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# german cockroaches

**BASF Pest Control Solutions**  
*The Evolution of Better Pest Control*

 **BASF**

The Chemical Company

# The Problem with German Cockroaches

German cockroaches are pervasive, elusive, and prolific. They are also associated with numerous pathogenic organisms, a source of human allergens, and an unsightly prompt for assumptions of poor sanitation. Obviously, their presence anywhere food is processed, stored, or served is unacceptable.

Controlling German cockroaches in these environments, however, can prove quite challenging. They travel easily on deliveries, reproduce quickly, and prefer to live inside difficult to access cracks, crevices and voids. In addition, some German cockroach strains are resistant to some common insecticides, and others have developed feeding aversions to some bait formulations.

These challenges are compounded by common control methods that employ inadequate inspection and over-reliance on a single product or application method. Clearly, the time has come for a smarter solution for controlling German cockroaches.

# The SmartSolution for German Cockroaches

The SmartSolution for German Cockroaches from BASF Pest Control Solutions is based on the latest research, the Prescription Treatment® IPM approach, and cutting-edge products and strategies to overcome bait aversion, chemical resistance and other control issues.

This guide focuses on the inspection and control of German cockroaches in the complex environment of a commercial kitchen. It details how you can achieve superior and dependable German cockroach control with a “focus-zone”-based inspection approach and the right combination of fast-acting and long-lasting insecticides.



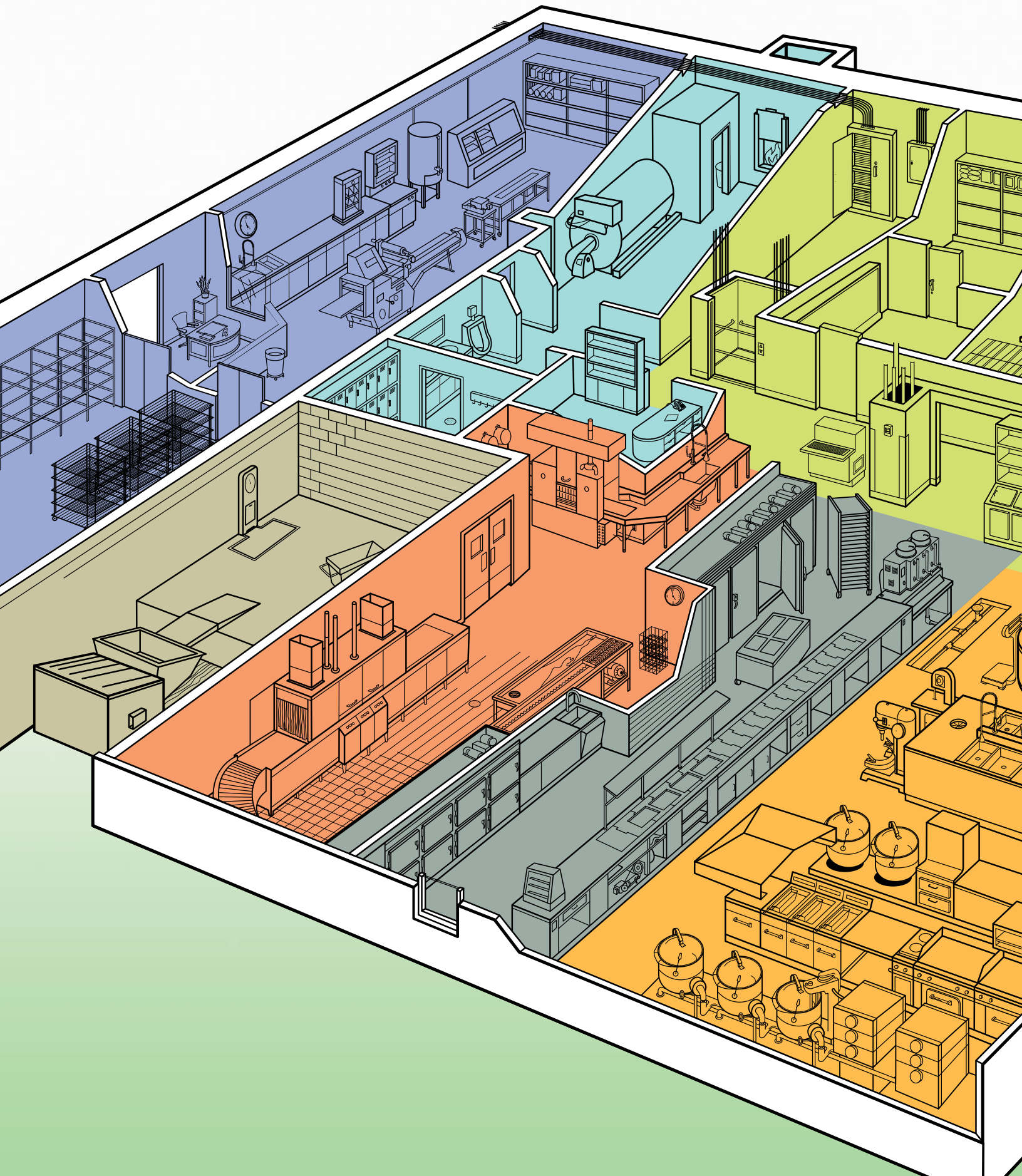
## “Focus-zone”-based Inspection and Service

