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

MAR 5 1985

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: Sulfotepp

TO: Ted Farber, Chief
[redacted]
Toxicology Branch

Mike Slimak, Chief
Ecological Effects Branch

The attached memorandum from Dean Hill suggests that the cited sulfotepp levels constitute a significant health hazard.

I would like your staff to look into this matter and give me an opinion on the potential health and environmental risks of products contaminated with sulfotepp.

Please give me your opinions on this by COB 31 March. You may need the assistance of the Exposure Assessment and Residue Chemistry Branches to characterize exposure scenarios, environmental concentrations, and food residues.

John W. Melone, Director
Hazard Evlauation Division (TS-769)

Attachment

cc: Anne Barton
Amy Rispin
Dave Severn
Chuck Trichilo
Doug Campt
Steve Schatzow
Susan Sherman

TS 3/7

ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF ENFORCEMENT
NATIONAL ENFORCEMENT INVESTIGATIONS CENTER
BUILDING 53, BOX 25227, DENVER FEDERAL CENTER
DENVER, COLORADO 80225

DATE December 7, 1984

TO John Seitz
Compliance Monitoring Staff
OPTS (EN-342)

FROM Dean F. Hill, Chief
Pesticides and Toxic Substances Branch

SUBJECT Pesticide By-Product Concerns

As part of the recent meeting of the Association of Official Analytical Chemists (AOAC), a symposium was held on pesticide impurities and related concerns. This was a very worthwhile symposium, highlighting a number of the problem areas and analytical approaches toward addressing them.

Among the presentations was one by James Karr of Pennwalt Corporation, King of Prussia, PA, regarding the by-product composition of Diazinon. Pennwalt formulates Diazinon into encapsulated insecticide products; they are not a basic producer. The essence of Dr. Karr's paper was the variable levels of sulfotepp, a very highly toxic insecticide in itself, in technical Diazinon from several different sources. These findings are summarized as follows:

Diazinon Source	Concentration of Sulfotepp
Ciba-Geigy (U.S.)	260 ppm
Ciba-Geigy (France)	200 - 300ppm
Nippon-Kayaku (Japan)	3500 - 5500ppm
Makhteshim (Israel)	1900 - 2300ppm

As you can see, the Makhteshim and Nippon-Kayaku Diazinons contain about 10X more sulfotepp than either of the Ciba-Geigy materials. I firmly believe these elevated levels of tthis highly toxic by-product possess a potentially significant health hazard.

These sulfotepp findings are consistant with those reported earlier in Dizinon formulations by the Georgia Department of Agriculture (see my December 2, 1983, memo, attached) and also by the Florida Department of Agriculture, according to Marshall Gentry, head of their pesticide laboratory. Thus, it appears that these high sulfotepp levels are showing up in finished pesticide products. Dr. Alan Hanks, Indiana State Chemist, who also has an interest in this topic, has brought to my attention several other papers related to this issue (see attached).

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My understanding is that Ciba-Geigy's patent has expired and that formulators may use other sources of technical material, although the formulators apparently must notify EPA Registration of any change in suppliers. It appears that the formulators are not being required to demonstrate equivalency of safety, environmental impact and efficacy of the originally registered material.

The sulfotepp problem in Diazinon is not unique, we have seen elevated levels in chlorpyrifos and it undoubtedly occurs in other related organophosphates. Other similar pesticide by-product or impurity problems can also be cited:

- nitrosamines in phenoxy and nitroaniline herbicides
- dioxins in phenols and phenoxy herbicides
- hexachlorobenzene in DCPA (Dacthal) and PCNB
- hydrazine in maleic hydrazide
- DDT/DDE in dicofol
- ETU in bisdithiocarbamates

Thus, I believe there is a wide-ranging problem that needs to be dealt with at the enforcement or regulatory level, although I am not sure how. The elevation of the Pesticide Assessment Guideline (Subdivision D), Product Chemistry, to regulation status is one possible solution, this would make certifiable limits enforceable. I think the product compliance enforcement program would be much more meaningful and effective if our resources in this area were more directed toward these potentially serious health and environmental related problems as opposed to active ingredient monitoring (microbiocides excepted) for basically consumer protection purposes.

I would be happy to discuss this issue further with you or your staff as appropriate and convenient.

Attachments

cc: Dr. Alan Hanks, IN (no attachments)
Marshall Gentry, FL (no attachments)
J. R. Conley, GA (no attachments)
Michael Wood, CMS (no attachments)

artificial limits and other product chemistry data requirements are already enforceable because they are stated in Part 158.

an issue worth exploring!