

# TECHNICAL REPORT

**The Safe & Effective Solution  
to Ectoparasite Protection\***



Hartz®

**ULTRA GUARD PRO®**

*Flea & Tick Drops*

\*Based on Federal EPA safety  
and efficacy testing.



***Dear Colleague:***

As the leader and pioneer in the animal health industry, The Hartz Mountain Corporation has been providing safe and effective products for over 80 years. As the first American pet care company, Hartz was the first to introduce flea and tick collars and one of the first to receive government approval of its products from the Environmental Protection Agency (EPA). Our commitment continues as our scientists develop innovative products to keep you, your family, your pets and your home safe and healthy.

At Hartz's research laboratories, our scientists are continually striving to develop innovative products that provide the consumer with scientifically-based, differentiated and unique products of the highest quality and best price/value. Our research team is made up of veterinarians, entomologists, engineers, chemists and biochemists, all committed to providing you, your pet and your family a safe environment. At Hartz, safety is first and we certify that all of our products are tested according to EPA's Good Laboratory Practices. Additionally, all of our products are reviewed and approved by EPA.

In addition to providing scientifically-based products to the consumer, Hartz recognizes the need for consumer education so that pet owners have fact based knowledge on both the safety and efficacy of our products. Thus, we are proud to provide you with the following Technical Report for our new Hartz® UltraGuard Pro® Flea & Tick Drops, which offers your pet protection against fleas, deer ticks, mosquitoes, flea eggs and larvae with our exclusive, patent-pending Pro-cision Flo™ Applicator. We believe that you will find the information on the efficacy, action and safety of Hartz® UltraGuard Pro® Flea & Tick Drops featured in this report informative and revealing.

Our future commitment is to deliver the next generation of safe and effective EPA approved products that meet the future needs of an ever-changing environment. Consumer education will continue to be in the forefront of our efforts, resulting in an informed consumer, empowered to make insightful decisions for the safety of their pet, their family and their home.

Sincerely,

A handwritten signature in black ink that reads "Marta Draper". The signature is written in a cursive, flowing style.

**Marta Draper, Ph.D.**

Vice President Research and Development  
The Hartz Mountain Corporation

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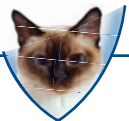
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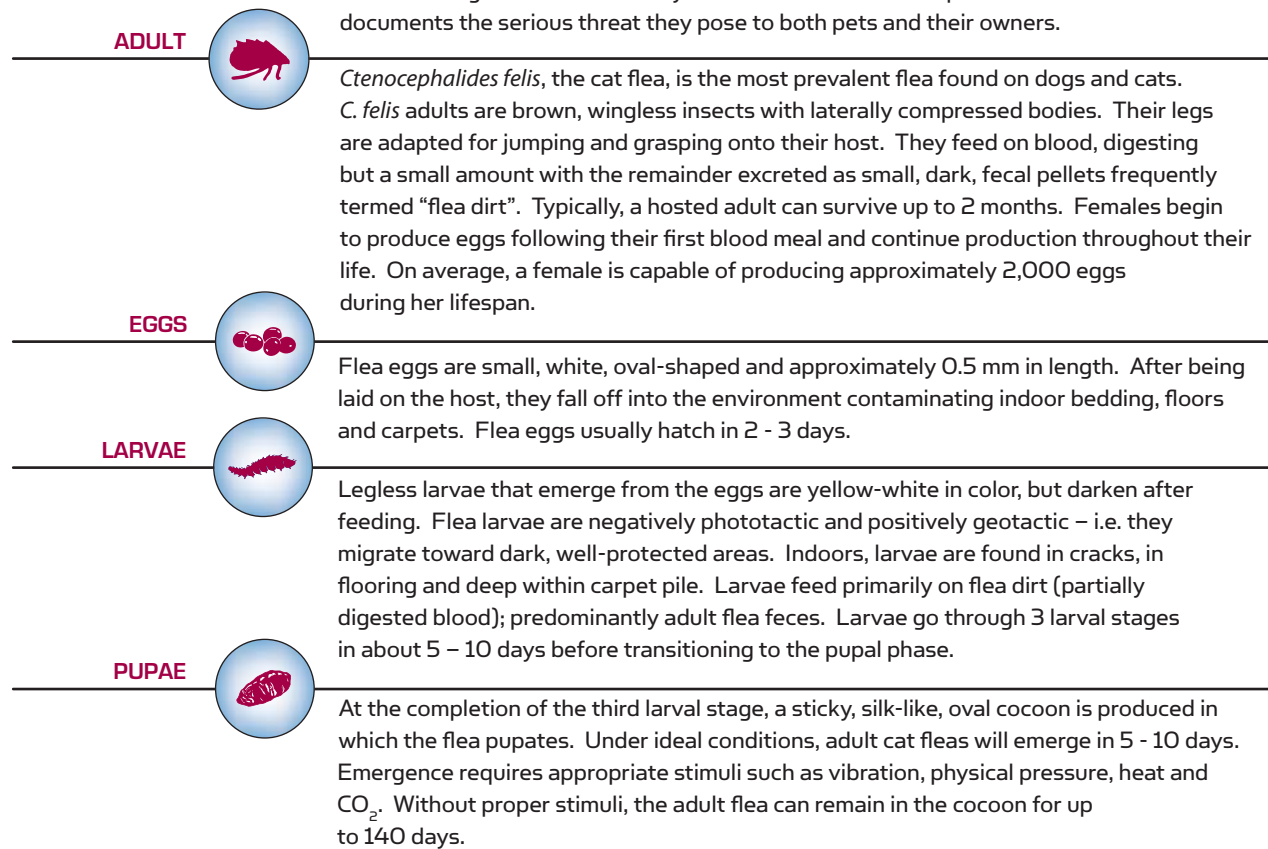


## I. THE PROBLEM – ECTOPARASITES

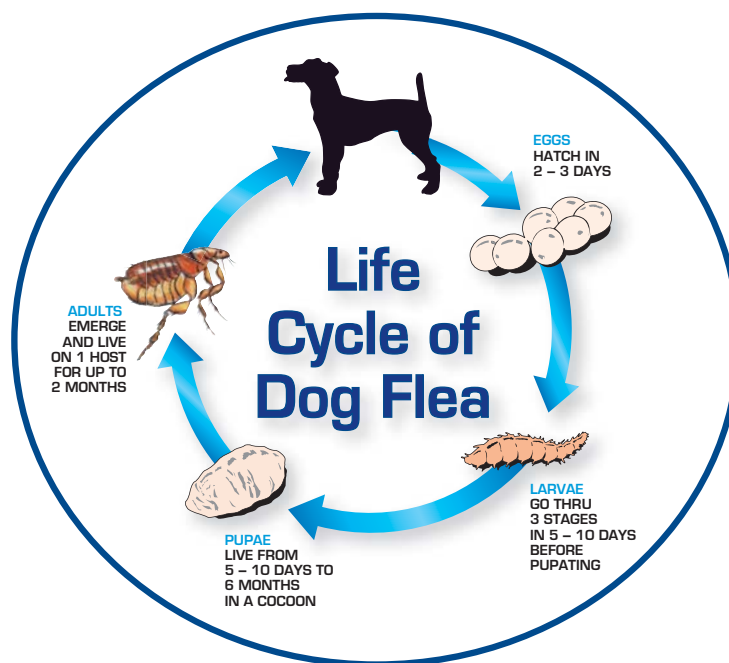
### Biology of Fleas

The primary ectoparasites of domestic dogs and cats are fleas, ticks and mosquitoes. In addition to the discomfort of bites and skin irritation caused by these parasites, a significant issue is the added exposure to diseases for both humans and pets.

The following describes the lifecycle and behavior of these pests and documents the serious threat they pose to both pets and their owners.



