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E. I. DU PONT DE NEMOURS & COMPANY

INCORPORATED

WILMINGTON, DELAWARE 19898

L. Boyer



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LEGAL DEPARTMENT

June 27, 1984



FYI-94-000932  
INIT 07/26/94

Mr. Martin Greif (TS-792)  
Executive Secretary  
TSCA Interagency Testing Committee  
U.S. Environmental Protection Agency  
401 M Street, S.W.  
Washington, DC 20460

CONFIDENTIAL

Dear Mr. Greif:

Bromotrifluoromethane  
ITC Fifth Scoring Exercise  
(48 FR 51519)

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On January 17, 1984, Du Pont submitted to the ITC detailed information regarding production volumes, use, exposure, environmental controls and toxicity of the chemical: bromotrifluoromethane. Attachment I. Subsequent to that submission, you provided Du Pont a copy of the working draft report "Information Review: Bromotrifluoromethane" prepared for the ITC by CRCS, Inc., a contractor. Du Pont has reviewed this draft report and is concerned that it does not accurately reflect the very low toxicity and breadth of toxicological information known about the compound. Despite the fact that the Du Pont-submitted information is appended as part of the Addendum, the report is, we believe, incomplete and provides an outdated review of published and unpublished information. Because Du Pont's submission provides a great deal of factual data, Du Pont believes that its comments and literature search should be incorporated into the main body of the report. We trust, however, that the ITC is aware of the draft report's limitations and that the Committee members have read Du Pont's comments in conjunction with the draft report.

Attached for the ITC's consideration is a copy of the contractor's draft report with Du Pont's comments noted. Attachment II. In addition, we have appended an updated literature review prepared by Du Pont's Haskell Laboratory (Attachment III) and two unpublished studies addressing the teratogenicity (rat) and mutagenicity (salmonella) potential of bromotrifluoromethane. (Attachment IV, V.)

Du Pont's specific comments on the contractor draft report are detailed below. These comments are also referenced in the appended marked contractor draft report.

Note 1 (draft p. iii)

In our January 1984 communication to ITC (Attachment I) we estimated exposure to significant levels to be about 250 persons/year. It is unclear what the 17395 NOES total represents, perhaps the number of people protected by Halon 1301 systems (i.e., potential exposures). Some reasonable criteria for defining an exposure should be spelled out. Background ambient air levels of  $\bar{1}$  ppt are reported which would apply to the total population, so some limitation is essential.

Note 2 (draft p. 2)

In the communication to ITC referenced in Note 1, we estimated current U.S. sales at about 7 million pounds and a current annual growth of about 9 percent. The current market is thus significantly smaller than would be expected from the 1980 Chemical Week reference.

Note 3 (draft p. 3)

Emission estimates were provided in our earlier communication to ITC cited previously.

Note 4 (draft p. 4)

Unfortunately no explanation of the exposure indices and biological effects scores is provided. For exposures for the general population, in normal production and use (except fire situations), and in the environment, exposure levels are insignificant. Only under actual fire conditions or demonstrations may significant exposures be expected, and this involves very few individuals.

Enclosed with these comments (Notes 6 and 7) are reports indicating that mutagenicity and teratogenicity tests were negative. The present reference under carcinogenicity is irrelevant (see Note 5). One 1953 carcinogenicity study was negative although limited to an 18-week inhalation exposure. All available data suggest acute and chronic toxicity is extremely low. The physical properties of Halon 1301 are such that bioaccumulation would not occur, the compound is rapidly lost from tissues post-exposure (see for instance draft Section II.A.). Ambient levels are many orders of magnitude below levels at which any effects may be expected on plant or animal life. The indices and scores in Sections I.F.1 and I.F.2 of the draft report do not appear to convey this perspective.

Note 5 (draft p. 6)

The discussion of trichlorotrifluoroethane and piperonyl butoxide is irrelevant to Halon 1301.

Pages 5-15 to 5-17 from EPA's Health Assessment Document (EPA-600/8-82-002F) for CFC-113 are enclosed (Attachment VI) and discuss this work under Sections 5.1.7.2 and 5.1.8. and in Table 5-6. Piperonyl butoxide is a pesticide synergist and is not used in conjunction with Halon 1301.

An 18-week inhalation study [Comstock, C. C., et al, U.S. Army Chemical Corps, Med. Div. Report No. 5030-180 (1953) (J-4670)] showed no evidence of carcinogenic potential.

Chlorotrifluoromethane (CFC-11) and dichlorodifluoromethane (CFC-12) have been studied in rodents by oral and inhalation routes in lifetime studies and were not carcinogenic.

Note 6 (draft p. 6)

Halon 1301 has been tested on Salmonella typhimurium strains TA 1535, TA 1537, TA 1538, TA 98, and TA 100 and was not mutagenic with or without metabolic activation (see enclosed Haskell Laboratory Report 980-76).

Note 7 (draft p. 6)

The enclosed Haskell Laboratory Report (499-78) indicates no embryotoxic or teratogenic effects in rats at concentrations up to 50,000 ppm.

Note 8 (draft p. 10)

See communication to ITC referenced earlier, Section 6.3. The V.A.1 section as written in the draft report does not indicate that eventual release from all uses is essentially complete.

Note 9 (draft p. 11)

See communication to ITC, Section 6.4. Photolysis at stratospheric altitudes is expected to be the predominant removal process for Halon 1301 in the atmosphere. Reactions with oxygen atoms, hydroxyl radicals, hydrolysis, and biodegradation are not expected to be significant removal processes. As indicated in the communication to ITC, although stratospheric bromine is expected, on the basis of computer calculations, to enter into reactions with stratospheric ozone, the amount of bromine involved from this source and

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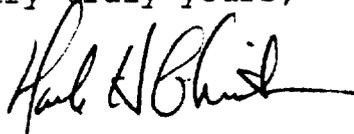
its effect on stratospheric ozone are insignificant opposite the various and interacting calculated effects from chlorine, nitrogen oxides, nitrous oxide, carbon dioxide and methane.

Note 10

The draft copy reviewed had attached a Haskell Laboratory Toxicity Review for Halon 1301. An updated and more current version is enclosed (Attachment III) and should be substituted for that outdated literature review submitted previously.

As demonstrated in these and in its earlier submission, Du Pont believes that the ITC has sufficient information to characterize the toxicity of bromotrifluoromethane. Because of the chemical's demonstrated low toxicity and exposure potential, further review by the ITC is not warranted. Should the Committee desire additional information or have any questions regarding Du Pont's comments, please contact me.

Very truly yours,



Mark H. Christman  
Attorney  
Environment, Materials  
and Logistics Division

MHC:mdm  
Attachments