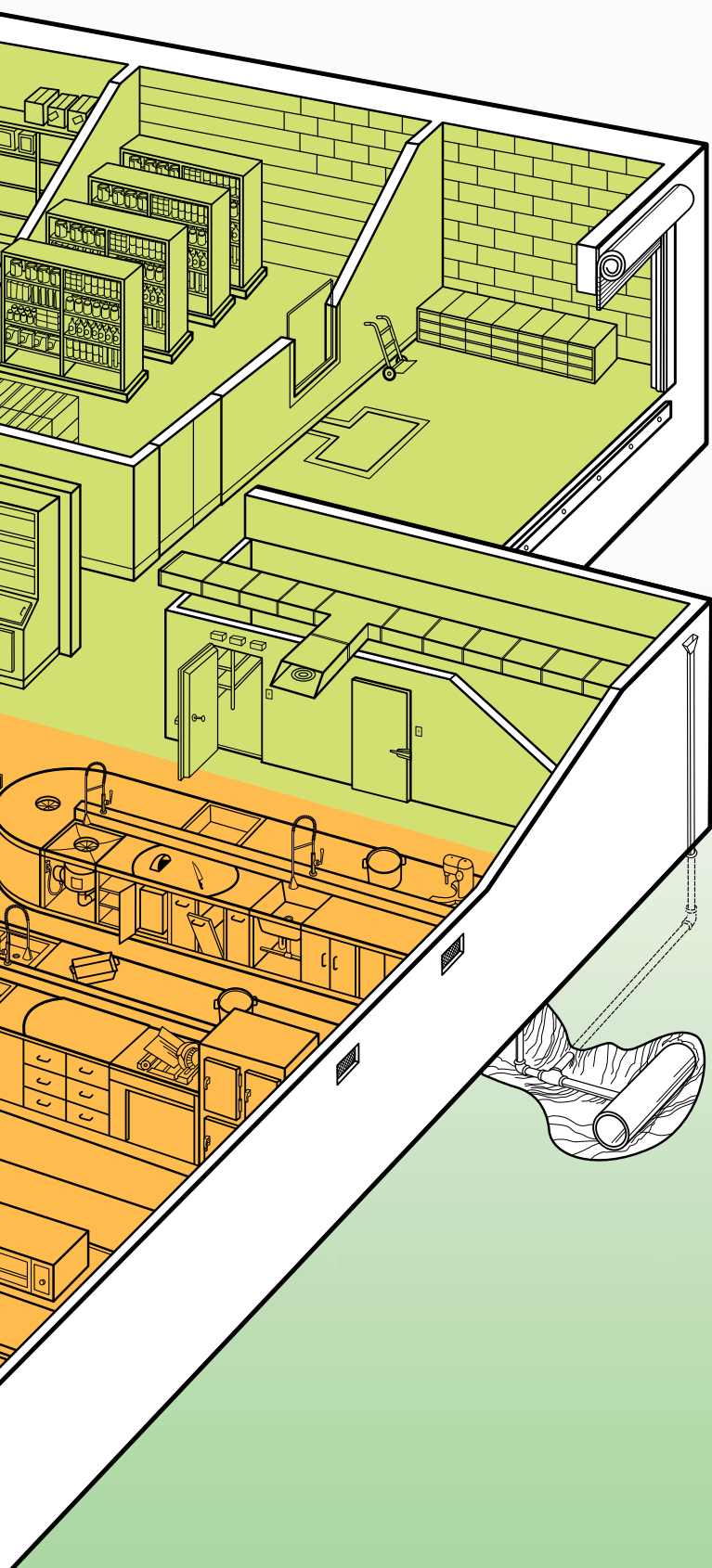


Commercial kitchens are complex and dynamic environments, often with multiple sanitation issues and an abundance of harborages and food and water sources for cockroaches to exploit. Considering all of the possible harborages where cockroaches may live, even small facilities can be overwhelming. Trying to service an entire facility during each visit can lure the technician down a road of inspecting and treating only easily accessible areas and surfaces, leaving deep harborages untended.

One way to resolve this problem is to employ a focus-zone-based approach during each visit:

- Divide the account into manageable focus zones. These are limited areas, which can be thoroughly inspected or treated in a single visit.
- Focus service efforts on the micro-habitats where roaches are most likely to live within each zone.
- Determine the products and application techniques most suitable for each micro-habitat.
- Rotate the zones being focused on each service.
- When performing initial clean-out service to control active conditions facility-wide, you might want to assign multiple technicians to cover all zones.





## Divide a complex facility into manageable “focus zones”

Cockroaches are reclusive, spending the majority of their time in protected places such as cracks and crevices or voids. The more hidden and inaccessible the site, the more likely cockroaches are to build up their population undisturbed by the day-to-day operation of the facility. Accordingly, these locations, usually in abundance in commercial food establishments, should be the target of enhanced scrutiny and service efforts.

