

Cimi-Shield™

Non-Chemical Bed Bug Eliminator with 12-Month Residual

**TECHNICAL
BULLETIN**

For Pest Management Professionals



Technical Bulletin

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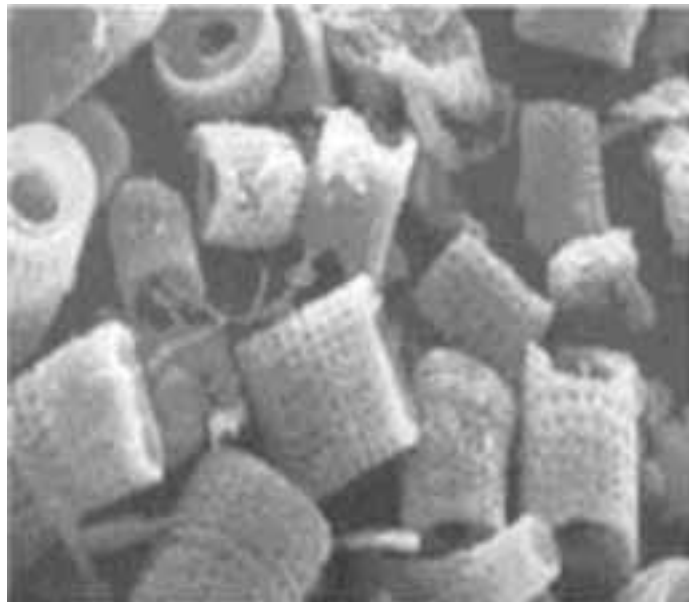
How Cimi-Shield™ Works

Cimi-Shield is a liquid sprayed from a pump sprayer. It “mechanically” removes the waxy layer, which causes the internal fluid in the bed bug to evaporate in just a few minutes. In addition to the kill, porous carriers are incorporated in the formula to provide for residual. Jagged edged barrel-like porous carriers, only 10 microns across, act as reservoirs that become enmeshed in the fabrics and textiles in the treated areas. When nymphs hatch or adults emerge from hidden harborages or are re-introduced, they begin to crawl and disturb the porous carrier particles. The disturbance causes the reservoired active to spill out which causes the kill. This process is effective against all known strains of bed bugs.

Because this is a mechanical process, there is no known resistance to Cimi-Shield.

Why is Cimi-Shield Delivered in a Plastic Bag?
Cimi-Shield is packaged as a concentrated liquid in a durable, pressure tested plastic bag. As the product sits it separates into liquid and mud substances. It must be mixed back into a liquid (by rolling the product back and forth in the bag) before it can be mixed with distilled water; this insures that none of the material is left behind.

This packaging also allows it to be shipped by air freight without the risk of leaking.



Porous carriers, only 10 microns across, hold the residual for up to twelve months.



Cimi-Shield’s ingredients are GRAS (Generally Regarded as Safe). The product is exempt from EPA registration under FIFRA 25(b), (Federal Insecticide, Fungicide and Rodenticide Act).

Active Ingredient:	
Soybean Oil	4.78%
Other Ingredients:	
Water	43.46
Calcium Silicate	12.57
Aluminum Sodium Silicate	9.22
Iron Oxide	7.18
Sodium Sulfate	7.04
Magnesium Silicate	6.96
Potassium Sulfate	4.01
Sodium Benzoate	4.78
(as a preservative)	
Total	100.00 %

Cimi-Shield™ Fast Facts

A FIFRA 25(b) solution that kills bed-bugs and other similar insects (such as cockroaches, ants, millipedes, carpet beetles, silverfish, fleas, ticks) on contact, and leaves a residual on fabrics and fibers that will continue killing for up to one full year.

Cimi-Shield Knock-Out » For Current Infestations **Cimi-Shield Protect » To Protect Against Future Activity** *See following page*

FEATURES AND BENEFITS

- When applied directly to the pest, adults and nymphs are killed in just a few minutes.
- 12-Month Residual - When applied to fabrics (including bedding, carpets, furniture, drapes) and cracks & crevices, Cimi-Shield's residual will kill bed bugs for up to a full year if undisturbed (see data on pg. 8).
- Cimi-Shield is FIFRA 25 (b), GRAS (generally regarded as safe).
- No odor, staining properties are the same as water.
- UV tracer makes it easy to determine where it's been applied (yields a sparkle under a black light).
- Cimi-Shield kills mechanically. The waxy outer layer of the bed bug is actually removed. Other techniques generally interfere with metabolic body functions.
- Evolutionary resistance has made some bugs immune to chemical, non-mechanical killers. There is no known resistance to Cimi-Shield.
- Other treatments may not kill all of the adults, nymphs and eggs, and don't leave a residual. Cimi-Shield keeps working well after the application has been made, greatly reducing call-backs. Note: It is only effective long-term on fabrics and fibers, and in cracks and crevices, not hard flat surfaces like tile.

TECHNICAL

- Cimi-Shield Knock-Out is ideal for active infestations (12 month residual)
- Cimi-Shield Protect will prevent future infestations for 12 months
- Cimi-Shield is delivered as 6 ounces of liquid that mixes with distilled water to make a full gallon.
- One gallon protects 1,200 square feet of fabric or carpet.
- Cimi-Shield's active ingredient is Residulen, derived from soybean oil.
- Must be used in a new, clean sprayer without a filter. Soap & other pesticide residue will damage the product.
- The product has a two-year shelf life (shake vigorously before use).
- Do not freeze or exceed 140° F.
- Do not tank mix with other products

Two Versions of Cimi-Shield™

Cimi-Shield Knock-Out » For Current Infestations
Cimi-Shield Protect » To Protect Against Future Introductions

Knock-Out - Current infestations demand an aggressive approach:

- Bugs need to be killed on contact
- A large number of eggs may hatch in the weeks after a treatment, and Cimi-Shield will be tested by hundreds, maybe thousands of nymphs

Protect - Future problems will not start as an infestation, but as one or two bed bugs introduced to a specific location:

- The product will not be expected to kill hundreds of bugs on contact
- The residual in cracks and crevices, and fabrics, will kill any bed bugs that are introduced once they come in contact with the particles.
- Add a residual “top dressing” to heat or cold treatments

A Blended Approach

In a hotel, or apartment building, the units currently impacted, and the ones in a “star” pattern, should be treated with “Knock-Out.”

