumaphos were never required to support coumaphos registration or reregistration and are not available. EPA assessed mixer/loader/applicator exposure and risk to coumaphos using the toxicological endpoint dermal toxicity and surrogate exposure data in the Pesticide Handlers Exposure Database (PHED), making assumptions that coumaphos handlers wear certain personal protective equipment and that they

treat a certain number of livestock, etc. Exposure estimates were conducted for the two coumaphos use scenarios believed to result in the greatest exposure: dip-vat use and handheld sprayers.

MOE estimates for these two scenarios indicate a potential for unacceptable handler exposure and/or risk from coumaphos as currently registered. The Agency conducted exposure assessments for the dip vat and handheld sprayer uses, making assumptions intended to reflect handling "typical" and "maximum" amounts of coumaphos, i.e., pounds of active ingredient per day. For example, an exposure assessment must make assumptions concerning the number of livestock that an individual will typically treat per day as well as a likely maximum. The Agency assumed a "typical" treatment of 100 cattle/day/individual and a "worst case" of 1,000 cattle/day/individual. MOEs for the handheld spraying scenario were 82 and 8.2, respectively assuming the lowest registered application rate, while MOEs are eight times lower (10.1 & 1.1) at the maximum application rate of 4.0 lbs ai/100 gallons.

MOEs for the dip-vat use were calculated to range from 9 to 36 assuming a 1000 or 250 gallon "topping off" or recharging of the dip vats after animals moving through the vats have depleted the liquid level. Lower MOEs result when the greater amount of active ingredient is handled, in this case sufficient active ingredient to recharge 1000 gallons of dip vat solution.

Uncertainties in the existing handler exposure databases (PHED) do not allow the Agency to determine, with confidence, the exact MOEs for these exposure scenarios. However, the Agency finds that MOEs for large dip vat and hand-held sprayer treatment of large herds are very low. Therefore, the Agency is requiring closed systems for the mixing/loading of coumaphos products used in dip vats and/or hand-held sprayers, i.e., water-soluble bags for the WP formulation. The registrant must determine an appropriate system to reduce handler exposure during mixing/loading for the flowable and emulsifiable concentrate formulations. The registrant may choose to reduce handler exposure during mixing/loading with water soluble "gel packs", "no glug" containers, or any other equivalent system approved by the Agency. The registrant must propose a system within eight months and submit handler exposure studies within one year to document handler exposure and confirm that improved packaging/closed systems now results in acceptable MOEs.

The Agency has made a regulatory decision concerning the USDA uses of coumaphos because of the very significant economic benefits and the fact that USDA has a program in place to monitor the cholinesterase levels of the handlers (mixer/loader/applicators) involved. In the USDA program livestock are treated with coumaphos to control ticks (Boophilus spp., Dermacentor nitems, and exotic ticks) and prevent outbreaks of Texas Cattle Fever. USDA use of coumaphos accounts for almost half of the U.S. usage. USDA has estimated the economic importance of this use to be between $1-5 billion dollars. The Agency has decided, based on the economic importance of coumaphos to the Texas Cattle Fever Eradication Program, that all USDA uses are considered eligible for

reregistration, provided the required exposure studies are submitted and mixer/loader exposure reduction measures discussed above are put into place. When the chemical-specific exposure data required by this RED are received and reviewed, the Agency will make a regulatory decision regarding the reregistration eligibility of the non-USDA uses of coumaphos.

The Agency believes that there is minimal potential exposure to persons entering treated sites after application because most coumaphos is applied directly to livestock. Post-application exposures do not appear to pose an unreasonable risk to persons contacting treated animals, as long as contact is not permitted immediately after application.

Human Risk Assessment

Based on the available toxicity studies, EPA has determined that coumaphos presents a potential acute health hazard. It is of high acute toxicity and is a cholinesterase inhibitor. Coumaphos has been classified as non-carcinogenic to humans. Dietary exposure to coumaphos residues occurs from meat and milk at very low levels. There are no agricultural uses of coumaphos registered, and the dietary risk, both chronic and acute, appears to be acceptable.