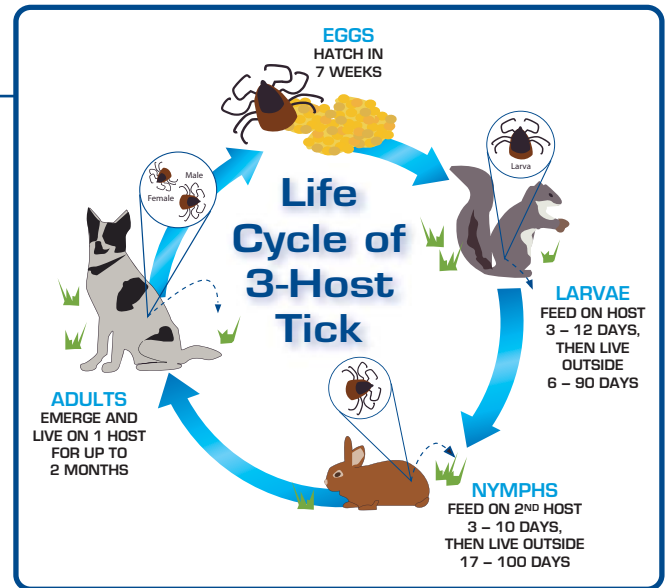
Among the diseases and conditions that adult fleas can cause or transfer are flea allergy dermatitis, tapeworm infestation, typhus and the plague.



## Biology of Ticks

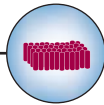
Ixodid (hard) ticks are the primary tick parasites of dogs and cats. Unlike other insects, adults have 2 body parts, head and body. Tick life cycle stages include egg, larvae (6 legs), nymph (8 legs) and adult (8 legs). Most ixodids are 3-host ticks. Generally, larvae, nymphs and adults will parasitize hosts of varying size and species. Eggs are deposited in the environment and typically hatch within 7 weeks. Larvae feed for 3 - 12 days, then drop from their host and exist in the environment for 6 - 90 days prior to molting. Nymphs feed for 3 - 10 days, then drop from their host and exist in the environment for 17 - 100 days before molting to an adult. Adult ixodids may live as long as 1 1/2 years and produce thousands of eggs. Ixodid ticks inhabit areas covered with small shrubs, bushes and grasses. From these locations, when a host passes by, they latch on to take their next blood meal.

Three common dog and cat tick parasites are *Rhipicephalus sanguineus* (brown dog tick), *Dermacentor variabilis* (American dog tick), and *Ixodes scapularis* (deer tick). These ticks live in various locations in the U.S. and are vectors of various diseases and conditions, including Lyme disease, anaplasmosis, Rocky Mountain spotted fever, St. Louis encephalitis, blood loss, dermatitis and paralysis.



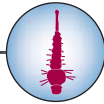
## Biology of Mosquitoes

### EGGS



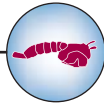
There are two types of mosquito eggs. Floodwater eggs are laid on moist substrates and must pass through a drying period followed by flooding before they will hatch. Permanent water eggs are laid singularly or in rafts on the water's surface and hatch within 24 hours; they lose viability if they dry out.

### LARVAE



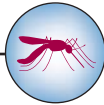
Legless larvae hatch from eggs in 2 - 3 days and pass through four stages (separated by molts) in about 5 - 6 days. The final larval stage is approximately 12 mm in length. Mosquito larvae are predominantly found at the water's surface inverted, supported by hydrophobic hairs and move by lashing their abdomen. Most larvae feed on organic debris, algae, bacteria and fungi.

### PUPAE



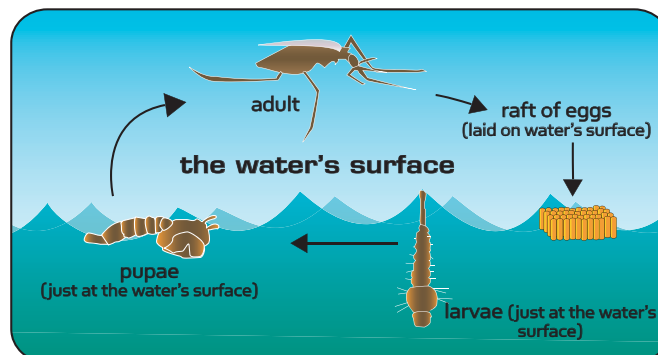
Mosquito pupae resemble a comma and have a cephalothorax (head and thorax) and abdomen (tail). They do not feed. Relative to pupae of other insects, mosquito pupae are active, moving through the surface water in a somersault fashion. The pupal stage can be completed in as few as 2 days.

### ADULT



Adult mosquitoes have long, slender mouthparts, antennae and legs. Males will feed on sugars from plants. Only females become blood-feeders for egg development. They find their host using a wide variety of cues, i.e. odor, movement, CO<sub>2</sub>. The mosquito's life cycle ranges from 4 - 20 days. Many species of mosquitoes feed on man and animal and are vectors of various diseases including West Nile virus, yellow fever, malaria, filariasis, dengue fever, St. Louis encephalitis and eastern equine encephalitis.

### Life Cycle of Mosquito



## II. THE SOLUTION - ACTIVE INGREDIENTS

The formulas in Hartz® UltraGuard Pro® Flea & Tick Drops combine highly effective, proven ingredients together with a unique dispensing applicator to provide control of fleas, ticks and mosquitoes. Pesticide formulas provide the most effective flea & tick control when the active ingredients include an adult flea-killing active in combination with a pre-adult flea-killing active. Consequently, the adult-killing and pre-adult-killing actives in Hartz® UltraGuard Pro® Flea & Tick Drops have been selected based on their effectiveness and low mammalian toxicity. These actives and their mode of action will be discussed in detail below.

### *d-Phenothrin*

#### **(Adult Parasite-Killing Active in Hartz® Dog Topicals)**

d-Phenothrin is one of a class of pyrethroid compounds and is the active ingredient used in Hartz® UltraGuard Pro® Flea & Tick Drops for Dogs and Puppies. Pyrethroids are synthetic compounds based in large part on pyrethrins, the active found naturally in chrysanthemum flowers.

d-Phenothrin was first commercialized over 30 years ago and has a long history in pest control across a variety of household pests. It has a very low mammalian toxicity (Acute Oral LD<sub>50</sub> > 10,000 mg/kg), thereby making it suitable for treating dogs. Even with very low mammalian toxicity, d-phenothrin has been shown to be highly effective in killing and repelling fleas and ticks and in killing mosquitoes. (Effective against adult fleas and mosquitoes and 3 of the 4 tick life stages).

The mode of action for d-phenothrin is similar to that of other pyrethroid compounds. Once a pest comes in contact with residues of d-phenothrin, with the aid of other formula ingredients, the active ingredient penetrates through the insect's outer protective covering or exoskeleton. Once inside the pest, residues migrate throughout the pest's system and come in contact with its nervous system. It is here that d-phenothrin provides its controlling effect.

The nervous system of fleas, ticks and mosquitoes functions by transmitting electrical signals along nerve cells. This is accomplished by charged ions moving along each nerve through channels along the length of each nerve cell. There are 4 types of channels found in nerve cells; sodium channels, chloride channels, potassium channels and calcium channels. d-Phenothrin affects the functioning of the channels through which sodium ions are pumped. d-Phenothrin causes the sodium channels to stay open, which in turn causes the nerve impulses to continue to fire out of control throughout the nervous system. This brings about the death of the pest. Since the nervous system of fleas, ticks and mosquitoes all function in the same fashion, the controlling effect of d-phenothrin is consistent across all 3 pests.



## Dog Topical Active Ingredient Toxicity Chart

The chart below documents the differences in oral toxicity for several topical pesticide active ingredients. The greater the mg/kg value, the less toxic the ingredient. Correspondingly, EPA has designated classifications for differences in toxicity. The greater the class number, the less toxic the active ingredient. **The oral toxicity for the active ingredient found in Hartz® UltraGuard Pro® Flea & Tick Drops for Dogs and Puppies is significantly less than that of competitive products' active ingredients.**

### Comparison of Technical Adulticide Active Ingredient Acute Oral LD<sub>50</sub>

Active (Adulticide)	d-Phenothrin	Fipronil	Imidacloprid
Dog Topical Product Using Active (Adulticide)	Hartz® UltraGuard Pro®	Frontline®	Advantage®
Acute Oral LD <sub>50</sub>	> 10,000 mg/kg	97 mg/kg	450 mg/kg
EPA Acute Oral Toxicity Category	IV	II	II

## Etofenprox

### (Adult Parasite-Killing Active in Hartz® Cat Topicals)

It is important to take into account the very different physiological nature of cats versus dogs. Topical parasiticide products can be just as effective on cats as they are on dogs. However, due to the very specific physiology of cats, care must be taken to choose formulas that will avoid adverse reactions. This is why Hartz® UltraGuard Pro® Flea & Tick Drops for Cats was developed using a proven active ingredient that provides effective control of fleas, ticks and mosquitoes, while having been demonstrated repeatedly in scientific and long-term usage studies to be well-tolerated by cats when applied to the skin.