Clean units away from the infestation should be treated with “Protect.”

What's the Difference between the two?

Knock-Out is over saturated with the active ingredient for a quick knock down.

Protect contains the right amount of active to fill the porous carriers for long term protection. It features less of the active ingredient, and therefore provides a cost savings.

Cimi-Shield Knock-Out - \$199 for 6 oz. concentrate (makes one finished gallon)

Cimi-Shield Protect - \$169 for 6 oz. concentrate (makes one finished gallon)

Pest Management Professional - Frequently Asked Questions

Q. Do I need any special equipment?

A. We recommend a simple hand pump type sprayer (like a B&G) that has never been used and will be dedicated only to Cimi-Shield use. Contact with other chemicals or chemical residue will neutralize Cimi-Shield. To prep the sprayer, flush the tank and hose line with distilled water and remove all filters and screens. To clean up, flush with distilled water **ONLY**.

Cimi-Shield is temperature sensitive and needs to be stored in a controlled climate.

Q. Can I tank mix other products such as IGRs with Cimi-Shield?

A. No. Cimi-Shield will be neutralized by the other materials in the tank. Cimi-Shield is very sensitive to contact with other chemicals including soaps, surfactants, IGRs hard water deposits, etc. Mix only with distilled water. It is essential that surfaces to be treated are completely dry before application.

Q. Is Cimi-Shield safe for all surfaces?

A. Cimi-Shield is safe for all surfaces, but not all surfaces are appropriate for treatment. On hard, smooth surfaces, Cimi-Shield has a “tiling” effect which allows the bed bug to walk over treated areas without making essential abdominal contact. Cimi-Shield is designed for textile and crack and crevice treatment and resists vigorous vacuuming for up to 12 months. Laundering and shampooing will remove the application.

Q. What is the prep work required for treatment?

A. Cimi-Shield works best in sites with regular sanitation—hotel rooms, dressing rooms, out patient areas of health care facilities and theaters are just a few examples. As with any bed bug treatment, if clutter accumulates in front of treated areas, the bugs will settle into the clutter and never reach the treated area. Areas to be treated should be thoroughly vacuumed, then any desired cleaning process (washing, shampooing, etc) and allowed to dry completely. Drapes, furniture, wheel chairs, mattresses etc. need an especially thorough vacuuming before spraying with Cimi-Shield. After treatment, sometimes a white powdery residue will appear. It is harmless and easily wiped away with a dry car mitt (found in auto stores).

Q. I use heat/Cryonite treatments—how does Cimi-Shield fit into my program?

A. Cimi-Shield Protect is the ideal top dressing after a temperature treatment. The non-toxic, odorless residual continues to safeguard your customer for up to 12 months.



This same technology is also effective in the elimination and prevention of other morphologically similar pests such as German and American cockroaches, fleas, ticks, silverfish, carpet beetles, centipedes and millipedes.

PMP Testimonials

“My customer had several previous pest control professionals, including the “name brands” try to get rid of bed bug infestation from their shelter facility. I use Cimi-Shield exclusively. My customer said I was his hero.”

*Dennis O'Rourke. Owner/Operator
Outside in Pest Control, Florida*

“With Cimi-Shield we get call backs we like - repeat business, not retreat demands. I hope my competitors don't find out about Cimi-Shield.”

*Bob Lee, Owner/Operator
Enviro Safe Pest Control, Prescott, Arizona*

“We service a kidney dialysis facility where critically ill (and often elderly) patients are transported in daily from other facilities or residences. Along with other patients, there was a daily influx of bed bugs. We needed not only an effective green treatment, but a nontoxic residual as well. Cimi-Shield solved the problem and there have been no call backs or recurrence.

We have used the product in homes, hotel rooms and apartments with equal success. The fact that the product is green, nontoxic and effective makes it an ideal choice for a broad spectrum of applications without worrying about potential harm to humans, animals or the environment. The year-long residual reduces callbacks and gives our clients peace of mind.”

*William V. Hill, President
P.M.P. Management Services (Orkin franchisee, Florida)*

Cost and Pricing

Cost/Gallon	Univar Part #	Yield	Per Sq. Ft	Cost to treat average hotel room
<i>Knock-Out</i> \$199 (6 oz concentrate that makes a full gallon)	805312	1,200 sq. ft	\$0.16	\$50 - \$70
<i>Protect</i> \$169 (6 oz concentrate that makes a full gallon)	805311	1,200 sq. ft	\$0.14	\$40 - \$60

Areas to treat:

- Mattress, box spring and bed frame
- Carpet under bed and furniture
- Infested furniture (couches and chairs)
- Cracks and crevices
- Drawer and cabinet seams/cracks
- Carpeting around perimeter of room
- Anywhere live bed bugs are detected

How Cimi-Shield™ Fits the PMP Business

Cimi-Shield is truly unique, and can fit into your business in a variety of different ways:

1. Protect a clean site against future bed bug introduction (Cimi Shield Protect).

Consider hotel and hospital rooms, dormitories, etc. Treat rooms near infestations.

