THE PES AFRICA GUIDE TO COCKROACHES

PREVENT. CONTROL. ELIMINATE
overview

Water, food and shelter are all that cockroaches need to thrive. Pathogen and Environmental Solutions is the leading providers of pest control products to the professional pest control industry with more than 200 years of industry experience.

We have an extensive knowledge base on cockroach species, behaviours and habits, and what the most effective methods of prevention, control and elimination are.

This guide is designed to provide helpful information on cockroaches, and how to identify, inspect and treat areas of cockroach infestation. With these tips, you can help your customers improve sanitation and control cockroach infestations in their facilities.

**FACT:**
Cockroaches learn which nutrients their body requires most and then seek these out.

identifying the **three common cockroach species** in South Africa

<table>
<thead>
<tr>
<th>Species</th>
<th>Size Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>German</td>
<td>up to 1.6 centimeters</td>
</tr>
<tr>
<td>Oriental</td>
<td>up to 3.2 centimeters</td>
</tr>
<tr>
<td>American</td>
<td>up to 5 centimeters</td>
</tr>
</tbody>
</table>

The **German cockroach**, which is only found indoors, is best identified by its small size and by the two dark parallel lines running from the back of the head to the wings.

The **Oriental cockroach** is dark brown to black in colour. The male’s wings cover 3/4 of the abdomen; the female wings are extremely short and underdeveloped.

The **American cockroach** is the largest in size of all the common cockroach species. They are often found outdoors but can infest indoor areas as well.
**COMMON COCKROACH SPECIES**

- American Cockroach
- Brown-Banded Cockroach
- German Cockroach
- Oriental Cockroach
- Smokybrown Cockroach

### USAGE

Remove any source of food from the infested area. Inject the cockroach gel into grooves, and cracks where the cockroaches live, feed and breed, especially areas that contribute to their development: Damp, Warm and Dark eg. behind furniture and appliances.

### RATE OF APPLICATION

Always apply according to the product’s label instructions. PES Africa’s Advion Cockroach Gel should be applied as a number of small spots of approximately 5mm in diameter. A spot of gel bait of 5mm in diameter weighs approximately (0.1g).

In cases of severe infestation, where large amounts of cockroaches are present, in areas that are particularly dirty or cluttered or where alternative sources of food cannot be entirely eliminated, a higher application rate is recommended.

<table>
<thead>
<tr>
<th>INFESTATION</th>
<th>APPLICATION</th>
<th>SPOT SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Infestation</td>
<td>Apply 2 spots x 0.1 gr (5mm size) per m²</td>
<td>2 x 0.1g/ m²</td>
</tr>
<tr>
<td>Heavy Infestation</td>
<td>Apply 5 spots x 0.1 gr (5mm size) per m²</td>
<td>5 x 0.1g/ m²</td>
</tr>
<tr>
<td>Heavy Infestation (Recommended close to know harborage sites)</td>
<td>Apply 1 thin line of 5cm x 0.3cm or 1 spot of (10mm size) 0.5 gr per m²</td>
<td>5 cm x 0.3 cm</td>
</tr>
</tbody>
</table>

### Advion® Cockroach Gel: toxicity profile

<table>
<thead>
<tr>
<th>Toxicity Profile</th>
<th>Advion® Cockroach Gel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Oral</td>
<td>&gt;5000 mg/kg</td>
</tr>
<tr>
<td>Acute Dermal</td>
<td>&gt;5000 mg/kg</td>
</tr>
<tr>
<td>Acute Inhalation</td>
<td>NA</td>
</tr>
<tr>
<td>Eye Irritation</td>
<td>Not an irritant</td>
</tr>
<tr>
<td>Dermal Irritation</td>
<td>Not an irritant</td>
</tr>
<tr>
<td>Skin Sensitization</td>
<td>Not a sensitizer</td>
</tr>
</tbody>
</table>
**INSPECTION & MONITORING**

**LOOK FOR SANITATION ISSUES**
Use a flashlight during inspections to look under and behind furniture, appliances and storage items. A good pair of kneepads and a inspection mirror will allow you to view hard-to-reach areas.

