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

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OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

Memorandum

Subject: Fonofos (Dyfonate® 20G, EPA Reg. No. 476-2028) on Sugar Beets and Corn.
No Acc. Number
RCB #1691

From: Michael S. Metzger, Chemist
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Thru: Edward Zager, Section Head, SRS 2
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To: William Miller, PM 16
Registration Division (TS-767C)

Stauffer Chemical Company requests Amended Registration for Dyfonate® 20G (20% fonofos, granular formulation) on sugar beets and corn. The company wishes to delete the geographical restriction for applications to sugar beets which restricts use to "Northwest sugar beet growing areas only." Additionally, the registrant wishes to add two pests, Fall Army Worms and White Grubs, to the list of insects for which Dyfonate® 20G is labeled for control. It should be pointed out that 2 additional pests are listed on the proposed label which are not mentioned in the cover letter or listed on the most recently accepted label (dated 8/7/85). However, this latter amendment is not a Residue Chemistry issue and will not be addressed here further.

Tolerances are established for residues of the insecticide O-ethyl S-phenyl ethylphosphonodithioate including its oxygen analog S-ethyl S-phenyl ethylphosphonothiolate in or on numerous commodities at 0.5 ppm (asparagus) or 0.1(N) ppm (all other commodities including root crop vegetables and sugar beet tops). Tolerances are pending for potato commodities (40 CFR 180.221, 180.3 (e)(5)). A Registration Standard has been completed for fonofos (3/84).

Dyfonate® 20G is currently registered for application to sugar beets at 5-7.5 lbs. (1.0-1.5 lbs.a.i.)/A in a 7-inch band over sugar beet rows 22 or more inches apart. Applications are to be made at planting and lightly incorporated into the soil. Dyfonate® 20G should not come into contact with the seeds. Applications are recommended for Colorado and for Northwest sugar beet growing areas only.

The proposed use is identical to the registered use except that the geographical restriction is deleted.

No new residue data were submitted with this amendment.

Residue data were previously submitted with PP#7F0548 (Acc. No. 093271; see PP#9F0760, Acc. No. 115773), PP#0F0960 (Acc. No. 116583) and with two amendments (Acc. Nos. 003841 and 009614). Most of these data were obtained using Method I from PAM II. This method is adequate for enforcement purposes. The residue is extracted from the rac with benzene, and dyfonate and its oxon metabolite are separated on a silicic acid column. Following TLC clean-up of the oxon, separate GLC analyses of the 2 compounds are made using thermionic detection. Recoveries for sugar beet roots ranged from 86-120% at 0.05 ppm fortification for dyfonate, and from 70-107% at 0.03 ppm fortification for the oxon. Recoveries from sugar beet foliage (tops) ranged from 82-108% at 0.05 ppm for dyfonate, and from 60-107% at 0.03-0.05 ppm for the oxon. It is concluded in the Fonofos Registration Standard that crop samples in frozen storage are stable for up to 5/6 months, but residues measured after 5/6 months frozen storage are considered unreliable.

Residue data have been submitted for trials carried out in the following states: WA, ID, MS, FL, OR (1 sample, 4E formulation only) and WY. Applications were made at planting at rates of 1.5-6 lbs.a.i./A by band, broadcast, in-furrow, side injection or sprinkler irrigation methods. All residues for sugar beet roots and tops were less than the limits of detection for the method (0.05 ppm for dyfonate, 0.03 ppm for dyfonate oxygen analog). Many samples were stored for long periods prior to analysis (up to 10 months).

The Registration Standard concludes that these data are inadequate to support the 0.1(N) ppm tolerance for sugar beets. Additional residue data are required from representative growing areas (CA, MN, ID, ND, MI) reflecting applications at the maximum registered rate [for the various types of applications].

The need for processing studies was also identified. No residue data are available for dehydrated pulp, molasses or refined sugar obtained from dyfonate-treated sugar beets.

Sugar beet commodities are used as ruminant and poultry feed items. Ruminant and poultry metabolism and feeding studies are required by the Registration Standard. These have not yet been submitted.

Conclusions

(1) The available residue data for applications of Dyfonate® 20G as described in the proposed use are inadequate. Data are required reflecting the maximum proposed use rate from representative sugar beet growing areas (CA, MN, ID, ND, MI).

(2) A sugar beet processing study is required in order to estimate residues in dehydrated pulp, molasses and refined sugar.

(3) Sugar beet commodities are used as ruminant and poultry feed items. Ruminant and poultry metabolism and feeding studies required by the Fonofos Registration Standard must be submitted.

Recommendations

RCB recommends against this Amended Registration for the reasons discussed in (1) - (3) above.

cc:Dyfonate (Fonofos) S.F., R.F., Amended Use S.F., Registration Standard S.F., Circu, M.Metzger, PMSD/ISB
RDI:E.Zager:EZ:1/6/87:RDS:1/6/87
TS-769:RCB:M.Metzger:MM:Rm803a:CM#2:1/6/87