For example, pyrethroids are not tolerated well by cats. This is due to the very limited amounts of an enzyme, glucuronyl transferase, in the liver of cats. The lack of this enzyme does not allow for the removal of pyrethroids from the cat's system. Because cats groom themselves constantly, small but significant amounts of active can be ingested. Conversely, dogs and humans do have sufficient amounts of this enzyme and thus do not have the same susceptibility as cats do to pyrethroid application. With poor tolerance to pyrethroids, cats require a different formula chemistry to control parasites.

Etofenprox is the adulticide active ingredient found in Hartz® UltraGuard Pro® Flea & Tick Drops for Cats. The mode of action for etofenprox is similar to pyrethroids. The parasite's nervous system is affected at the nerve cell sodium channels. Excitation of the parasite's nervous system brings about death. Etofenprox is quite different though from pyrethroids in chemical structure and in toxicity profile. The ether unit in the structure of etofenprox, versus the ester unit commonly found in pyrethroids, is what differentiates the active and determines its high margin of safety for warm-blooded animals. With low acute oral and dermal toxicity in mammals, etofenprox provides a safe and effective topical active to control fleas, ticks and mosquitoes on cats. (Effective against adult fleas and mosquitoes and 3 of the 4 tick life stages).

## Cat Topical Active Ingredient Toxicity Chart

This chart documents the differences in oral toxicity of active ingredients presently being used in cat topical products. **The oral toxicity for the active ingredient found in Hartz® UltraGuard Pro® Flea & Tick Drops for Cats is significantly less than that of competitive products' active ingredients.**

### Comparison of Technical Adulticide Active Ingredient Acute Oral LD<sub>50</sub>

Active (Adulticide)	Etofenprox	Fipronil	Imidacloprid
Cat Topical Product Using Active (Adulticide)	Hartz® UltraGuard Pro®	Frontline®	Advantage®
Acute Oral LD <sub>50</sub>	> 42,880 mg/kg	97 mg/kg	450 mg/kg
EPA Acute Oral Toxicity Category	IV	II	II

## (S)-Methoprene

### (Flea Pre-Adult-Killing Active in Hartz® Dog & Cat Topicals)

Hartz® UltraGuard Pro® Flea & Tick Drops provide a separate and additional dimension of pest control for dogs and cats; the elimination of flea infestations in the home. When fleas jump onto dogs and cats in the outdoors, blood-feeding and egg-laying start quickly. When these flea-infested pets move indoors, a flea infestation can begin.

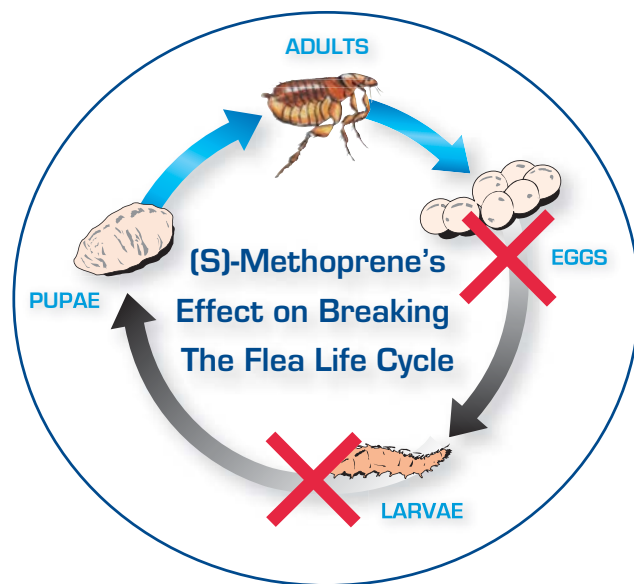
Flea egg-laying is continuous. Each day, fleas deposit eggs onto the animals. Subsequently, the eggs fall off of the animals and land on surfaces in the home. These eggs hatch into larvae and go through their development stages down in carpet pile, in pet bedding and in flooring cracks.

Larvae eventually pupate and then wait for a host to come along. The presence of heat, CO<sub>2</sub> and/or vibration signals the pupae that a host is nearby. The new adult emerges and springs up to latch onto the host for its first blood meal. This cycle continues and the population increases in time, creating a renewable in-home source of fleas to infest pets and humans.

The answer to stopping this infestation is the use of the Insect Growth Regulator (IGR), (S)-methoprene. To understand the effect of (S)-methoprene, one needs to understand the way immature fleas develop. Fleas exhibit complete metamorphosis. This means that there are 4 different stages (egg, larvae, pupae and adult) in the flea's life cycle. Different stages of the flea are created by the presence and eventual reduction of Juvenile Hormone (JH). Juvenile Hormone is specific to insects and produces no physiological effects in mammals. The presence of JH allows flea eggs to be formed. A slight reduction in JH causes an egg to hatch into a larvae. Another drop in JH causes the larvae to molt into pupae. When JH ceases to be produced, the pupae can finally molt into an adult.

(S)-Methoprene is a synthetic JH. Its presence confuses the physiology of the immature flea causing it to be trapped in either the egg or larval stage. This effect is the infestation-controlling action provided by Hartz® UltraGuard Pro® Flea & Tick Drops. By stopping the lifecycle and preventing new adults from being formed, (S)-methoprene effectively controls potential infestations.

(S)-Methoprene, when applied to dogs and cats, provides control in 2 ways. First, it is picked up by the adult female. The excess amount of JH material causes eggs to be sterile. Second, the residues carried by the pet are transferred to eggs falling off of the pet that, in turn, will be prevented from developing beyond the larval stage. This potent IGR and larvicide compound was first registered by EPA in 1975 and has been used safely and effectively for over 30 years.





### III. HARTZ® ULTRAGUARD PRO® FLEA & TICK DROPS - EFFICACY STUDIES

#### Efficacy Studies for Hartz® UltraGuard Pro® Flea & Tick Drops for Dogs and Puppies

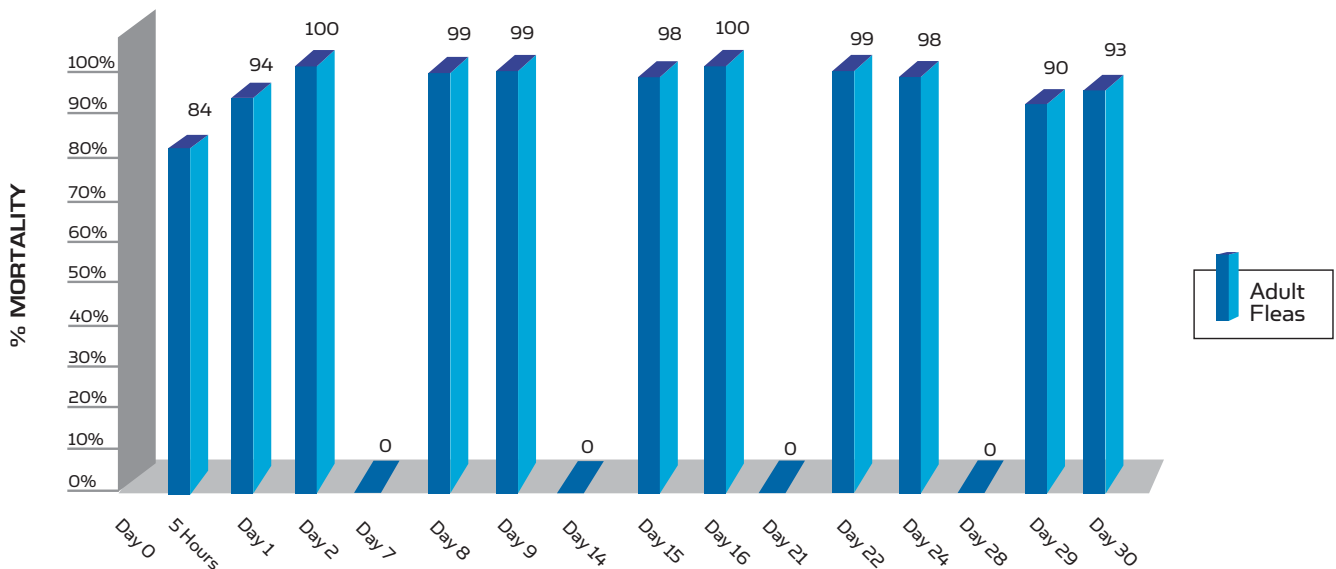


Hartz® UltraGuard Pro® Flea & Tick Drops for Dogs and Puppies is an innovative product containing 85.7% d-phenothrin and 2.3% (S)-methoprene. The combination provides protection against immature and adult fleas, ticks and mosquitoes. The following tables demonstrate it's effectiveness.