2. Use alone to remove an infestation in a controlled setting like hotel rooms (Cimi Shield Knock-Out).

Charge based on cost of material and labor.

3. Use as a top dressing for heat, cold or other approaches (Cimi Shield Protect).

These treatments work, but there's nothing to protect against a reinfestation, or if eggs hatch.

Include the service into the total proposal, and offer a guarantee. Consider adding a percentage to the total price to cover the Cimi Shield application.

Not too Hot. Not too Cold.

Cimi-Shield must not freeze or exceed 140 degrees F.

A Dedicated Sprayer

Cimi-Shield must be used in a brand new pump sprayer. Contamination from soaps or other pesticides will damage the active ingredient.

Ideal applications for Cimi Shield

- College dormitories
- Hotel rooms
- Nursing homes
- Hospitals
- Theatres
- Airliners
- Busses
- Trains
- Single family houses
- Apartments
- Cruise ships
- Retail and dressing rooms
- Moving vans

Introduction vs. Infestation

An introduction is where one or two bed bugs leave a travelers suitcase (or a patient's wheelchair) in a clean room, perhaps including a pregnant female. If these few pests die early, from contact with Cimi-Shield, then an infestation is averted.

An infestation is a population of bed bugs that have been living and breeding unchecked for some period of time. They are inside mattresses, box springs, furniture, wall voids, radios, TVs, and behind pictures. Maybe even out in plain sight on the floor, walls or ceiling.

Cimi-Shield™ Data

Cimi-Shield » Efficacy Studies Summaries:

Overview –

This summary is drawn from five (5) studies that first began in February 2009 with the last being completed in January 2012. Three of the five studies are lab tests. Two studies are field tests conducted at two (2) separate locations over a twelve-month period with one of the two studies a follow-up test at one of the field locations to test residual lethality where Cimi-Shield had been applied one year previous.

Each study attempted to determine the truth of a specific hypothesis and was intended to answer certain questions about the product's proper regulatory classification and performance capability. All of the studies were independently performed by the American Academy of Entomological Science and each is certified by the Academy's director, Dr. Jeffrey K. Brown, Ph.D., R.P.E., B.C.E. (see more at the end of the report).

Efficacy is understood to mean that the products produce the results provided for in their label when applied according to label directions and that it is at the same time in conformity to all applicable US Environmental Protection Agency regulations.

A copy of any report will be provided upon request. When asking for a copy of the report, please indicate the report by its "date" and provide your email address.

I. Report of Feb. 9, 2009 - The Questions to be Resolved where:

A) Do the products comply with applicable FIFRA (Federal Insecticide, Fungicide and Rodenticide Act) regulation's Section 25(b) being of "minimal risk inert ingredients as referred to as '4A' under Pesticide Registration Notice 2000-6"? In addition, is the active ingredient compliant with 40 CFR section 152.25(g) of Title 40, a Generally Recognized As Safe (GRAS) ingredient?

In order that these questions are answered, Pest Barrier (Cimi-Shield) provided quantities of all active and inactive ingredients for analysis. The ingredients were then combined according to proprietary formula and again analyzed to determine if in combination the formed element remained in conformity.

The test concluded that it did.

"... elements are exempt under EPA regulation commonly referred to as 25(b) and are found on a list of elements commonly referred to as the '4A List' and are Generally Recognized As Safe (GRAS)."

"I have combined each of these elements according to the instructions and formula that have been provided. These elements retain their chemical integrity in combination and do not combine to form any subsequent element that would not be Generally Recognized As Safe (GRAS). Or that does not comport with USDA 21 CFR 178.3400, Parts 182 and 184 as exempt food grade proteins."

B) When used according to label directions is the product lethal to the insect pests specified?

Following label directions it was applied to "...wild strains of house flies, *Musca domestica*, peri-domestic American cockroaches, *Periplaneta americana*, and ants of the family Formicidae, of which we observed 100% mortality within 2 minutes with house flies, within 5-10 minutes with American cockroaches depending on life stage (adult females took longer to cause mortality) and within 5 minutes with ants. Bed Bugs, *Cimex lectularius*, 100% mortality within 5-10 minutes depending on life stage."

C) Does the product provide illumination under black light where applied?

Samples were sprayed and left to dry in ambient temperature "...the following was observed with 100 lumen 350 nm black light in a darkened room: each sample of painted plywood, raw plywood, ceramic tile, carpet, cotton fabric, and glass exhibited a glowing of the residual left behind on the test substrates."

II. Report of March 14th, 2009 – The Questions to be Resolved were:

A) Will the Academy Certify that the product is nontoxic to mammals, of no harm to the environment and lethal to the identified target insects?"

"It is nontoxic to mammals. It is not harmful to the environment. It is lethal as to the identified target insects."

B) To what specific insect pests does this Certification apply?

"This Report is limited in its scope to the target insects which are identified as *Cimex lectularius* (Bed Bug), *Periplaneta americana* (American Cockroach), *Blatella germanica* (German cockroach), *Ctenocephalis felis* (fleas), Diplopoda (Millepede), Chiopoda (Centipede), Lepisma (Silversfish), and Formicidae (Ants)."

C) Is the Material Safety Data Sheet (MSDS) form accurate?

“...all ingredients in your product are safe and non-toxic to humans and other animals as explained in your Material Safety Data Sheet (MSDS).”

D) Is the product qualified as “Exempt” under current EPA regulations and will therefore not require registration?

“In our estimation your product will not need EPA registration as all of your components are presently categorized as exempt and there are no restrictions as to means of transport under DOT regulations.”

