



BIO-SANITATION PROTOCOL



NISUS[®]

Better science for a better world.

BIO-SANITATION MODEL SERVICE PROTOCOL

(ALWAYS READ, UNDERSTAND AND FOLLOW LABEL COMPLETELY
BEFORE ANY APPLICATIONS.)

TOOLS

Adequate supply of preferred product(s):



Foam Fresh®



Bac-Azap®



ProFoam® Platinum

INSPECTION TOOLS AS NEEDED

Professional flashlight

Inspection mirror

Notebook or electronic tablet for notes and service record documentation

Knee pads

APPLICATION EQUIPMENT AS APPROPRIATE FOR JOB

Drain Brush

Liquid Sprayer

Hand-operated foamer, or hose-end or power foamer or foaming attachment for larger jobs

Cold fogger, aerosol fogging unit, or other equipment to fog spaces

OTHER

Possess proper state credentials to perform work

PPE as required by label for work being done

BIO-SANITATION BACKGROUND

Introduction: The buildup of fats, oils, grease (FOG) and other organic matter can create problems in commercial kitchens ranging from floor drain and sewage backup to slip-and-fall cases, creating food and harborage for cockroaches and small flies. Foul odors caused by feces, urine, dead animals and scum buildup in drains, garbage disposals, dumpsters, and recycling containers can be prevented and eliminated with the recurring use of bio-sanitation products.

Bio-sanitation products are not pesticides. They are a unique class of "green" bio-cleaners specialized to reduce organic debris, eliminate odors and counteract negative sanitation practices, all of which are key to providing a safe and clean environment. Foam Fresh and Bac-Azap are designed to break down and prevent the buildup of starches, proteins, fats, oils, cellulose and other organic waste, and eliminate intense odor-causing situations in commercial and residential settings.



HOW DO BIO-SANITATION PRODUCTS WORK?

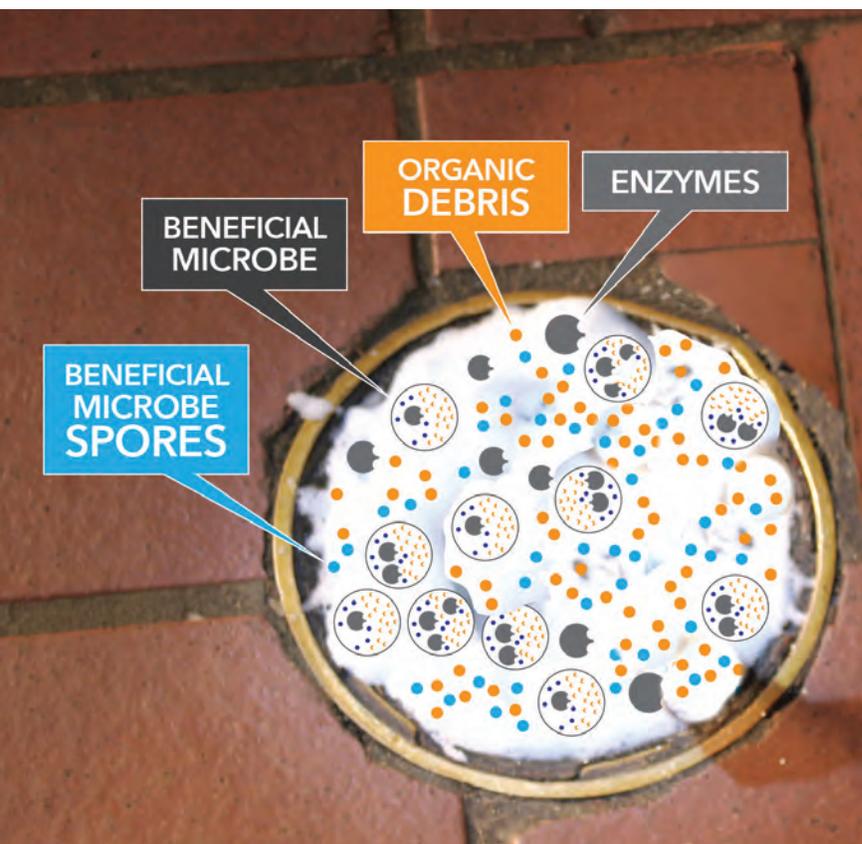
We encounter beneficial microorganisms daily in products from yogurt to water treatment. The beneficial probiotic microbial spores found in bio-sanitation products such as Bac-Azap and Foam Fresh are microscopic living organisms in a dormant form. Once they are applied to a favorable environment (i.e., moist areas with organic debris), they begin to reproduce rapidly, doubling in population every twenty minutes. These activated probiotic microbes continuously produce enzymes to digest and consume the organic debris, eliminating the source of the problem and preventing odors. Bio-sanitation products penetrate deep into cracks and crevices - often in places where regular cleaning can't reach - and continue to work around the clock to digest and remove organic matter. As long as conditions remain favorable, the microbes will continue to reproduce and create the necessary enzymes to do the job. Once conditions change, they revert into dormant spores, but will germinate and produce new active cells to start the process again if conducive conditions return. This provides your client with a much longer-term solution that only requires follow-up treatments to spike the number of active colonies. It also replaces colonies lost to water flow, cleaners or natural processes.

