

US EPA ARCHIVE DOCUMENT

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To: Marshall Swindell 31/Valdis Goncarovs
 Product Manager
 Registration Division

From: Anthony F. Maciorowski, Chief
 Ecological Effects Branch/EFED (7507C)

Attached, please find the EEB review of...

Reg./File # : _____
 Chemical Name : Hydrogen Peroxide and Peroxyactic Acid
 Type Product : Microbiocie
 Product Name : _____
 Company Name : _____
 Purpose : New Product
 Action Code : 175 Date Due : 9/10/94
 Reviewer : Conchi Rodríguez

EEB Guideline/MRID Summary Table: The review in this package contains an evaluation of the following:

GDLN NO	MRID NO	CAT	GDLN NO	MRID NO	CAT	GDLN NO	MRID NO	CAT
71-1 (A)			72-2 (A)			72-7 (A)		
71-1 (B)			72-2 (B)			72-7 (B)		
71-2 (A)			72-3 (A)			122-1 (A)		
71-2 (B)			72-3 (B)			122-1 (B)		
71-3			72-3 (C)			122-2		
71-4 (A)			72-3 (D)			123-1 (A)		
71-4 (B)			72-3 (E)			123-1 (B)		
71-5 (A)			72-3 (F)			123-2		
71-5 (B)			72-4 (A)			124-1		
72-1 (A)			72-4 (B)			124-2		
72-1 (B)			72-5			141-1		
72-1 (C)			72-6			141-2		
72-1 (D)						141-5		

Y=Acceptable (Study satisfied Guideline)/Concur
 P=Partial (Study partially fulfilled Guideline but additional information is needed)
 S=Supplemental (Study provided useful information but Guideline was not satisfied)
 N=Unacceptable (Study was rejected)/Nonconcur

**ECOLOGICAL EFFECTS BRANCH REVIEW
SECTION 3**

Hydrogen Peroxide, Peroxyacetic Acid

100 Submission Purpose and Label Information

100.1 Submission Purpose and Pesticide Use

FMC Corporation submitted an application of a new product, VigorOx Antimicrobial Agent. This antimicrobial agent is for biofouling and slime control in pulp and paper mill systems, recirculating cooling water systems, coating preservation and dispersed pigment preservation.

100.2 Formulation Information

Active Ingredient

Peroxyacetic Acid.....	5.1%
Hydrogen Peroxide.....	21.7%
Inert Ingredients.....	73.2%

100.3 Application Methods, Directions, Rates

* Biofouling control in Pulp and Paper Mill Systems

The application rates range from 0.2 to 1.5 lb (5 to 24 fluid ounces) of VigorOx solution per ton (dry basis) of pulp or paper produced. Addition can be continuous or intermittent . VigorOx should be added to the system directly and not mixed with other chemicals or additives.

* Control of Bacteria and Fungi in Dispersed Pigments used in paint and paper production

The application rates range from 0.3 to 1.5 lb (135-680 gm) of VigorOx to each 1,000 lb (45.4 kg) of fluid. This will provide 300 to 1500 ppm of product (15 to 75 ppm peracetic acid and 65 to 320 ppm hydrogen peroxide).

* Control of slime forming bacteria in cooling water systems (cooling towers, evaporative condensers)

The application rates range from 0.3 to 1.5 lb (5 to 24 fluid ounces) of VigorOx solution per 1000 gallons of solution. Addition can be continuous or intermittent . VigorOx should be added to the system directly and not mixed with other chemicals or additives.

* Control of bacteria and fungi in cooling preservation

The application rates ranges from 0.3 to 1.5 (135-680 gm) of VigorOx solution to each 1000 lb (454 kg) or water. This will provide 300 to 1500 ppm of product (15 to 75 ppm peracetic acid and 65 to 320 ppm hydrogen peroxide).

100.4 Target Organisms

Bacteria, fungi, and yeast

100.5 Precautionary Labeling

From the submitted label:

Do not contaminate water by cleaning of equipment or disposal of wastes. Keep out of lakes, ponds or streams. Do not use in direct discharge applications. Discharged treated water effluent only to waste treatment facilities or under the terms of an approved NPDES permit.

Any solution released from the system should be diluted with water and tested for residuals to ensure that there is less than 3 ppm per oxygen remaining.

101 Hazard Assessment

101.1 Discussion

All previously registered use patterns for hydrogen peroxide and peroxyacetic acids are indoor uses. This new use pattern is aquatic non food industrial use.

101.2 Likelihood of Adverse Effects to Non-target Organisms

Aquatic Organisms

No data is available to characterize the effects of VigorOx to aquatic organisms. However, there is a potential hazard to the aquatic organisms not because of the inherent toxicity of the chemical but because of changes in pH of at the receiving waters. The pH is an important factor in the chemical and biological systems of natural waters. Rapid changes in pH can cause toxic effects to aquatic life.

According to the Office of Water Quality Criteria Standard, an adequate environment to freshwater organisms is within a pH range of 6.5 to 9.0.

Estuarine and coastal environments require a pH of in the range of 6.5 to 9.0. In open ocean waters, the pH should not exceeds the 6.8 to 8.5 range. Outside of this range aquatic life suffers adverse physiological effects.

Terrestrial Organisms

No data is available to characterize the effects of VigorOx to terrestrial organisms. However, its known that hydrogen peroxide and peroxyacetic acid are corrosive agents. Direct exposure of terrestrial organisms to this chemical results in adverse effects. But, since this is an aquatic non-food industrial use, exposure to terrestrial organisms could be on retention ponds or at the waste water treatment facility. Exposure of terrestrial organisms at those sites will not result in adverse effects unless there are changes in pH.

101.3 Adequacy of Toxicity Data

No data is available to assess the hazard of VigorOx to non-target terrestrial and aquatic organisms. An acute avian oral and an avian dietary studies will normally be required. But, because of the known caustic nature of the two chemicals the studies are waived.

Acute aquatic studies will normally be required. However, since the reaction of hydrogen peroxide and peroxyacetic acid with water is known to result is a potential pH change and release of oxygen, the studies are waived.

The only requirement that we have is that the company do a literature search on the effects of hydrogen peroxide and peroxyacetic acid to wildlife and the environment and submit the articles to the Agency.

101.4 Adequacy of Labeling

The "Environmental Hazards" section should include the following:

This product is toxic to wildlife. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or public waters unless this product is specifically identified and addressed in an NPDES permit. Do not discharge effluent containing this product to sewer systems without previously notifying the sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

Any solution released from the system should be diluted with water and tested for residuals to ensure that there is less than 3 ppm per oxygen remaining.

The statement "This pesticide is toxic to wildlife" is based on the corrosive nature of the chemicals.

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Conclusions

The Ecological Effects Branch has reviewed the proposed registration of VigorOx antimicrobial agent. No data was submitted to the Agency. The Ecological Effects Branch is not going to require the basic studies but is requiring a literature search on the effects of hydrogen peroxide and peroxyacetic acid to wildlife and the environment.

Adverse effects to non-target organisms will be the result of changes in the pH of the water. This risk is mitigated if the effluent containing this pesticide has low concentrations of hydrogen peroxide and peroxyacetic acid. This risk is mitigated by the environmental hazard label statement.

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10/5/94

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Anthony F. Maciorowski
10/6/94