E) Upon what standards does the Academy base its Certification?

“The Academy’s Certification, this report and our conclusions are based upon (1) theory and technique that can or has been tested; (2) theory and technique that has been subjected to peer review; (3) a known or potential rate or error; (4) the existence and maintenance of standards controlling the technique’s operation; and (5) general acceptance in the scientific community. As you have provided the raw components of your product together with your proprietary instructions as to the method and conditions of combination of components whose chemistry is already familiar to us, we have completed our evaluation according those portions of the GLP’s as are appropriate and necessary.”

III. Report of July 23rd, 2010 – The Question to be Resolved was:

A) Because 50% of infestation is in the form of hidden and untreated eggs what is the effect of residual lethality on emergent nymphs and instars?

“Nymphs mortality was observed at between one (1) to two (2) hours; first and second instar nymph mortality at sixty (60) % within 1.5 hours after exposure. Fifth instar nymph and adult mortality were observed between four (4) to six (6) hours after exposure; fifty (50) % within 4.5 hours.”

IV. Report of November 10th, 2011 – Field Study of One (1) Year

This report consisted of a single treatment at each of two (2) public facilities, one a public museum, designated “Facility A” and the other a private commercially operated hospitality facility, designated “Facility B.”

Both facilities had been previously treated with conventional toxins by licensed pest control operators.

Control was not achieved by these standard methods. Facility A continued to be infested with Dermestidae *Anthrenus spp.*, carpet beetles and Facility B continued to be infested with *Cimex lectularius*, bed bugs.

Approximately six months after these unsuccessful applications the Academy oversaw the testing reported.

Application was made according to label directions and the sites were monitored for a period of one (1) year with periodic monthly reporting.

The Questions to be Resolved were:

A) Did application provide control?

“Cimi-Shield was effective against carpet beetles, *Anthrenus spp.*, and bed bugs, *Cimex lectularius*. When spraying bed bugs with the test substance Cimi-Shield knock down was completed as to all visually observable bed bugs in the treated area. Cimi-Shield was also a successful killing agent to the extent that the treated area remained materially free of carpet beetles and bed bugs for the subsequent eleven (11) months.”

“Immediately following application at Facility ‘A’ the carpet beetles were observed for knockdown. Follow up observations and collections were completed at intervals of 0.5 hours, 1.0 hours, 24 hours, 48 hours, one month and every subsequent month for the next twelve (12) months.”

“Immediately following application at Facility ‘B’ the bed bugs were observed for knockdown. Follow up observations and collections were completed at intervals of 0.5 hours, 1.0 hours, 24 hours, 48 hours, one month and every subsequent month for the next twelve (12) months.”

B) Did the U.V. markers continue to be observable?

“After 1.0 hours UV marker was observed with 350 nm ultra violet black light.” UV marker continued to be observed with 350 nm ultra-black light.”

C) Were the Facilities subject to continued invasion?

“The noted periodic inspections of the facility (Facility A) and insect traps revealed that some adults continued to ‘invade’ the facility as it was not sealed to the outside.”

“Facility B continued in commercial operation and was subject to periodic use by guests and was serviced according to the regular daily housekeeping services.”

D) Was there evidence of residual lethality?

“Carcasses gave evidence of residual kill at each subsequent periodic monthly inspection.”

E) Was there material re-infestation?

“No material re-infestation has been revealed in any subsequent periodic monthly inspection.”

“The failure to adequately seal Facility ‘A’ permits ingress of carpet beetles where the residual agent of CIMI-SHIELD as seen under black light has continued to provide evidence of its lethality as carcasses are observed and most heavily concentrated in areas closest to poorly sealed or unsealed thresholds and around door casings.”

“There were no reports by guests at field Facility ‘B’ of any evidence of infestation in the periods between the 24 hour intervals of periodic inspection in treated areas for twelve (12) months.”

“As to Facility ‘A’, Cimi-Shield was immediately effective against carpet beetles, *Anthrenus spp.*, and remained effective over the next twelve (12) months to the extent that no further material infestation was present.”

“As to Facility ‘B’, Cimi-Shield was immediately effective against bed bugs, *Cimex lectularius*, and remained effective over the next twelve (12) months to the extent that no further material infestation was present.”

F) Was any odor present in any treated area, did any stains appear or were there any signs that application had caused damage or spotting?

“No odor was present, no stains or damage to any materials was observed.”

G) In how many rooms at Facility B was the product tested and were records kept of the periodic inspections of those rooms?

Twenty (20) guest rooms were selected. Of these eleven (11) were known to have current infestation and nine (9) uninfested guest rooms shared common walls with the infested rooms.

Table 1 (Hospitality Facility) provides a twelve (12) month record as regards the treatment and inspection of these rooms. Cimi-Shield was used as to infested rooms and Cimi-Protect, the preventive formula, a derivative of Cimi-Shield, was used as to the neighboring but infested rooms. (Table 1 is attached to this Summary)

V. Report of January 30th, 2012 - Field Study of One (1) Year Follow up

The Question to be Resolved is:

A) Is there residual efficacy twelve (12) months after application

upon re-introduced bed bugs?

Rooms at Facility ‘B’, the commercially hotel/motel facility were divided into two groups, Group A and Group B.

“Group ‘A’ consists of rooms previously treated... Group ‘B’ are the untreated rooms, not part of the prior project and with no prior report of infestation.”

“Rooms in both Groups remained in continuous service and have subjected to regular housekeeping and inspection, including periodic bed bug dog inspection”

“Room 1 was randomly chosen from Group ‘A,’ the previously treated rooms.”

