

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

JAN 25 2007

United States  
Environmental Protection  
AgencyOffice of Pesticide Programs

BBJ Chemical Compounds, Inc.  
6802 Citicorp Blvd., Suite 500  
Tampa, FL 33619

AGENT: Lewis and Harrison  
122 C Street, N. W., Suite 740  
Washington, D. C. 20001

Attention: Robert S. Brennis

**Subject: BBJ MaintainC-1 For Floors and Walls**  
EPA Registration No. 67212-2  
Amendment Dated October 26, 2006

The amendment, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended, to add the "Artificial turf and Silicon caulk" use patterns to the product labeling, is acceptable, provided that you:

1. Submit and/or cite all data required for registration/reregistration of your product under FIFRA sec. 3©(5) and sec. 4 when the Agency requires all registrants of similar products to submit such data.
2. Submit two (2) copies of final printed labeling before you release the product for shipment.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA sec. 6(e). Your release for shipment of the product constitutes acceptance of these conditions.

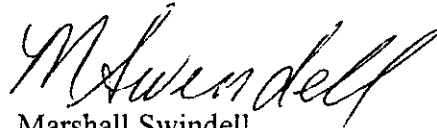
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A stamped copy of the "accepted" product labeling is enclosed for your records.

If you have any questions concerning this letter, please contact Martha Terry at (703) 308-6217.

Sincerely



Marshall Swindell  
Product Manager (33)  
Regulatory Management Branch 1  
Antimicrobials Division (7510P)

Enclosure

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**BBJ MAINTAIN C-1 FOR FLOORS AND WALLS  
Antimicrobial**

[Alternate Brand Names]

**BBJ MAINTAIN C-1 FOR HVAC SYSTEMS**  
Antimicrobial for HVAC and Air Ducts  
BBJ Microbiocides for Air Ducts

- Eliminates odors associated with bacteria, mold, mildew, smoke, animals, cooking, spoilage, musty and other odors. [for use only with Floors and Walls labeling]
- Controls and inhibits odor causing bacteria, fungi, mold and mildew on floors, walls, contents and other interior building surfaces. [for use only with Floors and Walls labeling]
- Controls and inhibits odor causing bacteria, fungi and other odor causing organisms in HVAC systems and air ducts. [for use only with HVAC labeling]
- Can improve HVAC system energy efficiency up to 25%. [for use only with HVAC labeling]
- [Controls] [Prevents] [Inhibits] the growth of [fungi] [mildew] [mold and mildew] [and bacteria] on HVAC coils
- Effectively controls mold [and bacteria] on HVAC coils
- Effective against mold and mildew [and bacteria]
- Reduces Energy Consumption
- Improves HVAC Efficiency
- Bacteriostat
- Fungistat (mold and mildew)
- Mildewstat
- Deodorizer
- Residential
- Commercial
- Industrial
- Will not damage most surfaces [for use only with Floors and Walls labeling]
- For use in unlined ductwork only [for use only with HVAC labeling]
- Will not damage HVAC system components and most other surfaces. [for use only with HVAC labeling]

**KEEP OUT OF REACH OF CHILDREN**

**WARNING**

**ACTIVE INGREDIENTS:**

2-Bromo-2-nitropropane-1,3-diol 3.25%

**INERT INGREDIENTS:** 96.75%

**TOTAL** 100.0%

SEE ATTACHED BOOKLET FOR ADDITIONAL PRECAUTIONARY STATEMENTS

BBJ Environmental Solutions, Inc.  
6802 Citicorp Dr., Suite 500  
Tampa, Florida 33619  
Questions? 1-800-889-2251

EPA REG NUMBER 67212-2  
EPA EST NUMBER 67212-FL-001  
NET CONTENTS 15 oz , 32 oz(\_\_\_\_\_ g)

**Directions for Use**

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling. For complete product use instructions, refer to the attached booklet and read completely prior to using this product. If the booklet is missing, return this product to the place of purchase and obtain a replacement package.

