#P 1569

MAR 4 1975

PP# 5E1569. Chlorothalonil on passion fruit.
Evaluation of analytical methods and residue data.

PM No. 21 (Dr. E. Wilson)
and TB

THRU: E. Gross

Dr. C.C. Compton on behalf of the IR-4 Technical Committee and the Agricultural Experiment Station of Hawaii is proposing the establishment of a tolerance for residues of the fungicide chlorothalonil (2,4,5,6-tetrachloroisophthalonitrile) and its metabolite 4-hydroxy-2,5,6-trichloroisophthalonitrile in or on passion fruit at 3 ppm with no more than 0.1 ppm in the edible pulp.

Tolerances have been established for residues of chlorothalonil (Sec. 180.275) on a number of commodities at levels of 0.1-15 ppm.

Conclusions

1. By translation of data from other commodities, we consider the fate of chlorothalonil on passion fruit adequately understood.

2. Adequate methods are available to enforce the proposed tolerance.

3. Residues from the proposed use will not exceed the proposed tolerance levels for either the whole fruit or the pulp. However, the listing of a tolerance for the pulp is unnecessary and should be deleted from the proposed regulation. The tolerance should be set on a whole fruit basis.

4. Residues in the byproducts juice and nectar are well below the level in the whole fruit and no food additive tolerance is needed.

5. Since no feed items are involved from this use, Sec. 180.6(a)(3) applies.

Recommendation

TB and EEEB considerations permitting, we recommend that the proposed tolerance of 3 ppm for residues of chlorothalonil on passion fruit be established. This favorable recommendation is contingent upon the petitioner deleting the limit on the residue level in the pulp.

Detailed Considerations

Chlorothalonil is formulated as Bravo 6F containing 6 lbs. of chlorothalonil/gal. All the inerts are cleared except for [redacted] As in the case of PP# 4E1502 (chlorothalonil on onions), we would expect no residue problems from this low level of surfactant.

Technical chlorothalonil is 95.6-98.5% pure. Impurities consist of [redacted]

A description of the manufacturing process was submitted in connection with PP# 4E1502 and discussed in the Dr. R. Schmitt memo of 11/27/74.

The possibility of HCB in the technical product and as a residue was discussed in the Dr. R. Schmitt, 10/27/74 review of PP# 4E1502. It was concluded at that time, and we concur, that no residue problem of HCB residues existed from the use of chlorothalonil.

Proposed Use

Chlorothalonil is to be applied at the rate of 1.5 lbs. act/A by ground. Multiple applications may be made at fourteen day intervals with no PHI. The proposed labeling limits the use to Hawaii with restrictions against grazing treated areas or feeding vines or byproducts after processing to livestock used for food. While this type of restriction is not usually considered practical, the peel or pressed pulp from processing is not used as animal feed (see J. Worthington review of PP# 3F1336, dated 4/24/73). Therefore, we are not objecting to this restriction.

Nature of the Residue

The metabolism of chlorothalonil has been discussed most recently in connection with PP# 4E1502 (Dr. R. Schmitt review dated 7/22/74). No additional metabolism data have been submitted with this petition.

IMPURITY INFO IS NOT INCLUDED
INERT INGREDIENT INFORMATION IS NOT INCLUDED

The parent compound and small amounts of the 4-hydroxy metabolite constitute the residue of concern in plants. This conclusion is based on ^{14}C studies on corn and tomatoes and cold studies on potatoes in which other possible metabolites were not detected. The 4-hydroxy metabolite is the principal component of the residue in soils (70%) but on plants the 4-hydroxy metabolite is at most 10% of the residue. Data in this petition show that this is also the case for passion fruit.

Foliar deposits of chlorothalonil do not translocate and there is no uptake from roots to aerial plant parts.

We consider the fate of chlorothalonil on passion fruit adequately understood.

Analytical Method

The data submitted were obtained by a slightly modified version of the analytical procedure submitted in appendix II to the amended Section D of PP# 9F0743.

The method consists of an acidified-acetone extraction, separation of the parent from the 4-hydroxy metabolite on a florisil column, methylation of the 4-hydroxy metabolite using diazomethane and separate GLC detection of parent and metabolite with an electron capture detector.

This method underwent a successful tryout in our (AMS) laboratory on peanuts (0.3 and 0.6 ppm) and broccoli (2.5 and 5 ppm) for both parent and the 4-hydroxy metabolite.

Whole fruit, pulp, peel, seeds, nectar and juice were fortified with chlorothalonil and the 4-hydroxy metabolite each at levels of 0.05 or 0.1 ppm. Chlorothalonil recoveries ranged overall from 73-111% with most in the range of 85-100%. Recoveries of the 4-hydroxy metabolite ranged overall from 72-102% with most in the range of 80-95%. Samples taken before spraying contained N.D. residues (<0.005 ppm) of chlorothalonil and the 4-hydroxy metabolite. Check samples taken from unsprayed plants in treated areas contained up to 0.03 ppm chlorothalonil and up to 0.01 ppm of the 4-hydroxy metabolite. These control values may be the result of contamination from spray drift.

We consider the method adequate to enforce the proposed tolerance.

Residue Data

Storage stability data for both the parent and 4-hydroxy metabolite were submitted. This study shows virtually no reduction of residues at three months and only a small loss at the six month interval.

Residue studies were conducted at two locations. In the first study, passion fruit were treated at rates of 1.5, 3 and 4.5 lbs. act/A (1, 2&3X max. rate) at 14 day intervals. After the first spray, samples were taken at 1 day, 1 and 2 weeks. Samplings after the second through the fifth sprayings were taken at 14 day post-spray intervals. In this study, the peel and pulp were analyzed separately; therefore, results are calculated to a whole fruit basis.

Calculated residues on the one day samples were a maximum of 1.6 ppm (parent plus 4-hydroxy metabolite) from 1X rate. From the 2X rate total residues were ca. 2 ppm and ca. 4 ppm from the 3X rate.

In a second study passion fruit were treated 6 times at ca. 2 week intervals at rates of 1.5 and 3 lbs. act/A (1 and 2X max. proposed rate). Samples of whole fruit taken on zero day contained total residues of 1.76 ppm from the 1X rate. From the 2X rate, total residues of 4.7 ppm were detected.

Even though the data are somewhat limited, the proposed tolerance level is exceeded in some of the replicates only from exaggerated application rates. We are able to conclude that the requested 3 ppm tolerance level is adequate.

The petitioner also wishes to include in the regulation a maximum tolerable level for residues in the pulp at 0.1 ppm. While the data show that this level of residues would not be exceeded, we do not believe that this should be included in the regulation and the petitioner should be so informed.

Drop Byproducts

A processing study was conducted on fruit that had been sprayed once at either 1.5 or 3 lbs. act/A. Samples were taken at 1 day and 1 and 2 weeks after sampling and processed into the peel, seeds, juice and nectar. No analyses were performed on unwashed fruit from the treatment; however from

similar residue studies, we would estimate that the residue level would have been between 1-2 ppm from the 1X application rate. Residues of chlorothalonil plus the 4-hydroxy metabolite were 0.13 ppm in the peel, 0.1 ppm in the juice, 0.06 ppm in the seeds and <0.005 ppm in the nectar. Therefore, no food additive tolerance is needed for any byproduct.

Residues in Meat, Milk, Poultry and Eggs

Since no animal or poultry feed items are involved in this petition, the use can be placed into Sec. 180.6(a)(3).

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WH-567:CHEM:ARathman:ah:rm108,WSME:3/3/75
RD/I-RSQuick:2/10/75,ELGunderson:2/23/75