#### Table #1 – Efficacy Study – Adult Fleas

Performance against the cat flea, *Ctenocephalides felis*, has been documented in this test. 48-hour mortality/moribund readings of 93% or better were recorded after weekly reinfestations and maintained through 30 days.

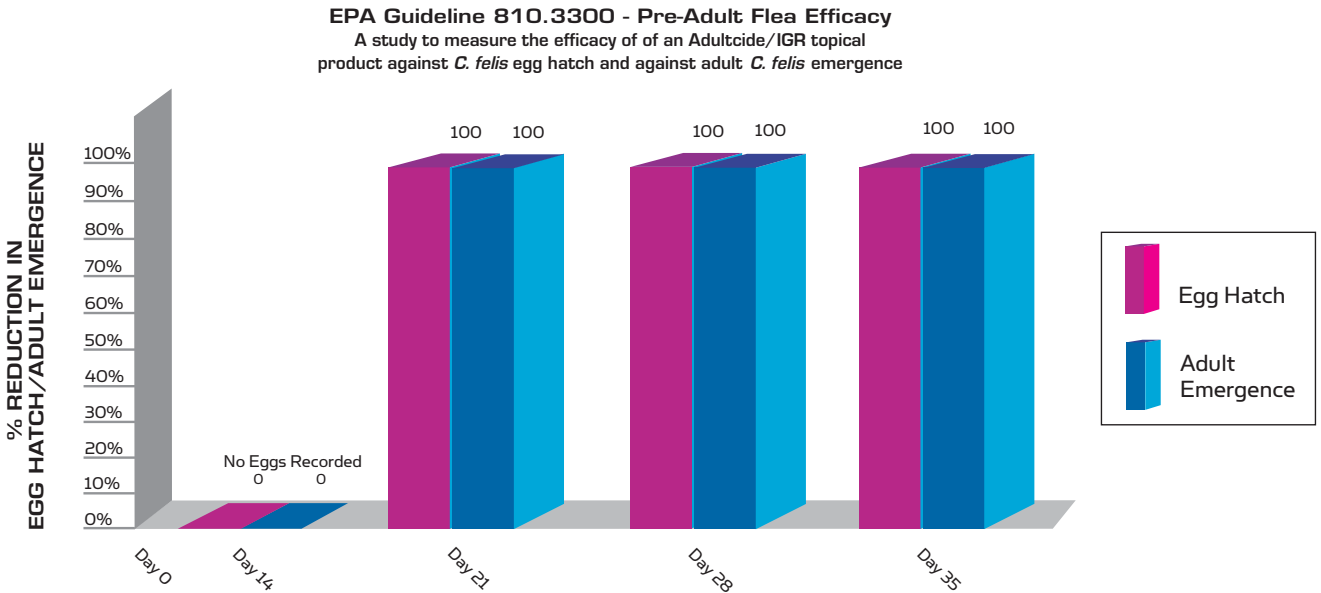
**EPA Guideline 810.3300 - Flea Efficacy**  
A study to measure the efficacy of an Adulticide/IGR product  
against an adult *C. felis* infestation on dogs



**Conclusion:** This study demonstrates that Hartz® UltraGuard Pro® works quickly and begins to kill fleas within 5 hours of application. The product maintained efficacy ≥ 90 percent (at 24 hours after application) for the entire duration of the study. Hartz® UltraGuard Pro® clearly offers a quick kill and 30 day duration of activity against *C. felis*.

**Table #2 – Efficacy Study – Pre-adult Fleas**

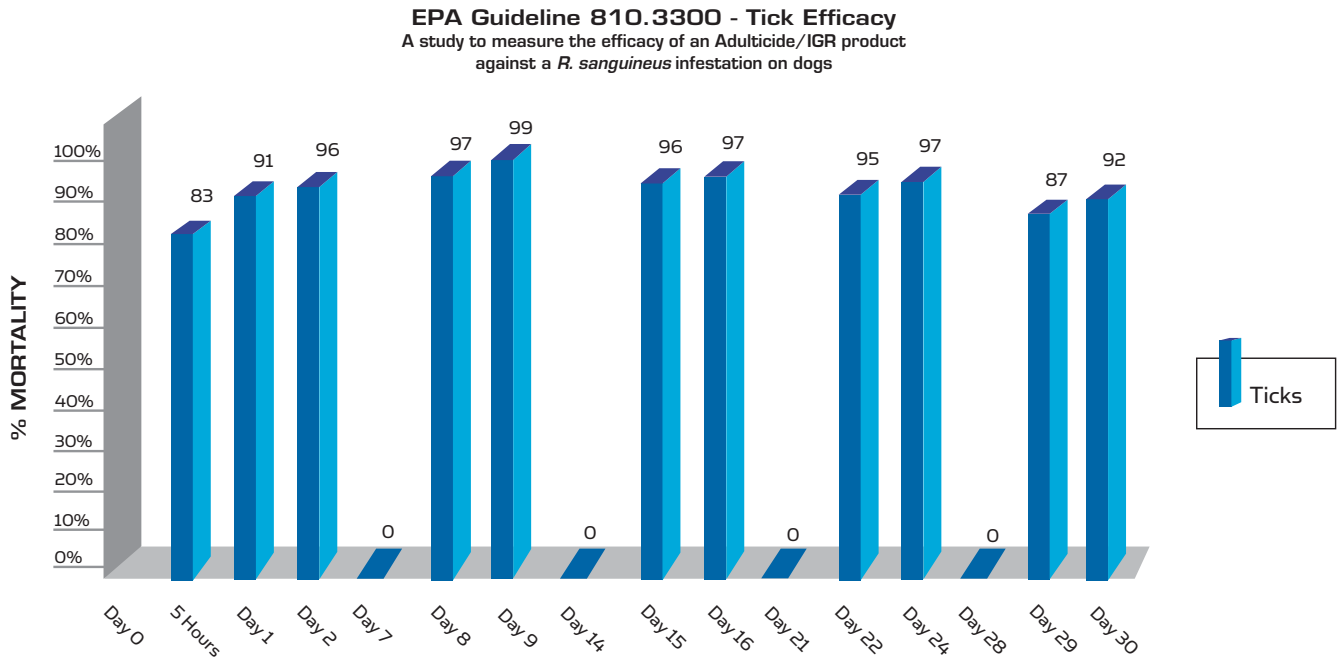
This study illustrates the effectiveness of the adulticide, d-phenothrin, in combination with the IGR, (S)-methoprene, in killing pre-adult fleas and preventing adult emergence of *C. felis*. 100% efficacy was sustained for a full 35 days.



**Conclusion:** The results of the test show that, after weekly reinfestations, Hartz® UltraGuard Pro® is effective in inhibiting flea egg hatch and adult emergence for at least 35 days.