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**DILUTE CONTENTS OF THIS PACKAGE BEFORE USE**

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Under the Federal Insecticide,  
Fungicide, and Rodenticide Act as  
amended, for the pesticide,  
registered under EPA Reg. No. 67212-2

FIRST AID	
If swallowed:	-Call a poison control center or doctor immediately for treatment advice. -Have person sip a glass of water if able to swallow. -Do not induce vomiting unless told to do so by a poison control center or doctor. -Do not give anything by mouth to an unconscious person.
If non-diluted product inhaled:	-Move person to fresh air. -If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. -Call a poison control center or doctor for further treatment advice.
If on skin or clothing:	-Take off contaminated clothing. -Rinse skin immediately with plenty of water for 15-20 minutes. -Call a poison control center or doctor for treatment advice.
If in eyes:	-Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. -Call a poison control center or doctor for treatment advice.

**PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS AND DOMESTIC ANIMALS**

**WARNING.** Corrosive. Causes substantial but temporary eye injury. Do not get in eyes, or on clothing. Wear protective eyewear such as goggles, face shield, or safety glasses. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Remove contaminated clothing and wash before reuse.

**ENGINEERING CONTROLS:** During ULV, mist or spray application, the duct system interior must be maintained under slight negative pressure (0.015 to 0.025 in. WG) with an outdoor exhaust or using a negative air machine equipped with HEPA filter. Avoid higher pressure differentials that would be likely to disrupt the coverage pattern. [for use only with HVAC labeling]

**ENVIRONMENTAL HAZARDS:** This product is toxic to fish. Do not contaminate water by cleaning of equipment or disposal of wastes.

**STORAGE AND DISPOSAL**

Do not contaminate water, food or feed by storage or disposal. Keep away from heat.

**PESTICIDE STORAGE:** Store in areas inaccessible to children or persons unfamiliar with its use.

**PESTICIDE DISPOSAL:** Pesticide wastes are acutely hazardous, improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your state pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.

**CONTAINER DISPOSAL:** Completely empty package. Empty residue into application equipment. Triple rinse (or equivalent) then offer for recycling or reconditioning, or puncture. Dispose of package in a sanitary landfill, or by incineration, if allowed by State and local authorities. If burned, stay out of smoke.

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Fungicide, and Rodenticide Act as  
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[For use only with the Floors and Walls labeling]

**BBJ MAINTAIN C-1 FOR FLOORS AND WALLS - EPA REG. NO. 67212-2**

**Antimicrobial for Non-Porous Surfaces**

BBJ Environmental Solutions, Inc., 6802 Citicorp Dr., Suite 500, Tampa, Florida 33619

**IT IS A VIOLATION OF FEDERAL LAW TO USE THIS PRODUCT  
IN A MANNER INCONSISTENT WITH ITS LABELING**

**THE PERSON APPLYING THIS PRODUCT IS RESPONSIBLE FOR FOLLOWING THESE DIRECTIONS UNDER  
BOTH STATE AND FEDERAL LAWS.**

**1.0 General**

BBJ MAINTAIN C-1 FOR FLOORS AND WALLS is designed to be used to retard (or inhibit) odor, stain causing or other damage causing organisms including mold and mildew on floors, walls, contents and other interior building surfaces. It is also used as one component of a comprehensive mold remediation or water damage restoration program. The purpose of such a program is to minimize damage from growth of mold and other odor, stain or damaging organisms, limit re-growth and help building interiors continue in that condition. This product should only be used in those cases where visible microbial growth has been detected (or conditions are likely to immediately result in such growth) and then only as part of a program that removes that growth and identifies and corrects the conditions that led to that growth. If you need help understanding any part of these instructions or have additional questions after reading these instructions, DO NOT APPLY THIS PRODUCT until you have received the answers for all of your questions.

