US EPA ARCHIVE DOCUMENT

received
6-16-94
11:00 am

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

JUN 15 1994

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

MEMORANDUM:

SUBJECT: PP#9F3724/9F3818 - Permanent Tolerance Petitions - New Chemical - Tebuconazole, Fungicide on Peanuts. Evaluation of Amendments Dated April 19, November 19, December 14 and December 27 1993 and May 25, 1994. CBTS Nos. 13189, 13518, 13537, 13801, 13805 and 13826. MRID Nos. 430296-01, 430578-00 and 430683-01. 427575-01. DP Barcodes D198515, D201312, D201310, D204020 and D204079.

FROM: Gary F. Otakie, P.E., Chemist
Tolerance Petition Section II
Chemistry Branch I - Tolerance Support
Health Effects Division (H7509C)

THRU: Esther Saito, Chief
Chemistry Branch I - Tolerance Support
Health Effects Division (H7509C)

TO: Steve Robbins/Denise Greenway, Acting PM 21
Fungicide - Herbicide Branch
Registration Division (H7505C)

and

Albin B. Kocialski, Chief
Reregistration Section
Chemical Coordination Branch
Health Effects Division (H7509C)

Background

Mobay has submitted the present Amendments in response to deficiencies outlined in CBTS's March 31, 1994 review of PP#9F3724 concerning the establishment of permanent tolerances for the new chemical tebuconazole. CBTS recommended in favor of temporary tolerances under PP#9G3817 for tebuconazole on peanuts, peanut hulls, peanut oil, and peanut soapstock at 0.1, 4.0, 0.5 and 0.5 ppm respectively (see March 18, 1992 review of G.

Recycled/Recyclable
Printed with Soy/Canola Ink on paper that contains at least 50% recycled fiber

Otakie). Since the label included a restriction against feeding treated peanut hay/vines to livestock temporary tolerances relating to animal commodities were not required.

Per the current submission the petitioner has withdrawn proposed FAT's on peanut oil, meal and soapstock because a new peanut processing study incorporating the bleaching and deodorization refining processes indicates that tebuconazole residues do not concentrate in refined peanut oil, and concentration did not occur in peanut meal; although concentration did occur in peanut soapstock, per the revised Table II (June 1994), peanut soapstock is no longer considered an animal feed item (also see 4/26/94 J. Stokes review of the subject petition).

Current Submission

Revised Section F

In the subject Amendment, the petitioner (i.e. Mobay) has provided a revised Section F proposing the following permanent tolerances for the new chemical fungicide tebuconazole (i.e., Folicur, HWG-1608) (alpha-[2-(4-chloro-phenyl)ethyl]-alpha-(1,1-dimethylethyl)-1H-1,2,4-triazole-1-ethanol):

Commodity	Preharvest Interval (Days)	Proposed Tolerance (ppm)
TOLERANCE PROPOSAL		
Peanuts	14	0.1
Peanut hulls	14	4.0

Additional Data

The petitioner has submitted a fourth peanut processing study incorporating the bleaching and deodorization oil refining processes. The petitioner has also extended the previous storage stability study as per CBTS's review of PP#3F4167 on bananas (see 4/26/93 review of G. Otakie) on the same matrices from 18-24 months to 30 months; plus added wheat flour, wheat bran, peanut oil and raisins for a storage interval of 18 months. Data have also been submitted to verify that the batch analysis data of the TGAI previously submitted represents the commercial full scale production process rather than bench or pilot scale production.

2

Discussion/Conclusions

Per a 6/3/94 letter the petitioner has withdrawn proposed tebuconazole tolerances in animal tissues, milk and eggs since they have determined that terminal residues in animal feed commodities from the proposed use on peanuts are sufficiently low to preclude the possibility of measurable residues in meat, milk and eggs. CBTS had per a 3/18/92 review of PP#9G3817 recommended in favor of proposed temporary tolerances for peanuts, hulls, peanut oil and soapstock and did not require tolerances on animal commodities since the label included a restriction against feeding peanut hay to livestock.