“As to Room 1 from Group ‘A’, having been previously treated with Cimi-Shield and where UV light confirmed sufficient residual element still in place and having had no intervening treatments or material occurrence of infestation Cimi-Shield was proven effective against re-introduced bed bugs, *Cimex lectularius*, where treatment had occurred more than twelve (12) months previous.” (See Table 2 attached to this Summary)

Studies Performed By:
American Academy of Entomological Sciences
Dr. Jeffrey K. Brown, Ph.D., R.P.E., B.C.E.
P. O. Box 2503 Ridgeland, MS 39158
www.entomologyacademy.com

Jeffrey Brown received his B.S. in Vertebrate Zoology with a minor Wildlife Disease and Zoo Medicine and Ph.D. in Medical Entomology (minor in public health) from the University of California, Davis and his M.B.A. from Central Michigan University.

Dr. Brown spent three years as executive Director of the American Sanitation Institute where he directed a 30-person work force of sanitarians that addressed public health issues, problems and solutions to bring food manufacturers into compliance in the food processing industry.

Dr. Brown has completed over 1,000 consults; and developed the only in house insect and rodent clean out system allowed by the FDA in Atlanta, Georgia and defended a \$350 million company which has been seized by Federal Marshals.

He moved to Wisconsin where he was the Director of Technical Development for S. C. Johnson Wax. With the help of his team they developed and launched the Vector Electronic Fly Trap that spawned a new market segment for Johnson Wax.

Dr. Brown is currently Bureau Director and State Medical Entomologist in the Health Department for the State of Mississippi and Director General of the American Academy of Entomological Sciences. The academy's team of scientists performs contract research on insect species of public health importance.

Dr. Brown has been brought into Cairo, Egypt to address the Government, Military, Hospitality and Food industries on bed bug biology, ecology, and most importantly control. He will be presenting to the government of the United Arab Emirates in Dubai and Abu Dhabi and in Saudi Arabia, Morocco, and Turkey on bed bug control in the spring of 2013. Dr. Brown is a leading proponent of safe, non-toxic, green but effective bed bug and other insect control methods and the Academy has just finished donating their time to treat the Homeless Shelters for bed bugs in the State of Mississippi using these safe and non-toxic methods.

Table 1 (Hospitality Facility)

Monthly periodic on site monitoring of Bug Dome traps and once a year inspection with trained bed bug dogs physical inspection provide the following:

Room #	Product	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
1	Cimi Knock-Out	M	0	0	0	0	0	0	0	0	0	0
2	Cimi-Protect	0	0	0	0	M	0	0	0	0	0	0
3	Cimi Knock-Out	M	0	0	M	0	0	0	0	0	0	0
4	Cimi Knock-Out	M	0	0	0	0	0	0	0	0	0	0
5	Cimi Knock-Out	M	0	0	0	0	0	0	0	0	0	0
6	Cimi Knock-Out	M	0	0	0	0	0	0	0	0	0	0
7	Cimi-Protect	0	M	0	0	0	0	0	0	0	0	0
8	Cimi-Protect	0	0	0	0	0	0	0	0	0	0	0
9	Cimi-Protect	0	0	0	0	0	0	0	0	0	0	0
10	Cimi-Protect	0	0	0	0	0	0	0	0	0	0	0
11	Cimi-Protect	0	0	0	0	0	0	0	0	0	0	0
12	Cimi Knock-Out	M	0	0	0	0	0	0	0	0	0	0
13	Cimi Knock-Out	M	0	0	0	0	0	0	0	0	0	0
14	Cimi Knock-Out	M	0	0	0	0	0	0	0	0	0	0
15	Cimi Knock-Out	M	0	0	0	0	0	M	0	0	0	0
16	Cimi Knock-Out	M	0	0	0	0	0	0	0	0	0	0
17	Cimi-Protect	0	M	0	0	0	0	0	0	0	0	0
18	Cimi-Protect	0	0	0	0	0	0	0	0	0	0	0
19	Cimi-Protect	0	0	0	0	0	0	0	0	0	0	0
20	Cimi Knock-Out	M	0	0	0	0	0	0	0	0	0	0

L = living
M = moribund
0 = no evidence

Results: Mortality was observed and recorded for the treated and control Room 1 in the following table.

Table 2: Mortality of treated carpeting with Cimi-Shield on bed bugs one (1) year prior to the test versus control.

		Mortality														
Group 'A' Room 1 Treated																
Hour	1	2	3	4	5	6	7	8	9	10	11	12	13			
	0	0	0	0	3*	0	0	0	4	3	2	0	1			
Group 'B' Room 2 Control																
	1**	0	0	0	0	0	0	0	0	0	0	0	0			

*Three (3) nymphs were dead
**We are assuming that the researcher damaged the bed bug with forceps while removing from the travel container before placing in the arena.

Conclusions

The test substance Cimi-Shield Knock-Out was complete as to all visually observable bed bugs in the test area. Cimi-Shield Knock-Out was an effective preventative against bed bugs, *Cimex lectularius*, twelve (12) months after application per label directions.

