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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUL 15 1985

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: PP #5F3260. (RCB #1128) Chlorpyrifos in/on legume vegetables (except soybeans). Evaluation of Analytical Methods and Residue Data. (No Accession Number)

FROM: Cynthia Deyrup, Ph.D., Chemist
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Hazard Evaluation Division (TS-769)

Cynthia Deyrup

THRU: Charles L. Trichilo, Ph.D., Chief
Residue Chemistry Branch
Hazard Evaluation Division (TS-769)

TO: Jay Ellenberger, Product Manager No. 12
Insecticide-Rodenticide Branch
Registration Division (TS-767)

and

Toxicology Branch
Hazard Evaluation Division (TS-769)

Dow Chemical Co. proposes the establishment of a tolerance for the combined residues of the insecticide chlorpyrifos [0,0-diethyl-0-(3,5,6-trichloro-2-pyridyl)-phosphorothioate] and its metabolite 3,5,6-trichloro-2-pyridinol (also known as TCP) at 0.1 ppm in/on legume vegetables (dried and succulent), except for soybeans.

Permanent tolerances (40 CFR 180.342) for chlorpyrifos/TCP have been established on a number of raw agricultural commodities ranging from 0.05 ppm on snap and lima beans, nectarines, peaches, pears, plums, bananas, and almonds to 3 ppm on radishes, rutabaga, and turnip roots. Established tolerances on feed items range up to 15 ppm chlorpyrifos/TCP on alfalfa hay and soybean straw. Permanent tolerances have also been established at 2 ppm on the fat, meat, and meat by-products of cattle, at 1.0 ppm on the fat, meat, and meat by-products of goats, horses, and sheep, at 0.5 ppm on the fat, meat, and meat by-products of hogs and poultry, at 0.1 ppm on eggs, and at 0.5 ppm on milk fat.

Established tolerances which are germane to the present petition

are listed below.

Commodity	Established tolerance
Beans, lima	0.05 ppm
Beans, snap	0.05 ppm
Seed and pod vegetables	0.10 ppm

PP #3F2884/FAP #3H5396 is pending which proposes to revise many (53) of the established chlorpyrifos/TCP tolerances to separately specify the level of chlorpyrifos per se. The revision in PP #3F2884 which is pertinent to the present petition proposes a tolerance level for the combined residues of chlorpyrifos and its metabolite TCP in/on seed and pod vegetables of 0.1 ppm (of which no more than 0.05 ppm is chlorpyrifos). If and when the revised tolerance is established on seed and pod vegetables, the legume vegetable tolerance, if established, would be regulated under the revised tolerance.

Note to P.M. The established tolerance for the combined residues of chlorpyrifos and its metabolite TCP on lima and snap beans is 0.05 ppm. If and when the proposed tolerance on legume vegetables is established, these tolerances should be deleted from 40 CFR 180.342, since these commodities will be regulated under the legume vegetable tolerance. Presently the established tolerance of 0.05 ppm chlorpyrifos/TCP on lima and snap beans is at variance with the established seed and pod vegetable tolerance (0.1 ppm), which includes snap and lima beans.

Although the proposed use is a seed treatment, RCB was unable to find a stipulation on the label that treated seed which is intended to enter interstate commerce should be dyed in accordance with the Federal Seed Act.

Background

A tolerance of 0.1 ppm for residues of chlorpyrifos/TCP in/on seed and pod vegetables has been established (40 CFR 180.342, PP #9F2221). The Chlorpyrifos Registration Standard (9/30/84) pointed out that the seed and pod vegetable group is now obsolete and had been replaced by the legume vegetable group. The Registration Standard recommended that either separate tolerances be established at 0.1 ppm for members of the out-dated seed and pod vegetable group or that a group tolerance for residues of chlorpyrifos/TCP at 0.1 ppm be established for legume vegetables (except soybeans), provided that the tolerance(s) were supported by the residue data. The present submission is in response to the recommendation for a group tolerance on legume vegetables. With the exception of dill and okra, the crops belonging to the seed and pod vegetable group are virtually identical to those in the legume vegetable group. If this group tolerance on legume vegetables (except soybeans) is established, dill and okra would not be covered under the

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legume vegetable tolerance. Soybeans are not considered in the subject petition because the registered uses on soybeans (seed, foliar, and at-planting or post-emergence ground application) are different from the registered use on the remainder of the legume vegetables (seed treatment only) and lead to higher residues.