**2.0 Causes of Microbial Growth**

Microbial (including bacteria, mold, mildew, and other fungi) growth is present at all times both outdoors and in our building interiors. Normally the natural balance of the environment limits such growth to acceptable levels. Under certain conditions, growth can reach problem levels and if not controlled, will cause foul odors, soil and damage furnishings and valuables and may even destroy structural components of a residence or other building. Normally, fungal spores, live organisms and food sources are plentiful in building interiors without uncontrolled growth taking place. Elevated water from the following lead to growth:

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**2.1 Floods**

If water floods the interior of a building it brings a massive load of organic matter, bacteria and fungal spores. If the water and excessive organic load is not cleaned quickly, massive growth will result. Floods can be either from rising water or massive plumbing failures.

**2.2 Leaks**

Leaks release lesser amounts of water and often over extended time periods. Thus, they can lead to high levels of growth in wall cavities and other spaces where they are not visible until considerable damage has been done. Leaks can be both from plumbing and roof, wall or other structural failures.

**2.3 Humidity**

Microorganisms grow in moisture films that form on surfaces and within porous materials. This is known as water activity of the material or surface. High levels of humidity can lead to sufficient surface water activity to support accelerated growth if that elevated level is maintained for as little as 24 hours. Accelerated growth takes place with some fungi within 24 hours at humidity levels between 66%-70%.

**3.0 Indications for use and Guidelines**

Homeowners and building managers should survey their buildings at least monthly for any of the following conditions. When they are found, they should be corrected according to the following guidelines.

**3.1 Visible Growth**

Areas of visible growth of less than 30 square feet (the area of a single wall panel) can normally be remediated without elaborate procedures. When these areas are identified, first clean affected areas with detergent and water.

Then mist (see application instructions below) lightly with BBJ MAINTAIN C-1 FOR FLOORS AND WALLS to inhibit the growth and spread of fungal spores and other contaminants. If growth is on ceiling tiles or other such easily removable items of nominal value, remove them and seal them in a plastic bag and dispose with normal trash. If the surface is not easily replaceable, clean with detergent and water then mist with BBJ MAINTAIN C-1 FOR FLOORS AND WALLS to retard future growth. If growth appears again in the same location, determine the cause and correct prior to attempting additional treatment.

Areas larger than 30 square feet require special procedures and individuals trained in remediation. Guidelines for remediation of large areas of contamination have been established by the Indoor Air Quality Association ([www.iaqa.org](http://www.iaqa.org)) and The US Environmental Protection Agency ([www.epa.gov](http://www.epa.gov)). Many in the field also refer to the New York City Department of Health, "Guidelines on Assessment and Remediation of Fungi in Indoor Environments." Before using BBJ MAINTAIN C-1 FOR FLOORS AND WALLS in mitigation of large projects, you should be knowledgeable of one or more of these guidelines and follow them when using the product. More information can be obtained from BBJ customer service at 800.889.2251.

**3.2 Water Damage**

Evidence of possible water damage includes water stains on ceilings or walls, persistent wet spots or actual flowing water whether from plumbing failure or outside sources. When water damage is suspected, the first priority is to find the source of water and cut it off. Once that has been accomplished, excess water should be removed. Detailed guidance on proper removal of excess levels of water is contained in, "Standard and Reference Guide for Professional Water Damage Restoration" (IICRC S500) published by the Institute of Inspection, Cleaning and Restoration Certification ([www.iicrc.org](http://www.iicrc.org)). If excess water has been removed completely in 24 hours or less, spraying surfaces that were wet with a light misting of BBJ MAINTAIN C-1 FOR FLOORS AND WALLS will inhibit growth and no other steps should be necessary.

Where structural members and/or contents have been exposed to water in excess of 24 hours, there is a possibility of extensive microbial growth that may be visible or hidden. In that case a complete assessment and remediation plan must be prepared that properly incorporates the use of BBJ MAINTAIN C-1 FOR FLOORS AND WALLS, provides for user and occupant safety and documentation and monitoring of the remediation process. If you are not experienced in preparing and executing such a plan, contact BBJ customer Service at 800.889.2251 for assistance. IICRC S500 contains excellent guidance. In the context of such a plan, BBJ MAINTAIN C-1 FOR FLOORS AND WALLS can be used on materials to be removed and disposed of and in other applications where an Antimicrobial use is indicated. The Standard must be followed exactly and all growth and contaminated organic material removed prior to using BBJ MAINTAIN C-1 FOR FLOORS AND WALLS.

