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57



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

MAY 25 1994

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: ID# 007969-RNT. Mepiquat chloride. New Product (PIX®DF, EPA Reg No. 7969-RNT) for Use on Cotton. Additional Field Residue Data. MRID# 425541-11, CBTS# 13002, DP Barcode #D1977745.

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TO: Cynthia Giles-Parker/Dolphine Wilson, PM-22
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RD has requested CBTS to comment on a proposed new formulation of mepiquat chloride [N,N-dimethyl-piperidinium chloride] on cotton (PIX®DF, EPA Reg No. 7969-RNT, 35% a.i.) The registrant, BASF Corporation, has submitted a cover letter dated November 3, 1993 and additional field residue data (MRID #425541-11) to support this product.

Mepiquat chloride is a growth regulator used on cotton. Currently registered formulations are a 4.2% a.i. aqueous solution (PIX®Plant Regulator, EPA 7969-52) and a 22.5% a.i. aqueous solution (PIX®Concentrate Plant Regulator, EPA 7969-97). The new formulation is a 35% a.i. soluble powder packaged in water soluble PVA bags.

Tolerances are established for cotton forage (3.0 ppm) and cottonseed (2.0 ppm), livestock meat, fat, and meat byproducts (0.1 ppm), milk (0.05 ppm), and eggs (0.05 ppm) (40 CFR §180.384). A



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6

3.0 ppm feed additive tolerance is established on cottonseed meal (40 CFR §186.2275).

Mepiquat chloride is a List B chemical. The Phase 4 review was completed on 10/31/90.

Recommendations:

TOX considerations permitting, CBTS can recommend for proposed use of the PIX[®]DF formulation of mepiquat chloride [N,N-dimethyl-piperidinium chloride] on cotton at a maximum of 0.066 lb a.i./A.

CBTS previously recommended for label rate increases from 0.066 lb a.i./A to 0.132 lb a.i./A for other PIX[®] formulations (See memo of 10/12/93, J. Stokes), and determined that the established tolerances for cottonseed, and the livestock commodities are adequate to cover those formulations. CBTS did, however, recommend that the established 3.0 ppm feed additive tolerance on cottonseed meal be increased to 4.0 ppm. CBTS still recommends this increase. The current 3.0 ppm tolerance for cotton forage is also adequate for the proposed formulation, and no additional data will be needed for cotton forage based upon comments in the above cited memo of 10/12/93. Thus, if it is the intent of the registrant to also increase the label rate to a maximum of 0.132 lb a.i./A for the PIX[®]DF formulation, CBTS can recommend for such an increase without additional residue data for the PIX[®]DF formulation.

Conclusions:

1. Analytical Method No. A9106 is adequate for the determination of mepiquat chloride residues in/on cottonseed.
2. Adequate field residue data have been submitted to support the proposed PIX[®]DF formulation at the label maximum of 0.066 lb a.i./A. Side by side comparison of PIX[®] (4.2% a.i.) and PIX[®]DF (35% a.i.) in field trials demonstrated that the resulting mepiquat chloride residues in cottonseed were below the 2.0 ppm cottonseed tolerance and unaffected by the formulation type.
3. Adequate storage stability data for the field trials have been submitted to support the proposed formulation of mepiquat chloride on cotton.
4. The current established tolerances will thus support the registration of the new PIX[®]DF formulation.

Detailed Considerations:Proposed Use:

The currently registered uses for several PIX® formulations are as follows: PIX® (4.2% a.i., 0.35 lb a.i./gal) can be applied up to 4 times at 1/8-1/2 pt./A (0.0055-0.022 lb a.i./A) with a seasonal maximum of 0.066 lb a.i./A in a minimum of 10 or 20 (CA) gallons of water per acre. PIX® Concentrate (22.5% a.i., 2.0 lb a.i./gal) can be applied up to 4 times at 0.35-1.4 oz./A (0.0055-0.022 lb a.i./A) in a minimum of 10 or 20 (CA) gallons of water per acre with a seasonal maximum of 0.066 lb a.i./A.

The proposed use of PIX®DF (35% a.i., water disperable granule) (EPA REG. No. 7969-RNT) is as follows: Dissolve PVA bag [114 g (40 g a.i.): 1 bag is equivalent to 1 qt of PIX®4.2%] in water. Apply up to 4 times at rates from 1/16 to 1/4 bag/A (0.0027-0.022 lb a.i./A per application) for a seasonal maximum of 3/4 bag/A (0.066 lb a.i./A). PIX®DF is applied in a minimum of 2 or 5 (CA) gallons water per acre. In all cases the PHI is 30 days. The maximal seasonal use rate of 0.066 lb a.i./A is unchanged by the new formulation.

A proposed label restriction reads: "Do not graze or feed cotton forage to livestock."

Analytical Methodology:

BASF Corporation submitted (MRID #42426801) an analytical method (BASF Method No. A9106) for the determination of mepiquat chloride residues in/on cottonseed by ion chromatography (IC). This has been discussed previously (See memo of 10/12/93, J. Stokes) and determined to be adequate. The method has been sent to FDA to be included as a letter method in PAM II.

Magnitude of Residue in Cottonseed (MRID# 425541-11)

Mepiquat chloride residues in cottonseed resulting from application of PIX® and PIX®DF were compared in 6 side by side trials in 4 states (CA, GA, MS, TX). Together, these states accounted for 67% of the U.S. cotton acreage (Agricultural Statistics 1990). PIX® or PIX®DF was applied twice during the growing season- early bloom (0.044 lb a.i./A) and 30-32 days before harvest (0.022 lb a.i./A). Residues were determined by method BASF No. A9106. The cottonseed residues were well below the tolerance (2.0 ppm) in all cases and there is little, if any, difference between the two formulations. (See Table below). The use of the PIX®DF formulation will not result in an increase in mepiquat chloride residues in cottonseed as compared to the currently registered formulations.

Comparison of mepiquat chloride residues in cottonseed resulting from application of PIX® or PIX®DF at the maximal seasonal use rate (0.066 lb a.i./A).

Location	Residues (ppm)	
	PIX®	PIX®DF
CA	0.83	0.91
CA	0.45	0.49
TX	0.10	0.10
TX	0.12	0.11
MS	0.41	0.28
GA	0.15	0.19
Ave	0.34	0.35

Adequate storage stability data previously reviewed (See memo of 10/12/93, J. Stokes) showed that mepiquat chloride residues were stable in the cottonseed matrix for up to 25 months.

NOTE: CBTS previously reviewed a request for label rate increases (proposed label maximum of 0.132 lb a.i./A, (See memo of 10/12/93, J. Stokes), ~~and determined that the established tolerances for cottonseed, and the livestock commodities are adequate to cover the proposed label rate increases from 0.066 lb a.i./A to 0.132 lb a.i./A for both PIX® and PIX® Concentrate formulations. If it is the intent of the registrant to also increase the label rate to a maximum of 0.132 lb a.i./A for the PIX®DF formulation, CBTS can recommend for such an increase without additional residue data. CBTS did, however, and continues to recommend that the established 3.0 ppm feed additive tolerance on cottonseed meal be increased to 4.0 ppm.~~ maximal seasonal use rate (0.066 lb a.i./A).

cc: J. Stokes (CBTS); mepiquat chloride List B File; mepiquat chloride S.F.; R.F.; Circu
 RDI: PErrico:5/25/94:RLoranger:5/25/94:ESaito:5/25/94
 7509C:CBTS:JStokes:js:Rm 803:CM#2:305-7561:5/25/94

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