

New York State Department of Environmental Conservation

Division of Solid & Hazardous Materials

Bureau of Pesticides Management

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March 28, 2006

CERTIFIED MAIL **RETURN RECEIPT REQUESTED**

Ms. Miriam Carr
State Registration Technician
E.I. du Pont de Nemours and Company
Stine-Haskell Research Center, S300/427
P.O. Box 30
Newark, Delaware 19714-0030

Dear Ms. Carr:

Re: Registration of a Revised Label for the Pesticide Product DuPont Avaunt Insecticide (EPA Reg. No. 352-597) Which Represents a Major Change in Labeled (MCL) Use Pattern for the Active Ingredient Indoxacarb

The New York State Department of Environmental Conservation (Department) has reviewed your application, received October 26, 2005, to register a revised label for the product **DuPont Avaunt Insecticide** (EPA Reg. No. 352-597) in New York State. The revised label proposes removal of the statement "Not for Use or Sale in Suffolk and Nassau Counties, Long Island, New York" and represents a major change in labeled (MCL) use pattern for the active ingredient **indoxacarb**.

Avaunt was first registered for use as a foliar spray for the control of lepidopteran pests on apples, broccoli, tight-headed cabbages, cauliflower, sweet corn, head and leaf lettuce, pears, peppers and tomatoes in commercial and farm plantings and cannot be used on crops labeled for "U-pick" by consumers. The current label also has use on Brussel sprouts, Chinese broccoli, cabbage and mustard cabbage, eggplant, kohlrabi and potatoes.

This product is a water dispersible granule that contains 30% by weight active ingredient. The maximum application rate for apples, lettuce (head and leaf varieties), pear, and potato is 24 oz product/acre, or 0.44 lb indoxacarb/acre/year. The maximum application rate for broccoli, brussels sprouts, cabbage (tight headed varieties only), cauliflower, Chinese broccoli, Chinese mustard cabbage, sweet corn, eggplant, kohlrabi, peppers, and tomatoes is 14 oz product/acre, or 0.26 lb indoxacarb/acre/year.

In the Department's registration letter, dated March 21, 2002, we stated: "A proposal to remove the Long Island prohibition would likewise be processed as a MCL. Such a proposal must be accompanied by the USEPA reviews of the environmental fate data specified as a requirement of the conditional federal registration issued on October 30, 2000. These data requirements were further defined in a meeting between DuPont and USEPA's Environmental Fate and Effects Division (EFED) on September 5, 2001 and subsequent comments (via electronic mail) by EFED on October 26, 2001." DERs were submitted to fulfill the data requirements set forth in the registration letter dated March 21, 2002.

On December 27, 2005, the subject application and data package were deemed complete for purposes of technical review. A registration decision date of May 26, 2006 was established.

The Department conducted an environmental fate risk assessment for indoxacarb and its major transformation products. Toxicological and ecological effects risk assessment were conducted for the initial registration review on March 21, 2002.

Groundwater/Drinking Water Review:

Avaunt (DPX-MP062) is a mixture of two isomers (DPX-KN128 and DPX-KN127). DPX-KN128 possesses the insecticidal activity. When the product was originally produced, it was a 50:50 racemic mixture called DPX-JW062. Subsequently, the process was improved and the current product, DPX-MP062, is enriched to 75:25 of the insecticidally active isomer. Unless otherwise noted, the studies were done on the 75:25 mixture. Even though the DPX-KN128 is the insecticidally active isomer, both isomers exhibit some biological activity in mammalian and other nontarget organisms, so both isomers are reported as the test substance.

The previous review performed in 2002 was based on information from various sources, predominantly California reviews, and memoranda from the United States Environmental Protection Agency (USEPA). For this review, the registrant has submitted DERs.

