Risk of accidental poisoning to Toxicological assessment

Racumin Tracking Powder is a effective anticoagulant rodenticide for the control of rats (Rattus rattus, Rattus norvegicus).
DIRECTION FOR USE: Off-label use is an offence.

PLACE	Orchards, cellars, farms, stables, zoological gardens, slaughter-houses, goods depots, dumping area, sewers, sewage and ships.
PEST	Rats *(Rattus rattus, Rattus norvegicus)*
RATE	20 g / rat burrows
REMARKS	Place **Racumin Tracking Powder** at the entrance of rat burrows. Inspect the treated burrows and replenish when necessary. Replace missing baits when acceptance is less or finish.

WARNING:
THIS PRODUCT IS NOT RECOMMENDED IF BARN-OWL ARE USED FOR RODENT CONTROL.

Bayer Co. (Malaysia) Sdn Bhd (7563 M)
Unit T1-14, Tower 1, Jaya 33, No. 3, Jalan Semangat,
Seksyen 13, 46200 Petaling Jaya, Selangor, Malaysia.
Tel: 03-6209 3088 Fax: 03-7960 5717
Email: es.malaysia@bayer.com

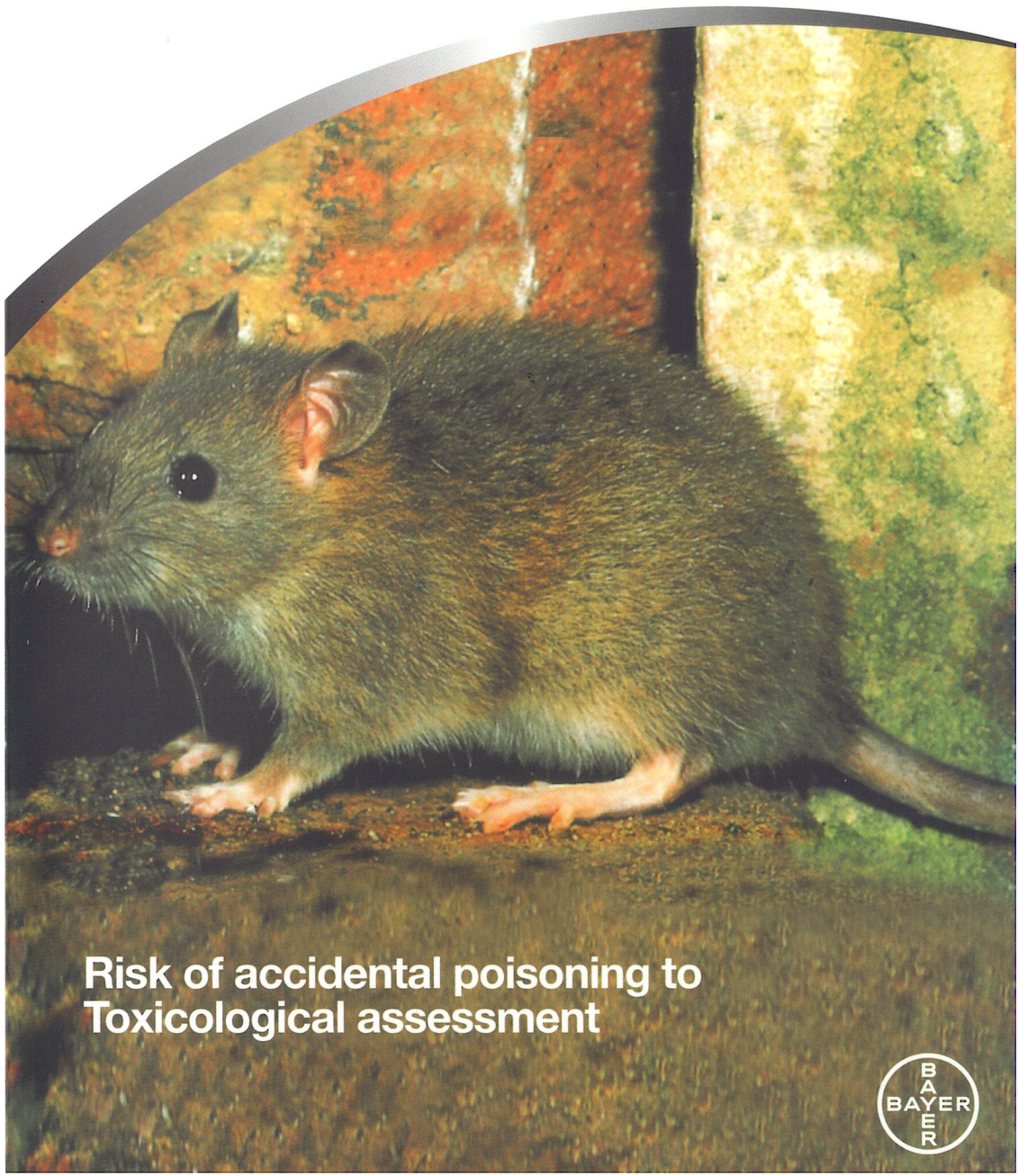
READ THE LABEL BEFORE USE

JIRP. P/1014/645

For more information please contact:

Racumin®
TRACKING POWDER

THIS IS A PESTICIDE ADVERTISEMENT
TO BE HANDLED BY TRAINED PERSONNEL ONLY.