CBTS has re-evaluated the need for permanent tolerances on meat, milk poultry and eggs based on the label restriction against feeding peanut hay (see Other Considerations No 4.). Because of several deficiencies in the first dairy cattle and poultry feeding studies second feeding studies were submitted and determined to be acceptable per CBTS's 2/16/93 review. The residue results from the second animal feeding studies are included in Attachment 1.

Samples (muscle, fat, liver, kidney, milk, skin and eggs) from the lowest treatment levels analyzed in the feeding studies (i.e. 30 ppm for cattle and 6 ppm for poultry) which represent feeding levels of 50X for cattle and 240X for poultry (i.e. based on only the proposed use on peanuts with a feeding restriction for peanut hay) were negative (<0.1 ppm) for tebuconazole residues with the exception of a maximum total residue of 0.2 ppm in cattle liver from a 50X feeding level. Therefore, detectable tebuconazole residues are unlikely to occur from the proposed use on peanuts (i.e. 1X feeding level) with the restriction against the feeding of peanut hay. Furthermore, CBTS notes that petitioner intends to use tebuconazole with the non-sterol fungicide chlorothalonil which also contains a feeding restriction. Therefore the proposed label for the use of tebuconazole on peanuts has also been revised to include a restriction against feeding peanut hay or threshings or allowing livestock to graze in treated areas (see Other Considerations No. 3).

Accordingly, CBTS concludes that at this time, with the label restriction against feeding peanut hay, residues of tebuconazole are not likely to occur in animal commodities from the proposed use on peanuts. However, in accordance with the revised Table II (June 1984) additional residue data and a tolerance proposal for peanut hay as well as proposed tolerances in/on animal commodities will be needed. Furthermore in accordance with CBTS's policy on the adoption of the June 1994 Table II revisions changes in the Table II will not impede registration actions in which affected studies are initiated within six months of the Notice of Availability. The proposed use of tebuconazole on peanuts meets this criteria.

3

Therefore, for the proposed use of tebuconazole on peanuts tolerances on peanut hay and animal commodities are not required for a conditional registration with tolerances having an expiration date.

The petitioner has also deleted previously proposed FAT's for tebuconazole in/on peanut oil, meal and soapstock. The new fourth peanut processing study unlike the previous peanut processing studies includes the bleaching and deodorization oil refining processes which represent typical commercial peanut oil refining/processing procedures. These additional refining steps clearly significantly reduced the tebuconazole residues remaining in the refined peanut oil from the first step (i.e. alkali treatment) of the refining process from 0.14 ppm to 0.06 ppm after bleaching (i.e. 57% reduction) and to <0.01 ppm after deodorization or (an 83% reduction from the bleached oil) or a total residue reduction from both bleaching and deodorization of 93% (see data table in Attachment 2).

Furthermore tebuconazole residues in the peanut nutmeat at 0.05 to 0.09 ppm did not concentrate in the peanut meal with residues from 0.05 to 0.06 ppm. Although tebuconazole residues did concentrate in peanut soapstock, an FAT is not required since CBTS no longer considers peanut soapstock an animal feed item. CBTS also concurs with the petitioner's material balance assessment of the third peanut processing study that depicted concentration of tebuconazole residues in both peanut meal and oil, was neither scientifically explainable nor representative of commercial oil processing procedures.

Accordingly, CBTS concludes that tebuconazole does not concentrate in peanut oil or peanut meal and although residues do concentrate in peanut soapstock, EPA no longer considers peanut soapstock as an animal feed item. Therefore, FAT's for tebuconazole from the proposed use on peanuts are not required. The revised Section F is acceptable (see Other Considerations).

Recommendations

At this time CBTS recommends in favor of establishing the proposed permanent tolerances for the new chemical tebuconazole in/on peanuts and peanut hulls at 0.1 and 4.0 ppm, respectively provided that registration is conditional on the submission of additional residue data and a tolerance proposal for peanut hay as well as proposed tolerances in/on animal commodities within 24 months. See the "Detailed Considerations" for further information on the requirements.