Material Safety Data Sheet

Product Information:

Trade Name: **Cimi-Shield Knock-Out**
Company Name: Pest Barrier
20925 Chico Street
Carson, CA 90746

Emergency Telephone Numbers:
Day U.S.A. 310-527-8000
Evening U.S.A. 916-362-2933

Basic Hazard Information:

NFPA/HMIHazard Rating
Health: 1 0 - Insignificant
Flammability: 0 1 - Slight
Reactivity: 0 2 - Moderate
3 - High
4 - Extreme

NFPA = National Fire Protection Association
HMIs = Hazardous Materials Information System

SECTION 2: Hazardous Ingredients as Defined in 29 CFR 1910.1200:

Name	CAS Number	Percent	TLV (threshold limit value)	Hazard
None	Not Applicable	Not Applicable	Not Applicable	Not Applicable

SECTION 3: Physical Properties:

Boiling Point:	>100 degrees C (212 degrees F)	Appearance:	Dark grey/white liquid
Freezing Point:	< 0 degrees C (32 degrees F)	Odor:	Non-obnoxious, slight apple
% Volatile (volume):	70 – 75%	Specific Gravity:	1.02 – 1.04
Vapor Pressure:	Same as water	Solubility in water:	moderate
Vapor Density:	Not Applicable	Evaporation Rate:	Same as water

SECTION 4: Fire and Explosion Hazard Data:

Flash Point:	> 200 degrees F	Unusual fire and explosion procedures:	none
Extinguishing media:	Water, CO2, chemical foam	Flammable limits (by volume):	Not Applicable
Special fire fighting procedures:	None		

SECTION 5: Health Hazard Data:

Type of Exposure	Reaction	Emergency and First Aid Procedures
Skin Contact	May cause moderate, temporary irritation.	Rise off with water.
Eye Contact	May cause mild irritation.	Rinse with water. If irritation continues, contact a physician.
Vapor Inhalation	Symptoms might include coughing, wheezing, difficulty breathing and upper respiratory tract irritation.	If symptoms persist, contact a physician.
Ingestion	May cause gastrointestinal irritation with nausea and diarrhea.	If symptoms persist, contact a physician.

SECTION 6: Toxicological Information:

Contains only ingredients that are recognized as safe in food grade applications in accordance with U.S. Food and Drug Administration (FDA) 21 CFR 178.3400 and/or found on the GRAS list, Parts 182 and 184

SECTION 7: Reactivity Data:

Stability: Stable
Hazardous polymerization: Will not occur
Conditions to avoid: Storage in elevated temperatures or direct sunlight for prolonged periods. Do NOT freeze.
Materials to avoid: Strong acid, bases, oxidative agents and quaternary disinfectants can degrade/inactive proteins.
Hazardous decomposition products: Carbon Monoxide, Carbon Dioxide. Oxides of Sulfur (includes Sulfur di and tri oxides).
pH: 4.0 – 4.5

SECTION 8: Spill or Leak Procedures:

Steps to be taken if material is released or spilled: Wash down with water
Waste Disposal method: Flush into sewer system.

SECTION 9: Special Protective Equipment:

Observe Good Housekeeping/Hygiene Practices
Skin: Rubber gloves recommended Ventilation: Not Applicable
Eyes: Safety goggles recommended Other Equipment: Not Applicable
Nose/Mouth: None required

SECTION 10: Special Precautions:

Precautions to be taken in handling and storage: Store in a cool place in closed container.

SECTION 11: Transportation Information:

The U.S. Department of transportation (DOT) shipping label: Not regulated

Disclaimer: This document has been prepared using sources considered technically reliable. It does not constitute a warranty, express or implied, as to the accuracy of the information contained within. Actual conditions of use and handling are beyond the seller's control. User is responsible to evaluate all available information when using the product for any particular use and to comply with all Federal, State, Provincial and Local laws and regulations.

Cimi-Shield™ Knock-Out

With Residulen™

Super Concentrate: Makes 1 Gallon (Contents: 6 oz)

Kills bed bugs, carpet beetles, ants, roaches, fleas, ticks, silverfish, millipedes and centipedes when properly applied. This product is nontoxic to all mammals and does not harm the environment.

Directions: Read "Instructions of Use of Cimi-Shield Knock-Out" carefully before using. Shake well before opening. Pour entire contents into an empty clean filter free spray apparatus of at least one (1) gallon capacity. For each packet of Super Concentrate add *distilled* water for a total of 128 oz. (1) gallon. Shake mixture vigorously before use. This Concentrate has been carefully measured and prepared. DO NOT over dilute. This Concentrate properly mixed will treat a furnished area of approximately 1,200 square feet. See instructions for details on how to apply and confirm proper and uniform diffusion.

Active Ingredient:	
Soybean Oil	4.78%
Other Ingredients:	
Water	43.46
Calcium Silicate	12.57
Aluminum Sodium Silicate	9.22
Iron Oxide	7.18
Sodium Sulfate	7.04
Magnesium Silicate	6.96
Potassium Sulfate	4.01
Sodium Benzoate	4.78
(as a preservative)	
Total	100.00 %

Residulen™ is a Synthesized Soybean Oil.

See back label for more...



Limitation of Liability: Pest Barrier makes no warranties of merchantability, or of fitness for a particular purpose, nor any other express or implied warranty except as stated above. Buyer assumes all responsibility for safety and use not in accordance with label and "Instruction for Use of Cimi-Shield" and precautionary statements.

This product has not been registered by the United States Environmental Protection Agency. Pest Barrier represents that this product qualifies for exemption from registration under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) and is in accord with USDA 21 CFR 178.3400 and/or found on GRAS list, Parts 170 to 199 as containing exempt food grade proteins. Est. No. 87255-CA-001

DO NOT FREEZE Do Not Store at a Temperature greater than 140 degrees

FIRST AID TREATMENT: KEEP OUT OF REACH OF CHILDREN. Avoid skin or eye contact. If eye contact occurs, rinse thoroughly with water for 15 minutes. If irritation persists, seek medical attention. Do not ingest. May cause gastrointestinal irritation with nausea and diarrhea.

