BROMADIOLONE

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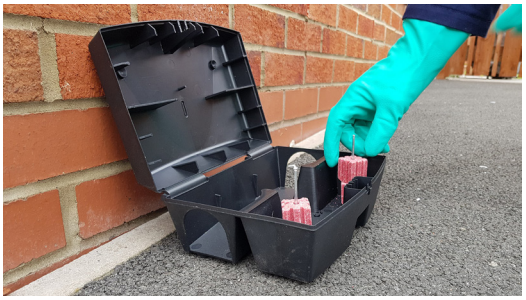
What is bromadiolone?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Bromadiolone is a rodenticide meant to kill rats and mice. Anticoagulants like bromadiolone work by preventing the blood from clotting. Unlike some other rat poisons, which require multiple days of feeding by an animal, bromadiolone can be lethal from one day's feeding.

Bromadiolone was first registered in the United States in 1980. It is an odorless powder that is white to yellow in color.

What are some products that contain bromadiolone?

Bromadiolone is in over 130 currently registered products. Generally, these products are pellets or bait blocks with 0.005% bromadiolone. Currently, they can be used in and around buildings and in some vehicles. Products sold in stores often contain blue-green or red dye. This can help to identify that an animal has been exposed.

To reduce the risk of accidental poisonings of children and wildlife, bromadiolone products are only intended for sale to professionals. Most applications also require the use of a bait station to discourage access.

IMPORANT: Always ***follow label instructions*** and take steps to ***avoid exposure***. If any exposures occur, be sure to follow the First Aid instructions on the product label carefully. For additional treatment advice, contact the Poison Control Center at 800-222-1222. If you wish to discuss a ***pesticide problem***, please call 1-800-858-7378.

How does bromadiolone work?

In mammals, bromadiolone works by preventing the body from recycling vitamin K which is needed to clot blood. Once animals run out of vitamin K they can bleed to death. It can take several days for the body's stores of vitamin K to be exhausted. Therefore, exposed animals may take several days to eventually die.

How might I be exposed to bromadiolone?

You are most likely to come in contact with bromadiolone if you touch it or eat it. Children and animals may be exposed to bromadiolone if they find and eat granules or baits. Pets or wildlife may also be exposed if they eat another animal which has been poisoned. Bromadiolone does not get up into the air effectively. Therefore, breathing it in is not likely. Because sale to the public has been limited, you are more likely to be exposed to bromadiolone if your job involves applying pesticides. Exposure can be limited by reading and following label directions.

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What are some signs and symptoms from a brief exposure to bromadiolone?

Bromadiolone is toxic to mammals. It prevents the body from recycling vitamin K which is needed to make the blood clot. Because the body has reserves of vitamin K, it may take a while to go through its supply. Therefore, symptoms may be delayed for up to 5 days after exposure and may not be noticed until immediately before death.

Signs of poisoning in dogs can include bleeding from the mouth and nose, internal bleeding, bruising, bloody urine and stool, hypothermia, depression, lack of appetite, muscle weakness and pain, difficulty breathing, seizures, coma, and death. See the fact sheet about Pets and Pesticide Use for more information.

People who have eaten bromadiolone have experienced symptoms such as nose bleeds, bleeding gums, bloody urine, black tarry stools, and bruising. Other less commonly reported symptoms include headaches, sore throat, muscle aches, shortness of breath, abnormally heavy periods, and bloody mucus. Skin contact with bromadiolone can cause slight irritation. If it gets in the eyes, it can cause eye redness, swelling, and irritation.

What happens to bromadiolone when it enters the body?

Initially, most of the bromadiolone is broken down and leaves the body. In studies with rats for example, 89% of the dose left the body within 4 days. However, as time progresses, bromadiolone tends to leave the body at a much slower rate. The half-life during this second stage has been reported to be as long as 170 days. It can take a long time for bromadiolone to be excreted. This can allow for the buildup of bromadiolone in the body. This is especially true in cases of long-term, low dose exposure.

Is bromadiolone likely to contribute to the development of cancer?

No. Cancer was not observed in studies when laboratory animals were exposed to bromadiolone. In studies with human cells in the laboratory, bromadiolone did not lead to cancer.

Has anyone studied non-cancer effects from long-term exposure to bromadiolone?

In several studies, pregnant animals were fed very small doses of bromadiolone for several days. No effects were observed in their babies. However, the mothers developed bleeding, pale eyes, weak muscles, and eventually died. In other similar studies with adult rats and mice, researchers saw some changes in reproductive organs.

Are children more sensitive to bromadiolone than adults?

Children may be especially sensitive to pesticides compared to adults. However there are currently no data showing that children have increased sensitivity specifically to bromadiolone. From 1993-2008, the American Association of Poison Control Centers reported 12,000-15,000 cases of accidental rodenticide exposure in children less than 6 years old. In most of those cases, the children had no symptoms, but a

few children had severe poisoning signs. To reduce risk to children, EPA requires bromadiolone to be packaged in tamper resistant bait stations if it's used in a residential setting.

What happens to bromadiolone in the environment?

In studies with bromadiolone baits applied to soil, 45-78% of the bromadiolone broke down in the first 21 days. Some studies indicate that it may take longer to break down if stored underground by animals where it has less exposure to the weather. Bromadiolone has a low potential to move in soil. When it was tested in four different soil types, 95% was found in the upper three centimeters. However, it was more mobile in sandy soil. In water, a half-life of 392 days has been reported. However, in some water conditions bromadiolone may not break down. Bromadiolone has a low potential to move up into the air.

Bromadiolone is not registered to be used near food. However, when it was applied to soil, only trace levels moved up into plants.

Can bromadiolone affect birds, fish, or other wildlife?

Rodent baits are designed to be attractive to animals. Bromadiolone can be highly toxic to most mammals and birds. Wildlife may eat these baits directly or they may eat a poisoned animal. Because it can take them several days to die, animals that consume a lethal dose may continue to eat the bait before they die. They also may be more susceptible to capture by predators. Wild mammals, birds and other wildlife that eat poisoned rodents may receive a lethal dose. Accumulation of bromadiolone in the tissues of owls, buzzards, and other raptors in the wild has been well documented.

To fish, bromadiolone is moderately to very highly toxic. It is moderate to high in toxicity to other aquatic life. However, registered bromadiolone products may not legally be applied to water. Therefore, it is unlikely to come in contact with other aquatic life. Research with bromadiolone on snakes and earthworms has demonstrated no toxic effects.

Where can I get more information?

For more detailed information about bromadiolone please visit the list of referenced resources, call NPIC between 8:00 AM and 12:00 PM Pacific Time (11:00 AM to 3:00 PM Eastern Time), Monday - Friday, at 800-858-7378, or visit us on the web at npic.orst.edu. NPIC provides objective, science-based answers to questions about pesticides.

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general fact sheet

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