Racumin®
TRACKING POWDER

Rodents, intelligent danger

Commensal rodents and their worldwide invasion
Commensal rodents have accompanied the evolution of human culture and adapted to human living spaces. Human shelter offers food and hiding places for protection from both weather and predators. The high intelligence, adaptability and fertility of the animals have allowed them to spread out into practically every human habitat throughout the world.

In general, two types of rats are responsible for damage: the Norway rat and the Roof rat. In addition to stored product damage, that is, the quantitative loss of food-stuffs, health risks also pose a threat. These rats can transmit a number of pathogens to both people and their livestock.

This is why targeted, professionally applied control measures for the reduction and elimination of rodent populations are essential.

Where don't you find rodents?
Their well-known ability to adapt and survive mean that rats can be found practically anywhere:

- Private apartments, single and multiple family homes, where they find food in kitchens, garbage containers and garden compost heaps.
- Commercial operations such as food stores, bakeries, butchers, restaurants, etc., where food is stored, processed and prepared.
- Industrial food and feed enterprises, including bread and meat production facilities, slaughterhouses, dairies, grain storehouses, feed mills, etc.
- Farming operations such as poultry and swine farming as well as feedlots and fish farms.
- Open areas such as ports, train tracks and stations, composting plants and community disposal facilities. i.e. sewage plants and dumps.

Rats often wander through very different environments in their search for food or new living spaces. In doing so, they make serious epidemiological links, for instance, between bacteria-infested sewers and the living spaces of people or animals.

Requires intelligent control

How can we control the most intelligent of pests?
Considering how intelligent and adaptable rats are, it is no surprise that effective and sustainable control of these pests is extremely difficult to achieve. Since we have no direct access to the animals, they have to be lured by an appetizing bait. Such baits contain a rodenticide ingredient which should not be detectable to the rodents through taste or symptoms. This objective can only be met by means of carefully chosen bait formulations and baiting techniques.

Sustainable pest reduction is only possible if control measures are chosen according to an Integrated Pest Management (IPM) concept, taking the environment of the pest into consideration as well as various control methods. A major element of IPM is the prevention of infestations which includes the following activities:

- Maintain cleanliness in infested areas in order to eliminate hiding places and sources of food.
- Disposal refuse in a rat-proof way.
- Keep food sealed in appropriate containers.
- Cover vents, sewage pipes, drains, etc. with screens.
- Consider construction projects to make it more difficult for rodents to access the areas to be protected.

IPM programs require detailed assessment of the pest species, the extent of the infestation and economic impact before a program is implemented.

In the majority of cases, bait formulations are used which contain anticoagulants which keep blood from clotting. These baits have a delayed effect, so they take effect a few days after being consumed in order to prevent bait shyness.

- Bait must be placed in covered containers or special bait stations such that accidental ingestion by children or pets is prevented.
- Particular attention should be paid to the location of the bait stations: use tracks and evidence of faeces urine/foot prints to locate hiding places, favoured routes and burrows in order to place a sufficient number of stations next to the pathways between the hiding place and food source.
- The bait stations should be placed in corners or against walls, yet placed so that the entrances and exits to the stations are not obstructed.
- The bait stations should be monitored and refilled frequently, depending on the activity of the rat. Since not all rats will immediately eat bait, it should be left in place for at least one week before removing them.

Effective and constant solution

Racumin for a effective and constant solution
Bayer offers products for every application need, allowing professional, effective rodent control:

- Racumin, a rodenticide based on the "first generation" anticoagulant Coumatetralyl, has been specifically developed for rat control. Two formulations have been approved in Malaysia.
- Coumatetralyl is an anticoagulant which is synthesised in the laboratories of Bayer AG. The active ingredient is white, crystalline substance with no instrinsic flavour.

Risk of accidental poisoning

	SINGLE DOSE	CHRONIC DOSE
Chickens	16 kg bait/ chicken	
Pigeons		>76 g/day (24 days)
Blackbirds		31 g/day
Fish	> 1 g concentrate per litre	
Water fleas	Non toxic	
Dog (20 kg)	LD50 = 1.8 kg	
Cat (4 kg)	LD50 = 0.5 kg	

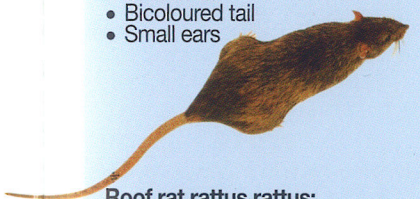
- The fact that coumatetraly is rapidly excreted from the body means that there is a much larger safety margin.

