

112701

FEB 2 1982

Date Out EFB:

FEB 2 1982

To: Product Manager 16 Miller  
TS-767

From: Dr. Willa Garner *WJ*  
Chief, Review Section No. 1  
Environmental Fate Branch

Attached please find the environmental fate review of:

Reg./File No.: 10182-UI

Chemical: Brodifacoum

Type Product: Rodenticide

Product Name: Talon

Company Name: ICI

Submission Purpose: Use in sewers (in block bait)

ZBB Code: 3(c)(5)

ACTION CODE: 171

Date in: 1/26/82

EFB # 146

Date Completed: FEB 2 1982

TAIS (level II)

Days

Deferrals To:

63

0.25

Ecological Effects Branch

Residue Chemistry Branch

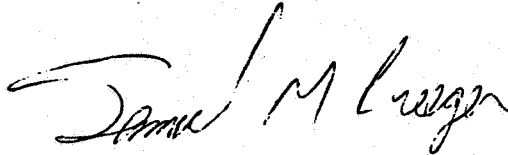
Toxicology Branch

1. INTRODUCTION

- 1.1 In response to the December 10, 1981 meeting between ICI, EEB, EFB and PM Team 16, where ICI was asked to either submit an activated sludge study or a waiver request from such to allay concerns of EEB (refer to minutes of meeting in the EFB file), ICI has submitted a waiver request (attached).

2. RECOMMENDATIONS

- 2.1 The request for waiver of the activated sludge study submitted by ICI is adequate for the proposed use. The data requirement is therefore waived.



Samuel M. Creeger  
February 2, 1982  
Section #1/EFB  
Hazard Evaluation Division

ICI Americas Inc.  
Agricultural Chemicals Division  
Wilmington, Delaware 19897

TALON™ Rodenticide WEATHERBLOK™ Bait

SECTION J: ENVIRONMENTAL FATE OF BRODIFACOU:

J5: REQUEST FOR WAIVER OF DATA REQUIREMENT

ICI Americas Inc. has proposed that TALON™ Rodenticide WEA-  
THERBLOK™ Bait, a wax block formulation which contains 0.005%  
brodifacoum as the active ingredient, be registered for use  
in sewers. The Agency, in a meeting with ICI representatives  
on December 10, 1981 indicated that a study with activated  
sludge may be required in connection with the evaluation of  
this proposed use pattern. It is the opinion of ICI, how-  
ever, that an activated sludge study with brodifacoum would  
be of no relevance, and that the Agency can satisfactorily  
evaluate the proposed use pattern with information which  
already exists. We therefore respectfully request a waiver  
from the requirement of an activated sludge study.

Briefly, we shall demonstrate that:

1. The proposed label should not be regarded as an aquatic  
use pattern. If the proposed label is carefully  
followed, there is essentially no likelihood that the  
product will be exposed to water.
2. In the unlikely event that the product does enter the  
water, only a minimal amount of active ingredient is  
likely to be removed from the block.
3. By simple dilution, <sup>insoluble</sup> the concentration of active ingre-  
dient in water can be expected to be reduced by several  
orders of magnitude.
4. Because brodifacoum has a very strong tendency to adsorb  
on the surface of solids, its concentration in sewer  
effluent can be expected to be further reduced by several  
more orders of magnitude.
5. It is extremely unlikely that the miniscule amount of  
brodifacoum which could conceivably be in sewer effluent  
could adversely affect microorganisms in sewage treatment  
plants. This view is given support by the results of the  
soil metabolism studies.

The proposed label requires the wax block to be secured to a  
stationary structure above the high water line in sewers;  
therefore, this is not an aquatic use of the product. The  
product will be applied in sewers only by licensed private or  
municipal pest control operators. For this reason it is  
expected that incidences of exposure to water will be very  
infrequent, and will occur only as a result of misuse or  
miscalculation.

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The wax block does not float in water; its specific gravity is 1.15. (See Section A7 of our June 23, 1981 registration application for TALON™ Rodenticide WEATHERBLOK Bait.) If a block should enter water its tendency will be to remain at the bottom of the sewer. Therefore it is unlikely that the block will be exposed to abrasion, and it can be expected to maintain its physical integrity for an indefinitely long time. The product resists crumbling in water better than virtually any wax block now being sold. (See Reference 5J).

TALON™ Rodenticide WEATHERBLOK™ Bait is highly resistant to leaching. Only a minimal amount of active ingredient is likely to leach from the wax block if exposure to water should occur. Reference 5J describes a test in which a 300-gram block was submerged in 1 liter (1000 grams) of water. After 24 hours the concentration of active ingredient in the water was only 0.5 ppb. If a wax block were to fall into a running sewer, it would normally be exposed to many thousands of liters of water in a day, so the maximum concentration of active ingredient in water is not likely to exceed a few parts per trillion. Even this minimal concentration, however, would be greatly reduced as described below:

Brodifacoum is a highly hydrophobic coumarin derivative whose solubility in water is extremely low (<0.1 ppm; see Reference 4J of our July 22, 1981 submission concerning TALON Rodenticide Pellets (EPA Registration No. 10182-38)). Its chloroform/water partition coefficient is greater than 100,000. (See Reference 4J, *ibid*). The compound has a strong tendency to adsorb onto the surface of solids and it is difficult to maintain in solution (See Reference 2J of our registration application for TALON Rodenticide Pellets, submitted March 28, 1979). The soil sorption coefficient  $K_d$  has been found to range between 811 and 1,495, so brodifacoum is among the least mobile of all pesticide chemicals. (See Reference 4 of our July 22, 1981 submission.) This strong tendency to adsorb insures that maximum concentrations of the active ingredient which may occur in water as a result of the proposed use pattern will be many orders of magnitude below the limit of detectability of the compound in water.

It is extremely unlikely that the miniscule amount of brodifacoum which may conceivably occur in sewage will have an adverse effect on microorganisms in sewage treatment plants. This view is given support by soil degradation studies. It has been demonstrated that microorganisms in soil can degrade brodifacoum at concentrations up to 5.45 kg/ha (22.7 ppm). (See Reference 1J of our March 28, 1979 submission concerning TALON Rodenticide Pellets). From the information given above it can be estimated that the concentration of brodifacoum in the soil degradation study was at least a million times higher than the maximum level of the compound which may occasionally occur in water.

For these reasons, ICI has concluded that the requirement of an activated sludge study with brodifacoum would be inappropriate and totally unnecessary for the evaluation of the proposed use pattern. Therefore we respectfully request a waiver from this data requirement.

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