**Table #3 – Efficacy Study – Ticks**

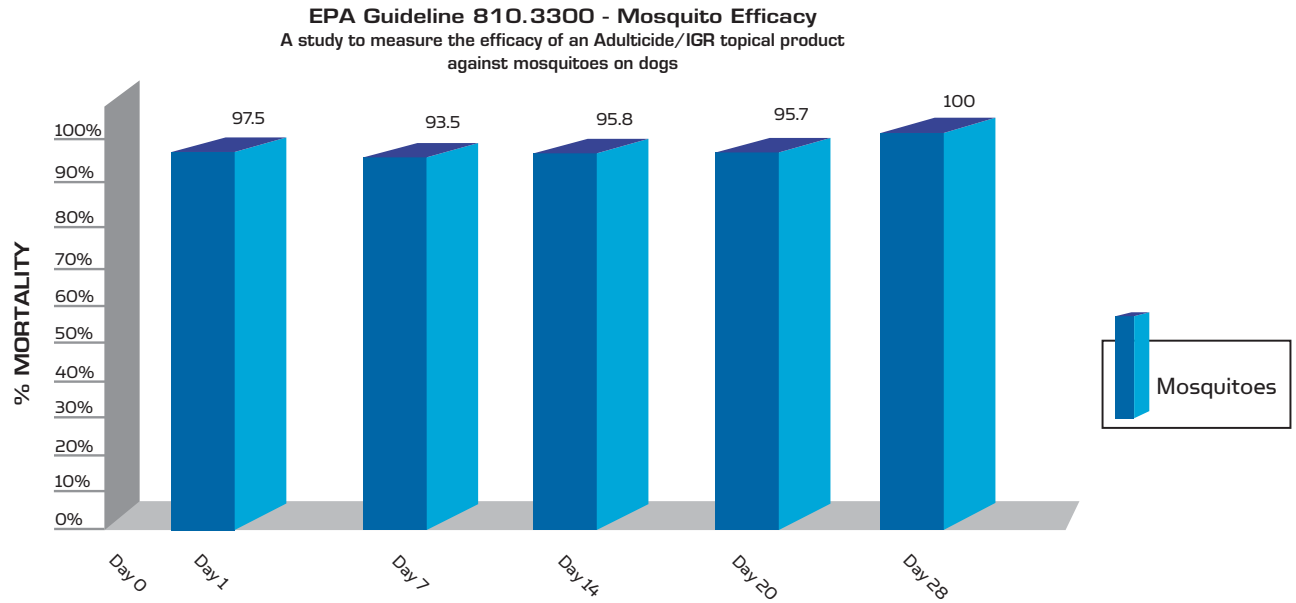
Efficacy of Hartz® UltraGuard Pro® Flea & Tick Drops for Dogs and Puppies against ticks is illustrated in this table. 48-hour mortality/moribund readings of greater than 90% were recorded after weekly reinfestations. Performance was maintained through 30 days.



**Conclusion:** This study demonstrates that Hartz® UltraGuard Pro® works quickly and begins to kill ticks within 5 hours of application. The product maintained efficacy > 90 percent (at 48 hours after application) for the entire duration of the study. Hartz® UltraGuard Pro® clearly offers a quick kill and 30 day duration of activity against *R. sanguineus*.

**Table #4 – Efficacy Study – Mosquitoes**

Efficacy of Hartz® UltraGuard Pro® Flea & Tick Drops for Dogs and Puppies against mosquitoes is affirmed by this study. After application, dogs were challenged weekly with 50 adult *Aedes aegypti* mosquitoes. Mortality in excess of 93% was maintained through 28 days.



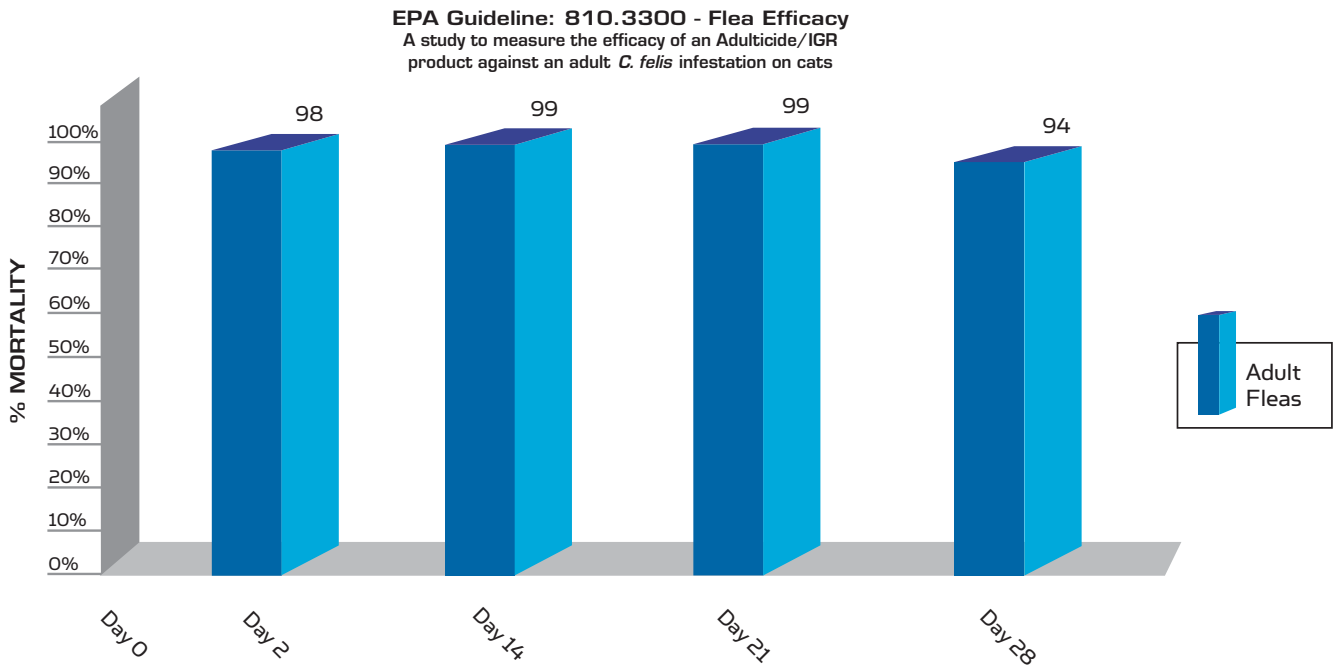
**Conclusion:** The results of the test show Hartz® UltraGuard Pro® is effective in killing mosquitoes for four weeks when challenged weekly with 50 female *Aedes aegypti* mosquitoes.

## Efficacy Studies for Hartz® UltraGuard Pro® Flea & Tick Drops for Cats



**Table #5 – Efficacy Study – Adult Fleas**

Efficacy of Hartz® UltraGuard Pro® Flea & Tick Drops for Cats is validated by this study. Hartz® UltraGuard Pro® Flea & Tick Drops for Cats, when tested against adult *C. felis*, exhibited a kill rate of 98% after 2 days. This high performance was maintained through 28 days with 94% mortality of fleas recorded after weekly infestations.

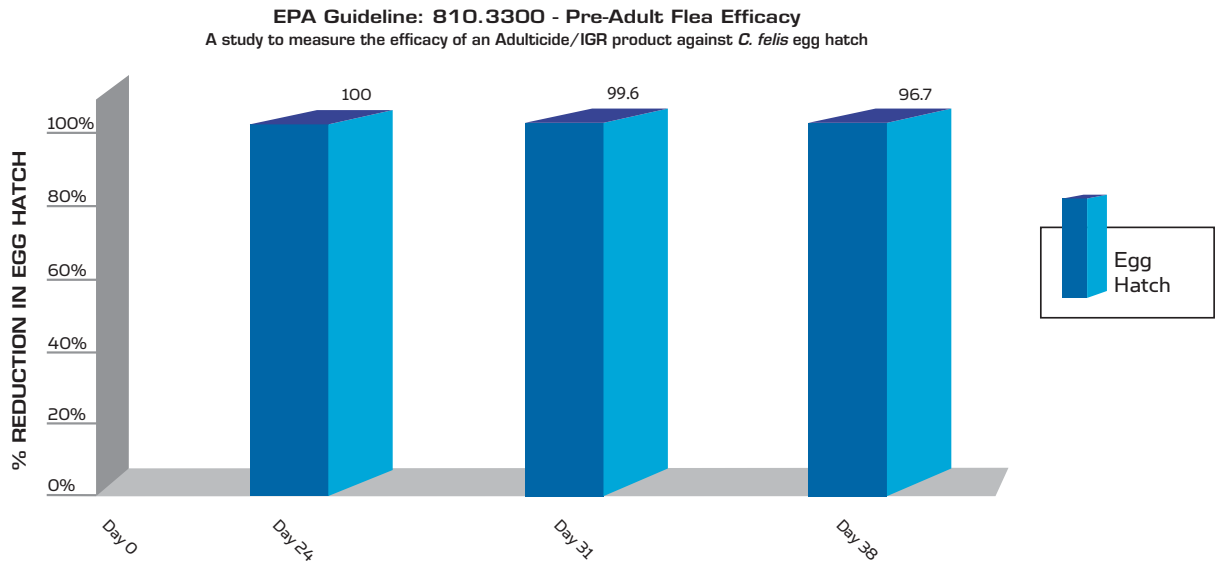


**Conclusion:** The test results from this study show that, after weekly reinfestations, Hartz® UltraGuard Pro® is effective in killing adult fleas for 28 days.