Transformation products:

IN-MH304	methyl 6-chloro-3,4-dihydro-1-oxo-1H-2-benzopyran-3-carboxylate
IN-C0639	4-chloro-1,2-benzenedicarboxylic acid
IN-MA573	2,carboxy-5-chlorobenzeneacetic acid
IN-MF014	methyl 2-[[[4-(trifluoromethoxy)phenyl]amino]carbonyl]hydrazine carboxylate)
IN-KB687	methyl[4-(trifluoromethoxy)phenyl]carbamate
IN-KT413	sodium-7-chloro-2,5-dihydro-2-[[[(methoxycarbonyl)[4-(trifluoromethoxy)phenyl]amino]carbonyl]indeno[1,2-e][1,3,4]oxydiazine-4a(3H)-carboxylic acid
IN-JT333	methyl-7-chloro-2,5-dihydro-2-[[[4-(trifluoromethoxy)phenyl]amino]carbonyl]indeno[1,2-e][1,3,4]oxadiazine-4a(3H)-carboxylate
IN-MS775	7-chloro-4a-5-dihydro-N-[4-(trifluoromethoxy)phenyl]ideno[1,2-e][1,3,4]oxadiazine -2(3H)-carboxamide
IN-MP819	idenol[1,2-3][1,3,4]oxadiazine-1(2H)-carboxylicacid, 7-chloro-3,5-dihydro-2-)[[4-(trifluoromethoxy)phenyl] amino]carbonyl]-, methyl ester
IN-MK643	1,3-dihydro-5-(trifluoromethoxy)-2H-benzimidazol-2-one
IN-JU873	methyl-5-chloro-2,3-dihydro-2-hydroxy-1-[[[4-(trifluoromethoxy)phenyl]amino]carbonyl]hydrazono]-1H-indene-2-carboxylate

IN-KG433 methyl 5-chloro-2,3-dihydro-2-hydroxy-1-[[[(methoxycarbonyl)]4-(trifluoromethoxy)phenyl] amino]carbonyl]hydrazono]-1H-indene-2-carboxylate
IN-MK638 [4-(trifluoromethoxy)phenyl]urea

Solubility: Solubility of indoxacarb is 0.2 ppm.

Hydrolysis: (MRID 45795801) In a study found to be acceptable, the half-life at pH 5 was 577.62 days; at pH 7 was 21.8 days with two major transformation products, IN-KT413 and IN-MF014; and was 1.11 days at pH 9 with major transformation product IN-KT413.

Aqueous Photolysis: (MRID 45795802) In a study found to be acceptable, the half-life was 3.44 days with five major transformation products: IN-MH304, IN-C0639, IN-MA573, IN-MF014, and IN-KB687.

Anaerobic Aquatic Metabolism: (MRID 45795804) On the 50:50 mixture, the study was found to be supplemental. In a water-silt loam system, the half-life in water was 31.8 days, in the sediment was 385.1 days, and in the entire system was 247.6 days. Major transformation products were IN-KT413 and IN-JT333.

Aerobic Aquatic Metabolism: (MRID 45793301) This study was found to be marginally acceptable by the USEPA. In a water-loam sediment system from the UK, the half-life in water was 13.7 days, in sediment was 38.7 days and in the total system was 30.7 days. Major transformation products were IN-KT413, IN-MP819, and IN-MS775. In a second radio-labeled study, the half-life in water was 16.9 days, in sediment was 61.3 days and in the total system was 39.8 days. The half-life in sediment of the R enantiomer was 39.7 days and the S enantiomer was 38.6 days. Major transformation products were IN-KT413, IN-MP819, and IN-MS775.

In a water-loamy sand sediment from the UK, the half-life in water was 16.8 days, in sediment was 36.1 days and in the total system was 38.1 days. The half-life in sediment of the R enantiomer was 43.8 days and the S enantiomer was 35.0 days. Major transformation products were IN-KT413 and IN-JT333. In a second radio-labeled study, the half-life in water was 15.1 days, in sediment was 27.5 days and in the total system was 21.3 days. Major transformation products were IN-KT413 and IN-JT333.

Aerobic Soil Metabolism: (MRID 45850001) In a study found to be supplemental, the half-life was 47 days.

(MRID 45795803) In an acceptable study on the 50:50 mixture, the half-life in a silt loam was 73.7 days in the 0 to 365-day study and 8.6 days in the 0 to 30-day study. Major transformation products were IN-JT333 at 16.7% and IN-KG433 at 17%.

(MRID 45906701) In a study found to be marginally acceptable, the half-life in a loamy sand was 133.3 days in the 0 to 365-day study and 14.9 days in the 0 to 30-day study. Major transformation products were IN-JT333 at 18.6% and IN-KT413 at 18.4%.