**4.0 General Directions for BBJ MAINTAIN C-1 FOR FLOORS AND WALLS Usage**

BBJ MAINTAIN C-1 FOR FLOORS AND WALLS effectively controls by inhibiting growth of odor causing bacteria, fungi, and other odor, stain or damage causing organisms on floors, walls and other surfaces in residential, commercial, institutional, and industrial buildings. BBJ MAINTAIN C-1 FOR FLOORS AND WALLS also eliminates odors associated with bacteria, mold, mildew, smoke, animals, cooking, spoilage, musty and other odors and removes odor-causing organisms when used as part of a comprehensive preventative maintenance approach.

BBJ MAINTAIN C-1 FOR FLOORS AND WALLS is a bacteriostat, fungistat (mold and mildew), mildewstat and deodorizer for use in residential, commercial and industrial settings. It will not stain or bleach materials or fabrics and will not harm or damage most interior surfaces. Test on an inconspicuous area if you are unsure of the surface you are working with.

BBJ MAINTAIN C-1 FOR FLOORS AND WALLS is formulated for use on all kinds of surfaces including:

- Painted wallboard.
- Structural members and supports.
- Ceilings and above ceiling spaces.
- Basements and crawl spaces.
- Cabinets and countertops.
- Case goods and other furnishings.
- Floor surfaces.
- Artificial turf

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Follow the directions for the specific type of component being treated. The following directions must be carefully read and understood prior to using the product. If you have any questions, need further information, require clarification, or do not understand any of the directions, call BBJ Customer Service at 800.889.2251 prior to use.

**4.1 Mixing Instructions**

Prior to using, read and observe the instruction on this label. The contents of this package must be properly diluted with tap water at a rate of 2 ounces of product per gallon of water. The contents of this package will make 3 gallons.

4.1.3 As an option, the concentrate can be used in the BBJ Model 904 power sprayer, which dilutes to the proper concentration as spraying takes place. In this case, follow the directions on the sprayer for proper dilution.

**4.2 Application Equipment and Devices**

Refer to the precautionary statements for the Personal Protective Clothing and other special instructions that must be followed.

**4.2.1 Brush, Mop or Wipe Application**

Brush, Mop or Wipe Application may be specified by some facility maintenance or remediation plans. These techniques are generally more labor intensive than other methods and are normally used only when specifications require. These methods are suitable only for smooth uniform surfaces. Do not use on porous or non-uniform surfaces. If in doubt about a given surface, contact BBJ Customer Service at 800.889.2251 before proceeding. When using brush or mop application, tools and materials used should be reserved only for application of BBJ MAINTAIN C-1 FOR FLOORS AND WALLS, kept clean and protected between uses and replaced when worn or visibly soiled. Natural fiber brushes are preferred although any quality brush is acceptable. Mops should be of the type that leave minimal lint behind. Micro-fiber or other non linting cloths are preferable. Where other types of cloths are used, they must be soft enough that they absorb a sufficient quantity of liquid to provide uniform application.

During Brush, Mop or Wipe Application, the applicator must have access to the surfaces being treated. Apply to a limited area at a time. Over lap applications to assure complete coverage. Cover completely while avoiding runs or pooling.

**4.2.2 Spray Applicators**

Spray application is preferred on large surfaces that are easily accessible and most uniformly shaped objects. The spray equipment chosen should provide a consistent fine (1-300 micron) particle size and uniform spray pattern. Powered medium pressure sprayers such as the BBJ model 902 or model 904 are preferred. However, airless sprayers are suitable.

Where airless sprayers are used, the most satisfactory spray pattern will be achieved using a 0.011" spray tip. For other brands and options contact BBJ Customer Service at 800.889.2251.