Of greater concern is the risk posed to coumaphos handlers, particularly mixers/loaders/applicators, who are exposed during treatment of livestock. Margins of Exposure (MOEs) are less than 100 (the margin believed to be sufficiently protective) for applicators for several exposure scenarios. Exposure and risk to workers will be mitigated by the use of PPE and closed systems, as required by this RED. Non-USDA uses of coumaphos are not eligible for reregistration until mixer/loader exposure reduction measures are implemented, and handler exposure studies are submitted and evaluated.

EPA is employing a number of risk mitigation measures to protect coumaphos handlers. For example, the Agency is requiring "baseline" personal protective equipment (PPE) and closed systems for the mixing/loading of products used in dip vats and/or hand-held sprayers, i.e., water soluble bags for the WP formulation. The registrant must determine an appropriate system to reduce handler exposure, e.g. water soluble "gel packs", "no glug" containers, or any other equivalent system approved by EPA. The Agency is requiring exposure data to be submitted, within one year after the RED was received, using the proposed closed system.

Environmental Assessment

Environmental Fate

The various degradation, metabolism, mobility, dissipation and ground water studies, although found mostly to be supplemental, do nevertheless support a qualitative characterization of the environmental fate of coumaphos. Coumaphos is persistent, with the exception that aqueous photolysis is rapid with a half-life of 33 hours. The half-life is much greater than 30 days for hydrolysis; much greater than a year for aerobic soil metabolism; and ca. 118 to 185 days for field dissipation. Coumaphos also appears to be immobile, with K_d values ranging from 61 to 298 for parent and from 91 to 161 for the degradate chlorferon.

The major coumaphos degradates identified under aerobic conditions were chlorferon, which reached a maximum of 6.2% of the organosoluble radioactivity recovered at six months, and 6-hydroxyl-3-methylbenzofuran, the oxygen analog, which comprised a maximum of 0.2% of recovered radioactivity at six months. In column leaching studies, chlorferon and 6-hydroxyl-3-methylbenzofuran comprised 3.1% and 0.2%, respectively, in the top six inches of the sandy loam soil column. Similar results were obtained using sand, silt loam, and silty-clay loam soil columns.

Coumaphos was applied to soil at 300 mg/l with and without incorporation to evaluate leaching potential. The soil was not sampled at sufficient depth to define the extent of leaching; however, samples taken 6 to 12 inches deep contained coumaphos at concentrations of 25 to 375 mg/l 32 weeks after treatment and at 5 to 69 mg/l 52 weeks after treatment. A special retrospective field dissipation study was conducted to characterize the depth of leaching in disposal pits and walkways of coumaphos treatment dip vats. On-site disposal of spent coumaphos in unlined pits was found to result in leaching of coumaphos, chlorferon and potasan to the subsurface (72 inches in the study), and could result in ground water contamination in areas of shallow ground water. These compounds may reach ground water, although there was insufficient depth of soil sampling conducted in the study to determine if coumaphos and/or its metabolites could have reached the deep wells that were tested during the study.

Results of the special field dissipation study support the finding that coumaphos is persistent; however coumaphos moved to greater depths than expected based on it's K_d values. The apparently higher mobility in the special dissipation study could have resulted from the high concentration of spent coumaphos in soil evaporation pits.

Several hundred thousand head of cattle are dipped every year in one of the ca. 45 USDA vats mainly located along the U.S.-Mexican border. The vats contain approximately 15,000 liters of coumaphos solution with the active ingredient concentration of 0.15-0.31%. Vats are emptied, cleaned, and recharged every 6 to 12 months, depending on usage, generating approximately one million liters of coumaphos waste per year.

Typically the vats are recharged when the sediment level reaches 10% of the total volume.

