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

APR 21 1993

OFFICE OF  
PREVENTION, PESTICIDES  
AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: List D, Phase IV Review for Bromine (Case 4015)

FROM: Anthony F. Maciorowski, Chief *[Signature]*  
Ecological Effects Branch  
Environmental Fate and Effects Division (H7507C)

TO: Kathy Monk  
Science Analysis and Coordination Staff  
Environmental Fate and Effects Division (H7507C)

EEB has completed the Phase IV review for bromine (008701). All uses of this chemical are indoor (food, nonfood, medical, and residential). Bromine is used in insecticides, acaricides, and antimicrobials.

Since all registered uses of bromine are indoor uses, the reduced data set applies: one avian acute oral, one avian dietary, one fish acute, and one aquatic invertebrate acute.

Aquatic ecotoxicity data are available for this chemical. The studies show that bromine chloride, measured as bromine, is highly toxic to freshwater fish and aquatic invertebrates (see attached reviews). [A letter (MRID 425676-01), submitted with the Phase IV package under 6(a)2, provides only a summary of a daphnid study; abbreviated review is attached].

No avian toxicity data are available for bromine. The registrants have requested waivers for the avian studies; EEB concurs with the waiver requests. Bromine is a highly volatile, corrosive liquid, and standard avian tests would not provide useful toxicity data.

In view of the above, there are no outstanding ecotoxicity data requirements for bromine. Avian requirements are waived; aquatic data will be used for labelling purposes. The status of the data requirements is outlined in the attached data table.

Note - Bromine is a candidate for direct development into a RED, without further EEB review.

Any questions or comments on this memo should be referred to Allen Vaughan at 305-6464.



2024122

Date: 04/07/93  
 Case No: 4015  
 Chemical No: 008701

PHASE IV  
 DATA REQUIREMENTS FOR  
 ECOLOGICAL EFFECTS BRANCH

Data Requirements	Composition <sup>1</sup>	Use Pattern <sup>2</sup>	Does EPA Have Data To Satisfy This Requirement? (Yes, No)	Bibliographic Citation	Must Additional Data Be Submitted under FIFRA3(c)(2)(B)?
<b>6 Basic Studies in Bold</b>					
<b>71-1(a) Acute Avian Oral, Quail/Duck</b>	(TGA)	L,M,N,O	No		No <sup>3</sup>
71-1(b) Acute Avian Oral, Quail/Duck	(TEP)				
<b>71-2(a) Acute Avian Diet, Quail</b>	(TGA)	L,M,N,O	No		No <sup>3</sup>
<b>71-2(b) Acute Avian Diet, Duck</b>	(TGA)				
71-3 Wild Mammal Toxicity	(TGA)				
71-4(a) Avian Reproduction Quail	(TGA)				
71-4(b) Avian Reproduction Duck	(TGA)				
71-5(a) Simulated Terrestrial Field Study	(TEP)				
71-5(b) Actual Terrestrial Field Study	(TEP)				
<b>72-1(a) Acute Fish Toxicity Bluegill</b>	(TGA)	L,M,N,O	Yes	40669903	No
72-1(b) Acute Fish Toxicity Bluegill	(TEP)				
<b>72-1(c) Acute Fish Toxicity Rainbow Trout</b>	(TGA)	L,M,N,O	Yes	40669902	No
72-1(d) Acute Fish Toxicity Rainbow Trout	(TEP)				
<b>72-2(a) Acute Aquatic Invertebrate Toxicity</b>	(TGA)	L,M,N,O	Yes	40669904	No
72-2(b) Acute Aquatic Invertebrate Toxicity	(TEP)				
72-3(a) Acute Estu/Mari Tox Fish	(TGA)				
72-3(b) Acute Estu/Mari Tox Mollusk	(TGA)				
72-3(c) Acute Estu.Mari Tox Shrimp	(TGA)				

N

\* In Bibliographic Citation column indicates study may be upgradeable

PHASE IV  
DATA REQUIREMENTS FOR  
ECOLOGICAL EFFECTS BRANCH

04/07/93  
e No: 4015  
mical No: 008701

a Requirements	Composition <sup>1</sup>	Use Pattern <sup>2</sup>	Does EPA Have Data To Satisfy This Requirement? (Yes, No)	Bibliographic Citation	Must Additional Data Be Submitted under FIFRA3(c)(2)(B)?
3(d) Acute Estu/Mari Tox Fish	(TEP)				
3(e) Acute Estu/Mari Tox Mollusk	(TEP)				
3(f) Acute Estu/Mari Tox Shrimp	(TEP)				
4(a) Early Life-Stage Fish	(TGAI)				
4(b) Life-Cycle Aquatic Invertebrate	(TGAI)				
5 Life-Cycle Fish	(TGAI)				
6 Aquatic Org. Accumulation	(TGAI)				
7(a) Simulated Aquatic Field Study	(TEP)				
7(b) Actual Aquatic Field Study	(TEP)				
2-1(a) Seed Germ./Seedling Emerg.	(TGAI)				
2-1(b) Vegetative Vigor	(TGAI)				
2-2 Aquatic Plant Growth	(TGAI)				
3-1(a) Seed Germ./Seedling Emerg.	(TGAI)				
3-1(b) Vegetative Vigor	(TGAI)				
3-2 Aquatic Plant Growth	(TGAI)				
24-1 Terrestrial Field Study	(TEP)				
24-2 Aquatic Field Study	(TEP)				
41-1 Honey Bee Acute Contact	(TGAI)				
41-2 Honey Bee Residue on Foliage	(TEP)				
41-5 Field Test for Pollinators	(TEP)				

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\* In Bibliographic Citation column indicates study may be upgradeable

1. Composition: TGA1 = Technical grade of the active ingredient; PAIRA = Pure active ingredient, radiolabeled; TEP = Typical end-use product
2. Use Patterns: A = Terrestrial Food Crop; B = Terrestrial Feed Crop; C = Terrestrial Non-Food Crop; D = Aquatic Food Crop; E = Aquatic Non-Food Outdoor; F = Aquatic Non-Food Industrial; G = Aquatic Non-Food Residential; H = Greenhouse Food Crop; I = Greenhouse Non-Food Crop; J = Forestry; K = Outdoor Residential; L = Indoor Food; M = Indoor Non-Food; N = Indoor Medical; O = Indoor Residential; Z = Use Group for Site 00000
3. Avian testing requirements have been waived. Bromine is a highly volatile, corrosive chemical; standard avian tests would not provide meaningful toxicity data.

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