### Table #6 – Efficacy Study – Pre-adult Fleas

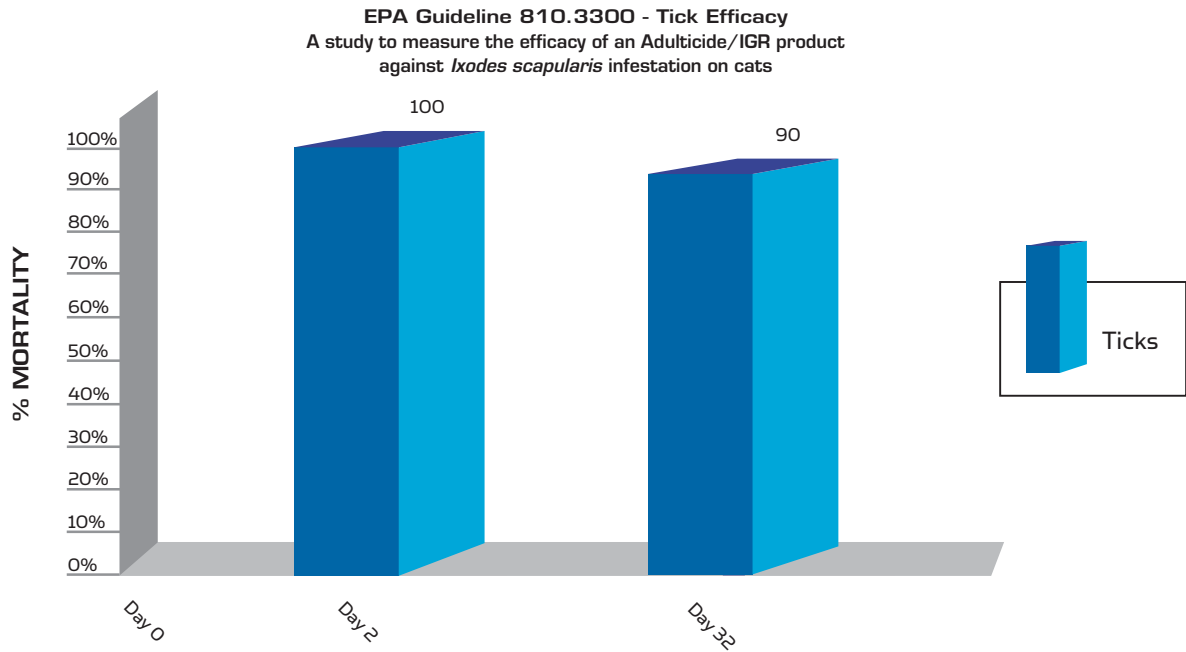
The continuous and sustained performance of Hartz® UltraGuard Pro® Flea & Tick Drops for Cats against pre-adult fleas, *C. felis*, was recorded as greater than 96% through 38 days.



**Conclusion:** The results of the test show that, after weekly reinfestations, Hartz® UltraGuard Pro® is effective in inhibiting flea egg hatch for at least 38 days.

### Table #7 – Efficacy Study – Ticks

Efficacy of Hartz® UltraGuard Pro® Flea & Tick Drops for Cats against ticks is illustrated in this table. Mortality data collected on day 32 after application showed 90% kill rate of *Ixodes scapularis* ticks.



**Conclusion:** This study demonstrates that, after weekly reinfestations, Hartz® UltraGuard Pro® provides killing efficacy against *Ixodes scapularis* ticks for 32 days post treatment.

## IV. HARTZ® ULTRAGUARD PRO® FLEA & TICK DROPS - SAFETY STUDIES

Testing for safety of topical products is required for EPA registration. Testing of Hartz® UltraGuard Pro® Flea & Tick Drops for Dogs and Puppies and Hartz® UltraGuard Pro® Flea & Tick Drops for Cats included Domestic Animal Safety Studies and acute toxicity testing. The following summaries represent the results of these tests which have been reviewed and approved by EPA.

### *Safety Studies for Hartz® UltraGuard Pro® Flea & Tick Drops for Dogs and Puppies*



#### **EPA Toxicity Guideline: 870.7200 Companion Animal Safety – Adult Dogs**

The test substance, Hartz® UltraGuard Pro® Flea & Tick Drops for Dogs and Puppies, was assessed to determine the potential toxicity following topical application to adult beagles at 5 times the label dose. Evaluation of body weights, food consumption, clinical observations and hematology and serum chemistry parameters of control and test animals revealed no adverse effects.

#### **EPA Toxicity Guideline: 870.7200 Companion Animal Safety – Puppies**

Based on clinical assessments, changes in bodyweight, food consumption and hematology and clinical chemistry parameters, Hartz® UltraGuard Pro® Flea & Tick Drops for Dogs and Puppies is well tolerated by puppies 12 weeks of age (84 – 90 days old) at five times the normal recommended dose.

#### **EPA Toxicity Guideline: 870.1100 Acute Oral Toxicity Study**

All animals survived and gained weight during the study. Following administration, all animals exhibited lower abdominal staining and one male also exhibited ventral staining. All animals recovered from the above symptoms by Day 3 and appeared active and healthy for the remainder of the study. The single dose acute oral LD<sub>50</sub> of Hartz® UltraGuard Pro® Flea & Tick Drops for Dogs and Puppies is > 5,000 mg/kg of body weight.

#### **EPA Toxicity Guideline: 870.1200 Acute Dermal Toxicity Study**

All animals survived and appeared active and healthy during the study. Although one male exhibited a loss of body weight between Days 7 and 14 and one female failed to gain body weight, all other animals gained weight over the 14-day observation period. Apart from dermal irritation (erythema and edema) noted at the dose site of all animals between Days 2 and 12, there were no signs of gross toxicity, adverse pharmacologic effects or abnormal behavior. The single dose acute dermal LD<sub>50</sub> of Hartz® UltraGuard Pro® Flea & Tick Drops for Dogs and Puppies is > 5,000 mg/kg of body weight.

#### **EPA Toxicity Guideline: 870.2400 Primary Eye Irritation Study**

All animals appeared active and healthy. Apart from the eye irritation noted below, there were no other signs of gross toxicity, adverse pharmacologic effects or abnormal behavior. No corneal opacity or iritis was noted during the study. One hour after test substance instillation, conjunctivitis was exhibited; the incidence and severity decreased with time and all animals were free from ocular irritation within 72 hours. The Maximum Mean Total Score of Hartz® UltraGuard Pro® Flea & Tick Drops for Dogs and Puppies is 8.0. Based on the classification system required by EPA, Hartz® UltraGuard Pro® Flea & Tick Drops for Dogs and Puppies is classified as mildly irritating to the eyes.

#### **EPA Toxicity Guideline: 870.2500 Primary Skin Irritation Study**

All animals appeared active and healthy. Apart from the dermal irritation noted below there were no other signs of gross toxicity, adverse pharmacologic effects or abnormal behavior. Two animals remained free from dermal irritation throughout the study. One hour after patch removal, very slight erythema was noted at four treated sites. Very slight edema was also apparent at one site. The incidence and severity of irritation decreased with time. All affected animals were free from dermal irritation by 72 hours. The Primary Dermal Irritation Index for Hartz® UltraGuard Pro® Flea & Tick Drops for Dogs and Puppies is 0.3. Based on the universal classification system used, Hartz® UltraGuard Pro® Flea & Tick Drops for Dogs and Puppies is classified as non-irritating to the skin.