Pump up garden type sprayers can be used but care must be taken to maintain maximum pressure by pumping frequently and the spray nozzle must be adjusted for the finest spray pattern possible. During application achieve complete uniform coverage. Avoid excessive wetting and do not allow the spray to run or pool.

**4.2.3 ULV (Ultra Low Volume) or Mist Generating Sprayers**

ULV, mist or other wet small particle application is preferable where surfaces are irregular or less accessible. Equipment capable of generating particles in the 15 to 60 micron range is most satisfactory. Do not use thermal type fog generators. BBJ model 903 is preferred. Contact BBJ Customer Service at 800.889.2251 for information on other devices.

Generally a fog will carry and provide adequate coverage up to 8 feet from the point of application so the fog must be directed in all directions to assure complete coverage without over wetting. Operators should also carefully read and follow directions for the brand of equipment used. BBJ Customer Service personnel should be contacted at 800.889.2251 for information on training for using various types of equipment.

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Personal Protective Equipment including HEPA filtered face mask, hooded coveralls, and rubber gloves must be used when applying in open spaces with mist generating application equipment.

**4.3 Application Techniques**

BBJ MAINTAIN C-1 FOR FLOORS AND WALLS must be applied evenly over surfaces that are being treated. Even and uniform application is essential for satisfactory results. The procedures, equipment and techniques described below have been tested and provide the desired results. Other procedures, equipment or techniques may also achieve satisfactory results but should not be used without discussing the specific situation and equipment with a BBJ Customer Service Representative who can be reached toll free at 800.889.2251.

**4.4 Rate of Application**

The recommended rate of application for BBJ MAINTAIN C-1 FOR FLOORS AND WALLS varies depending on the surface being treated. Users of this product must carefully follow the rate of application instructions provided below:

**4.4.1 Hard, Smooth Surface (Glass, Metal)**

Apply until surface is evenly wet. Mist or wipe coverage 1,000 ft<sup>2</sup> per gallon. Spray coverage 500 ft<sup>2</sup> per gallon. If the above application rates result in surface runoff or liquid pooling, lower the application rate until the surface is thoroughly and evenly wet without runoff or pooling.

**4.4.2 Semi Porous Surfaces such as Concrete or Plaster or Wallboard**

Apply until surface is evenly wet. Mist coverage 500 ft<sup>2</sup> per gallon. Wipe not recommended. Spray coverage 250-ft<sup>2</sup> per gallon. BBJ MAINTAIN C-1 FOR FLOORS AND WALLS must penetrate into surface crevices and irregularities or it will not be effective. Inspect and assure that penetration is satisfactory. It may be helpful to make multiple applications at a lower application rate on some surfaces as the first application will wet the surface and facilitate penetration of following application(s).

**4.5 Frequency of Application**

Normally, infrequent application (once a year or less) will provide effective control. Do not apply more often than monthly and then only if there is evidence of re-growth. Prior to reapplication in such cases, investigate to determine the cause of re-growth and correct that problem prior to re-application. Before embarking on a program of frequent application contact BBJ Customer Service at 800.889.2251 and discuss the specific application and situation. Also make sure the reoccurrence of microbial growth does not have another cause such as persistently high humidity, standing water or hidden leaks.

Removed components that are contaminated with mold and other microbial growth may spread contamination while being removed from the building. To prevent this, smaller items should be placed in plastic bags that should then be sealed before being removed. Larger items that cannot be safely packaged should be treated before being moved through occupied spaces. An appropriately labeled disinfectant can be used for treatment. Care must be used during treatment to assure that fumes from the agent being used are not released into occupied spaces. Products used should be used according to their label directions. Please contact BBJ Customer Service at 800.889.2251 for guidance on the appropriate disinfectant to use for treatment.

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Fungicide, and  
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registered under EPA Reg. No.



