



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

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

AUG 21 1986

MEMORANDUM

SUBJECT: Captan - Gustafson Detreated Seed Corn Study
Accession No. 263378
RCB No. 1144

FROM: Lynn M. Bradley, Chemist
Residue Chemistry Branch
Hazard Evaluation Division (TS-769C)

Lynn M Bradley

TO: Eugene M. Wilson, PM Team 21
Fungicide-Herbicide Branch
Registration Division (TS-767C)

and

Toxicology Branch
Hazard Evaluation Division (TS-769C)

THRU: Andrew R. Rathman, Section Head
Residue Chemistry Branch
Hazard Evaluation Division (TS-769C)

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Gustafson, Inc. of Dallas, Texas has submitted residue data reflecting detreatment of captan-treated seed corn by roasting process. The corn letter (J.C. Rockwell to H. Jacoby, June 13, 1986) indicates these data were promised in a May 16, 1986 meeting.

Although this study is not submitted as response to the Captan Registration Standard, these data should be considered along with any studies which might be submitted in the future as direct response to the Standard.

The roasting studies were conducted in Iowa in 1982, at the request of the American Seed Trade Association. Corn was from 12 lots of commercial seed and was treated with captan and methoxychlor; some lots were also treated with malathion.

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Two different rotating drum roasters were used, and diagrams are provided--retention times were 2.5 to 3.5 min and average roaster temperature was 700 to 900 °F. Samples from the large roaster studies were analyzed by five labs--Morse, Pattison, Daily, A&L, and EPA-Beltsville. Those from the smaller roaster were analyzed only by Pattison.

The first study, using the larger roaster, consisted of eight trials. Samples from each trial were analyzed and reported as "treated" and "roasted," representing samples collected prior to and halfway through the roasting procedure. The 2 lb samples were split 5 ways and sent to the different labs, for a total of 40 analyses each treated and roasted.

Captan residues on "treated" seed ranged from 111 to 1384 ppm; residues on "roasted" seed ranged from 0.02 to 14.7 ppm. Analyses for tetrahydrophthalimide (THPL) was not performed. Each lab except Pattison's described the method used; no blanks or recovery values are specified by any lab.

Residue analyses for methoxychlor are also reported on raw data sheets from all five labs--apparently methoxychlor extracts and chromatographs within the parameters used for captan analyses for "treated" seed, methoxychlor residues were 11.5 to 124 ppm; for "roasted," 0.4 to 27 ppm. Feeding of detreated seed containing methoxychlor is not permitted under the current regulation.

The second study used the smaller roaster and consists of five trials. For each trial, one sample was taken prior to roasting and two at the end of roasting. Residues prior to roasting were 521 to 602 ppm captan, and after roasting were 2.0 to 33.5. Methoxychlor residues (four trials) were 20.3 to 43.6 ppm before and < 0.2 to 2.8 ppm after roasting. Again, no recovery data were provided.

These studies demonstrate that residues of captan, per se, are reduced well below the 100 ppm feed additive tolerance level under the conditions used. However, there are several issues yet to be addressed concerning seed detreatment, as mentioned in the Captan Registration Standard and in R. Schmitt's letter to Ms. B. Clark of Pioneer Seed Company, dated May 23, 1986 (see copy attached).

1. The "residue of concern" needs to be identified for each detreating process which will be used. Separate radiolabeled studies should be conducted using the label in both the carbonyl and trichloromethyl carbon, reflecting the degradation products of captan found upon detreatment.

2. Methods to determine any new residues of toxicological concern will be required. Residue data for the "residues of concern" as determined above (1) must be developed for each detreating process to be used, using seed treated at the highest level permitted. The range of any variable parameters for each detreating process must be reflected in the residue studies, such as feed rate, temperature, etc. Validation data such as recoveries from fortified samples, blanks (treated and not), and sample chromatograms must accompany these residue data.
3. Similar studies and tolerances would be required for any and all other pesticides used with captan, since our information indicates that seed is virtually never treated with captan alone. Alternatively, a satisfactory mechanism to prevent feeding detreated seed containing these pesticides would need to be developed and implemented. Depending upon the outcome of the labeled studies, new feeding studies may be needed.

Summary

The submitted study provides evidence supporting the hypothesis that seed detreatment by roasting does reduce residues of captan per se. We wish to point out that feeding detreated seed containing any pesticide other than captan is not authorized by the current regulation.

We have outlined the studies which are still needed to support the continuation of this feed additive tolerance for detreating seed corn.

Note to PM: ASTA should be notified concerning our review of these data and of the studies still required to support continued registration.

Attachment - with all cc's

cc: Captan Reg. Std., Captan sf., LMB, r.f., circ., H. Harrison
 (TS-767), 3E1367, PMSD/15B
 TS-769:L.M.Bradley:8/13/86:557-7378:
 RDI:A.R.Rathman:8/14/86:RDS:8/15/86
 88099:Bradley:C.Disk:KENCO:8/18/86:eg:LF



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

Attachment
COPY

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

Ms. Beverly Clark
Pioneer Seed Company
700 Capitol Square
Des Moines, Iowa 50309

MAY 23 1986

Dear Ms. Clark:

This letter is in response to our telephone conversation on April 29, 1986. As you requested, I am sending a copy of our residue chemistry guidelines. The data needed for determining the decomposition products of captan are similar to the Nature of the Residue" studies described on pages 9-13 in these guidelines. These guidelines were written for determining the metabolism of pesticides in growing crops. In the case of captan treated seed corn, the radiolabeled captan would be applied to the seed in a manner similar to the commercial applications. The chemical techniques used to identify the captan degradates would be the same as described in our guidelines.

For captan we are requiring two separate radiolabeled studies. The carbonyl carbon of the tetrahydro phthalimide ring should be labeled for one study and the trichloromethyl carbon for the other study.

Since this captan corn roasting degradation study is somewhat different than conventional metabolism studies, I suggest that you have the person responsible for carrying out this study draft a detailed protocol and submit it to the EPA Product Manager for Captan so that we can evaluate it. The Product Manager for captan is Henry Jacoby and he can be reached at 703-557-1900.

Please contact me if you have additional questions.

Sincerely,

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

Enclosure

cc: A. Barton, HED
H. Jacoby, RD
D. Campt, RD
Subject File/RCB
mh:5/23/86

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