

8EHQ-1294-13284

The Goodyear Tire & Rubber Company

Akron, Ohio 44316-0001



INIT 12/13/94

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December 8, 1994

12/13/94 10:00 AM

Certified Mail

ORIGINAL

OPPT Document Processing Center (TS-790)  
Attn: Section 8(e) Coordinator  
Office of Pollution Prevention and Toxics (OPPT)  
U S Environmental Protection Agency  
401 M Street, SW  
Washington, DC 20460

Contains No CBI

Gentlemen:

Subject: TSCA Section 8(e) Notice

This submittal does not contain Confidential Business Information

The Goodyear Tire & Rubber Company is currently sponsoring a study at Springborn Laboratories (Wareham, MA) to assess the bioaccumulation potential of a rubber antioxidant in fish. The identity of the material is as follows:

CAS Name: 1,4 - Benzenediamine, N, N' - mixed Ph and tolyl derivs

CAS Number 68953-84-4\*

While visiting Springborn, Goodyear associates were given a verbal report of early findings of an aquatic effect that may represent a substantial risk. Consequently, under the requirements of TSCA Section 8(e), The Goodyear Tire & Rubber Company is providing EPA with the attached summary of results.

In these studies, mortality of the 10-20 gram carp were observed in the 50 ppb exposure tank beginning on Day Three. By Day Six, 8 of 38 fish had died, and testing at this level was terminated. No adverse effects were seen in the 5 ppb exposure tank.



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Because these results have not been replicated, and because they contradict other data on this product, considerable uncertainties exist regarding their validity. Followup experiments are currently underway to resolve these uncertainties. Upon completion, these followup studies will be forwarded to the EPA.

My address and telephone number are as follows:

The Goodyear Tire & Rubber Company  
Department 100D  
1144 East Market Street  
Akron, Ohio 44316-0001  
Telephone: (216) 796-2362

Sincerely,



Section Manager, Chemical Information  
Systems & Regulatory Affairs

Michael W Smith  
s4m12a08/wprmr

Attachments

Subject: Preliminary information from aquatic (fish) effects of Goodyear's chemical product; mixed diaryl p-phenylenediamines; DAPD (CAS #68953-84-4).

The Goodyear Tire & Rubber Company is currently sponsoring a study at Springborn Laboratories (Wareham, MA) to assess the bioaccumulation potential of a rubber antioxidant DAPD in fish. Representatives from Goodyear traveled to Wareham on November 18, 1994, and were given a verbal report of the findings described below. During the course of this study, observations were made concerning the toxic effects of DAPD which are ancillary to the purpose of the study. Because the results in question have not been replicated, and because they contradict other information on this product, considerable uncertainties exist regarding their validity. Follow-up experimental trials are underway to resolve these uncertainties.

To determine appropriate water concentrations of DAPD for bioaccumulation study in fish, two preliminary trials were performed. In the first, orange-red killifish (medaka, 5 g average weights) were exposed to DAPD levels up to 1 ppm (mg/L) nominal under static conditions for 4 days. No adverse behavior or lethal effects were observed at any exposure level. Based on these results, concentrations of 5 and 50 ppb (ug/L) were selected for flow-through tanks in the bioaccumulation study. In the second preliminary trial, common carp (2 g average weight) were exposed for 14 days to 5 and 50 ppb in this flow-through delivery system. Again, no mortality or adverse effects in fish were observed.

After 14 days, the 2-g carp were removed from the flow-through system and replaced with larger fish for the definitive study (common carp, 10 to 20 g body weights). Mortality was observed in the 50 ppb exposure tank beginning on Day 3 of the definitive test. By Day 6, 8 of 38 fish died in the 50 ppb tank, and testing at this level was terminated. No adverse effects were seen in the 5 ppb tank through 28 days of exposure. Concentrations of DAPD were monitored regularly throughout the exposure periods, and were found to be within expected ranges. Oxygen levels were also monitored in the tank water, and were shown to be within the acceptable range (>60% saturation).

To examine this phenomenon further, a follow-up trial will soon be initiated using the same flow-through exposure system. Carp will be exposed to 50 ppb DAPD in a study design to assess the reproducibility of the earlier findings. In addition, trials will be made to examine the relative sensitivities of small versus larger carp to DAPD, and the impact of biomass loading on the results.

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The mortality of 10-20 g carp in the 50 ppb flow-through exposure system was inconsistent with observations in the two preliminary trials. A primary inconsistency is the apparent greater toxicity of DAPD in the larger carp as opposed to the 2 gram fish. Springborn's experience has been that younger fish are more sensitive to chemical agents than are older fish. The second is that fish were affected within 3 days in the definitive study whereas fish survived 14 days at the same chemical concentration in a pilot study. We anticipate that our follow-up studies will shed further information on these anomalous findings.

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