Remember, organic debris isn't necessarily "food" debris; it can come from any source. And certainly, residential customers often have a need for bio-sanitation with slow-running drains, biofilm buildup in floor drains smelly washing machines, garbage disposals, dishwashers and septic tanks.

MICROBES VS. ENZYMES

How are microbial products different from products that simply contain enzymes to break down organic matter? Enzymes, specifically protein enzymes, have a finite life outside of the bottle and only provide short-term action. In addition, enzymatic products contain a finite amount of enzymes. They must be reapplied often. By contrast, microbial cleaners start as spores with a tough outer coating to protect against harsh and unfavorable environments. As the beneficial microbial spores activate and cells start to reproduce, they produce a continuous supply of enzymes to

digest organic matter. Furthermore, they can become dormant once their food supply is gone, then spring to action later with the right conditions.



POSITIVES OF BIO-SANITATION

- Environmental responsibility from reducing chemical and cleaner use
- Reduced risk to employees
- Reduced long-term cost of sanitation, because products do not need to be applied as often
- Long-term effective action, because chemical cleaners only provide short-term effectiveness
- Removal of organic debris, which helps to control odor at the source

INSPECTION

Inspection and identification of conducive conditions is a fundamental process of IPM. Bio-

sanitation enhances IPM. The unique blend of beneficial microorganisms found in bio-sanitation products such as Bac-Azap and Foam Fresh is optimized for daily challenges commonly encountered by PMPs. Identifying conducive conditions and areas warranting preparation and initial cleaning will enhance your bio-sanitation treatments.

PREPARATION AND PRE-CLEANING INSTRUCTIONS

Removing excessive filth, dirt and grime from surfaces and drains before the application of bio-sanitation products is critical to the overall success of a program. It would require a significant time for beneficial microbes to remove two

inches of grease and gunk buildup, but only a few weeks to remove a thin layer of biofilm or buildup to reduce and maintain clean and clear surfaces. Cleaning heavy buildup in drains with a drain brush, removing trash and debris from under equipment and removing the initial layer of dirt and grime will give the beneficial microbes a jump start. Remember to take pictures to show the owner or manager and provide guidance for future cleaning efforts.



APPLICATION RATES

Instructions for initial and follow-up treatments

After preparation and pre-cleaning are complete, you are ready to make your first application of Bac-Azap or Foam Fresh. These two products can be used interchangeably. Bac-Azap can be applied as a liquid, wet foam, dry foam (with the addition of a foaming agent such as ProFoam® Platinum foaming concentrate), space spray or fog.

The advantages of foam: Foam provides a great delivery mechanism for the beneficial spores and helps to ensure that all surfaces are evenly coated on vertical and horizontal surfaces as well as the inside of pipes and drains. It provides moisture for the initial stages of activation and enzyme productions and gives the beneficial microorganisms a jump-start under many conditions.

SITES AND CRITICAL AREAS

Kitchens	Floors, drains, garbage disposals, grease traps, dishwashers, soda lines, and floor mats. Mop using desired solutions.
Dining Areas	Busing carts, foot traffic areas, service islands, under dining tables. Spot treatments may be necessary.
Bathrooms	Treat bathrooms in their entirety.
Janitorial	Drains, mops, mop buckets, and floor sweepers.
Outside	Trash receptacles, floor mats, service windows, recycle containers.
Other	Spills and stains on carpets, pet odors, litterboxes, dead and decaying plant or animal odors, urine, feces, vomit, skunk odor, sewage backup or overflow.



For Initial Services: Apply Bac-Azap at full strength as a liquid or foam, or apply ready-to-use Foam Fresh Bio-Sanitation Foam.

To create a foam using Bac-Azap, mix at a rate of 4 ounces of Profoam Platinum per 1-gallon of Bac-Azap liquid at full strength (or 1 oz. of Profoam per quart of Bac-Azap). Apply using a handheld or power former.

Bac-Azap produces a wet foam when used in a foamer by itself. To produce a thicker, dryer foam that will cling better to surfaces and penetrate long sections of pipe, we recommend adding Profoam Platinum. Increase the amount of Profoam as needed for desired foam consistency.

Follow-Up and Special Treatments: After sanitation has improved and initial applications have begun to remove layers of organic material, you may reduce the Bac-Azap applications to half strength. Dilute at a rate of 1:1 (1/2 gallon of water to 1/2 gallon of Bac-Azap). To create a foam, add 4-6 ounces of Profoam to per 1 gallon of the half-strength dilution. Alternatively, you may use Foam Fresh.

If conditions have not improved, however, continue using Bac-Azap at full strength.

Fogging: For use as a space spray or fogging agent in confined areas, dilute at a rate of 2:1 (1 gallon of water to 1/2 gallon of Bac-Azap) and apply using fogging or misting equipment.