#### **EPA Toxicity Guideline: 870.2600 Dermal Sensitization Study**

Based on findings of the study and on the evaluation system used, Hartz® UltraGuard Pro® Flea & Tick Drops for Dogs and Puppies is not considered to be a contact sensitizer.

## Dog Topical Formula Toxicity Chart

The information in this chart refers to sellable formulas of dog topicals. The EPA mandates that a full battery of toxicity tests be completed to document the acute toxicity of a commercial formula. **The formula in Hartz® UltraGuard Pro® Flea & Tick Drops for Dogs and Puppies is categorized as equal to or of a lower toxicity class than competitive commercial formulas.**

Dog Topical Product	Hartz® UltraGuard Pro®	Frontline®	Advantage®
EPA Toxicity Category	III	III	II
EPA Label Signal Word	Caution	Caution	Warning

### Safety Studies for Hartz® UltraGuard Pro® Flea & Tick Drops for Cats

**EPA Toxicity Guideline: 870.7200 Companion Animal Safety - Cats**

Hartz® UltraGuard Pro® Flea & Tick Drops for Cats produced no systemic effects when applied dermally to the dorsal neck area of young adult cats. Minimal dermal effects of unknown cause were noted in 3 of the 48 cats on study. These occurred at 3x and 5x the recommended dose.

**EPA Toxicity Guideline: 870.1100 Acute Oral Toxicity Study**

Hartz® UltraGuard Pro® Flea & Tick Drops for Cats produced no toxicity when administered as a single oral dose to animals. The product falls into EPA Toxicity Category IV (Acute Oral LD<sub>50</sub> > 5000 mg/kg).

**EPA Toxicity Guideline: 870.1200 Acute Dermal Toxicity Study**

Hartz® UltraGuard Pro® for Cats produced no systemic toxicity in animals when applied to the skin. These results place Hartz® UltraGuard Pro® Flea & Tick Drops for Cats into EPA Toxicity Category IV (Acute Dermal LD<sub>50</sub> > 5000 mg/kg).

**EPA Toxicity Guideline: 870.2400 Primary Eye Irritation Study**

Hartz® UltraGuard Pro® Flea & Tick Drops for Cats produced slight ocular irritation in animals, which was reversed within 24 hours, placing Hartz® UltraGuard Pro® Flea & Tick Drops for Cats into EPA Toxicity Category IV (minimal effects clearing in less than 24 hours).

**EPA Toxicity Guideline: 870.2500 Primary Skin Irritation Study**

Hartz® UltraGuard Pro® for Cats produced slight dermal irritation when applied to test animals. This irritation was reversed within 48 hours, placing Hartz® UltraGuard Pro® Flea & Tick Drops for Cats into EPA Toxicity Category IV (mild or slight irritation).

**EPA Toxicity Guideline: 870.2600 Dermal Sensitization Study**

The test material, Hartz® UltraGuard Pro® Flea & Tick Drops for Cats, was shown to be a non-sensitizer in animals.



## Cat Topical Formula Toxicity Chart

As in the Dog Topical Formula Toxicity Chart, the information below illustrates that the formula for **Hartz® UltraGuard Pro®** Flea & Tick Drops for Cats is categorized in a lower toxicity class than the competitive commercial formulas listed.

Cat Topical Product	Hartz® UltraGuard Pro®	Frontline®	Advantage®
EPA Toxicity Category	IV	III	II
EPA Label Signal Word	No Signal Word Required	Caution	Warning



## V. PRODUCT DOSAGE, APPLICATION AND TRANSLOCATION

### Proper Product Dosage

Appropriate pesticide applications must always take into account proper dosage and it is important that pet owners are made conscious of the importance of careful label reading and product selection when preparing to administer flea and tick treatments to their dogs and cats.

The formulas and package dosages for Hartz® UltraGuard Pro® Flea & Tick Drops are designed for the size of the animal to be treated. The proper dosages are determined based upon Companion Animal Safety Studies and efficacy studies, required by EPA. Specific dosages that have been identified as effective in controlling parasites are then tested at dosages up to 5 times recommended dose to insure adverse effects are not noted. The analysis of the test data provides an accurate means of targeting the right dose for small, medium, medium-large and large dogs. The same process is used for determining the right dosage for cats.

Both efficacy and safety data are required by EPA to grant registration for a topical parasiticide. Testing of Hartz® UltraGuard Pro® Flea & Tick Drops against public health pests has been completed and approved by EPA, providing assurances of effective residual efficacy with protection against adverse effects.

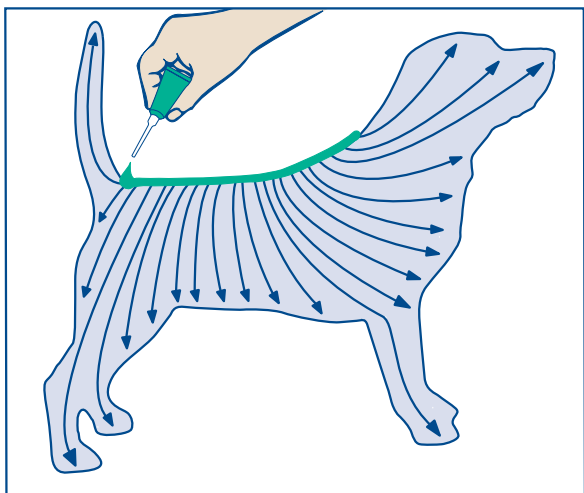
### New Hartz® UltraGuard Pro®

#### Pro-cision Flo™ Applicator

Beyond dosage, precise application is equally important. An effective formula needs to be combined with effective dispensing for ultimate performance, which is why Hartz has developed the new Hartz® UltraGuard Pro® Pro-cision Flo™ Applicator. The new Hartz® UltraGuard Pro® Pro-cision Flo™ Applicator, with its long tubular tip, is designed to glide easily through even the thickest coats. The applicator burrows down through the coat to skin level, without the need to manually separate the fur, allowing for more precise and controlled product application at the skin level.



It is at the skin level where the control aspects of the Hartz® UltraGuard Pro® Flea & Tick Drops formulas work best. It is important that application of the product formula take place as close to the skin of dogs and cats as possible, as it is here that parasites look to take their blood meals. If the product formula gets caught up and dispersed in the outer fur, less of the treatment active will be available where it is needed – at skin level. Furthermore, application on the surface of the fur leaves an undesirable visible oily residue. Lastly, in the case of a household with both cats and dogs, the cat may groom the dog and lick off the residue, thereby risking an adverse response. For this reason, consumers should be advised to keep cats and dogs separated for 24 to 48 hours after administration of Hartz® UltraGuard Pro® Flea & Tick Drops treatment to the family dog.



### Translocation of Hartz® UltraGuard Pro® Flea & Tick Drops

Translocation is the mechanism by which the active ingredients disperse globally over the entire surface of the pet's skin. Translocation commences at the product application site and disperses evenly throughout the pet's skin. This is why it is critically important to apply all of the product directly on the skin. The translocation of active ingredients is accomplished by the characteristics of the formula, which help facilitate the movement of active through the oil layer and into sebaceous glands found on the pet's skin. The active ingredients reside in the oil glands and serve as a reservoir for continued release of active over time out onto the skin and the coat's surface where parasites roam looking for their next blood meal. Contact with the active ingredients, which last up to a month, provides the killing effect for fleas, ticks and mosquitoes.

## VI. PACKAGE LABEL

### Hartz® UltraGuard Pro® Flea & Tick Drops for Dogs and Puppies

for dogs & puppies  
weighing **4 - 15 lbs.**

**Hartz**

**ULTRA GUARD PRO™**

**Flea & Tick Drops**  
for Dogs and Puppies

**Kills & Repels:**  
On Contact

- Fleas
- Ticks
- for up to **30 days**

**Kills:**

- Mosquitoes

**Kills & Prevents:**

- Flea Eggs and
- Flea Larvae

**3**  
Pro-cision Flo™  
Applicators

Direct to Your Dog's Skin

**3** Monthly  
Treatments  
Tubes

KEEP OUT OF  
REACH OF CHILDREN  
**CAUTION:** SEE BACK PANEL FOR INGREDIENTS  
AND ADDITIONAL PRECAUTIONS.