Racumin®
TRACKING POWDER

Effective and constant solution

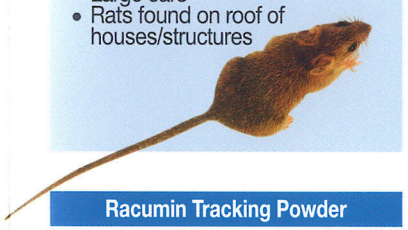
Norway rat rattus norvegicus:

- Rat burrows
- Omnivorous
- 150-600 g body weight
- Blunt snout
- Shorter tail
- Bicoloured tail
- Small ears



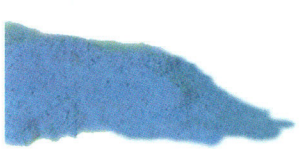
Roof rat rattus rattus:

- Herbivore
- 80-300 g body weight
- Pointed snout
- Long tail
- Uniform coloured tail
- Large ears
- Rats found on roof of houses/structures



Racumin Tracking Powder

Use the tracking powder alone along pathways and in front of burrow entrances. Rat can spend up to 20% of their waking time cleaning and grooming their fur. This instinctive habit can be exploited by scattering the Racumin Tracking Powder. As the name implies, the powder is placed on the exits of the rat burrows and along the frequented runaways. The tracking powder also serves as an indicator of rat activity. 20 g of the powder per burrow should be applied in a thin layer of 3-5 mm. If possible place the tracking powder in closed carton or on a solid based, where rats have no choice but to run through the scattered powder.



Rats are competitors for our food and threaten the health of people and livestock

Rats can thrive on a wide range of foods - they eat and chew on just about anything available to them, including food of all kinds.

According to estimates from 1995, year for year, some 10 billion rats worldwide consume about one-fifth of the total food and feed supply. What's more, foodstuffs are contaminated with faeces, urine, saliva and hair, making them unfit for human consumption.

Rats also damage many materials in warehouses and other buildings, such as packaging, sacks, doors, floors and insulation as well as power lines and electric cables, which can often lead to a short circuit or even fire.

The health risks presented by rats are particularly serious. They act as reservoirs and vectors of a myriad of diseases, some of which are listed in Table 1.

Table 1: Diseases directly or indirectly caused by rats

In most cases, bacteria are spread passively that is, the pathogens are contained in infested urine, faeces and saliva. In this way, food, feed and kitchenware can be contaminated with pathogens by rats.

If this danger is not recognized and contaminated foods are eaten, serious illness such as salmonella poisoning can result. In other cases, rats act as pathogen reservoirs, bringing arthropods such as fleas, ticks or mosquitoes into the infection chain, as with diseases such as plague, borreliosis, leishmaniasis, etc.

In addition to the vast economic losses of stored products and building materials through rodents, and the price of treating these health problems, the expenditure needed to control the rats year upon year, should also be taken into consideration. Worldwide, these costs are climbing into the billions.

DISEASE (PATHOGEN)	RATS
Bacteria:	
Typhoid, parathyhoid, enteritis *(Salmonella spp.)*	+
Shigellosis *(Shigella spp.)*	+
Plague *(Yersinia pestis)*	+
Cholera *(Vibrio cholerae)*	+
Tularemia *(Francisella spp.)*	+
Botulism *(Clostridium botulinum)*	+
Weil's disease *(Leptospira icterohaem.)*	+
Rat-bite fever *(Streptobacillus moniliformis)*	+
Campylobacteriosis *(Compylobacter jejuni)*	+
Borreliosis *(Borrelia burgdorferi)*	+
Viruses:	
Rabies *(Rhabdo viruses)*	+
Hepatitis *(Hepatitis viruses)*	+
Hemorrhagic fever *(Hanta viruses)*	+
Foot-and-mouth disease *(Toga viruses)*	+
Swine fever *(Picorna viruses)*	+
Aujeszky's disease *(Herpes viruses)*	+
Protozoa:	
Toxoplasmosis *(Toxoplasma gondii)*	+
Leishmaniasis *(Leishmania spp.)*	+
Chagas's disease *(Trypanosoma cruzi)*	+
Pneumocystosis *(Pneumocystis carinii)*	+
Parastic worms:	
Trichinosis *(Trichinella spiralis)*	+

Table 2: Infection chain in which rats can pass on pathogens to people and livestock

TRANSMISSION/ VECTOR	HOST	PATHOGEN
Contaminated food	People/ livestock	*Salmonella spp.*
Contaminated environment	People	*Salmonella typhimurium, Leptospira spp.*
	Livestock	*Tago, Picorna, Herpes viruses*
Fleas	People	*Yersinia pestis*
Fleas	People	*Borrelia burgdorferi*