Detailed Considerations

The deficiencies cited in CBTS's review of PP#9F3724 (See G. Otakie memorandum of March 31, 1994) will be restated below followed by the Petitioner's Response and CBTS's Conclusions. The numbering of deficiencies follows that of the March 31, 1994 review.

Deficiency No. 1

A deferral request is required with a proposed schedule for submission of the TGAI analysis results representing five different production runs of the final full scale process together with a revised CSF with certified limits reflecting these data. The deferral request should be submitted in accordance with the PAG Subdivision D - Product Chemistry, 1982 (see page 50).

Petitioner's Response to Deficiency No. 1

Per a 4/19/94 letter from John Thornton of Miles Inc. the petitioner has verified that the TGAI analysis results of each of the five batch analyses previously submitted to EPA represented a day's full scale commercial production of 20,000 to 30,000 pounds Folicur Technical which was shipped to Germany as a pesticide not registered for use in the United States of America.

CBTS's Comments/Conclusions re: Deficiency No. 1

CBTS is satisfied that the batch analysis data of the TGAI previously submitted represents the commercial full scale production process rather than bench or pilot scale production.

This deficiency is resolved.

Deficiency No. 7

An explanation of the conflicting results of the two peanut processing studies is required. (Previous Deficiency No. 17)

Deficiency No. 8

Based on the required explanation of the conflicting results of the two peanut processing studies a revised Section F is required. (Previous Deficiency No. 20)

Petitioner's Response to Deficiency Nos. 7 and 8

The petitioner has submitted a fourth peanut processing study. In summary four foliar spray applications of Folicur 3.6F (containing 3.6 lbs of tebuconazole per gallon) at a rate of 18 oz ai/acre/application at 14 day intervals (5X the maximum seasonal label rate) were applied to peanut plants in Tifton, Georgia. In accordance with the proposed Folicur 3.6F product label, two applications of the non-sterol inhibitor fungicide chlorothalonil were made prior to the Folicur 3,6F applications. Mature peanut plants were dug 14 days prior to final harvesting. Control peanut plants were grown and harvested in the same manner as the treated peanut plants. Control and Folicur treated peanuts were packaged in dry ice and shipped to Engineering Biosciences Research Center at Texas A&M University at College Station Texas (EBRC).

Whole peanuts, both treated and control, were processed separately at EBRC using procedures which simulated commercial peanut processing. Peanut processing began with drying, cleaning, and mechanical hulling of the whole peanuts resulting in RAC's of nutmeats and hulls. The peanut nutmeat was mechanically pressed yielding the presscake (with residual oil) and crude oil. The presscake was extracted with hexane to remove any residual oil generating peanut meal and additional crude oil.

The crude oil fractions from pressing and solvent extraction were combined, and then subsampled for analysis. The combined crude oil was treated with sodium hydroxide (NaOH) generating soapstock and alkali-treated oil. After the NaOH treatment, processing was terminated and all samples were packed in dry ice and sent back to Miles where they were maintained under frozen storage until analyzed.

At a later date (about 16 months) samples of the control and alkali-treated oil fractions were sent back to EBRC for further refining which included bleaching (i.e. using 0.5% by weight of activated earth) and deodorization (i.e. with steam stripping at 428-446° F under a vacuum of 26 to 30" Hg) of the alkali-treated oil. In addition to the refined (deodorized) oil samples subsamples of the alkali-treated bleached (but not deodorized) oil fractions were collected and all samples were shipped frozen to Miles for analysis. The longest storage interval before analysis was 759 days for peanut nutmeat, 572 days for peanut oil 642 days for peanut meal and 630 days for peanut soapstock (see Other Considerations No. 1 for a summary of tebuconazole storage stability data).

The residue data were obtained using the analytical procedure described in Mobay Report No. 101341 with tebuconazole recoveries for all the peanut matrices ranging from 69 to 120% at fortification levels from 0.01 to 2.0 ppm.

