



R.E.D. FACTS

Oxalic Acid

Pesticide Reregistration

All pesticides sold or used in the United States must be registered by EPA, based on scientific studies showing that they can be used without posing unreasonable risks to people or the environment. Because of advances in scientific knowledge, the law requires that pesticides which were first registered years ago be reregistered to ensure that they meet today's more stringent standards.

In evaluating pesticides for reregistration, EPA obtains and reviews a complete set of studies from pesticide producers, describing the human health and environmental effects of each pesticide. The Agency imposes any regulatory controls that are needed to effectively manage each pesticide's risks. EPA then reregisters pesticides that can be used without posing undue hazards to human health or the environment.

When a pesticide is eligible for reregistration, EPA announces this and explains why in a Reregistration Eligibility Document, or RED. This fact sheet summarizes the information in the RED for oxalic acid.

Use Profile

Oxalic acid is registered for use as a disinfectant to control bacteria and germs, and as a sanitizer, in toilet bowls, urinals and bathroom premises. Registered products are formulated as ready-to-use liquids or solid soluble concentrates, and are applied by sprinkling, pouring, brushing, swabbing or mopping the product onto the surface to be treated.

Oxalic acid also has many diverse, non-pesticidal, manufacturing and industrial uses including use in fabric printing and dyeing; bleaching straw hats; removing paint, varnish, rust or ink stains; and cleaning wood.

Regulatory History

Oxalic acid first was registered as a pesticide in 1957 for the current bathroom disinfectant uses, as well as use in swimming pool water systems, drainage systems, sewage systems, eating establishments (to disinfect equipment and utensils), and other sites. At present, five products containing oxalic acid are registered.

Oxalic acid is exempt from the requirement of a tolerance (or legal residue limit) when it is used as an inert ingredient in pesticide formulations that are applied to growing or harvested crops. EPA also is regulating oxalic acid under its Inerts Strategy.

Assessment

Oxalic acid is a substance that occurs naturally in many plants and vegetables, and also is a product of the metabolism of molds. It is a widely used chemical whose toxicity is well known. In assessing oxalic acid's risks to people, EPA relied on articles in published scientific literature.

Oxalic acid is corrosive to the eyes and skin, and has been placed in Toxicity Category I (indicating the highest degree of toxicity) for acute eye and skin irritation effects. It also is highly irritating and damaging to the respiratory system if inhaled. Acute exposure also causes stomach irritation, lowered calcium levels, effects to the nervous system and kidney damage in humans.

A subchronic inhalation study in rats showed decreased body weights, restricted growth and disrupted estrous cycles. At the highest dose, the test animals also had reduced thyroid weights and changes in iodine and hormone levels. Metabolism studies show that excess levels of oxalic acid cause kidney damage in mammals. Chronic oral intake in animals produces kidney damage and disturbances in the metabolism of calcium. A multigeneration mouse reproduction study showed reproductive effects and parental toxicity at the highest dose level.

Occupational and Residential Exposure

The potential for significant eye and dermal exposure exists when workers or homeowners apply bathroom disinfectant products containing oxalic acid and other active and inert ingredients. These products are liquid and granular formulations applied using brushes, swabs or mops. Exposure, especially to the concentrated formulations, can cause chemical burns to the skin and severe to permanent damage to the eyes.

Human Risk Assessment

Although they contain only a small amount of oxalic acid and a much greater amount of other active and inert ingredients, oxalic acid products as formulated and registered for use as bathroom disinfectants can be highly irritating and damaging to the eyes, skin and mucous membranes. Exposure to the concentrated formulations can result in chemical burns to the skin and severe to permanent eye damage. However, these risks should be low as long as product label directions and precautions are followed.

Environmental Assessment

Environmental Fate

EPA relied on data available in the scientific literature to assess the environmental fate and transport of oxalic acid used as a pesticide. Oxalic acid occurs widely in nature--it is present in the tissues of many plants and algae, serving both to excrete and store calcium. In water, its negative ion forms complexes with a number of metal ions; and oxalic acid is immobilized as a result of this formation of complexes. Both aerobic and anaerobic conditions biodegrade oxalic acid in less than one day.

Oxalic acid, used as an indoor disinfectant, degrades readily and rapidly under both aerobic and anaerobic conditions during sewage treatment. Sewage effluents discharged to natural waters are not expected to contain oxalic acid residues from its use as a pesticide. Any oxalic acid present in the environment is the result of natural processes and not from use of the chemical as a bathroom disinfectant.

Ecological Effects

EPA did not require or evaluate ecological effects data for oxalic acid because the pesticide is only used indoors and exposure to wildlife is not expected to occur. However, three studies are being required to assess the toxicity of the pesticide to wildlife in case of a spill. The results of these studies will be used to develop product labeling statements.

Additional Data Required

EPA is requiring three acute toxicity studies on birds, freshwater fish and invertebrate species, to determine oxalic acid's toxicity hazard to wildlife in case of a transportation accident and develop appropriate product label statements. All other generic data requirements have been waived.

Product-specific data, including product chemistry and efficacy studies, also are required for reregistration of oxalic acid. Additional label precautions may be required, depending on the results of these studies.

Product Labeling Changes Required

The labels of all registered oxalic acid products must comply with EPA's current pesticide labeling requirements. The Agency may require additional label directions and precautions, depending on the results of the studies mentioned above.

Regulatory Conclusion

- The pesticide oxalic acid will not result in unreasonable adverse effects to human health or the environment, and all registered products containing oxalic acid are eligible for reregistration. These products will be reregistered once the required product-specific data and revised labeling are received and accepted by EPA.

- Registered products containing oxalic acid as well as other active ingredients will be reregistered once the other active ingredients also are determined to be eligible for reregistration.

For More Information

EPA is requesting public comments on the Reregistration Eligibility Document (RED) for oxalic acid during a 60-day time period, as announced in a Notice of Availability published in the Federal Register. To obtain a copy of the RED or to submit written comments, please contact the Pesticide Docket, Public Response and Program Resources Branch, Field Operations Division (7506C), Office of Pesticide Programs (OPP), US EPA, Washington, DC 20460, telephone 703-305-5805.

In the future, the oxalic acid RED will be available from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, telephone 703-487-4650.

For more information about oxalic acid or about EPA's pesticide reregistration program, please contact the Special Review and Reregistration Division (7508W), OPP, US EPA, Washington, DC 20460, telephone 703-308-8000. For information about reregistration of individual oxalic acid products, please contact Arvella Farmer, Registration Division (7505C), OPP, US EPA, Washington, DC 20460, telephone 703-305-6939.

For information about the health effects of pesticides, or for assistance in recognizing and managing pesticide poisoning symptoms, please contact the National Pesticides Telecommunications Network (NPTN). Call toll-free 1-800-858-7378, 24 hours a day, seven days a week, or fax your inquiry to 806-743-3094.