Conclusions

1. Since this petition is not intended to extend the use of chlorpyrifos, but to institute a legume vegetable tolerance for the already established tolerance on the seed and pod vegetable group, the chlorpyrifos product chemistry has been adequately described for the purpose of this petition only.

2. The use on seed and pod vegetables permits tank-mixing with captan, chloroneb, or thiram. Recommendations for tank mixtures of chlorpyrifos with other pesticides not having established tolerances on legume vegetables (i.e., captan, chloroneb, and thiram) should be removed from the label. For example, no thiram tolerances have been established on peas and beans (legume vegetables). Thus, the petitioner needs to submit a revised Section B that reflects the label change.

3a. Since this petition is not intended to extend the use of chlorpyrifos, but to substitute a legume vegetables tolerance for the already established tolerance on the seed and pod vegetable group, the nature of the residue on legume vegetables is adequately understood for the purpose of this petition only. The residues of concern are chlorpyrifos and its metabolite TCP.

3b. Since this petition is not intended to extend the use of chlorpyrifos, but to institute a legume vegetables tolerance for the already established tolerance on the seed and pod vegetable group, the nature of the residue in animals is adequately understood for the purpose of this petition only. The residues of concern are chlorpyrifos and its metabolite TCP.

4. From the residue data which have been submitted on lima and snap beans, field beans, kidney beans, and peas, RCB concludes that a group tolerance on legume vegetables, except soybeans, is appropriate. Combined residues of chlorpyrifos and TCP will not exceed 0.1 ppm from the proposed use, which permits only seed treatment of the legume vegetables group, except soybeans. Also, in accordance with 40 CFR 180.34, the expected residues on the subject commodities vary by less than a factor of 5 (expected residue levels, 0.05-0.1 ppm).

5a. The submitted data on swine (fat, meat, and meat by-products) and cattle (fat, meat, and meat by-products) indicate that the established tolerances on swine and cattle (0.5 and 2.0 ppm respectively) are adequate to cover residues expected to arise from the consumption of feed items for which chlorpyrifos is registered, including members of the seed and pod vegetable group. Since the purpose of this petition is not to extend the use of chlorpyrifos but to substitute a legume vegetable tolerance for the already established tolerance on the out-dated seed and pod vegetable group, the established tolerances on swine and cattle commodities would adequately cover residues arising from the proposed use on legume vegetables.

5b. Extrapolating from the feeding studies submitted on cattle, RCB concludes that established tolerances on the meat, meat by-products, and fat of goats, horses, and sheep (1.0 ppm) would adequately cover residues expected to arise from the proposed use on legume vegetables.

5c. The established tolerance in milkfat (0.5 ppm) is adequate to cover residues expected to arise from the proposed use in legume vegetables.

5d. The established tolerances on poultry (fat, meat, and meat by-products) and eggs (0.5 and 0.1 ppm respectively) will adequately cover residue levels of chlorpyrifos and TCP expected to arise from the proposed use on legume vegetables.

6. Codex has established a MRL (maximum residue level) of 0.2 ppm chlorpyrifos per se on beans. Canada has established a MRL of 0.1 ppm chlorpyrifos per se on peas and beans. Mexico has established a tolerance of 0.05 ppm chlorpyrifos on string beans. The US tolerance is expressed in terms of chlorpyrifos plus TCP; so there is a compatibility problem with regard to the residues regulated. However, RCB would not object to raising the US tolerance level to 0.2 ppm on legume vegetables, if this could be toxicologically supported.

Recommendations

At this time, RCB recommends against the establishment of the proposed group tolerance of 0.1 ppm for residues of chlorpyrifos and its metabolite TCP on legume vegetables (except soybeans) because of the reason given in Conclusion 2 above. The petitioner needs to submit a revised Section B/label deleting the recommendation for tank mixtures of chlorpyrifos with other pesticides for which tolerances have not been established on crops of the legume vegetable group. For example, no thiram tolerances have been established on peas or beans.

Detailed Considerations

Manufacturing and Formulation

The chlorpyrifos manufacturing process was described in Confidential Appendix A of the Registration Standard. Technical chlorpyrifos is at least 94% pure. Numerous data gaps involving the product chemistry were cited in the Registration Standard and remain outstanding (see Chlorpyrifos Registration Standard and Dow's response to residue chemistry data gaps, memo of R. Loranger, 3/25/85).

