

# THERMA-KLEEN®

## TECH SHEET

### Bed Bugs, Ticks, Fleas, Dust Mites, Lice

#### **Kill Pests & Bacteria:**

With prolonged periodic use, over time, bacteria and viruses become resistant to treatment by chemical products.

This can have grave repercussions in environments where hygiene is an absolute imperative, as in the food and medical industries. Over time, it is necessary to increase the amount of detergents and disinfectants used to maintain the required hygienic results. This increases the risk of chemical contamination of food products. In addition, as many people are allergic to ingredients in cleaning agents, their usage can have serious effects in hospital environments.

#### **Fight Allergies & Diseases:**

##### **Protect your Loved Ones from Parasites with a Therma-Kleen Dry Vapor Steam System**

The safest and most efficient way to fight Allergies and Disease, causing organisms is with steam. Not just any steam will work. Some steamers are cheap and don't reach the needed temperatures. Those steamers may not produce a continuous stream of steam, instead they will produce it in small burst. You need a continuous stream.

With a Therma-Kleen Dry Vapor Steam System, the temperature that can be maintained with a brush at the end of the wand will be about 180° – 210° F. By wrapping the end of the Triangular brush with a Bonnet to trap the steam before it loses heat, the temperature will be about 210 – 240° F.

The effective temperatures for killing dust mites is 135° F, flea eggs at about 140° F, and many bacteria (such as e-coli) at 165° F. All these kill temperatures are well under the Super-heated steam temperatures of Therma-Kleen Systems.

You need more than just heat to clean, you need a Therma-Kleen industrial grade unit, constructed entirely of stainless-steel, with stainless-steel boiler and Incoly Heater, for proper operating characteristics and longevity.

NOTE: it is important the you always start from the top working you way down. This will allow for any pests which may fall while cleaning.

#### **Ticks:**

Ticks are parasites that are related to mites and spiders. They feed on the blood of animals and humans by attaching themselves to a host. A tick can cause anything from mild itching and redness to more serious complications such as Lyme disease that can cause neurological problems and even be fatal if not diagnosed in time. They are often brought into the home by pets. we often hear of alarming stories of ticks infesting public buildings such as schools and public transportation.



Therma-Kleen Steam Vapor Systems are the best weapon against these infestations as high temperature is lethal to ticks. They can't survive extreme temperatures and all life stages die with temperatures above 105° F. Vapor from Therma-Kleen can also penetrate cracks and crevasses where ticks can hide.

The first step in ridding the environment of ticks is at the host, which is usually a pet. NEVER use steam on any animal, as the heat can be harmful. To rid the pet of ticks, contact your vet for proper cleaning.

Next, start from the top, using a Therma-Kleen Dry Vapor System, steam beds & furniture. The fabric will be moist, but should not wet. Then thoroughly Vacuum the area cleaned.

Then steam carpets/rugs last. This will kill those ticks which reside there as well as any which fall from furniture when it is being cleaned.

### **Bedbugs:**

*Cimex lecularius*, are parasitic insects that feed on human blood. They are commonly called "bed bugs" because they are typically found in bedding and upholstered furniture and are most active at night. Bed bugs have been in the news lately because of high-profile infestations in metropolitan areas where close quarters and increased mobility allow the insects to spread quickly



We have now learned that bed bug management cannot be accomplished using pesticides alone. A systematic approach is needed. Until recently, professionals were recommending throwing away affected box springs and mattresses. Fortunately, today we have discovered that dry steam when applied to the mattresses, couches and carpets will virtually eliminate all stages of the bedbugs including the hard to kill eggs. Vacuuming helps, but it will not remove all the bedbug eggs that are stuck to the mattress and other surface. Even vigorous vacuuming will not remove all the eggs.

Contrary to popular belief, bed bugs are not necessarily caused by poor hygiene. Bed Bugs and their eggs are often introduced inadvertently by pets or infested items such as used furniture or clothing. Densely populated areas such as public transportation or movie theaters provide ample human transmitters for bed bugs to attach themselves to. They are devious travelers and can find their way through duct work or wiring shafts, so cleaning should not be limited to just fabrics.

Bed bugs can be eliminated quite effectively with the help of our all natural, non-toxic steam. Bed bugs are known to be extremely sensitive to high temperatures, with a thermal death point of 125° F. (Therma-Kleen Dry Vapor is heated to 250° F). Temperatures of about 120°F are lethal to most insects, as long as they cannot escape to a cooler location. The advantage of steam is that heating is intense and immediate, killing both bugs and eggs on contact.



When using steam to eradicate bed bugs, start first with your mattress. Make sure to concentrate on the seams and underneath handles or labels. You must also treat the bedframe and headboard thoroughly. Upholstered furniture, draperies and carpeting may also be treated with steam. Bedding and pillows should be washed in hot water and dried at the hottest possible temperature. Since steam is produced by heating water, there may be moisture remaining after treatment. Make sure everything is allowed to dry completely before replacing bedding to prevent mold growth.