6

The tebuconazole residue level in peanut nutmeat from the treated plants was 0.07 ppm (mean of 4 replicates) and the mean tebuconazole residue levels found in the processed commodities from the treated nutmeats were: 0.06 ppm in meal, 0,14 ppm in crude oil, 0.24 ppm in soapstock, and <0.01 ppm in refined oil (refining included bleaching and deodorizing). Concentration factors for meal and refined oil were <1.0, indicating no tebuconazole residues in either fraction. The concentration factors for crude oil and soapstock were 2.0 and 3.4, respectively, indicating concentration in these fractions. However, the petitioner also submitted a detailed discussion indicating that peanut soapstock should not be considered as an animal feed item (see 4/26/94 review of J. Stokes).

Accordingly the revised Section F has deleted previously proposed FAT's for tebuconazole in/on peanut oil, meal and soapstock.

CBTS's Comments/Conclusions re: Deficiencies Nos. 7 and 8

Tebuconazole Peanut Processing Studies

Of the three previously submitted peanut processing studies (see PP#9G3817 6/8/90 review of C. Olinger), in the first study no tebuconazole residues were detected in any matrix except soapstock and in the second study (i.e. this study did not include the bleaching and deodorization oil refining processes) tebuconazole residues in the nutmeat were 0.08 ppm with the resulting concentration factors from processing of 4.4 and 2.5 for crude oil from the expeller and solvent extraction, respectively, 3.3 for refined oil and 3.8 for soapstock with no FAT for solvent extraction meal required since the residue was 0.04 ppm.

In the third peanut processing study (i.e. this study did not include the bleaching and deodorization oil refining processes) tebuconazole residues concentrated in both the refined peanut oil and peanut meal with concentration factors of 2.3 and 1.8, respectively. CBTS noted the unexplained concentration of tebuconazole residues in both the peanut meal and oil in the third processing study. Since it is not scientifically possible based on a mass balance of the processed fractions for tebuconazole residues to concentrate in both these fractions, CBTS's 2/16/93 review of the subject petition concluded that the petitioner's proposal to establish tebuconazole FAT's on both peanut oil and meal was not acceptable and that an explanation of the concentration of tebuconazole residues in both the meal and oil from the third peanut processing study was required.

The new fourth peanut processing study unlike the previous peanut processing studies includes the bleaching and deodorization oil refining processes which represent typical commercial peanut oil refining/processing procedures. These additional refining steps clearly significantly reduced tebuconazole residues remaining in the refined peanut oil from the first step (i.e. alkali treatment) of the refining process at 0.14 ppm to 0.06 ppm after bleaching (i.e. 57% reduction) and to <0.01 ppm after deodorization or an 83% reduction from the bleached oil or a total residue reduction from both bleaching and refining of 93% (see data table in Attachment 2).

Furthermore tebuconazole residues in the peanut nutmeat at 0.05 to 0.09 ppm did not concentrate in the peanut meal with residues from 0.05 to 0.06 ppm. Although tebuconazole residues did concentrate in peanut soapstock an FAT is not required since CBTS no longer considers peanut soapstock an animal feed item. CBTS also concurs with the petitioner's material balance assessment of the third peanut processing study that depicted concentration of residues in both peanut meal and oil, was neither scientifically explainable nor representative of commercial oil processing procedures.

8

CBTS notes that in the two peanut processing studies (second and fourth) with finite tebuconazole residues and without a mass balance inconsistency, that tebuconazole did in fact concentrate in the crude peanut oil fraction rather than the peanut meal fraction. Also, the use of bleaching and deodorization in the peanut oil refining process does in fact represent typical commercial peanut oil refining procedures.

Accordingly, CBTS concludes that tebuconazole does not concentrate in refined peanut oil or peanut meal and although residues do concentrate in peanut soapstock EPA no longer considers peanut soapstock as an animal feed item. Therefore, FAT's for tebuconazole from the proposed use on peanuts are not required. The revised Section F is acceptable.

These deficiencies are resolved.

