

## PROPERTIES AND USES OF 1080

1080, or fluoroacetate, is a compound that occurs naturally in many plants, particularly those in Australia, South America and Africa. 1080 was the USA laboratory acquisition number given to the compound in 1944 when it was first identified as a potent and effective rodenticide.

Synthetic fluoroacetate is used for pest control in New Zealand, mainly for rabbits and possums. As a salt it is similar in appearance to flour, is very water soluble, odourless, stable and non-volatile.

1080 can be used as a paste, a gel, a cereal pellet or soaked into diced carrot or apple. Different concentrations of 1080 are used depending on the species being targeted. Poisoned bait is always identified with a green dye and often given a cinnamon mask scent, both of which deter birds.

## WHO CAN USE 1080?

The Agricultural Compounds and Veterinary Medicines Act 1997 sets requirements for the use of vertebrate toxic agents (VTAs). Purchase of 1080 is limited to licensed individuals. Only persons holding an Approved Handler Test Certificate and a Controlled Substances Licence are allowed to apply 1080. There are strict codes of practice and obligations under the Resource Management Act and the Hazardous Substances and New Organisms Act 1996 in terms of conditions of use and compliance.

## HOW DOES 1080 WORK?

Fluoroacetate is readily absorbed through the gut when swallowed. It can also be absorbed via the respiratory tract, mucous membranes, open wounds and abrasions but is less readily absorbed through intact skin. Once absorbed, it is converted to fluorocitric acid which is highly toxic.

Fluorocitric acid interferes with energy production in living cells. Energy deprivation ultimately leads to cardiac or respiratory failure. After ingestion, it takes from half an hour to two hours before symptoms of poisoning are seen. Sub-lethal doses are excreted in the urine within four days.

## 1080 REASSESSMENT

The Environmental Risk Management Authority (ERMA) reviewed the use of 1080 in 2006 and 2007 and released its decision in August 2007. It decided to allow the continued use of 1080 but with additional controls on aerial application summarised as follows:

- **A watch list** of all aerial 1080 operations to be maintained to enable the Authority to actively monitor all future 1080 aerial operations;
- **Strengthened** controls to further mitigate the risks involved in 1080 aerial drops;
- **Best practice** promoted in relation to pre-operation planning, consultation and notification as well as the management of 1080 aerial operations;
- **Further research** into alternatives to 1080 for pest control and the effects of 1080.

For more information about the reassessment contact ERMA, phone **0800-376-234** or email [info@erманz.govt.nz](mailto:info@erманz.govt.nz)

## EMERGENCY TREATMENT

### Dogs and cats

If you suspect your dog or cat has chewed on or eaten part of a poisoned carcass:

- *Make it vomit immediately* - The most reliable method is one or two crystals of washing soda (available from supermarkets) put down the throat like a worming pill. Do not use caustic soda. Less reliable methods - ½ tsp. salt on the back of the tongue, or zinc sulphate emetic pills.
- *Take it to your vet immediately* - ring to tell them you are on your way.

Dogs and cats can be saved if action is taken early enough. But, there is no antidote for 1080 at present. Treatment controls the symptoms and may be expensive because of the duration of treatment and the drugs involved - and it may not be successful.

Prevention of poisoning is important. Farm dogs must be well fed, and kennelled or chained when not working.

### Sheep, cattle and horses

If stock break through a fence onto a poisoned block, remove them from contaminated pasture. Shift them very carefully and slowly to avoid any stress or excitement which could precipitate heart failure.



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## PROTECT YOUR ANIMALS FROM 1080

Possum control using 1080 will soon be undertaken in an area near you.

## SOURCES OF FURTHER INFORMATION

Animal Health Board website: search [www.ahb.org.nz/AHBWebsite/Research/](http://www.ahb.org.nz/AHBWebsite/Research/)

Department of Conservation: search for 1080 in Action at [www.doc.govt.nz](http://www.doc.govt.nz)

National Poisons Centre, Dunedin, Ph: 0800-764-766.

National Possum Control Agencies: see publications section, [www.npca.org.nz](http://www.npca.org.nz)

- B1, User Guide to Legislation Relating to Vertebrate Pest Control, 2006
- B2, Vertebrate Toxic Agents Best Practice Guidelines, 2006
- C1, Questions and Answers on 1080, 3rd Edition 2008

Toxicology Laboratory, Landcare Research, Lincoln, Ph (03) 321-9999.

**For more information about the 1080 operation that will be happening soon near you:**

contact your local Department of Conservation Conservancy office.

[www.npca.org.nz](http://www.npca.org.nz)



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## RELATIVE SPECIES SUSCEPTIBILITY

1080 is toxic to all mammalian species; carnivores and rodents are the most susceptible, and primates less so. Birds and invertebrates (e.g. insects, worms) are less sensitive than mammals, and cold-blooded vertebrates (e.g. fish, frogs, lizards) are the least susceptible of all.

