

Definitions

Fluvalinate is a synthetic [pyrethroid chemical compound](#) contained as an active agent in the products *Apistan*, *Klartan*, and *Minadox*, that is an [acaricide](#) (specifically, a miticide), that is commonly used to control [varroa mites](#) in [honey bee](#) colonies,^{[[citation needed](#)]} infestations that constitute a significant [disease of such insects](#). [Wikipedia](#)

Coumaphos is a nonvolatile, fat desoluble [phosphorothioate](#) with [ectoparasiticide](#) properties: it kills [insects](#) and [mites](#). It is well known by a variety of brand names as a dip or wash, used on farm and domestic animals to control ticks, mites, flies and fleas.

It is also used to control [Varroa mites](#) in [honey bee](#) colonies, though in many areas it is falling out of favor as the mites develop [resistance](#) and as the residual toxicity effects are becoming better understood.^{[[2](#)][[3](#)]}

In [Australia](#), its registration as suited to home [veterinary](#) use was cancelled by the [Australian Pesticides and Veterinary Medicines Authority](#) in June 2004 after the manufacturer failed to show it was safe for use on pets.^{[[4](#)]}

The compound has been linked to neurological problems in bees, and may be a factor in colony collapse.^{[[5](#)]}

It is classified as an [extremely hazardous substance](#) in the United States as defined in Section 302 of the U.S. [Emergency Planning and Community Right-to-Know Act](#) (42 U.S.C. 11002), and is subject to strict reporting requirements by facilities which produce, store, or use it in significant quantities. [Wikipedia](#)

Amitraz (development code BTS27419) is a non-systemic [acaricide](#) and [insecticide](#)^{[[1](#)]} and has also been described as a [scabicide](#). It was first synthesized by the Boots Co. in England in 1969.^{[[2](#)]} Amitraz has been found to have an insect repellent effect, works as an [insecticide](#) and also as a pesticide [synergist](#).^{[[3](#)]} Its effectiveness is traced back on [alpha-adrenergic agonist activity](#), interaction with [octopamine](#) receptors of the central nervous system and inhibition of [monoamine oxidases](#) and [prostaglandin](#) synthesis.^{[[4](#)]} Therefore, it leads to overexcitation and consequently paralysis and death in insects. Because amitraz is less harmful to mammals, amitraz is among many other purposes best known as [insecticide](#) against mite- or tick-infestation of dogs. [Wikipedia](#)

Imidacloprid is a systemic [insecticide](#) which acts as an [insect neurotoxin](#) and belongs to a class of chemicals called the [neonicotinoids](#) which act on the [central nervous system](#) of insects, with much lower toxicity to mammals. The chemical works by interfering with the transmission of stimuli in the insect nervous system. Specifically, it causes a blockage of the [nicotinic](#) neuronal pathway. By blocking [nicotinic acetylcholine receptors](#), imidacloprid prevents [acetylcholine](#) from [transmitting](#) impulses between nerves, resulting in the insect's paralysis and eventual death. It is effective on contact and via stomach action.^{[[1](#)]} Because imidacloprid binds much more strongly to insect neuron [receptors](#) than to mammal neuron receptors, this [insecticide](#) is more toxic to insects than to mammals. [Wikipedia](#)

Septicemia, formerly called **blood poisoning**, infection resulting from the presence of bacteria in the [blood \(bacteremia\)](#). The onset of septicemia is signaled by a high fever, chills, weakness, and excessive sweating, followed by a decrease in [blood pressure](#). The typical microorganisms that produce septicemia, usually [gram-negative bacteria](#), release toxic products that trigger immune responses and widespread blood clotting ([coagulation](#)) within the blood vessels, thus reducing the flow of blood to tissues and organs. (For information on the systemic inflammatory condition that occurs as a complication of infection by any class of microorganism, *see* [sepsis](#).)