



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

FEB 4 1985

EXPEDITE

MEMORANDUM

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

SUBJECT: PP#0F2413/FAP#0H5275 and PP#3F2793/FAP#3H5378.
(RCB#s 560, 561, 562, and 563). Thiodicarb
(Larvin®) on Cotton and Soybeans. Evaluation
of Amendment Dated January 22, 1985 (Accession
Numbers 143495, 143496, 143497 and 143498 -
Recorded on RD Data Review Record, only).

FROM: Michael P. Firestone, Ph.D., Chemist
Tolerance Petition Section II
Residue Chemistry Branch
Hazard Evaluation Division (TS-769)

THRU: Charles L. Trichilo, Ph.D., Chemist
Residue Chemistry Branch
Hazard Evaluation Division (TS-769)

TO: Jay S. Ellenberger, Product Manager No. 12
Insecticide-Rodenticide Branch
Registration Division (TS-767)

and

Toxicology Branch
Hazard Evaluation Division (TS-769)

Note: This review has been expedited per the request of the
Director of the Registration Division, Mr. Douglas D. Camp
(see memo of 1/29/85).

Background

Union Carbide Agricultural Products Company, Inc. has
submitted this amendment, consisting of a cover letter dated
1/22/85 from J. S. Lovell of Union Carbide to J. S. Ellenberger
of EPA, and the raw data used to generate the GS-MS data for
acetamide in milk and egg whites submitted in an 11/19/84
amendment to the subject petitions, in response to RCB's
request for such data (see M. Firestone memo of 12/6/84 -
conclusion 5).

In RCB's 12/6/84 review, it was concluded that the
source(s) for "endogenous" acetamide in animal commodities
were not positively identified by the data submitted by Union
Carbide in its 11/19/84 amendment.

RCB also stated in its 12/6/84 review, that its final evaluation of the adequacy of the GC-MS confirmatory procedure for analysis of acetamide in animal tissues could be completed only upon BUD's assessment of the extraction procedure. The method trial results for analysis of acetamide in liver, and acetonitrile in milk and eggs (see R. Thomas memo of 1/18/85 - ACS, COB, BUD) have now been reviewed by RCB (see M. Firestone memo of 1/29/85). The following conclusions have been reached:

1. Because of the very low recoveries at the 1.0 ppm fortification (i.e., 46% and 62%), RCB considers the method for the determination of acetamide in liver to be questionable.
2. Due to the finding of acetamide in reagent (acetone) blanks by EPA's chemists, RCB is unable to determine the validity of the data on endogenous or ubiquitous acetamide in animal commodities. The petitioner should submit all raw data and calculations as requested in RCB's review of 12/6/84 (M. Firestone). These raw data should include analyses of reagents (i.e., acetone) used for residue extraction.
3. The method for analysis of acetonitrile in milk and egg whites is inadequate due to extremely high control and recovery values. Thus, the determination of acetonitrile as a marker compound for acetamide in milk and eggs is not acceptable under FDA's SOM Policy.

Present Considerations

Part I - Method of Analysis for Acetamide in Milk and Eggs

This procedure was discussed in RCB's 12/6/84 review of amendment 11/19/84 (M. Firestone), in which the petitioner was advised to submit all raw data and calculations used to generate the reported fortification/recovery data. In the 11/19/84 submission, the petitioner reported the following:

"The average recovery of acetamide from eight milk samples fortified at 96 to 800 parts per billion was 77 percent with a standard deviation of 13 percent. The average recovery of acetamide fortified at 400 and 800 ppb was 79 percent with a standard deviation of 11 percent.

The average percents recovered of the acetamide added after correcting for the untreated controls (0 ppm) was (sic) 66% for milk and 71% for eggs."

In the current submission, the following raw data are reported:

Sample	Fortification (ppm)	Recovery (ppm)	% Recovery
Egg White	0.4	0.441/0.477/0.505/0.652	110/119/136/163
Egg White	0.8	1.074/1.083	134/135
Egg White	0	0.184/0.162/0.161/0.321/0.329	
Milk	0	0.315/0.480	
Milk	0.096	0.440/0.432	458/450
Milk	0.2	0.551	275
Milk	0.4	0.660	165
Milk	0.8	0.991/1.03	124/129
Reagent Blank ^a	0	<0.01/<0.03	

- a) water is substituted for the sample prior to the extraction/clean up procedure.