### Species Susceptibility, (most sensitive = 1)

Dog	1	Deer	6
Cat	4	Rabbit	10
Pig	4	Horse	12
Possum	4	Man	26-60
Sheep	5	Birds	20-200

Reference: National Poison Centre Document E. 156 1080

## SYMPTOMS IN ANIMALS

In carnivores, effects on the central nervous system predominate. In herbivores, symptoms of cardiac failure predominate. Cats and pigs tend to show a combination of cardiac and central nervous system effects.

<b>Dogs</b>	Nervous system excitation - frenzied behaviour, howling, running around, hypersensitivity and may bite at things. Also vomiting, diarrhoea and urination. Convulsions, coma and death may occur within two hours.
<b>Cats</b>	Generally do not show the pronounced excitement exhibited by dogs. Cats are at slightly less risk of poisoning than dogs because they are less likely to scavenge, and if they do ingest 1080, they vomit sooner.
<b>Pigs</b>	Persistent intermittent vomiting, some hyperactivity.
<b>Sheep and cattle</b>	Cardiac signs, drowsiness and lethargy, irregular heart beat. Heart failure is often precipitated by stress or exercise. There may be terminal convulsions.
<b>Birds</b>	Signs vary according to the species. Common signs are: loss of balance, slowness, ruffled feathers and salivation. Terminal convulsions and coma may occur.
<b>Possums and rabbits</b>	Lethargy, listlessness, drowsiness and terminal convulsions after loss of consciousness.

Because the brain is one of the organs affected by energy deprivation, animals are semi-comatose during the terminal convulsions that often precede death.

Animals exposed to sub-lethal doses may show mild to moderate signs of poisoning. Adverse effects to the heart, testes and other major organs may also occur, dependent on the dose ingested.

## PREVENTION OF POISONING

### Pet and hunting dogs

Must be kept well away from poison zones, which are identified at access points by poison signs.

### Working dogs

Keep well fed and always discourage scavenging. Keep kennelled or on a chain when not in use. Around 1080 operations, manage stock without using dogs or muzzle the dogs if they have to work in the area.

Poisoned possum and rabbit carcasses are a risk to dogs until all fleshy parts and entrails are fully decomposed. This can take from three to six months and longer in conditions of extreme cold or dry.

### Cats

Keep well fed, confine.

### Pigs

Confine.

### Sheep and cattle

Wait until the licensed operator gives the all-clear before restocking poisoned blocks.

Operators must effectively isolate airstrip bait preparation zones (e.g. make cattle-proof). Farmers are advised to remove and dispose of (incinerate, drop in an offal pit or bury at least one metre underground) any suspected poisoned carcasses found on their property

## LIVESTOCK WITHHOLDING PERIODS

Withholding periods before restocking poisoned blocks vary depending on the bait used (type and 1080 concentration), method of application (air or ground), weather conditions and terrain. Livestock should be kept clear of paddocks where baits have been used for:

- at least 2 months when 100mm or more of rain falls during that time, or
  - 4 months when there is less rain. (NZ Food Safety Authority).
- If livestock is exposed to sub-lethal amounts of 1080, all residues should clear from the animals within 2 weeks.

If land is required back urgently, discuss this with the licensed operator or agency. 1080 analysis of partially degraded baits may be required before restocking.

## DETECTION OF 1080 POISONING

Post mortems - there are no diagnostic signs uniquely associated with 1080 poisoning. The only specific test is for the presence of 1080 residues.

### Samples for 1080 analysis or residue testing:

Call your vet to ensure correct sampling and handling of specimens.

- Acutely poisoned live animals - blood sample.
- Recently dead - stomach/rumen contents, vomit; kidney, heart, skeletal muscle.
- Autolysed (rotten) carcasses - skeletal muscle and stomach remnants.
- Sample at least three animals or carcasses.

## COMPENSATION

The policy on the payment of compensation for animals that die of 1080 poisoning is a matter of agreement between the owner, the licensed operators and their insurers. In the final analysis, the operators and their insurers lay down the criteria for acceptance of responsibility and the owners may not get compensation.

## ENVIRONMENTAL ISSUES

### Water

By regulation, aerial 1080 drops have to avoid waterways. The distance depends on the type of waterway, the type of equipment used (e.g. helicopter, GPS), resource consents and Ministry of Health requirements. If 1080 enters waterways it is rapidly diluted to undetectable concentrations, which are then broken down by aquatic plants and micro-organisms.

### Soil

1080 is destroyed by soil bacteria after leaching from baits. This may take one to two weeks to several months depending on soil temperature and moisture, e.g. at 2 to 11°C, and 8-15% moisture, 1080 is degraded in one to two weeks.

### Meat

In the event of inadvertent or sub-lethal poisoning of food-producing animals, check with your vet, as there is a nil tolerance in the industry for 1080 in food-producing animals.