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

AUG 30 1985

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: PP#OF2413/FAP#OH5275/PP#3F2793/FAP#3H5378 [No RCB Number]. Thiodicarb on Cotton and Soybeans. Evaluation of an Analytical Chemistry Section (COB, BUD) Report Concerning the Analysis of Milk Samples for Acetamide, a Thiodicarb Metabolite (D. Wright, Jr. memo of August 21, 1985 to M. Firestone).

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and

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Note: This memo has been expedited per the request of Mr. Douglas Campt, Director of RD (see memo of May 16, 1985 to John Melone, Director of HED).

Introduction

Union Carbide is proposing tolerances for thiodicarb on cottonseed, soybeans and their processed fractions. Union Carbide's residue data support their contention that acetamide, an animal metabolite of thiodicarb, is ubiquitous in milk and eggs (see M. Firestone memo of 3/7/85). However, RCB felt that Union Carbide's contention needed to be further investigated by ACS.

Thus, RCB had requested (see M. Firestone memo of April 30, 1985 to D. Marlow, Chief of COB) that ACS conduct a study in which residues of acetamide are quantitated in distilled water, pasteurized milk (supermarket purchased) and, if possible, unprocessed/unpasteurized milk obtained from USDA's Beltsville dairy cattle herd whose diet consists of non-pesticide treated feed.

Results

Pasteurized milk purchased locally, unpasteurized milk obtained from USDA (Beltsville, MD), and distilled water were analyzed for acetamide using the Union Carbide method entitled, "Method of Analysis for Acetamide in Milk and Eggs (ACETAMIDE - NPD - Milk and Eggs)". Milk samples were spiked at 0; 0.1; and 0.5 ppm while distilled water samples were spiked at 0 and and 0.5 ppm (two samples at each fortification were analyzed).

Acetamide levels, not corrected for recovery, in control samples of pasteurized milk, raw milk and distilled water average 0.14 ppm, 0.11 ppm, and non-detectable (no detection limits reported), respectively.

Because of the very low recoveries reported as follows:

pasteurized milk	= 0 to 30%	(average = 10%);
raw milk	= 26 to 80%	(average = 40%);
distilled water	= 8, 12%	(average = 11%);

RCB is unable to reach any quantitative conclusion concerning the level of "ubiquitous" acetamide in milk.

Several samples were anlayzed qualitatively for the presence of acetamide by low resolution gas chromatography/mass spectroscopy. The following observations were reported:

1) When scanning at the molecular ion for acetamide, the retention time of peaks in the samples matched that of the standard.

2) The peak shape of the samples and standard are similar.

3) Mass spectra taken from the peaks in the milk samples matched that of the standard.

4) An injection of a sample and standard made simultaneously showed only a single peak in the area of interest.

5) Samples of distilled water analyzed were free of acetamide indicating that there is no contamination in the laboratory.

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Conclusion

The very limited ACS results described above appear not to disagree with Union Carbide's contention that acetamide is "ubiquitous" in milk.

RCB does recommend that additional samples of milk and other commodities be monitored in the future for the presence of acetamide.

cc:R.F., Circu, MPFirestone, Thompson, FDA, PP#OF2413, PP#3F2793, Dennis Edwards-RD, Ann Barton-HED, Don Marlow-BUD, W. Bontoyan-BUD, MTO File

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