Instructions for commercial and residential floor drains and sink drains

When treating drains, apply 2-3 gallons of warm water into floor drains and 1-2 gallons into sink drains to wet the surface and warm the pipe, creating an acceptable environment for the microbes.



Bac-Azap

Using undiluted Bac-Azap, pour 1 quart (32 oz) into all floor drains and 1/2 quart (16 oz) into all sink drains.

Foam Fresh

Use the drain actuator and attach the hose extension provided with each can. Insert the end as far down the drain as allowed. Depress the actuator to fill the pipe void beyond the p-trap and slowly retrieve the extension while continuing to depress the valve to fill the drain. Be certain that the foam coats the interior and exterior of any drain grates or covers.

Bac-Azap plus foaming agent

Foam the Bac-Azap and Profoam mixture down into the drain. To improve the distribution of foam, use a power foaming unit with a drain applicator or drain cover plate. This provides a method to apply the bio-sanitation foam deep down into the drain systems.

Follow the rates and instructions for the initial service protocol until drains run clear and are free of organic debris and buildup. Reduce to a half-strength application for future applications.

For a complete drain protocol using bio-sanitation products along with insecticides, see the *Nisus Drain Protocol*, available on the Nisus website at niscorp.com.

Instructions for other surfaces

- Apply a liberal coating of Bac-Azap liquid or foam to all surfaces where scum, biofilm, organic buildup and FOG are present.
- On the initial treatment (or during regular service for areas with limited sanitation), target areas that are obvious problems such as under equipment, tile floors, baseboards, equipment legs, walls, bar and drink service areas and bathrooms.





- Target cleaning equipment that may build up a layer of organic material and help to spread the material throughout the facility.
- Target all trash collection equipment, bins, dumpsters and the areas around these objects where organic material may spill or leak regularly.

Follow-up Treatments

In areas with heavy buildup and poor sanitation, continue using the initial protocol until improvement is visible. Document processes that need to change to reduce organic waste build-up. Develop a plan. Work with the facility to continue the application of bio-sanitation in areas that require more attention frequently.



- Perform an inspection and examine all treated areas. You should notice a reduction in the buildup and loose organic materials that were tightly adhered to the surface.
- Some surfaces may require a light scrubbing with Bac-Azap or Foam Fresh, which contain light cleaning agents.
- Flush Drains: Make sure all sinks and drains are flowing. Reapply foam in drains that continue to drain slowly or have obvious buildup
- Re-treat all areas of heavy organic buildup.
- Re-treat all trash receptacles and bathroom areas.
- Pay special attention to bars, soda fountains and other areas to prevent the buildup of liquid organic layers.

- Examine secondary sources of organic buildup on bottles, jugs and service containers.
- Check incoming product storage areas for signs of organic residue from leaky packaging or forgotten items

CONCLUSION AND FOLLOW-UP

There is no replacement for cleaning; bio-sanitation is a beneficial tool, but not a miracle solution! Remember these products can help loosen years of organic material, so you can apply them before cleaning in extreme situations. Some surfaces must be cleaned first, and proper repairs on things like missing grout, cracked tiles, missing trim, holes in the wall, leaking pipes, etc. should be done immediately.

A bio-sanitation program works best when the treatment is conducted routinely. Incorporate the service into a monthly to quarterly pest management program. Assess the current maintenance program, and provide follow-up instructions for continuing the use of bio-sanitation products for light daily treatments while limiting the use of products that can potentially kill the beneficial microbes.

Tips

- Keep surfaces moist to facilitate beneficial microbial growth and efficacy.
- If foaming, allow the foam to dissipate slowly. This will create a moist surface for optimal conditions. Do not wipe up or clean the foam.
- If applying Bac-Azap with a sprayer, thoroughly wet the surface.
- Initially, the more frequent the application, the better.
- After organic matter has been reduced and sanitation practices have improved, you may choose to decrease the frequency of applications.

5 KEY WAYS TO ENHANCE THE EFFICACY OF MICROBIAL BIOSANITATION PRODUCTS

Moisture	Extremely Important. Bio-sanitation products work best in wet environments where chronic or recurring moisture is present. Cells must stay moist or wet. Microbes will not germinate and reproduce on completely dry surfaces.
Temperature	Microbes flourish at slightly warmer temperatures. Running warm water down drains before applications can spike activity and give a jump start to the spores' ability to break dormancy. Treatments in colder environments will take longer to produce desired results.
Reduced Water Flow	Allow the beneficial microbes time to work. Refrain from flushing pipes or running water down sinks and drains for as long as possible.
Time	These products require adequate time to work. It is best to apply bio-sanitation products at the end of the day, after normal business hours, weekends or other periods of inactivity.
Cleaning	Switch to steam cleaning instead of power sprayers, bleach and antimicrobial products on non-food use surfaces. Antimicrobial products are designed to kill bacteria and will kill both beneficial and non-beneficial microbes. Steam cleaning is a good add-on service!



NOTES



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