Hazard Rating (NFPA/HMIS)		
Health	1	0 = Insignificant
Flammability	0	1 = Slight
Reactivity	0	2 = Moderate
		3 = High
		4 = Extreme

**Mix well before pouring.
Mix with distilled water only.**

Storage: Store at room temperature. Avoid exposure to heat and direct sunlight
The U.S. Department of Transportation (DOT) shipping label: Not regulated.

QUESTIONS OR CONCERNS?
USA: 1-310-527-8000
Made in USA



A Division of Bird Barrier America, Inc.
Carson, CA, USA
310-527-8000, www.pestbarrier.com

Cimi-Shield™ Protect

With Residulen™

Super Concentrate: Makes 1 Gallon (Contents: 6 oz)

Prevents bed bug infestation when properly applied. This product is nontoxic to all mammals and does not harm the environment.

Directions: Read "Instructions for Use of Cimi-Shield Protect" carefully before using. Mix well before opening. Pour entire contents into an empty clean filter free spray apparatus of at least one (1) gallon capacity. Refill this container with *distilled* water and shake vigorously and pour contents into the same container and add distilled water for a total combined mixture of one (1) gallon (128 oz). This Concentrate has been carefully measured and prepared. Do NOT over dilute. This Concentrate properly mixed will treat a furnished area of approximately 1200 square feet. See instructions for details on how to apply and confirm proper and uniform diffusion.

Active Ingredient:	
Soybean Oil	2.38%
Other Ingredients:	
Water	46.50
Calcium Silicate	13.18
Aluminum Sodium Silicate	9.14
Iron Oxide	7.52
Sodium Sulfate	7.38
Magnesium Silicate	7.32
Potassium Sulfate	4.20
Sodium Benzoate	2.38
(as a preservative)	
Total	100.00 %

Residulen™ is a Synthesized Soybean Oil.



Limitation of Liability: Pest Barrier makes no warranties of merchantability, or of fitness for a particular purpose, nor any other express or implied warranty except as stated above. Buyer assumes all responsibility for safety and use not in accordance with label and "Instruction for Use of Cimi-Shield Protect" and precautionary statements.

This product has not been registered by the United States Environmental Protection Agency. Pest Barrier represents that this product qualifies for exemption from registration under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) and is in accord with USDA 21 CFR 178.3400 and/or found on GRAS list, Parts 170 to 199 as containing exempt food grade proteins. Est. No. 87255-CA-001

DO NOT FREEZE Do Not Store at a Temperature greater than 140 degrees

FIRST AID TREATMENT: KEEP OUT OF REACH OF CHILDREN. Avoid skin or eye contact. If eye contact occurs, rinse thoroughly with water for 15 minutes. If irritation persists, seek medical attention. Do not ingest. May cause gastrointestinal irritation with nausea and diarrhea.

Hazard Rating (NFPA/HMIS)		
Health	1	0 = Insignificant
Flammability	0	1 = Slight
Reactivity	0	2 = Moderate
		3 = High
		4 = Extreme

**Mix well before pouring.
Mix with distilled water only.**

Storage: Store at room temperature. Avoid exposure to heat and direct sunlight
The U.S. Department of Transportation (DOT) shipping label: Not regulated.

QUESTIONS OR CONCERNS?
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CIMI-SHIELD KNOCK-OUT and PROTECT Application Instructions

Application Instructions for Cimi-Shield Knock-Out and Cimi-Shield Protect

- Knock-Out is to be used for active infestations
- Protect is to be used to prevent future infestations
- Both products contain the same twelve-month residual

CIMI-SHIELD is nontoxic to all humans and their mammal pets. In rare instances, some people experience a mild drying of their skin when they come in contact with the product. For this reason, we recommend that when you are preparing, the product you follow the safety instructions, wear gloves and avoid direct contact.

Although nontoxic to humans and other mammals, CIMI-SHIELD is deadly to all known strains of bedbugs. When applied as a fan spray, it acts to “digest” the bed bug’s outer waxy layer. It is lethal to the insect that contacts it.

CIMI-SHIELD is expected to be used in close proximity to human habitation and is intended to be applied to textiles and fabrics. Upon drying, it becomes enmeshed in the fibers and leaves a residue that will continue to remain lethal for a year from the date of application. If a new bed bug is introduced to the treated surface, it will be dead in a matter of hours. CIMI-SHIELD is water soluble and neutralized by exposure to detergents and surfactants. Treated areas may be vacuumed, but shampooing and laundering will remove the residue.

CIMI-SHIELD is applied the same way whether it is being used as a preventive, or to knock down an active infestation.

Each step is important. Bed bugs, like most pests, possess innate abilities to survive and propagate. Partnership with your client in this process is essential. Your careful administration of these application instructions will allow you to gain control over the target area eliminating infestation and at the same time protecting the treated area against reinfestation for a year.

Preparing the Target Area: (Please check off each number as completed)

1. Remove all debris from all floors, closets, drawers, shelves, medicine cabinets and any other enclosed areas. Vacuum all accessible areas as thoroughly as possible. For active infestations, this process will reduce the number of eggs and insects and leave a cleaner surface for the application of Cimi-Shield. Vacuum bag and debris should be placed in airtight plastic bags and sealed and placed in trash.

2. Move all furnishings away from all walls to create a space large enough to give you access.

3. Remove all drawers from all furniture having drawers. Place drawers on end or upside down so that the inside of the furniture and the underside of all drawers are exposed and may be sprayed.

4. Remove all cushions and pillows from all chairs and couches. Stage in an area so that they may be sprayed.

5. Close all drapes so that all surface areas are exposed so that they may be sprayed. This can be done last so as to keep the room light.

6. Loosen any headboards, headboard supports, pictures, wall hangings, and any other fixture abutting or attached to any wall or ceiling so that “stream spray” may penetrate the space between these items and the wall or ceiling to which they were attached.