**BBJ MAINTAIN C-1 FOR HVAC SYSTEMS – EPA Reg. No. 67212-2**  
**Antimicrobial for HVAC Systems and Air Ducts**  
[For Use Only with the HVAC labeling]

BBJ Environmental Solutions, Inc., 6802 Citicorp Dr., Suite 500, Tampa, Florida 33619

**DIRECTIONS FOR USE**  
IT IS A VIOLATION OF FEDERAL LAW TO USE THIS PRODUCT  
IN A MANNER INCONSISTENT WITH ITS LABELING

THE PERSON APPLYING THIS PRODUCT IS RESPONSIBLE FOR FOLLOWING THESE DIRECTIONS  
UNDER BOTH STATE AND FEDERAL LAWS.

**1.0 General**

BBJ MAINTAIN C-1 FOR HVAC SYSTEMS is designed to be used as one component of a comprehensive HVAC and duct maintenance program. The purpose of such a program is to assure that the HVAC system and ducts function in the manner they were designed to, remain free from mold and other microbial growth and other contamination, and continue in that condition. This product should only be used in only those cases where visible microbial growth has been detected in the system and then only after removing that growth and identifying and correcting the conditions that led to that growth. It may also be used to inhibit growth on surfaces that normally become wet during operation of the system. These normally include (but are not limited to ) evaporator coils, un-insulated piping, condensate drain pans, drain lines, silicon caulks, mist eliminators and cabinet housing components subject to wetting by mist or carryover of water. If you need help in understanding any part of these instructions or have additional questions after reading these instructions, DO NOT APPLY THIS PRODUCT until you have received the answers for all of your questions.

**2.0 Inspection**

Prior to inspecting, cleaning, treating, repairing or otherwise working on the HVAC or duct section, the HVAC system should be turned off or the section under repair physically isolated from sections in active use.

Prior to any application of BBJ MAINTAIN C-1 FOR HVAC SYSTEMS the system must be inspected for cleanliness and mechanical condition. When initiating any measures to repair, clean or treat HVAC system components or air ducts, industry standards from the American Society of Heating and Refrigeration Engineers (ASHRAE), National Air Duct Cleaners Association (NADCA), Indoor Air Quality Association (IAQA) and other organizations must be followed.

HVAC systems should be routinely inspected for cleanliness by visual means. The NADCA Standard, *Assessment, Cleaning and Restoration of HVAC Systems* (ACR 2002 or the latest revision), provides minimum recommended inspection frequency schedules for ducts and other system components. More information on NADCA standards can be obtained from the NADCA web site at [www.nadca.com](http://www.nadca.com).

**2.1 Cleanliness Inspection**

According to NADCA Standards, HVAC system cleaning must be performed when any of the following conditions are found in the cleanliness inspection. If any of these deficiencies are found during inspection, cleaning in accordance with industry standards must be performed prior to the application of BBJ MAINTAIN C-1 FOR HVAC SYSTEMS. At a minimum, these standards require removing all loose soil and debris with a HEPA filter equipped vacuum cleaner and complete cleaning of soil from all heat exchange surfaces using a special cleaner formulated so as to clean such soils effectively yet not damage heat exchange components or release unpleasant or potentially damaging fumes. BBJ POWERFOAM CLEANER is especially formulated to work with BBJ MAINTAIN C-1 FOR HVAC SYSTEMS.

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**2.1.1 Contamination**

Under the Federal Insecticide, Fungicide, and Rodenticide Act as amended for the past 10 years registered under EPA Reg. No. 67212-2

- HVAC systems should be operated in a clean condition. If significant accumulations of contaminants or debris are visually observed within the HVAC system, then cleaning is necessary. Likewise, if evidence of microbial growth is visually observed or confirmed by analytical methods, then cleaning is required.
- If the HVAC system discharges visible particulate into the occupied space, or a significant contribution of airborne particles from the HVAC system into the indoor ambient air is confirmed, then cleaning is necessary.
- Heat exchange coils, cooling coils, air flow control devices, filtration devices, and air-handling equipment determined to have restrictions, blockages, or contamination deposits that may cause system performance inefficiencies, air flow degradation, or that may significantly affect the design intent of the HVAC system, require cleaning.
- Drain pans must be free from slime and sludge or other contamination. Badly rusted or corroded drain pans must either be repaired or replaced.
- Fans and fan housings must be free from accumulations of microbial growth and particulate matter.
- Filters must be in good condition and cleaned or replaced as needed to avoid exceeding the allowable pressure drop for the equipment.