**TAKE PICTURES**
Use a mobile device and selfie stick to take photos of areas that are difficult to access, such as refrigerators or in ceilings, especially if you don’t have a ladder.

**EXAMINE GLUE TRAPS**
- Move glue traps around to identify the direction a cockroach was moving, which will help to find the harbourage area.
- Check the life stages of the cockroaches captured on the glue trap. A lot of small instars (adolescent cockroaches) can indicate a recent hatch or close proximity to the harbourage area. If the glue trap has captured cockroaches in multiple life stages - especially adult males - it indicates under-baiting.
- Date glue traps so you will know how long they have been in use.

**SANITATION**

**REMOVE FOOD SOURCES**
To spur cockroaches to eat the bait, eliminate competing food sources in the area.

**USE A VACUUM**
- Vacuuming is a quick way to reduce a cockroach population and increase the effectiveness of baits and residuals.
- Determine the efficacy of the treatment by returning to vacuum up dead cockroaches; the more dead cockroaches there are, the more likely the control method is working.

**INSPECTION & MONITORING**

**TARGET HARBOURAGE**
The majority of a cockroach population consists of young nymphs, which are more likely to stay near the harbourage area. Place the bait as close to the harbourage area as possible so the nymphs are more likely to find and eat it.

**STAY LOW**
Cockroaches are found in many different places, so you will need to get on your hands and knees for optimal bait placement. Some areas may require you to apply bait behind or underneath furniture or appliances.

**ROTATE & TEST BAITS**
Minimize bait aversion by rotating baits with a different matrix. If the cockroach population keeps growing, try placing two or three different types of bait close to the harbourage area. If all baits are gone after 24 hours, under-baiting was likely the problem. If only one bait has been eaten, the cause could be bait aversion.

**USE MULTIPLE METHODS**
For best results, employ different control methods:
- Try spot spray treatment using an approved product with residual properties.
- Dust in wall voids, behind switch plates and socket covers.
- Use an Ultra Low Volume (ULV) treatment in drop ceilings.
- Seal any noticeable cracks and crevices with caulk (after first informing the customer).
**CUSTOMER COMMUNICATION**

**REPLACE CARDBOARD**
Recommend that your customer replace all cardboard storage with plastic or metal containers, as cockroaches frequently hide in corrugated cardboard boxes.

**PRIORITIZE TASKS**
Give your customer one or two specific and manageable tasks that are the most critical at that time. For example, remind the customer to do the dishes and seal all food packages every night.

**BUSINESS & PRODUCT TIPS**

**STORE BAIT CAREFULLY**
Be mindful not to contaminate the bait when it is in storage, know the expiry date and avoid extreme heat, smoke, exhaust, cleaners, paint and other volatiles.

**ALLOCATE RESOURCES FOR CLEANOUTS**
Initial cleanouts are a significant investment, as they require a great deal of time and effort and may require more frequent follow-up treatments to control the cockroach population. A PCO should

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**AGENT PEST BAIT**

- Hydramethylnon: A tried and trusted active ingredient for 20 years.
- Now you can source all your cockroach gel bait activities from one company (hydramethylnon, fipronil, imidacloprid).
- Three active ingredients and three modes of action.
- Practise rotation with Villa Public Health cockroach gels to prevent insecticide resistance developing.
- Three different gel matrices will prevent gel bait aversion from developing.

**APPLICATION AREAS**
- Kitchens in restaurants and hotels
- Industrial kitchens in food processing plants
- In the home
- Staff rooms
- Locker rooms
- Sewers
- Bakeries
- Ships
- Submarines (in disposable bait stations)
- Fast food outlets
- Food storage areas

**PESTS CONTROLLED**
- All pest cockroach species, particularly American and German cockroaches.
- Other insects may be attracted to and feed on Agent and thus be controlled — ants, house crickets and fish moths.

**APPLICATION**
Attach a 30g cartridge to a suitable gel applicator. Remove cap, attach application tip and place small drops in cockroach harbours. Smaller drops, applied more frequently, will give better control.