The formulations which are used for seed treatments are the 25 and 50% wettable powder formulations. The composition of the 50% WP formulation (which contains 53.2% technical chlorpyrifos) was discussed in RCB's review of PP #9F2221 (memo of E.M.K. Leovey, 2/8/80). The inerts in this formulation are cleared under 40 CFR 180.1001. The composition of the 25% WP formulation was discussed in RCB's review of PP #3F1306 (memo of F.D.R. Gee, 3/1/73). The inerts in the 25% WP formulation (which contains 25% active ingredient) are also cleared under 40 CFR 180.1001.

Since this petition is not intended to extend the use of chlorpyrifos, but to institute a legume vegetable tolerance for the already established tolerance on the seed and pod vegetable group, the chlorpyrifos product chemistry has been adequately described for the purpose of this petition only.

Proposed Use

Only seed treatments are proposed in this petition. The seeds of the legume vegetables (except soybeans) are to be treated with the 25 or 50% WP formulation at the rate of 1 oz. a.i./100 lbs of seed. Chlorpyrifos should be applied in a slurry with 0.5% methylcellulose or other suitable sticking agent. There is a restriction against using treated seed for feed, food, or oil purposes. The proposed use is identical to the registered seed treatment use for these formulations on the out-dated seed and pod vegetables group.

The use on seed and pod vegetables permits tank-mixing with captan, chloroneb, or thiram. Seed treatments were previously considered to be non-food uses not requiring tolerances; however, seed treatments are now considered to be food uses unless radiolabeled studies have established that radioactive residues do not occur in the edible portions of the plant as the result of seed treatment. Therefore, recommendations for tank mixtures of chlorpyrifos with other pesticides not having established tolerances on all members of the legume vegetable group (i.e. captan, chloroneb, and thiram) should be removed from the label. For example, there are no thiram tolerances on peas or beans. Thus, the petitioner should

submit a revised Section B that reflects the label change.

Nature of the Residue

Plants

The nature of the residue in plants was extensively discussed in the Chlorpyrifos Registration Standard (9/30/84).

Since this petition is not intended to extend the use of chlorpyrifos, but to institute a legume vegetables tolerance for the already established tolerance on the seed and pod vegetable group, the nature of the residue on legume vegetables is adequately understood for the purpose of this petition only. The residues of concern are chlorpyrifos and its metabolite TCP.

Animals

The nature of the residue in animals was extensively discussed in the Chlorpyrifos Registration Standard (9/30/84).

Since this petition is not intended to extend the use of chlorpyrifos, but to institute a legume vegetables tolerance for the already established tolerance on the seed and pod vegetable group, the nature of the residue in animals is adequately understood for the purpose of this petition only. The residues of concern are chlorpyrifos and its metabolite TCP.

Analytical Methodology

Chlorpyrifos is determined separately. Then all residues hydrolyzable to TCP (including chlorpyrifos) are determined. The original amount of TCP is then calculated by difference.

Chlorpyrifos

Field beans were blended with acetone, which was filtered and concentrated. Residues of chlorpyrifos were partitioned into hexane and then from hexane into acetonitrile. The residues from the concentrated acetonitrile extract were dissolved in hexane and chromatographed on silica gel. The eluate was concentrated, and the residue was dissolved in acetone and analyzed by GLC using a flame photometric detector. In the case of peas, kidney, and snapbeans, the original acetone extract was concentrated, hexane and sodium sulfate were added, and the slurry was filtered, concentrated, and cleaned up on a Florisil column before GLC analysis as above. Chlorpyrifos residues were extracted from lima beans by blending with acetone. The acetone extract was concentrated, and the sample was cleaned up on a Florisil column before GLC analysis as above.

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Recoveries of chlorpyrifos are given below.

Commodity	Chlorpyrifos recovery
Snapbeans	74-96%
Kidney beans	92-102%
Field beans	78-96%
Peas	76-100%
Lima beans	80-102%

The claimed limit of determination is 0.01 ppm chlorpyrifos.

3,5,6-Trichloro-2-pyridinol (TCP)

The following procedure for the analysis of TCP residues is included in the Pesticide Analytical Manual, Vol. II.