If you need help in understanding existing industry standards, consult a qualified professional or contact BBJ Customer Service at 800.889.2251 for guidance and further direction or consult the information at [www.epa.gov](http://www.epa.gov) (search on "HVAC Systems" or "air ducts"). In addition, the following association and society Internet sites should be consulted for information on standards and guidelines they have developed:

- ACCA – [www.acca.org](http://www.acca.org)
- ASHRAE – [www.ashrae.org](http://www.ashrae.org)
- NADCA – [www.nadca.com](http://www.nadca.com)
- NAIMA – [www.naima.org](http://www.naima.org)
- SMACNA – [www.smacna.org](http://www.smacna.org)

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**2.2 Mechanical Inspection**

BBJ MAINTAIN C-1 FOR HVAC SYSTEMS must be used only on HVAC system components and air ducts in sound mechanical condition as defined in 2.2.1 and 2.2.2 (below). The HVAC system components must be designed and installed in conformance with industry standards and guidelines. Prior to using the product, inspect the HVAC system and ducts and assure that they are in sound mechanical condition. The following general guidelines, supplemented by industry standards from SMACNA, NAIMA, ASHRAE, ACCA and other organizations, must be followed:

**2.2.1 Air Leaks and Mechanical Defects**

The equipment housing, cabinets and ducts must be free from air leaks and other mechanical defects. Air leaks will promote condensation of water that causes microbial growth and will lead to failure of BBJ MAINTAIN C-1 FOR HVAC SYSTEMS to protect the system adequately.

**2.2.2 Design and Installation**

ASHRAE, SMACNA, NAIMA and other industry organizations have established guidelines and standards for the design and installation of HVAC and duct systems. You should determine that the system components you wish to treat conform to industry practice. If you are not knowledgeable of industry guidelines and standards, consult a qualified professional or contact BBJ Customer Service at 800.889.2251 for assistance.

In some situations, the inspection may reveal that a component of the HVAC or duct system is badly damaged or in such poor operating condition that it cannot be corrected through cleaning and/or minor repair. In these situations, the system should be replaced or rebuilt in conformity to the applicable industry standards prior to using BBJ MAINTAIN C-1 FOR HVAC SYSTEMS. Some (but not all) of the conditions that would indicate the need for major repairs or replacement of the system include:

- Improper size of system or component – The system and all components must be sized to achieve correct airflow and be of the proper capacity for the load. When air-handling equipment is changed or new inlets or outlets added, the size of all components in the system should be recalculated and replacements made as needed.
- Physical damage – Crushed or physically damaged equipment may leak or fail to perform as designed. Deformed air ducts will restrict airflow and may leak (especially at joint areas). Damaged equipment must be repaired or replaced or if there is extensive damage, the entire system should be replaced.
- Badly corroded metal components including duct sections, housings and cabinets, coil assemblies, drain pans, fans and their housings and heat exchange surfaces.
- Loose, damaged, friable or missing insulation – Insulation is important in preventing moisture condensation and subsequent growth of mold and other organisms. If insulation (either interior or exterior) is damaged, missing or not properly fastened it must be repaired or replaced or the associated duct sections replaced. Air handler, mixing, and VAV box housings are also normally insulated and this insulation should be checked for damage in a like manner.

Removed components that are contaminated with mold and other microbial growth may spread contamination while being removed from the building. To prevent this, smaller items should be placed in plastic bags that should then be sealed before being removed. Larger items that cannot be safely packaged should be treated before being moved through occupied spaces. An appropriately labeled disinfectant can be used during treatment. Care must be used during treatment to assure that fumes from the agent being used are not released into occupied spaces. Products used should be used according to their label directions. Please contact BBJ Customer Service at 800.889.2251 for guidance on the appropriate disinfectant to use for treatment.