Other Considerations

1. Additional storage stability data.

The petitioner has submitted MRID No. 430578 dated 9/2/93 which includes storage stability data previously reviewed (i.e. except the interval for peanut oil, wheat bran, flour and raisins was extended to 18 months) which extended the previous storage stability study as per CBTS's review of PP#3F4167 on bananas (see 4/26/93 review of G. Otakie) on the same matrices from 18-24 months to 30 months; plus wheat flour, wheat bran, peanut oil and raisins for a storage interval of 12 months per MRID No. 427575-01.

The analytical methodology used for the study was the Method in Mobay Report No. 94295 with the modifications described in Mobay Report No. 98520.

The current submission also includes another storage stability study with tebuconazole on dry grape pomace, grape juice, raisin waste, peanut meal and soapstock with residue analysis by thin-layered chromatography and confirmation by HPLC (MRID No. 430683-01).

The following table summarizes all the storage stability data for tebuconazole in the various matrices when stored frozen at -20 C for up to 30 months:

TEBUCONAZOLE STORAGE STABILITY DATA IN PLANT MATRICES

CROP MATRIX	LONGEST STORAGE INTERVAL (MONTHS)	AVERAGE STABILITY (%) TEBUCONAZOLE
PEACHES	30	110
PRUNES	30	91
GRAPES	30	101
APPLES	30	90
CHERRIES	30	99
WHEAT FORAGE	30	94
WHEAT GRAIN	30	111
WHEAT STRAW	30	91
PEANUT NUTMEAT	30	109
WHEAT FLOUR	18	107
WHEAT BRAN	18	111
PEANUT OIL	18	105
RAISINS	18	100
DRY GRAPE POMACE	28	95
GRAPE JUICE	28	100
RAISIN WASTE	28	100
PEANUT MEAL	27	93
PEANUT SOAPSTOCK	28	86

The storage stability data indicate that tebuconazole residues in peanut oil are stable for up to 18 months (i.e. 547 days) and in peanut nutmeat for up to 30 months when stored under frozen conditions. The maximum time peanut nutmeat, meal and oil samples were held in frozen storage was 759, 642 and 572 days, respectively in the fourth peanut processing study. Peanut oil samples from the fourth peanut processing study were held in frozen storage for slightly longer than the above peanut oil storage stability data. Storage stability data on peanut meal and soapstock indicate stability of tebuconazole residues for 28 and 30 months, respectively as well as good stability for up to 30 months in other crop matrices. Accordingly, the above storage stability data reviewed in its entirety is adequate to support the frozen storage intervals used in the fourth peanut processing study.

2. Final Copy of Analytical Method for Animal Commodities

The petitioner should submit a final copy of the method for tebuconazole and its metabolite in animal commodities. This deficiency is tentatively resolved since tolerances on animal commodities are not currently required.

3. Peanut hay/vines.

The following discussion is taken from CBTS's review of the subject petition (i.e. Deficiency No. 6) dated 3/31/94:

> In the reports for the crop field trials, the petitioner uses the terms "vines" and "hay". Do they refer to the same commodity? Miles Inc. should clarify how the samples were obtained and provide some indication of their moisture content. Revised Sections B and/or F resolving this issue may be needed depending upon the nature of the samples that were analyzed (Previous Deficiency No. 12).
>
> Since the petitioner intends to use tebuconazole with the non-sterol fungicide chlorothalonil which contains a feeding restriction, the proposed label for the use of tebuconazole on peanuts has also been revised to include a restriction against feeding peanut hay or threshings or allowing livestock to graze in treated areas. Accordingly, previous CBTS questions concerning the need for residue data on both peanut hay and vines are currently moot.

However, per the revised Table II of Subdivision O (i.e. Updated Livestock Feeds Table... Memo of E. Saito and E. Zager Dated June 7, 1994) feeding restrictions on peanut hay and vines are generally no longer considered practical. Changes in the table however, are not to impede registration actions in which affected studies are initiated within 6 months of the Federal Register Notice of Availability. Additional residue data on peanut hay, a proposed tolerance for peanut hay and proposed tolerances for animal commodities will be needed. However, for purposes of a conditional registration for tebuconazole on peanuts, considering the feeding restriction for peanut hay on the label, these additional data and tolerance proposals may be submitted as a condition for permanent tolerances.