Lima and snapbeans were heated with 10% sodium hydroxide/methanol. After blending, the methanol was concentrated, diluted with water, and acidified with hydrochloric acid. After the addition of sodium chloride, TCP residues were extracted with benzene. After concentration of the benzene extract, the residues were chromatographed on an acidic alumina column which was eluted with ether that had been washed with pH 6.5 buffer. TCP was then partitioned from the ether eluate into aqueous sodium bicarbonate. After acidification, TCP was back-partitioned into benzene. Residues in an aliquot of the benzene extract were derivatized with N,O-bis (trimethyl silyl) acetamide to form the trimethyl silyl derivative of TCP which was quantified by GLC using an electron capture detector.

For kidney beans, field beans, and field peas, after the sodium hydroxide/methanol was concentrated and diluted with water, the basic aqueous layer was washed with benzene which was then discarded. After acidification, TCP analysis was carried out as described above.

Recoveries of TCP from the various commodities are given below.

Commodity	TCP Recovery
Lima beans	86-108%
Snapbeans	84-108%
Kidney beans	85-100%
Field beans	98-109%
Peas	90-104%

Analytical methodology, adequate for enforcement purposes, is available for the determination of residue levels of chlorpyrifos and its metabolite TCP in/on legume vegetables.

Residue Data

No new residue data on legume vegetables were submitted with this petition. Residue data were submitted with PP #4F1445 on lima and snapbeans and with PP #9F2221 on kidney beans, field beans, and peas.

Lima Beans (PP #4F1445)

Residue data on lima beans (beans only) grown from treated seed were submitted from 12 field trials (WI, NY, FL, OR, and IL).

Lima bean seeds were treated at a rate of 1-3 oz a.i./100 lbs of seed (1X-3X application rate). PHI's ranged from 70-110 days. Only one second generation bean sample (3X application rate, 86 day PHI) exhibited detectable levels of chlorpyrifos, 0.01 ppm, which is the claimed limit of determination. No detectable levels of TCP (sensitivity of method, 0.05 ppm) were found in any of the samples, after correcting for the chlorpyrifos contribution to the TCP found.

Data were submitted with PP #9F2221 on pea pods grown from seeds treated with a WP chlorpyrifos formulation at the rate of 1 oz a.i./100 lbs of seed (1X application rate for lima beans). PHI's of 58-77 days were observed. No detectable levels of chlorpyrifos or TCP were found in any of the samples (i.e. <0.01 ppm chlorpyrifos and <0.05 ppm TCP). The residue data on pea pods reflected field trials conducted in IL, WA, and NY. These states do not represent the major lima bean growing areas of the country; however, if the neighboring states of CA, MD, DE, and WI are considered to be climatically similar, then about 81% of the total lima bean production is represented (see the Chlorpyrifos Registration Standard).

Snapbeans (PP #4F1445)

Residue data on snapbeans grown from treated seed were submitted from 7 field trials conducted in WI, NY, MS, FL, and IL. Bean seeds were treated with a 25% WP chlorpyrifos formulation at a rate of 1-3 oz a.i./100 lbs of seed (1X-3X application rate). None of the 2nd generation snapbeans exhibited detectable levels of chlorpyrifos (<0.01 ppm) or TCP (<0.05 ppm).

Kidney Beans and Field Beans, Dry and Succulent (PP #9F2221)

Field beans are a general category for dry beans and consist of white and kidney beans; therefore the residue data for these crops will not be discussed separately. The residue data, generated from field trials conducted in MI, MS, NY, IL, and CA, are summarized below. The data reflect analyses of field beans and kidney beans plus pods grown from seed treated with 25 or 50 WP chlorpyrifos formulations at rates of 1-4 oz a.i./ 100 lbs of seed (1X-4X application rate).