The challenge is making the time to find them, inspect them and, if necessary, treat them—a challenge which can easily become insurmountable when trying to cover an entire facility in a single visit. By limiting the scope of focus during each inspection, on the other hand, a technician can get down on hands and knees, climb behind equipment, go into places and get into things that are often ignored by facility employees. Dividing a facility into focus zones is a good way to manage time and “leave no stone unturned” when inspecting for cockroaches—a critical first step to controlling roaches.

- food packaging zone
- utility zone
- disposal zone
- dishwashing zone
- food receiving and storage zone
- food assembly zone
- food preparation zone

# Avoid Over-Reliance, Chemical Resistance, and Bait Aversion

Every cockroach control product is designed with unique attributes that makes it effective. Each formulation and active ingredient has strengths and limitations. Relying too heavily on a single product leaves control efforts vulnerable to the limitations of that product. This can result in call-backs, dissatisfied customers and ultimately lost business. You can avoid this fate by choosing different products specifically formulated for spot treatments, void treatments, or Crack & Crevice® treatments.

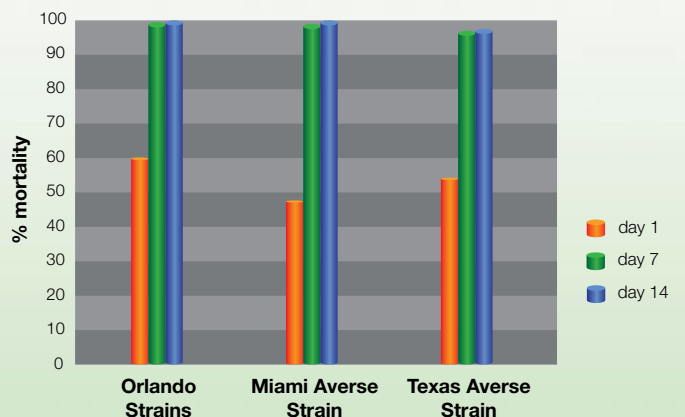
Because some German cockroach strains have demonstrated resistance to certain common insecticides and feeding aversions to some bait formulations, a sound chemical resistance and bait aversion management plan should also be a part of your product selection and rotation strategy. The Prescription Treatment approach in the SmartSolution for German Cockroaches is based on the principal that each situation should be considered independently with the best product prescribed for a given treatment site. These products can be broken into three broad categories: baits, contact insecticides, and residual insecticides, the formulations of each playing an equally important role.