To avoid contracting bed bugs, thoroughly steam treat any used clothing or furniture you bring into your home. Use an elevated bedframe, an allergen-free mattress cover and avoid extraneous bedding such as decorative pillows or bed skirts. When traveling, examine your bedding and headboard for signs of bed bugs before settling in to a hotel room. Keep your luggage elevated from carpeted surfaces.

Be vigilant! Bed bugs can live for up to a year without feeding, so resurgences may occur. Retreat with steam often. Unlike pesticides and chemicals, steam is a 100% natural solution that you can use as often as you like to create and maintain a bed-bug-free environment

### **Dust Mites:**

Microscopic bugs that live in warm, humid environments. Since they feast on dead skin cells, dust mites thrive in the home, particularly on bed clothes, upholstery and in carpet.

It is thought that inhalation of mites during sleep exposes the human body to some antigens that induce hypersensitivity reaction. Allergens produced by dust mites are among the most common triggers of asthma. Having a dust mite allergy is like having hay fever year-round. Symptoms of the allergy can be minor, such as a runny nose, or major, like severe asthma attacks. Rather than being allergic to the bug itself, allergy sufferers react to proteins found in dust mite carcasses and feces. It has been estimated that as many as 1.2 billion people could have some form of chronic sensitization to dust mites.



Children are particularly susceptible to dust mite allergies. Wash and steam stuffed animals and bedding regularly, run a dehumidifier, chose solid surface flooring over carpet, use allergen-proof bed covers, keep unnecessary pillows & throws to a minimum. Dust mite allergens are thought to be among the heaviest dust allergens. Treatment of mite allergy starts with avoidance. Regular steam sanitizing of mattresses, furniture and blankets can help in this regard.

According to the Mayo Clinic, dust mites die when blasted by 130° F heat. Therma-Kleen Dry Vapor Systems can produce heat in excess of 250° F, leaving little hope for their survival. Testing has shown that it takes just 1 second of exposure at these temperatures to kill 99.9% of dust mites. Remember, it is dust mite bodies and feces that cause allergies, so after steaming vacuum the area well and at least once a week vacuum thoroughly.

Killing dust mites is very easy. Simply pass a Therma-Kleen Dry Vapor Steam Triangular brush with bonnet attached over the surface to be cleaned. The super-heated steam kills mites AND their eggs on contact! This will not only kill's mites but also other pests such as bed bugs, lice, ticks, flees their eggs, as well as viruses, germs, bacteria and much more.

### **Fleas:**

This is a small wingless jumping insect which feeds on the blood of mammals and birds. It sometimes transmits diseases through its bite. Combatting a flea infestation in the home takes patience because for every flea found on an animal, there could be many more developing in the home.

Steam cleaning with Dry Steam from a Therma-Kleen System will kill fleas in the environment, followed by a through vacuuming. The vacuum bag must be



disposed of immediately afterwards. The combination of dry steam and vacuuming should eliminate fleas from the environment. Therma-Kleen Steam Vapor Systems are the best weapon against these infestations as high temperature is lethal to fleas. Like Ticks, they can't survive extreme temperatures and all life stages die with temperatures above 105° F. Vapor from Therma-Kleen can penetrate cracks and crevasses where ticks can hide.

The first step in ridding the environment of fleas is at the host, which is usually a pet. NEVER use steam on any animal, as the heat can be harmful. To rid the pet of fleas, contact your vet for proper cleaning.

Next, start from the top, using a Therma-Kleen Dry Vapor System, steam beds & furniture. The fabric will be moist but should not be wet. Then thoroughly Vacuum the area just cleaned.

Then steam carpets/rugs last. This will kill those ticks which reside there as well as any which fall from furniture when it is being cleaned.

Steam cleaning alone isn't an effective control strategy. It's a useful component, but other measures must be employed to end an infestation. The problem is that adult fleas permanently live on their host. Each female lays an average of 25 eggs a day. The eggs aren't sticky and fall into the environment within a few hours of being laid. Eggs hatch into larvae in 2-3 days. So, without treating pets, there will be continual re-infestation pressure.



#### **LICE:**

The first hints that head lice may have invaded your home is either a note sent home from school that another student is infected or a child complaining about head itching or a tickling feeling of something moving in his hair.

Upon closer examination of the scalp, you may find many tiny white dots clinging to the hair shafts (nits or lice eggs), moving gray nymphs, or adult lice that are also grayish and about the size of a sesame seed. Your doctor or pharmacist can help you recognize them and recommend treatment options. Every professional is going to tell you to start by combing your child's hair with a special comb to remove both adult lice and the eggs or nits they lay which attach to individual shafts of hair.



To prevent transmission to others or re-infestation, you must wash your child's personal items thoroughly in addition, use a Therma-Kleen Dry Vapor Steam System on floor and furniture in those areas of your home where your child usually sits plays or sleeps. The Super-heated dry vapor will kill lice on contact. Slowly move the Triangle brush with microfiber bonnet attached over the fabric. The fabric will be moist not wet. Where cracks are present, you may have to hold the brush over them for a couple of seconds for the heat to penetrate down into the crack. Followed up by vacuuming, then remove the bag from the home.

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