Kidney and Field Bean Residue Data

Application rate	Bean moisture content (%)	PHI	Chlorpyrifos (ppm)	TCP (ppm)
1X	10.2	114	ND	ND
2X	10.2-13.6	114-161	ND	<0.05
3X	14.3-14.4	106	ND-0.07	ND
4X	10.2	114	<0.05	<0.05
2X	40-49	105	<0.05	ND
3X	42-83	75-117	ND-0.05	ND-<0.05

ND--no detectable difference between control and sample

Peas, Dried and Succulent (PP #9F2221)

Residue data were submitted from 7 field trials (IL, WA, NY, and MS) on pea pods grown from treated pea seed. The seeds were treated with 25 or 50 WP chlorpyrifos formulations at rates of 1-3 oz a.i./100 lbs of seed (1X-3X application rate). PHI's of 58-77 days were observed. At a 1X application rate, chlorpyrifos residue levels were undetectable, and TCP residue levels ranged from ND-<0.05 ppm. At a 2X application rate, chlorpyrifos residue levels ranged from ND-<0.05 ppm, and TCP residue levels ranged from ND-<0.05. At a 3X application rate, chlorpyrifos residue levels on shelled peas ranged from <0.05-0.16 ppm, and TCP residue levels ranged from ND-<0.05 ppm.

The raw agricultural commodity for peas is shelled peas, not the intact pod. Therefore the pea pod residue data are not appropriate for consideration of the tolerance. Only the residue data from MS field trials reflected analyses of shelled peas, and residue data from this state alone do not provide adequate geographical representation. However, residue data on shelled lima beans may be translated to peas. Residue data on shelled lima beans grown from treated seed were submitted from 12 field trials (WI, NY, FL, OR, MS, and IL). Seeds were treated with 25 or 50 WP chlorpyrifos formulations at a rate of 1-3 oz a.i./100 lbs of seed (1X-3X application rate). PHI's ranged from 70-110 days. Only one lima bean sample exhibited detectable levels of chlorpyrifos, 0.01 ppm, which is the limit of determination. No detectable levels of TCP (sensitivity, 0.05 ppm) were found in any of the lima bean samples. In the combined shelled lima bean and pea data, the highest chlorpyrifos residue level, on shelled peas, was 0.16 ppm resulting from a 3X application rate. The combined residue level of chlorpyrifos and TCP in this sample was <0.21 ppm (0.16 ppm chlorpyrifos and non-detectable residues of TCP; TCP method sensitivity, 0.05 ppm).

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Overall Conclusion on the Residue Data for Legume Vegetables

From the residue data which have been submitted on lima and snap beans, field beans, kidney beans, and peas, RCB concludes that a group tolerance on legume vegetables, except soybeans, is appropriate. Combined residues of chlorpyrifos and TCP will not exceed 0.1 ppm from the proposed use, which permits only seed treatment of the legume vegetables group, except soybeans. Also, in accordance with 40 CFR 180.34, the expected residues on the subject commodities vary by less than a factor of 5 (expected residue levels, 0.05-0.1 ppm).

Meat, Milk, Poultry, and Eggs

Meat

A chlorpyrifos dietary burden of 13.5 ppm is imposed upon beef cattle consuming a diet consisting of 50% alfalfa hay (tolerance, 15 ppm), 30% corn silage (tolerance, 10 ppm), and 20% sugar beet molasses (tolerance, 15 ppm).

A chlorpyrifos dietary burden of 15 ppm is imposed upon dairy cattle consuming a diet consisting of 80% alfalfa hay (tolerance, 15 ppm) and 20% sugar beet molasses (tolerance, 15 ppm).

According to a cattle feeding study submitted with PP #3F1306, cattle fed chlorpyrifos at a dietary level of 10-30 ppm for 30 days exhibited the following combined residue levels of chlorpyrifos and TCP in tissues.

Feeding level (ppm)	Tissue	Chlorpyrifos + TCP (ppm)
3	Fat	<0.06-<0.10
10	Fat	<0.12-0.31
30	Fat	0.29-1.23
3	Muscle, liver, kidney	<0.06-0.24
10	Muscle, liver, kidney	<0.06-<0.55
30	Muscle, liver, kidney	<0.06-1.68

A chlorpyrifos dietary burden of 9.0 ppm is imposed upon swine consuming a diet consisting of 50% alfalfa meal (hay tolerance, 15 ppm), 15% dried sugar beet pulp (tolerance, 5 ppm), 5% sugar beet molasses (tolerance, 15 ppm), and 30% corn (tolerance, 0.1 ppm).

According to a swine feeding study submitted with PP #3F1306, pigs fed chlorpyrifos at a dietary level of 3 or 10 ppm for 30 days exhibited the following combined residue levels of chlorpyritos and TCP in tissues.