## Baits

It's easy to see why gel baits have become so popular with technicians. They are convenient to apply to easily accessible, shallow cracks, little or no preparation is required, and there are no significant odor or exposure issues to disrupt the client during service. Unfortunately, some strains of cockroaches have been found to exhibit feeding aversion to some gel matrices. This challenge can be greatly diminished or eliminated by rotating baits that contain different food matrices every three to six months.

Two excellent gel bait choices are Prescription Treatment® brand **Advance**® Cockroach Gel Bait and Prescription Treatment® brand **Alpine**® Cockroach Gel Bait. Each has its own unique matrix proven attractive to German cockroaches, even strains associated with feeding aversion to some other gels. Both products include the active ingredient dinotefuran, which delivers quick-killing, long-lasting performance. Additionally, dinotefuran has been granted Reduced Risk status by the EPA for public health use. **Alpine** Cockroach Gel Bait has the added advantage of being free of any of the Big 8 allergens in its matrix, which is extremely important in some sensitive accounts.

German Cockroach Mortality Caused by Alpine Cockroach Gel Bait (choice test)



Date: 11/2009, Dangsheng Liang, Ph.D., Apex Bait Technologies, Inc., 309 Laurelwood Rd., Unit #18-2, Santa Clara, CA 95054, Report Number: 1505

You can bait deep cracks or voids exceptionally well with Prescription Treatment® brand **Avert**® Dry Flowable Cockroach Bait Formula 1. Its unique dry food matrix flows deep into these harborages, where it remains attractive and active for extended periods. Cockroaches are exposed to its active ingredient, abamectin, when they eat the attractive matrix or groom themselves after tracking through **Avert** Dry Flowable deposits.

Using this combination of gel and dry flowable baits combines the advantages each offers, providing a powerful one-two punch for shallow cracks and deep voids.



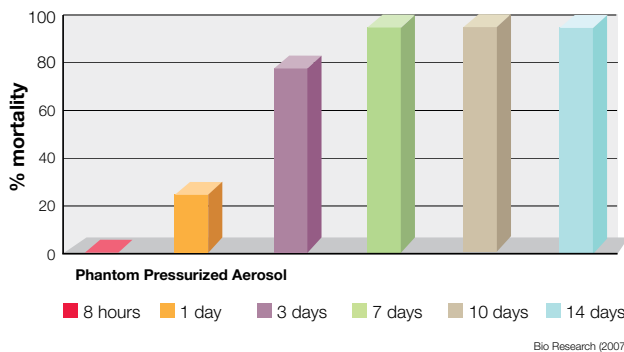
## Residual Insecticides

Dilutable residual concentrates delivered through a compressed air sprayer play an important role in protecting exposed surfaces (spots) on which cockroaches are likely to travel. These surfaces are commonly found in delivery areas, locker rooms, and other cockroach introduction locations. They are also useful in places where other formulations are difficult to apply, such as behind or beneath stationary equipment.

**Phantom**® termiticide-insecticide and Prescription Treatment® brand **Cy-Kick**® CS are two superior choices. Both products are designed to hold up under the tough conditions within food facilities. **Cy-Kick** CS has the advantage of being fast acting for quick knockdown. **Phantom**, with its nonrepellent formulation, won't interfere with bait placements on or around the treated spot, and its active ingredient, chlorfenapyr, is proven effective on pyrethroid-resistant cockroaches. Again, periodically rotating these products is recommended.

