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

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MEMORANDUM

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

SUBJECT: Science Chapter for Rereg. Case #4072 Hydrogen Peroxide, Peroxyacetic Acid and Peroxymonosulfate Sulfate.

FROM: for Anthony F. Maciorowski, Chief
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The Ecological Effects Branch had completed the Science Chapter for the Reregistration Eligibility Document for Rereg. Case # 4072.

The EEB has concluded that the use of hydrogen peroxide, peroxyacetic acid, and potassium peroxymonosulfate sulfate does not poses a threat to wildlife. All except one of the uses are non industrial indoor uses and therefore result in no exposure to fish and wildlife. The hydrogen peroxide use on swimming pools and hot tubs is considered to be non threatening to wildlife because of the nature of hydrogen peroxide in water. There are no outstanding data requirements.

If you have any questions please contact Harry Craven (305-5320) or Conchi Rodríguez (308-2805).

REREGISTRATION ELIGIBILITY DOCUMENT
ECOLOGICAL EFFECTS BRANCH
SCIENCE CHAPTER
HYDROGEN PEROXIDE, PEROXYACETIC ACID
POTASSIUM PEROXYMONOSULFATE SULFATE

Introduction/History

Hydrogen peroxide is currently registered for 11 products. Peroxyacetic acid is currently registered for 9 products. Potassium peroxymonosulfate sulfate is currently registered for 1 product.

Use Site

The use profile for hydrogen peroxide and peroxyacetic acid is aquatic non-food residential, indoor food, indoor non-food, indoor medical, indoor residential. Hydrogen peroxide also has an aquatic non-food residential use. The use profile for potassium peroxymonosulfate sulfate is indoor food, indoor non-food and indoor residential.

Pesticide Type

Hydrogen peroxide and peroxyacetic acid are classified as disinfectant (bacteriocide/germicide), fungicide/fungistat (trycophyton), general disinfectant, medical disinfectant, sanitizer, sterilizer/sporicide, tubercolocide and virucide (antimicrobial). Also hydrogen peroxide is classified as algaecide.

Potassium peroxymonosulfate sulfate is classified as disinfectant (bacteriocide/germicide), fungicide/fungistat (tricophyton), medical disinfectant, sanitizer, virucide (antimicrobial).

Chemical Family

Hydrogen peroxide is a colorless, unstable liquid with a bitter taste. It is caustic to the skin.

Peroxyacetic acid is a liquid with an acrid odor. It is a strong oxidizing agent.

Potassium peroxymonosulfate sulfate is a strong oxidizer.

Formulation

Hydrogen peroxide and peroxyacetic acid are formulated as a soluble concentrated/liquid and liquid ready to use. Potassium peroxymonosulfate sulfate is formulated as soluble concentrated\liquid.

Ecological Effects Assessment

The following four studies would normally be required for labeling purposes:

71-1(a) Acute Avian Oral, Quail/Duck
71-2(b) Acute Avian Dietary Duck
72-1(c) Acute Fish Toxicity Rainbow Trout
72-2(a) Acute Aquatic Invertebrate Toxicity

The two avian studies were waived for hydrogen peroxide and peroxyacetic acid because of the indoor use pattern and because of the corrosive nature of the chemicals. The acute avian oral study was waived for potassium peroxymonosulfate sulfate because of the corrosive nature of the chemical.

Avian dietary studies for the bobwhite quail (MRID No. 204057) and the mallard duck (MRID No. 204058) were submitted to the Agency. A preliminary review of the studies (studies are in review) classify them as supplemental fulfilling the guideline requirements. The studies show that the LC50 >5000 ppm for both species of birds. The chemical is classified as practically non-toxic on a dietary basis.

The two aquatic studies were waived for hydrogen peroxide and peroxyacetic acid because of the indoor use pattern. The acute aquatic invertebrate study was waived for potassium peroxymonosulfate sulfate because of the indoor use pattern.

Acute fish toxicity studies (MRID No.19852) for the rainbow trout and bluegill sunfish were submitted to the Agency. A preliminary review of the studies (studies are in review) classifies them as supplemental fulfilling the guideline requirements. The LC50 for rainbow trout was 0.78 mg/l classifying the chemical as highly toxic. The LC50 for the bluegill sunfish was 1.0 mg/l classifying it as moderately toxic.

According to the LUIS report, all of the use patterns for the three chemicals are indoor uses except for the swimming pool and hot tub use of hydrogen peroxide. This use represent no threat to wildlife because of the nature of hydrogen peroxide in an aqueous solution. The behavior of hydrogen peroxide is very well documented in the literature. The other uses of the three chemicals are indoor. There is no direct exposure to wildlife. Exposure due to an effluent is not evaluated since no NPDES permit has been required for the use of these chemicals. It is assumed that because there is no effluent, there will be no exposure to wildlife, consequently the risk is minimum.

Precautionary Labelling:

For the manufacturing use product

This pesticide is toxic to fish. 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 on sewer systems without previously notifying the sewage plant authority. Do not contaminate water when disposing of equipment washwater or rinsate. For guidance contact your State Water Board or Regional office of EPA.

For end use products

1. For the hydrogen peroxide swimming pool use:

This pesticide is toxic to fish. Do not contaminate water when disposing of equipment washwater or rinsate.

2. For the hydrogen peroxide, peroxyacetic acid, and potassium peroxymonosulfate sulfate indoor uses, no labelling is required at this time.

Data Requirements

There are no outstanding data requirements to support the present uses of hydrogen peroxide, peroxyacetic acid, and potassium peroxymonosulfate sulfate.

Conclusion

Any risk to fish and wildlife is mitigated by the precautionary labelling statements.