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Feeding Level (ppm)	Tissue	Chlorpyrifos + TCP
3	Fat	<0.06-<0.09
10	Fat	0.13-0.27
3	Muscle and liver	<0.06-<0.09
10	Muscle, liver, kidney	<0.06-<0.33

The submitted data on swine and cattle commodities indicate that the established tolerances on swine and cattle (0.5 and 2.0 ppm respectively) are adequate to cover residues expected to arise from the consumption of feed items for which chlorpyrifos is registered, including members of the seed and pod vegetable group. The established tolerances on swine and cattle will adequately cover residues arising from the proposed use on legume vegetables.

Extrapolating from the feeding studies submitted on cattle, RCB concludes that established tolerances on the meat, meat by-products, and fat of goats, horses, and sheep (1.0 ppm) will adequately cover residues expected to arise from the proposed use on legume vegetables.

Milk

In the Chlorpyrifos Registration Standard, one finds that cows fed chlorpyrifos at a dietary level of 30 ppm for 14 days exhibited combined residue levels of chlorpyrifos and TCP of <0.02-0.03 ppm in whole milk throughout the dosing period.

The established tolerance in milkfat (0.5 ppm) is adequate to cover residues expected to arise from the proposed use on legume vegetables.

Poultry and Eggs

A maximum dietary burden of 4.1 ppm would be imposed upon turkeys and broilers consuming a diet consisting of 20% alfalfa seed (tolerance 15 ppm), 60% sorghum grain (tolerance, 0.75 ppm), 5% apple pomace (tolerance, 12 ppm), and 15% soybean meal (tolerance 0.5 ppm).

A maximum dietary burden of 3.6 ppm would be imposed upon laying hens consuming a diet consisting of 20% alfalfa seed (tolerance, 15 ppm), 60% sorghum grain (tolerance, 0.75 ppm), and 20% soybean meal (tolerance, 0.5 ppm).

A poultry feeding study submitted with PP #3F1306 reported that chickens fed chlorpyrifos at a dietary level of 10 ppm for 30 days exhibited the following combined residue levels

ot chlorpyrifos and TCP in tissues and eggs.

Commodity	Chlorpyrifos + TCP (ppm)
Muscle	<0.06 (ND)
Liver	<0.06-0.26
Fat	0.07-<0.11
Eggs	<0.06

The established tolerances on poultry and eggs (0.5 and 0.1 ppm respectively) will adequately cover residue levels ot chlorpyrifos and TCP expected to arise from the proposed use on legume vegetables.

Other Considerations

Codex has established a MRL (maximum residue level) of 0.2 ppm chlorpyrifos per se on beans. Canada has established an MRL of 0.1 ppm chlorpyrifos per se on peas and beans. Mexico has established a tolerance of 0.05 ppm chlorpyrifos on string beans. The US tolerance is expressed in terms of chlorpyrifos plus TCP; so there is a compatibility problem with regard to the residues regulated. However, RCB would not object to raising the US tolerance to 0.2 ppm on legume vegetables, if it could be toxicologically supported.

cc: Circu, EEB, EAB, TOX, Deyrup, 5F3260, R.F., PMSD/ISB, PM #12
FDA, Robert Thompson
RDI:JHOnley:7/11/85:RDSchmitt:7/11/85
TS-769:RCB:CM#2:RM810:X7484:CDeyrup:cd:7/11/85

F. Lutz 6/27/95

INTERNATIONAL RESIDUE LIMIT STATUS

CHEMICAL chlorpyrifos

PETITION NO. 5F4166

CCPR NO. 17

Reviewer: C. Deyrup

Codex Status

[ ] No Codex Proposal
Step 6 or above

Residue (if Step 9):

chlorpyrifos per se

Crop(s)	Limit (mg/kg)
beans	0.2 ppm

Proposed U.S. Tolerances

Residue: chloropyrifos + 3,5,6-trichloro-pyridin-2-ol

Crop(s)	Tol. (ppm)
legume veg (except soybean)	0.1 ppm

CANADIAN LIMIT

Residue:

chlorpyrifos 1/

Crop	Limit (ppm)
beans	0.1 2/
peas	0.1

MEXICAN TOLERANCIA

Residue:

chlorpyrifos

Crop	Tolerancia (ppm
beans, string	0.05 2/

NOTES:

1/ Canadian limits on animal products include the pyridinol

2/ Negligible residue type limit