NET CONTENTS:  
Contains 3 Tubes,  
0.04 fl. oz. (1.1 ml) applicators

Pro-cision Flo™  
Applicator  
tube easily  
penetrates fur  
for improved  
application  
directly to your  
dog's skin.

Hartz®  
UltraGuard  
Pro™ Flea &  
Tick Drops  
for Dogs and  
Puppies  
weighing  
4-15 lbs.

- Kills all stages of the flea life cycle
- Kills and prevents ticks
- Kills mosquitoes
- Prevents re-infestation for 30 days

For more information, call our flea and tick experts at 1-800-275-1414.

**READ ENTIRE LABEL BEFORE EACH USE.**

**USE ONLY ON DOGS OR ON PUPPIES 12 WEEKS OF AGE OR OLDER. DO NOT USE ON DOGS OR PUPPIES WEIGHING 4 LBS. OR LESS.**

**PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS**

**CAUTION:** Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum or using tobacco.

**HAZARDS TO DOMESTIC ANIMALS DO NOT USE ON CATS OR KITTENS.**

Do not use on puppies less than 12 weeks old. Do not use this product on debilitated, aged, medicated, pregnant or nursing animals or on animals known to be sensitive to pesticide products without first consulting a veterinarian. Sensitivity, such as slight transitory redness of the skin at the site of application, may occur after using ANY pesticide product for pets. If signs of sensitivity occur, bathe your pet with mild soap, rinse with large amounts of water, and consult a veterinarian immediately.

**ENVIRONMENTAL HAZARDS**

This product is toxic to fish.

#### FIRST AID

**If in eyes:** • Hold eye open and rinse slowly and gently with water for 15-20 minutes.  
• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.  
• Call a Poison Control Center or doctor for treatment advice. • You may also contact 1-800-275-1414 for emergency medical treatment information. • Have the product container or label with you when calling for advice or going for treatment.

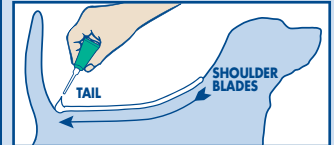
**DIRECTIONS FOR USE:** It is a violation of Federal law to use this product in a manner inconsistent with its labeling.



- 1 Remove one applicator tube from the package and hold in an upright position pointed away from your face.



- 2 Twist dispensing tip clockwise about ½ turn while pushing down to break the tube's seal. Do not remove the dispensing tip.



- 3 Position the dispensing tip on the dog's back between the shoulder blades. Use the dispensing tip of the tube to part the dog's hair so that the product will be applied at skin level. Begin squeezing out the contents of the tube to form a stripe as you move from the shoulder blades along the dog's back to the base of the tail.
- 4 Repeat every month.

#### STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage and disposal. Store in a cool, dry place. **If empty:** Do not reuse the container. Place in trash or offer for recycling if available. **If partly filled:** Call your local solid waste agency for disposal instructions. Never place unused product down any indoor or outdoor drain.

#### ACTIVE INGREDIENTS:

Phenothrin ..... 85.7%  
(S)-Methoprene ..... 2.3%

**OTHER INGREDIENTS:** ..... 12.0%

**TOTAL** ..... 100.0%

EPA Reg. No. 2596-150  
EPA Est. No. 2596-NJ-1

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Secaucus, NJ 07094 RM106101



Also available for Dogs and Puppies weighing:

16 - 30 lbs.

Hartz **ULTRA GUARD PRO™**

Flea & Tick Drops  
for Dogs and Puppies weighing **16-30 lbs.**

**Net Contents:**  
Contains 3 Tubes,  
0.04 fl. oz. (1.3 ml) applicators

31 - 60 lbs.

Hartz **ULTRA GUARD PRO™**

Flea & Tick Drops  
for Dogs and Puppies weighing **31-60 lbs.**

**Net Contents:**  
Contains 3 Tubes,  
0.14 fl. oz. (4.1 ml) applicators

and over 60 lbs

Hartz **ULTRA GUARD PRO™**

Flea & Tick Drops  
for Dogs and Puppies weighing over **60 lbs.**

**Net Contents:**  
Contains 3 Tubes,  
0.20 fl. oz. (5.9 ml) applicators

# Hartz® UltraGuard Pro® Flea & Tick Drops for Cats



for use on cats  
**5** lbs. and over

## ULTRA GUARD PRO™

### Flea & Tick Drops for Cats

**Kills:**

-  Fleas
-  Deer Ticks

**Kills & Repels:**

-  Mosquitoes

**Plus Kills:**

-  Flea Eggs and
-  Larvae

to prevent future infestations

**3** Pro-cision Flo™ Applicators

Direct to Your Cat's Skin




Patent pending

**3** Months Supply

Pack

NET CONTENTS:  
Contains  
3 applicators,  
0.061 fl. oz. (1.8 ml) applicators

**KEEP OUT OF REACH OF CHILDREN**  
SEE BACK PANEL FOR INGREDIENTS AND ADDITIONAL PRECAUTIONARY STATEMENTS



for use on cats  
**5** lbs. and over

## Hartz® UltraGuard Pro™ Flea & Tick Drops for Cats

- Stops the flea life cycle
- Kills deer ticks
- Kills mosquitoes
- Prevents re-infestation for up to 30 days

When your cat has fleas and ticks your family and pet may be exposed to:

- Deer ticks which may carry Lyme disease
- Fleas that may cause:
  - Tapeworm infestation
  - Flea bite anemia
  - Flea allergy dermatitis

**STORAGE AND DISPOSAL:**  
**Storage:** Store in a cool, dry place. Do not store unused applicators separately from their packaging. **Container Disposal:** If empty: Do not reuse empty applicator. Place in trash or offer for recycling if available. If partly filled: Call your local solid waste agency for disposal instructions. Never place unused product down any indoor or outdoor drain.

**PRECAUTIONARY STATEMENTS**  
**HAZARDS TO HUMANS AND DOMESTIC ANIMALS**  
**HAZARDS TO HUMANS:** Repeated exposure to etofenprox can cause skin irritation.  
**HAZARDS TO ANIMALS:** For External Use on Cats Only. Do not use on kittens less than 12 weeks old. Consult a veterinarian before using this product on debilitated, aged, pregnant or nursing animals. Certain medications can interact with pesticides. Consult a veterinarian before using on medicated animals. Sensitivities may occur after using ANY pesticide product for pets. If signs of sensitivity occur, bathe your pet with mild soap and rinse with large amounts of water. If signs continue, consult a veterinarian immediately.


**ACTIVE INGREDIENTS:**  
 (S)-Methoprene (CAS # 65733-16-6) ..... 3.6%  
 Etofenprox (CAS # 80844-07-1) ..... 40.0%  
**OTHER INGREDIENTS:** ..... 56.4%  
**Total** ..... 100.0%

In case of an emergency or for product use information, call 1-800-275-1414.

EPA Reg. No. 2724-504-2596  
EPA Est. No. 2596-NJ-1

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**READ ENTIRE LABEL BEFORE USE**  
**USE ONLY ON CATS OR KITTENS 12 WEEKS OF AGE AND OLDER**

**DIRECTIONS FOR USE:** It is a violation of Federal law to use this product in a manner inconsistent with its labeling. This product contains 3 monthly dosages, each 1.8 ml. Do not apply more than once every month.


**USE ONLY ON CATS AND KITTENS 12 WEEKS OF AGE AND OLDER.**  
 Do not get this product in your cat's eyes or mouth.



**1** Remove one applicator tube from the package and hold in an upright position pointed away from your face.



**2** Twist dispensing tip clockwise about ½ turn while pushing down to break the applicator's seal. Do not remove the dispensing tip.



**3** Prior to application of the product, using the dispensing tip of the applicator, gently lift the cat's or kitten's hair coat on the back of the neck at the base of the skull, position the dispensing tip of the applicator tube on the cat's exposed skin and squeeze out the entire contents of the tube onto the cat's skin. Do not bathe cat within the first 24 hours after squeeze on has been applied. Households with more than one cat should prevent cats from grooming each other until solution has dried.

**4** Repeat application once monthly.

Hartz UltraGuard Pro®

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