



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

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OFFICE OF  
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: EPA Reg. No. 7501-24. Captan. Protocol for Seed  
Detreatment Studies. No Accession Number.  
RCB Nos. 1430 and 1486.

FROM: Lynn M. Bradley, Chemist  
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THRU: A. R. Rathman, Section Head  
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TO: R. Cool/E. Wilson, PM Team 21  
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Gustafson, Inc., representing the American Seed Treatment Association, has submitted protocols for radiolabelled studies on detreating captan-treated seed corn by roasting, and for residue trials on corn seed detreatment by roasting.

The radiolabelled study will use separate samples treated with carbonyl- $Cl^{14}$  and trichloromethyl- $Cl^{14}$ . Prior to seed treatment the labelled material will be incorporated into a 75% WP formulation having specific activity levels sufficient to allow identification to 1 ppm. Lots of 500g corn grain will be treated at 2x registered rate, dried at ambient temperature, and roasted for 3-5 minutes at 750-1000 °F in a rotating vented chamber. Identification of pyrolysis products down to the level of 1.0% captan equivalents will be attempted.

The protocol for carrying out the detreatment appears adequate; a general discussion of analytical techniques which may be employed to determine pyrolysis products is presented, as well. A radiolabelled detreatment study for each method to be used for detreatment will be required (washing, roasting, others).

For the residue trial, 3000 lb corn grain will be treated at the maximum registered rate and subdivided into six lots. Three will be stored under ambient conditions and 3 in controlled environment (50 °F, 55% relative humidity). One lot will be removed from storage at 12, 18, and 24 month and detreated using commercial equipment (to be specified). Four samples (1 lb each) will be taken during detreatment (at start, 1/3, 2/3 and end) and analyzed for parent and pyrolysis products.

The protocol for the residue trial is adequate, although one unlabelled residue trial is insufficient. Multiple residue trials should be conducted, using various types of equipment and seed corn. The significant by-products from the pyrolysis study using radiolabelled corn should be identified and the determination of which components comprise the residue of concern should be completed before analysis of residue trials begins. There is a built-in 12-month lag, so we are not recommending delay of residue trials at this time.

The Registration Standard states that data on composition and quantity of residues from each different method of detreating are required, and that the influence of varying parameters of the process used should be depicted in the residue studies, in order to establish acceptable conditions for detreatment by each process. This protocol does not address these concerns.

### Conclusions

- 1) The protocol for conducting the radiolabeled roasting detreatment appears to be adequate. At least 99% of the residue should be accounted for.
- 2) We will require one radiolabelled detreatment study for each detreatment method to be used (washing, roasting).
- 3) The protocol for an unlabelled residue trial of seed treatment by roasting is acceptable for a single trial. One trial, as proposed, is insufficient.
- 4) Multiple residue trials (unlabelled) for each detreatment process are required. Trials should reflect the influence of varying parameters of each detreatment process.

### Recommendations

Multiple unlabelled detreatment residue trials should be carried out to reflect the range of times, temperatures, and types of roasters used in commercial practice. At least one study should use several different varieties of seed corn.

Provided that identification of pyrolysis products is thorough, and that multiple residue studies are carried out as suggested, we would expect the data from the protocols submitted to satisfy the requirements for roasting detreatment data. A separate, similar set of studies should be performed for each additional detreatment method.

We note that use of other pesticides along with captan for seed treatment is not discussed. A mechanism to prevent feeding of detreated seed containing residues of pesticides other than captan is still required.

RCB:TS-769:L.Bradley:vg:CM#2:Rm804:X77484:10/22/86  
cc: S.F.(Captan), Captan Reg. Std., R.F., Cir., LMB(2), PMSD/ISB, SIS  
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