4. Secondary Residues in Animal Commodities

CBTS had per a 3/18/92 review of PP#9G3817 recommended in favor of proposed temporary tolerances for peanuts, hulls, peanut oil and soapstock and did not require tolerances on animal commodities since the label included a restriction against feeding peanut hay to livestock. CBTS has re-evaluated the need for permanent tolerances on meat, milk poultry and eggs based on the label restriction against feeding peanut hay. Per CBTS's 5/9/91 review of the subject petition the first dairy cattle feeding study resulted in no detectable residues (i.e. <0.05 ppm) of tebuconazole or its hydroxy metabolite HWG 2061 in fat or

muscle at a feeding level of 250 ppm (the lower feeding levels of 25 and 75 ppm were not analyzed) in three treatment groups of three cows each and at the 25 ppm feeding level the total residue (parent and HWG 2061) for the three treatment groups was in the kidney <0.05, <0.05 and 0.25 ppm and in the liver 0.15, 0.14 and <0.05 ppm. Because of several deficiencies in the dairy cattle and poultry feeding studies, second feeding studies were submitted and determined to be acceptable per CBTS's 2/16/93 review. The residue results from the second animal feeding studies are included in Attachment 1.

Per the revised Table II (June 1994) with a restriction against feeding peanut hay the highest dietary burden would occur in beef cattle with 15% peanut meal (0.1ppm x .15) and 15% peanut hulls (4.0 ppm x .15) or a total maximum dietary burden of approximately 0.6 ppm tebuconazole residues. For poultry the estimated maximum dietary burden would be 25% peanut meal (0.1 x .25) or approximately 0.025 ppm. Samples (muscle, fat liver, kidney, milk, skin and eggs) from the lowest treatment levels analyzed in the feeding studies (i.e. 30 ppm for cattle and 6 ppm for poultry) which represent 50X for cattle and 240X for poultry were negative (<0.1 ppm) for tebuconazole residues with the exception of a maximum total residue of 0.2 ppm in cattle liver.

Accordingly, CBTS concludes that at this time with the label restriction against feeding peanut hay residues of tebuconazole are not likely to occur in animal commodities from the proposed use on peanuts. However, in accordance with the revised Table II (June 1994), additional residue data and a tolerance proposal for peanut hay as well as proposed tolerances in/on animal commodities will be needed for permanent tolerances. Furthermore in accordance with CBTS's policy on the adoption of Table II revisions, changes in the Table II will not impede registration actions in which affected studies are initiated within six months of the Notice of Availability. The proposed use of tebuconazole on peanuts meets this criteria.

Therefore, for the proposed use of tebuconazole on peanuts tolerances on peanut hay and animal commodities are not required for a conditional registration with tolerances including an expiration date.

Attachment 1 - Results of Second Tebuconazole Feeding Studies from CBTS's 2/16/93 Review of the Subject Petition.

Attachment 2 - Pages 8 - 10 and second page of reported data results from MRID No. 430296-01.

cc with Attachments: J. Karia (DRES), D. Edwards (CCB), Reviewer-Otakie, RF, Circu, PP#9G3724, PP#3F3817, Tebuconazole Subject File, E. Haeberer.

RDI: EHaeberer:6/3/94 RLoranger:6/8/94

TEBUCONAZOLE 128997

Page_____ is not included in this copy.

Pages 13 through 17 are not included.

The material not included contains the following type of information:

____ Identity of product inert ingredients.

____ Identity of product impurities.

____ Description of the product manufacturing process.

____ Description of quality control procedures.

____ Identity of the source of product ingredients.

____ Sales or other commercial/financial information.

____ A draft product label.

____ The product confidential statement of formula.

____ Information about a pending registration action.

X FIFRA registration data.

____ The document is a duplicate of page(s) _____.

____ The document is not responsive to the request.

The information not included is generally considered confidential by product registrants. If you have any questions, please contact the individual who prepared the response to your request.