Since 1986 the Agricultural Research Service (ARS) of the USDA has been conducting research concerning the degradation of coumaphos in cattle-dipping vats. Dip vat solutions of coumaphos can be inactivated through the metabolic action of bacteria that are naturally present in some dip vats. The USDA/ARS has been experimenting with microbial degradation of the spent vat solutions and has now successfully demonstrated a detoxification procedure. This procedure has been tested in laboratory scale equipment and most recently in the field in a full scale (4,000 gallon tank) pilot test conducted in Texas. Two spent vat solutions were bioremediated to ca. 10 ppm. To date field testing of this bioremediation method indicates that coumaphos levels in the spent vat solutions are reduced from ca. 1200-1300 ppm to 10 ppm in a few weeks. The spent solution would then be put into lined evaporation pits or applied to non-agricultural land. Currently, the untreated 1200-1300 ppm spent solution is deposited in unlined evaporation ponds.

The Agency is requiring improvements in the disposal of coumaphos spent dip-vat solution. The Agency is requiring labeling that requires the use of this bioremediation procedure and/or the use of lined pits for disposal of spent solution that has not been bioremediated or ultimate disposal of bioremediated solution. The Agency is allowing local and/or State Environmental Control Agencies the option to permit use of lined evaporation ponds. The Agency believes that the lined evaporation pond method of disposal is much less desirable than bioremediation and should be permitted only in those instances when use of the bioremediation method is not feasible. If permitted by local regulations, the lined evaporation pond can be eliminated and the bioremediated spent solution (ca. 10 ppm coumaphos) simply sprayed directly onto non-agricultural land in order for further in-situ bioremediation to occur. This decision should be made by the individual states involved who are most familiar with the soil types and ground water situation in their area. In any case, the Agency endorses this method of treatment. The Agency has concerns about leakage of spent dip vat solution from lined evaporation ponds. Reducing the absolute amount of active ingredient in the spent vat solution deposited in the evaporation ponds greatly mitigates the Agency's concern with leakage. This procedure appears to be relatively inexpensive and initial communication with USDA/APHIS, the dip vat operators, indicates that this treatment of vat solutions is being pursued.

The Agency considers the aerobic biodegradation of the spent dip vat solution critical in preventing the downward and or lateral movement of coumaphos and ultimately in preventing the contamination of groundwater. Although it will result in increased cost, the use of bioremediation is certainly much less expensive than any "clean-up" of ground water that

may be necessary if even one evaporation pond were to leak. Because this is new a procedure and will require capital upgrades (bioremediation tank and/or lined pits) the Agency will phase in this disposal method revision over a two year period from issuance of the RED. The Agency also understands that technical assistance, e.g., answering questions concerning construction of bioremediation tanks, will initially be provided by USDA/ARS. The USDA/ARS **will not** operate bioremediation sites to treat non-USDA spent dip vat solutions.

Ecological Effects

Coumaphos is highly to very highly acutely toxic to birds if consumed, based on terrestrial vertebrate test data. Available measurements of avian acute oral LD_{50}, for technical grade coumaphos (TGAI), ranged from 2.4 to 29.8 mg/kg based on bobwhite quail, mallard duck and pheasant. Available measurements of the avian dietary LC_{50}, using TGAI coumaphos as the test material, ranged from 82.1 to 401.9 mg/kg based on tests including bobwhite quail, mallard duck, ring-necked pheasant and Japanese quail. For terrestrial mammals, a wide range of LD_{50} values have been obtained based on testing using rats that indicate slight to high toxicity on an acute oral basis: LD_{50} values were as low as 17 mg/kg for the TGAI, and as low as 32 mg/kg for one end-use product.

Data for aquatic organisms indicate that coumaphos is moderately to highly toxic to fish on an acute basis: LC_{50} measurements for coumaphos TGAI ranged from 0.34 mg/kg for bluegill sunfish to 5.9 mg/kg for rainbow trout. Coumaphos can be characterized as very highly toxic to aquatic invertebrates on an acute basis: LC_{50} values for coumaphos TGAI ranged from 0.074 μg/l for *Gammarus lacustris* to 0.224 μg/l for *Gammarus fasciatus*.

