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064103 UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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SUBJECT: PP#0F2368 and PP#0F2369. 2,6-Dichloro-4-nitroaniline and O-phenylphenol in or on Kiwi fruit. Evaluation of analytical method and residue data

FROM: Elizabeth M. K. Leovey, Ph.D, Chemist
Residue Chemistry Branch (TS-769)

TO: Henry Jacoby PM #21
Registration Division (TS-767)

and

Toxicology Branch
Hazard Evaulation Division (TS-769)

THRU: Robert S. Quick, Head, Petition Review Section
Residue Chemistry Branch (TS-769)

Richard D. Schmitt, Deputy Branch Chief
Residue Chemistry Branch (TS-769)

Willa Y. Garner, Acting Chief
Residue Chemistry Branch (TS-769)

The Decco Tiltbelt Division of Pennwalt Corporation proposes the establishment of tolerances for the residues of 2,6-dichloro-4-nitroaniline and O-phenylphenol in or on kiwi fruit at 20 ppm each.

The permanent tolerance proposed by IR-4, PP#7E2268 and PP#9E2269 are still pending. Temporary tolerances at 20 ppm as requested on kiwi fruit have been established (PP#9G2255 and 9G2256, review of E. Zager, 10/1/79).

Tolerances for residues of the fungicides ortho-phenylphenol (OPP) and sodium ortho-phenylphenate are established on various r.a.c.s (post-harvest application) at levels of 5-125 ppm, including a tolerance of 20 ppm in or on peaches, plums and carrots (40 CFR §180.129).

Tolerances for residues of the fungicide 2,6-dichloro-4-nitroaniline (DCNA) are established at levels of 0.25-20 ppm, including a tolerance of 20 ppm in or on apricots, nectarines, peaches, and sweet cherries from pre and post-harvest applications (40 CFR §180.200).

The Upjohn Company and the Dow Chemical Company have authorized the use of their data on Botran (DCNA) (H. J. Vostral, Upjohn to the PM via the Director of the Registration Division, EPA) and Dowicide (OPP) (M. L. Wulf, Dow Chemical to R.D., EPA) respectively.

Conclusions

1. The nature ofthe residue has been adequately delineated. The residues of concern are the parent compounds.

2. Adequate analytical methods are available to enforce the proposed tolerances.

3. Residues of DCNA and OPP are not expected to exceed the proposed tolerances.

4. Kiwifruit are not food items. Therefore we anticipate no problems with secondary residues in meat, milk, poultry and eggs.

Recommendation

TOX considerations permitting, we can recommend for the proposed tolerances.

Formulation

Kiwi Lustre 277 contains 2.66% [redacted] 2,6-dichloro-4-nitroaniline, 2.04% [redacted] orthophenylphenol) and the inerts [redacted].

These inerts and those in [redacted] are cleared for use under CFR 40, 180.1001(c).

The manufacturing processes has been discussed in our review of PP#9E2268 and PP#9F2269 (memo. L. Bradley, 11/26/79). No residue problems are expected from the impurities.

Proposed Use

The formulation is to be applied in a dilute form by spraying over a suitable brush bed. One gallon is diluted with nine gallons (0.16 lb ai/gal mixture) of soft water. One gallon of the mixture is applied to 8,000 to 10,000 lbs of freshly cleaned kiwifruits.

The label bears instructions regarding the disposal of spray mixture and rinse water.

Nature of Residue

No metabolism studies have been submitted with these petitions.

The proposed use will result in residues of OPP and DCNA being trapped in the wax emulsion on the inedible skin of the fruit. We expect very little residue to be found in the edible central core, seeds or outer flesh of the kiwi fruit.

Ortho-phenylphenol and its sodium salt have been considered to be the residue of concern for those r.a.c.s on which tolerances have been established. No permanent tolerance petitions for OPP have been reviewed since 1961.

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For 2,6-dichloro-4-nitrobenzene, the parent compound has been considered the residue of concern in setting previous tolerances. Residues from preharvest use dissipate mainly by volatilization. We expect little loss of residues from this post-harvest application, since the product is incorporated into a fruit wax.

The available metabolism data are rather limited, although both compounds have been in use for many years.

We consider the nature of the residue adequately delineated for this proposed use. The residues of concern are the parent compounds.

Analytical Method

To determine Botran residues in or on kiwi, the sample is blended and shaken with iso-octane. A portion of the iso-octane layer is dried over sodium sulfate and analyzed by GC with an electron capture detector. A spectroscopic method is available for the determination of DCNA in wax. A sample is shaken with iso-octane. The absorbance at 325 nm is determined for the iso-octane layer.

Residues of OPP are determined in kiwi by peeling the fruit and then blending the peel into a slurry with water. The slurry is acidified and the water distilled and collected. After the distillate is made basic, it is extracted with hexane as a clean up procedure. After acidification OPP is extracted into hexane. The hexane layer is concentrated and reconstituted with hexane overan acidic brime solution. A portion ofthe isolated hexane layer is analyzed by gas chromatography using a flame ionization detector. The estalished enforcement method is a colorimetric procedure (PAM II).

Apparent residues on untreated samples ranged from 0 to 1.8 ppm for DCNA and 0 to 0.2 ppm for OPP.

Since enforcement methods are available in the PAM and since the tolerance proposals the same as the maximum residues calculated from the proposedrate, we can conclude that adequate methods are available to enforce the proposed tolerances.

Residue Data

Kiwi Lustre was used as proposed (H. Kaplan, Pennwalt, 11/6/80). DCNA was measured in the wax mixture applied to the fruit and ranged from 2060 to 1200 ppm. Residues on kiwi ranged from 12.5 to 0.25 ppm DCNA and 5.8 to 0.4 OPP. In previous submissions residues at 0- day following the 2000 ppm treatment ranged from 5.5 to 6.0 ppm DCNA and 7.1 - 9.1 ppm OPP. Residues reflecting lower treatment rates were correspondingly lower. (PP#9G2255 and 9G2256, E. Zager, 10/1/79. Maximum calculated theoretical residues are 20 ppm (0.16 lb ai/8000 lb fruit) each for OPP and DCNA.

We anticipate that residues of OPP and DCNA will not exceed the proposed tolerance.

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Meat, Milk, Poultry and Eggs

Kiwifruit are not feed items. Therefore we anticipate no problems with secondary residues in meat, milk, poultry and eggs from the proposed use.

cc: Reading file
Circu
Reviewer
FDA
PP# No.
TOX
EEB
EFB
Watts

TS-769:Reviewer:EMKLeovey:LDT:X77324:CM#2:RM:810:Date:11/19/80
RDI:Section Head:RSQ:Date:11/7/80