From the above results, it is unclear how the petitioner obtained recoveries of 77% (66% corrected for untreated controls) for milk, and 79% (71% corrected for untreated controls) for eggs mentioned in the 11/19/84 amendment.

The petitioner will need to explain the discrepancy between the results reported in the 11/19/84 amendment and the current (1/22/85) amendment.

The petitioner stated in the 11/19/84 amendment that because of its affinity for water, analysis of acetamide posed a problem. Thus, RCB would like to see reagent blanks run (GC-MS) on the acetone used for extraction.

Part II - Determination and GC/MS Confirmation of Acetamide in Milk and Eggs

In the 11/19/84 amendment, the petitioner reported data concerning the levels of acetamide in market basket samples of milk (mean value = 0.407 ppm) and eggs (mean value = 0.168 ppm).

In the current submission, the following raw data are reported:

State	Milk Fortification (ppm)	Recovery ^b (ppm)/%	Egg Whites Fortification (ppm)	Recovery ^b (ppm)/%
IN	0.4	0.561/ <u>140</u>	0.4	0.399 ^a / <u>100</u>
IN	0	0.285	0	0.124
NC	0.4	0.494/ <u>123</u>	0.4	0.491 ^a / <u>123</u>
NC	0	0.252	0	0.161
RI	0.4	0.474/ <u>118</u>	---	-----/---
RI	0	0.237	0	0.106
CO	---	-----/---	0.4	0.322/ <u>80</u>
CO	0	0.251	0	0.074
PA	0	0.299	0	0.099
FL	0	0.304	0	0.044
MO	0	0.226	0	0.079
TX	0	0.189	0	0.088
CA	0	0.347	---	-----
AZ	0	0.225	0	0.222
MN	0	0.203	0	0.087

a) average of 2 samples

b) market basket samples (fortification = 0 ppm) are not corrected for recovery

The recovery of acetamide from samples of milk and eggs fortified at 0.4 ppm averaged 127% and 101%, respectively. Reagent blanks (water) were reported as <0.02 ppm, <0.04 ppm, and 0.017 ppm.

The average levels of acetamide reported in market basket milk and egg white samples were 0.256 ± 0.048 ppm and 0.110 ± 0.048 ppm, respectively (note - these values are not corrected for recovery). Even if these values are corrected for the recovery percentages (milk - 66%, eggs - 71%) reported in the 11/19/84 amendment (note - as discussed in Part I of this review, the reported recoveries are suspect), the results (0.388 ppm - milk, 0.155 ppm - eggs) do not match those originally submitted (0.407 ppm - milk, 0.168 ppm - eggs).

The petitioner will need to explain the discrepancies between the results reported in the 11/19/84 amendment and the raw data submitted in the current (1/22/85) amendment. Also, the petitioner should submit all calculations used to generate the 11/19/84 results as requested in RCB's 12/6/84 review (M. Firestone).

Conclusions/Recommendations

Since discrepancies exist between the results reported in the 11/19/84 amendment and the raw data submitted in the current amendment, since reagent blanks should be run (GC-MS) on the acetone used for acetamide extraction, and since the history of the milk and egg samples is unknown (i.e., these samples were purchased at local grocery stores); RCB is unable to reach any conclusions regarding the existence of endogenous/ubiquitous acetamide in animal commodities.

RCB recommends that the petitioner be sent a copy of this review and attempt to resolve the problems described above.

cc: R.F., Circu, Reviewer, TOX, EEB, EAB, PP#0F2413/FAP#0H5275,
PP#3F2793/FAP#3H5378, FDA, Robert E. Thompson (RTP)
RDI:Section Head:JHOnley:2/1/85:RDSchmitt:2/1/85
TS-769:RCB:Reviewer:MPFirestone:557-7484:CM#2:RM:810:LDT:2/1/85

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