Chronic toxicity data are available for aquatic animals. Data from a fish early life stage study with coumaphos showed that for Rainbow trout, based on the most sensitive parameters, length and weight, the NOEC, LOEC and MATC are 11.7 μg/l, 24.6 μg/l and 16.9 μg/l, respectively. Data from a *Daphnia magna* life cycle chronic toxicity study with coumaphos showed that based on the most sensitive parameter, survival, the NOEC, LOEC and MATC are 33.7 ng/l, 75.8 ng/l and 50.5 ng/l, respectively. (The concentrations here represent average measured values.)

Data on marine and estuarine animals indicate that coumaphos is highly toxic to marine and estuarine fish. The LC_{50} for sheepshead minnow is 280 μg/l. Coumaphos is also highly toxic to marine and estuarine mollusks on an acute basis. The LC_{50} measurements for marine and estuarine mollusks ranged from 290 μg/l to 880 μg/l based on the oyster *Crassostrea virginica*. Coumaphos is very highly toxic to marine crustaceans on an acute basis. The available LC_{50} measurement was 2.0 μg/l.

Ecological Effects Risk Assessment

EPA is concerned with the acute hazard of coumaphos to birds. Birds could be exposed by ingestion of cattle hair, skin or debris or by secondary exposure such as ingestion of other birds which consumed coumaphos tainted materials. There is really no effective way to mitigate this risk short of cancelling the use. In view of the high economic benefits of this insecticides use (est. to be $1-5 billion by USDA) EPA believes that the most appropriate means of dealing with this issue is a label advisory indicating it's acute toxicity and potential exposure.

Technical coumaphos is moderately toxic to freshwater fish and very highly toxic to aquatic invertebrates. There is a potential for exposure to aquatic organisms resulting from washing-off of the material from the backs of newly treated cattle that have entered a stream or pond.

While the potential for risk to aquatic invertebrates exists, it is geographically limited to major cattle and dairy areas. EPA believes that alerting cattlemen via label warnings is the most appropriate method to deal with this concern. In addition, the EPA does not expect sensitive, relatively undisturbed aquatic ecosystems to be closely associated with feedlots where the heaviest use of coumaphos is expected to occur.

Risk Mitigation

To lessen concerns with the handler risks, ground water contamination, and danger to avian species and aquatic organisms posed by coumaphos use, EPA is requiring the following risk mitigation measures:

- Due to concerns about the high acute toxicity of coumaphos, EPA is establishing baseline personal protective equipment (PPE) requirements for handlers of all end-use products.
- To further mitigate risks to handlers, EPA is requiring water soluble packaging for powders and either water soluble "gel packs" or "no-glug" containers (or other equivalent system approved by the Agency) for flowable formulations.
- To minimize post-application exposure, EPA is requiring a label advisory to avoid contact with treated livestock until they are dry.
- Disposal of spent vat solution in unlined evaporation pits is being phasing out over a two year period. The new disposal method must meet Local and/or State Environmental Control Agency requirements for the geographical area where the dip vat is located. The Agency is recommending that spent dip-vat solution be bioremediated in accordance with a method developed by the USDA/ARS. The treated solution can then be transferred to lined, shallow evaporation ponds or applied to soil to encourage further degradation. Details can be found in the coumaphos RED.

The hazard to aquatic invertebrates and birds cannot be eliminated; however, it may be mitigated by label warnings.

Additional Data Required

The generic data base supporting the reregistration of coumaphos for the above eligible uses, i.e. the USDA uses, has been reviewed and determined to be substantially complete with the exception of occupational (mixer/loader/applicator) exposure data. The following data are required before the Agency can make a regulatory decision regarding reregistration eligibility of non-USDA uses of coumaphos:

Worker exposure

Guideline 231:Estimation of Dermal Exposure at Outdoor Sites

- Mixing/loading/application of dipping solutions for both the liquid and wettable formulations (The Agency will use these data to represent all mixing/loading operations, e.g., backrubber and dust bag setup).
- Mixing/loading/application of liquid and wettable powder formulations from high and low-pressure handwand sprayers.
- Application of ready-to-use, pour-on solutions.
- Application with shaker cans, foam spray cans, and application with mechanical dusters.