### Phantom® Provides Excellent Long-Term Control on Tough Surfaces:

German cockroaches (5 ea. adults and nymphs per replicate) placed on porous wood substrate (deposits aged 60 days) for 6 hours, transferred to sterile arenas and observed for mortality



Using pressurized residual products for long-term control in cracks and crevices revolutionized the cockroach control strategy and remains a leading approach today. Precise applications delivering deposits of Prescription Treatment® brand **Phantom**® Pressurized Insecticide or Prescription Treatment® brand **Cy-Kick**® Crack & Crevice® Pressurized Residual into the cracks and crevices where cockroaches are most likely to spend time is an efficient use of time and material. **Cy-Kick** Pressurized brings with it extremely fast knockdown, low odor and a proven track record as a high-performance, long-lasting go-to product. **Phantom** Pressurized is known for its long-lasting effectiveness even on harsh surfaces. And because it is a nonrepellent, it will not scatter roaches during a treatment and/or disrupt cockroach feeding behavior should bait placements be nearby. Rotate these products periodically for best performance.

### Phantom First Approach

For the perfect combination of quick control and long-lasting results, try using nonrepellent **Phantom** and Prescription Treatment® brand **Alpine**® Cockroach Gel Bait together.

- First apply a residual treatment of Phantom in all suspected harborage areas
- Then apply **Alpine** Cockroach Gel Bait in areas when you find signs of active cockroaches
- **Phantom** will not repel roaches from the bait applications and it is labeled for food-handling areas
- **Phantom's** long lasting qualities make it an ideal complement to fast-acting baits

Dust formulations can be a good choice for void treatments due to their stable, long-lasting nature and ability to flow and coat the inner surfaces of voids, particularly large voids or voids where moisture renders other options ineffective. Prescription Treatment® brand **Perma-Dust**® Pressurized Boric Acid Dust offers an extremely stable, long-lasting nonrepellent formulation while Prescription Treatment® brand **Tri-Die**® Pressurized Silica + Pyrethrum Dust Formula 1 is fast-acting, highly repellent, and controls cockroaches for a long time.

## Contact Insecticides

Prescription Treatment® brand **P.I.**® Contact Insecticide Formula 1 and Prescription Treatment® brand **565 Plus XLO**® Formula 2 are useful as flushing agents during the inspection to identify harborages that contain cockroach infestations. These products are most useful when applied into cracks and crevices or voids. Pyrethrins, the botanical active ingredient in these products, is extremely repellent to cockroaches, which causes them to evacuate their harborages quickly after product application.

**P.I.** and **565 Plus XLO** have very short active lives, so once infested harborages have been identified, other treatment options can be applied soon afterward without concern of compromised effectiveness.

# SmartSolution for German Cockroach Pressurized Insecticides Work Smarter with System III®



The unique **System III**® makes the Prescription Treatment® brand pressurized insecticides in the **SmartSolution for German Cockroaches** more practical and cost effective. It optimizes the flow of product for precise, controllable applications into cockroach harborage areas. Additionally, it extends the usability of these pressurized insecticides by up to 67 percent. In short, it makes them work smarter.

It helps your technicians work smarter, too, with features like a small applicator and long, coiled hose, a belt-mounted system for convenient carrying, and a modern look and design that reflects professional pest control to customers.



## smart science + smart support = smartsolutions

As always, BASF Pest Control Solutions is committed to giving you everything you need to tackle your toughest pest control challenges—not just in terms of products, but in terms of expertise and support as well.

You can always find helpful information, training, homeowner marketing support, and more at [PestControl.basf.us](http://PestControl.basf.us).

This **SmartSolution for German Cockroaches** is just one of many BASF SmartSolutions that address the pest control challenges and issues that have the greatest impact on our industry and the success of your business. To learn about additional SmartSolutions for termites, ants, bed bugs, rodents, or occasional invaders, visit [PestControl.basf.us](http://PestControl.basf.us) or contact your BASF Pest Control Solutions sales specialist.



## The Prescription Treatment® Approach

*BASF Pest Control Solutions believes a sound Integrated Pest Management strategy is the cornerstone of successful pest control and good stewardship. Our five-step Prescription Treatment® approach includes the core IPM practices you should always employ in conjunction with any BASF SmartSolution.*

- 1 Inspect** to gather the information that leads to good decisions.
- 2 Prescribe** a treatment strategy to achieve specific goals in the account.
- 3 Communicate** with the client to promote cooperation, establish expectations, and convey value.
- 4 Treat** using effective techniques and materials that support the strategy.
- 5 Follow up** to assess results.