7. Remove all bedding and pillowcases from all beds and bag securely. When emptied place the empty trash bag in the trash. Do NOT reuse.

8. Active Infestations Only - Bedding should be washed and dried separately.

9. Separate the box springs from the mattress so that the entire bed frame, its railings and wheel or support assemblies are exposed. Stand mattress and box springs so that all surfaces may be sprayed. If the box spring has a dust covering on its bottom, carefully cut away with scissors so that the inner surfaces and springs are exposed (place the cover in a plastic trash bag).

10. Fans and forced air units should be turned off while spraying.

11. Any flower arrangements or other décor items should be disassembled and all parts exposed.

12. Active Infestation Only - If the target area contains a kitchen, all contents from the cabinets must be removed so that the interiors of all storage areas are exposed.

13. Active Infestation Only - DO NOT remove any of the furnishings or décor items from the target area as this may spread the infestation.

Treating the Target Area: (Please check off each number as completed)

1. Because CIMI-SHIELD is nontoxic, no special breathing apparatus is needed. Wearing latex or rubber gloves is recommended; in case of contact, rinsing with ordinary tap water

is all that is needed. Eye protection is optional and rare cases of mild eye irritation have been reported. Do NOT rub your eyes.

2. Vigorously mix the bagged product then pour the CIMI-SHIELD into a new, dedicated spray apparatus. It must never have held pesticides, detergents or soaps - this will reduce the efficacy of the product. Mix with distilled water only. Follow dilution instructions carefully adding water to the total amount of liquid prescribed. Each six-ounce bag should be mixed with 122 ounces of distilled water to produce one full gallon (128 fluid ounces). Do NOT over dilute.

3. Be sure the spray apparatus 1) does not include a filter which may be included in its tank or handle (remove if found) 2) has both a "fan" and a "stream" or "pin stream" spray setting. Shake the mixture vigorously before beginning to spray. As you proceed, re-shake the container every 10 to 15 minutes. If the container is set to rest, reshake before resuming spraying. If diffusion becomes difficult or impaired, remove the nozzle and rinse it with tap water. Failure to keep the nozzle clean will impede an even distribution or cause the fan spray not to work at all.

4. Spray should be applied with the nozzle approximately 24 to 30 inches from surface areas when treating furnishings. When spraying drapes and carpets, hold the nozzle 18 to 24 inches away. Cover about 3 to 4 linear feet per second. Using more will cause the particulates to clump and is a waste. Release the trigger if your rate of progress is slowed. Do NOT overlap.

5. Cracks and crevices appropriate for liquid application can be treated using the pin stream setting or a crack and crevice tip. The sites may include such things as furniture or bed frame joints, headboards, cracks around baseboards, mattress seams, seams around cabinets, and any other zones where liquid applications can be made.

6. The "fan" spray setting should be used to treat all window coverings and drapes. When one side is treated, the coverings and drapes should be "twisted" (rotated) so that the reverse side is exposed and also treated. It is acceptable to treat a 12" perimeter beside the drapes on both sides, or anywhere the drapes come in contact with other surfaces.

7. The "fan" spray is also to be used to treat all cushions and pillows and any other bedding. Be sure to turn each item so that all surfaces are treated. Likewise, fan spray all the disassembled drawers and other furniture parts that have been disassembled. Make sure all outer surfaces are treated, as well as all undersides, rails and corners. Do not treat the insides of the drawers, just the bottoms and outsides.

8. Using the "fan" spray and beginning in the farthest corner, spray only the carpeted areas from which furniture has been removed and, in particular, the carpeted area directly under and around any beds. If carpet is covered, be sure and spray behind any loose coving. Make sure the carpets are well vacuumed before application.

9. Using the "fan" spray, evenly diffuse CIMI-SHIELD over all surfaces of the box springs and mattress. Spray inside the box spring if the dust cover has been removed. Particular attention should be given to the treatment of seams and the underside of the box springs.

10. If bolt holes are visible where a headboard has been secured, poke nozzle in the hole and spray slightly.

11. After the treatment has dried, wipe off any over spray on glass, furniture or other hard surfaces with a dry towel or microfiber rag.

12. Once you have determined that the disassembled furnishings and intended areas have been properly treated and dried, reassemble the furniture, the bedding, the couches and chairs and other furnishings and return these items to their intended positions. Re-secure all items to walls and ceilings and untwist drapes and window coverings. Wipe away any over spray noted during this process.

13. Using the "fan" spray and beginning in the farthest corner, spray all remaining carpeted areas including closets and entry areas so that you are satisfied that all carpeting has been treated.

14. Sign off on the scheduling Worksheet the date and time that this treatment and inspection was completed.

Record of Application

I, the undersigned, attest that I have personal and first hand knowledge that the statements and information provided below is true and complete, and the prescribed protocol was completed in careful compliance with this Manual of Instruction.

1. Application Date: _____

2. Customer Name: _____
Property Owner/Manager

3. Address: _____

4. Treated Area(s): _____

5. By: _____
Print your name and give employee ID number if available

Your Signature Date

Top Ten Reasons to use Cimi-Shield™

1. Kills bed bugs mechanically, with no known resistance
2. Twelve month residual on textiles and crack and crevice
3. Green, FIFRA 25 (b), exempt from EPA registration
4. Non toxic, apply directly to bedding
5. Staining properties are the same as water
6. No odor
7. Apply with a pump sprayer
8. Two year shelf life
9. Works on morphologically similar pests
10. Nothing like it available anywhere



A Division of Bird Barrier America, Inc.
Carson, CA, USA
800-503-5444



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