Guideline 232:Estimation of Inhalation Exposure at Outdoor Sites

- Testing is required for the same uses as cited under Guideline 231.

The following data are considered confirmatory:

Environmental Fate

Guideline 162-2: Anaerobic Soil Metabolism

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 coumaphos end-use products must comply with EPA's current pesticide product labeling requirements and with the following personal protective equipment requirements as outlined below. For a comprehensive list of labeling requirements, please see the coumaphos RED document.

EPA is establishing active-ingredient-based minimum (baseline) engineering control requirements for liquid-concentrate and wettable-powder formulations. EPA is also establishing active-ingredient-based minimum (baseline) personal protective equipment requirements for all handlers.

Ready-To-Use Products: EPA is establishing minimum (baseline) PPE for all ready-to-use formulations of coumaphos as follows:

Applicators and other handlers must wear:
-- long-sleeve shirt and long pants,
-- chemical-resistant gloves, and
-- shoes plus socks.

Wettable Powder Products: EPA is requiring that wettable powder formulation be contained in water-soluble packets. In addition, EPA is establishing minimum (baseline) PPE for wettable powder formulations as follows:

"Handlers exposed to the concentrate, such as during a spill or equipment break-down, and all handlers participating in dip-vat applications must wear:
-- long-sleeve shirt and long pants,
-- chemical-resistant gloves,
-- chemical-resistant footwear plus socks,
-- chemical-resistant apron, and
-- face shield or goggles.

"All other handlers must wear:
-- long-sleeve shirt and long pants,
-- chemical-resistant gloves, and
-- chemical-resistant footwear plus socks."

"Water-soluble packets when used correctly qualify as a closed loading system. Handlers handling this product while it is enclosed in intact water-soluble packets are permitted to wear long-sleeved shirt, long pants, chemical-resistant gloves, shoes plus socks, and a chemical-resistant apron. However, such handlers must be provided a face shield or goggles and have such PPE immediately available for use in a emergency, such as a spill or equipment break-down."

Emulsifiable Concentrate and Flowable Concentrate Products: EPA is requiring that all liquid concentrate formulations be contained in "no-glug" containers, water-soluble gel-packs, or other equivalent methods approved by the Agency. In addition, EPA is establishing minimum (baseline) PPE requirements for all liquid-concentrate formulations as follows:

"Mixers, loaders, and others exposed to the concentrate (such as during a spill or equipment break-down) and all handlers participating in dip-vat applications must wear:

-- long-sleeve shirt and long pants,

-- chemical-resistant gloves,

-- chemical-resistant footwear plus socks,

-- chemical-resistant apron, and

-- face shield or goggles.

"All other handlers must wear:

-- long-sleeve shirt and long pants,

-- chemical-resistant gloves, and

-- chemical-resistant footwear plus socks."

Regulatory Conclusion

The USDA use of coumaphos in accordance with approved labeling will not pose unreasonable risks or adverse effects to humans or the environment provided exposure reduction measures during mixing loading are implemented as discussed above. Therefore, these uses of coumaphos are eligible for reregistration. The EPA is requiring water soluble packaging for powders and either water soluble "gel packs" or "no-glug" containers (or other equivalent system approved by the Agency) for flowable formulations.

EPA does not have enough information at this time to make an eligibility decision for non-USDA uses of coumaphos. The Agency is requiring additional handler exposure data in order to develop a more complete data base regarding these uses of coumaphos.

For More Information

EPA is requesting public comments on the Reregistration Eligibility Decision (RED) document for coumaphos 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 can be downloaded from the Pesticide Special Review and Reregistration Information System

at 703-308-7224. They also are available on the Internet on EPA's gopher server, *GOPHER.EPA.GOV*, or using ftp on *FTP.EPA.GOV*, or using WWW (World Wide Web) on *WWW.EPA.GOV*.

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 coumaphos RED document also will be available from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, telephone 703-487-4650.

For more information about EPA's pesticide reregistration program, the coumaphos RED, or reregistration of individual products containing coumaphos, please contact the Special Review and Reregistration Division (7508W), 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.