Soil Type	% OM	Soil pH	T _ IN-KT413 ¹	T _ IN-MK638 ²	T _ IN-JU873 ³	T _ IN-KG433 ⁴
sandy clay loam	0.7	8.4	7.4 days	13.1 days	55.5 days	10.5 days
clay loam	1.3	8.0	4.8 days	9.7 days	45.9 days	12.5 days
loam	1.7	6.2	1.3 days	16.2 days	58.7 days	13.7 days
silty clay loam	1.9	8.1		18.5 days	28.2 days	11.4 days
loamy sand	3.4	6.3		15.8 days	55.5 days	38.9 days

¹ MRID 45906703 Supplemental; ² MRID 45795816 Acceptable;

³ MRID 45795814 Supplemental; ⁴ MRID 45795815 Supplemental

Adsorption/Desorption: All studies were found to be partially acceptable.

Soil Type	% OC	Soil pH	Ads/Des Koc Parent ¹	Ads/Des Koc IN-JT333 ¹	Ads/Des Koc IN-KT413 ²	Ads/Des Koc IN-MK638 ³	Ads/Des Koc IN-JU873 ⁴	Ads/Des Koc IN-KG433 ⁵	Ads/Des Koc IN-MK643 ⁶
sand	0.58	6.2	NR/ND	25000/ND					
sandy clay loam	0.812	7.8	NR/ND	12000/ND					
loam	0.986	7.6	NR/ND	24000/ND					
silt loam	1.392	6.2	NR/ND	8200/ND					
sand	1.7	6.5			358/ND	130/ND	27500/ND	395/ND	189/ND
silt loam	2.2	6.1			469/ND	67/ND	31750/ND	300/ND	226/ND
silty clay loam	1.4	8.1				93/ND	5750/ND	308/ND	353/ND
clay loam	1.2	7.6			346/ND	164/ND	5417/ND	267/ND	243/ND
sandy clay loam	0.5	7.9			204/ND	300/ND	14000/ND	300/ND	355/ND

¹ MRID 45795809; ² MRID 45906702; ³ MRID 45795808; ⁴ MRID 45795805; ⁵ MRID 45795806;

⁶ MRID 45795807

Field Dissipation: (MRID 45850002) In a 50:50 study found to be supplemental, the half-life was 72 days in a sand soil with major transformation product IN-JT433 and 79 days in a loam soil with major transformation product IN-JT433.

Computer Modeling: LEACHP modeling was not conducted for indoxacarb or the transformation product IN-JT333 because of their very high Kocs. Staff modeled the transformation product IN-KG433 in Riverhead soil, using a Koc of 395, a half-life of 13.7 days, and 17% of the maximum application rate or 0.075 lb indoxacarb/acre. The model projected several peaks, the highest at 5.5×10^{-7} ppb. Staff modeled the transformation product IN-KT413 in Riverhead soil, using a Koc of 358, a half-life of 1.3 days, and 18.4% of the maximum application rate or 0.081 lb indoxacarb/acre. The model projected two peaks, the highest at 1.1×10^{-9} ppb.

Registration Summary: The registrant submitted a great deal of new information, primarily on the transformation products. Given the short half-lives, low application rates, and Kocs, LEACHP simulations projected no impact to groundwater from the aerobic metabolism transformation products. **Therefore, the Department has no objection to the proposal to remove the following prohibition: “Not for use or sale in Suffolk or Nassau Counties, Long Island, New York.”**

The Department hereby accepts the subject revised label for Dupont Avaunt Insecticide (EPA Reg. No. 352-597). Enclosed for your record is a copy of the Certificate of Registration and stamped accepted labeling (Nassau and Suffolk Counties prohibition removed).

Please note that a proposal by E.I. du Pont de Nemours and Company, or any other registrant, to register a product that contains indoxacarb whose labeled uses are likely to increase the potential for significant exposure to humans or impact to the environment, would constitute a MCL. Such an application must be accompanied by a new application fee and meet the requirements specified in 6 NYCRR Part 326.17.

Please contact Samuel Jackling, Chief of our Pesticide Product Registration Section, at (518) 402-8768, if you have any questions.

Sincerely,

Maureen P

Serafini

Maureen P. Serafini
Director
Bureau of Pesticides Management

Enclosures

cc: w/enc. - W. Smith, Cornell University, PSUR