**DOSGAGE**

- **Normal rates**
  - American cockroach
  - Place two spots of 0.25g gel per m².
  - German cockroach
  - Place one spot of 0.25g gel per m².
  - **High rates**
  - American cockroach
  - Place three spots of 0.25g gel per m².
  - German cockroach
  - Place two spots of 0.25g gel per m².

**ALWAYS READ ALL PESTICIDE LABELS THOROUGHLY BEFORE USE**
Here are some helpful pointers to use as a reference while on the job.

**BAIT CREVICES**
Apply bait to cracks and crevices, depositing enough to kill the existing cockroaches.

**CHECK BAIT**
Make sure cockroaches are eating the bait. If they are not, try a different bait, with a new food matrix, and rotate baits quarterly to combat bait aversion.

**PLACE BAIT NEARBY**
Put bait near or inside cockroach harbourages. Cockroaches will rarely travel long distances if food is only inches away.

**PLACE ENOUGH BAIT**
Apply enough bait for the population. Under-baiting will necessitate re-applying frequently without gaining control of the infestation.

**CHOSE LOCATIONS**
Don’t place bait where pesticide has been applied, or anywhere bait might be washed away or mopped up.

**CLEAN UP**
Remove any food residue, as it can draw cockroaches away from bait placements.

**REMOVE OLD BAIT**
Use a putty knife or blade to remove old bait, as the presence of old bait could trigger bait aversion.

**BAIT AVERSION**
Don’t exclusively use gel bait for control. Including other methods of control helps limit bait aversion and reduces cockroach populations.

**READ LABEL**
Read and follow the label to reduce errors and maximize the effectiveness of the bait.

**AVOID FOOD SURFACES**
Never apply bait to food or food-handling surfaces.
The American cockroach can live for up to one year.

The female American cockroach will produce up to 90 egg cases in her lifetime.

WHAT IS A HARBOURAGE?

It’s a location, typically warm and damp, where cockroaches seek shelter and reproduce.

Cockroach gels are safe to use in sensitive areas such as residential buildings, supermarkets, restaurants, food handling and storage facilities. Apply the gel in places such as:

- Behind and under appliances,
- Hollow spaces in floors, walls and ceilings,
- Around plumbing pipes and under sinks,
- Doors and windows.

OFF ALL COCKROACHES ARE RARELY SEEN OUTSIDE OF THE HARBOURAGE AND EXIST AS A HIDDEN DANGER.
Rossi Insect Bait is a fipronil-based cockroach gel bait.

Pest Management Professionals know fipronil is the Rolls Royce of cockroach gel baits.

It has three active ingredients and three modes of action.

It has three different gel matrixes that will prevent gel bait aversion from developing.

APPLICATION AREAS

- Kitchens in restaurants and hotels.
- Industrial kitchens in food processing plants.
- In the home.
- Staff rooms.
- Locker rooms.
- Sewers.
- Bakeries.
- Ships.
- Submarines (in disposable bait stations).
- Fast food outlets.
- Food storage areas.

DOSAGE

Normal Rates

American cockroach
Place two spots of 0.03g gel per m².

German cockroach
Place one spot of 0.03g gel per m².

High Rates

American cockroach
Place three spots of 0.03g gel per m².

German cockroach
Place two spots of 0.03g gel per m².

PEST CONTROLLED

All pest cockroach species, particularly American and German Cockroaches.

APPLICATION

Attach a 30g cartridge to a suitable gel applicator. Remove cap, attach application tip and place small drops in cockroach harbourages. Smaller drops, applied more frequently, will give better control.

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<th>NORMAL RATES</th>
<th>HIGH RATES</th>
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<tr>
<td>American Cockroach</td>
<td>Apply 2 spots x 0.03 gr per m²</td>
<td>Apply 3 spots x 0.03 gr per m²</td>
</tr>
<tr>
<td>German Cockroach</td>
<td>Apply 1 spot x 0.03 gr per m²</td>
<td>Apply 2 spots x 0.03 gr per m²</td>
</tr>
</tbody>
</table>

The key aspect of cockroach baiting is to ensure that plenty of bait is made available, especially when dealing with serious infestations.
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