**3.0 General Directions for BBJ MAINTAIN C-1 FOR HVAC SYSTEMS Usage**

BBJ MAINTAIN C-1 FOR HVAC SYSTEMS effectively controls by inhibiting growth of odor causing bacteria, fungi, and other odor, stain or damage causing organisms in HVAC system components and air ducts in residential, commercial, institutional, and industrial buildings. BBJ MAINTAIN C-1 FOR HVAC SYSTEMS also eliminates odors associated with bacteria, mold, mildew, smoke, animals, cooking, spoilage, musty and other odors and removes odor-causing organisms when used as part of such a comprehensive preventative maintenance program in HVAC systems and air ducts.

BBJ MAINTAIN C-1 FOR HVAC SYSTEMS is a bacteriostat, fungistat (mold and mildew), mildewstat and deodorizer for use in residential, commercial and industrial settings. It will not stain or bleach materials or fabrics and will not harm or damage HVAC system components.

BBJ MAINTAIN C-1 FOR HVAC SYSTEMS is formulated for use in all kinds of HVAC components and air ducts including:

- Furnaces.
- Air Handlers.
- Packaged units including Rooftops and Packaged Terminal Air Conditioner (PTAC) units.
- Fan coil units.
- Air distribution components such as air handlers, mixing boxes, transfer boxes, transitions, turning vanes, dampers, fans and fan housings, and associated components.
- Condensate drain pans.
- Unlined sheet metal ducts.
- Air supply and return ducts and plenums fabricated with plywood, OSB or other wood like material.
- Flexible air ducts fabricated of metal or plastic.
- Humidifiers.
- Dehumidifiers; both Desiccant and Refrigerated.
- Registers, Grills and other air intake and discharge devices.

Follow the directions below for the specific type of duct or component being treated. It is vital that the following directions be carefully read and understood prior to using the product. If you have any questions, need further information, require clarification, or do not understand any of the directions, call BBJ Customer Service at 800.889.2251 prior to use.

with COMMENTS

for letter 11-15

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Under the Federal Insecticide, Fungicide, and Rodenticide Act as amended, for the pesticide, registered under EPA Reg. No. 67212-2

**3.1 Mixing Instructions**

[mixing instructions for the 6 oz product] Prior to using, read and observe the instruction on this label. The contents of this package must be properly diluted with tap water at a rate of 2 ounces of product per gallon of water. The contents of this package will make 3 gallons

[mixing instructions for the 32 oz container containing 0.5 ounce product] Prior to using, read and observe the instructions on this label. Concentrated product is already in this spray bottle. Fill this bottle with tap water (makes 32 ounces of finished product).

**3.2 Application Equipment and Devices**

Refer to the precautionary statements for the Personal Protective Clothing and other special instructions that must be followed.

**3.2.1 Spray Applicators**

Spray application is preferred on large surfaces that are easily accessible (such as plenums, coil assemblies, the interior of cabinets, housings with removable access panels, and in long runs of large diameter ducts). The spray equipment chosen should provide a consistent fine (1-300 micron) particle size and uniform spray pattern. Powered medium pressure sprayers such as the BBJ Model 902 are preferred. However, airless sprayers are suitable.

Where airless sprayers are used, the most satisfactory spray pattern will be achieved using a 0.011" spray tip. For other brands and options contact BBJ Customer Service at 800.889.2251.

Pump up garden type sprayers can be used but care must be taken to maintain maximum pressure by pumping frequently and the spray nozzle must be adjusted for the finest spray pattern possible. During application achieve complete uniform coverage. Avoid excessive wetting and do not allow the spray to run or pool.

**3.2.2 ULV or Mist Generating Sprayers**

ULV or mist or other wet small particle application is preferable where surfaces are irregular or less accessible. Equipment capable of generating particles in the 15 to 60 micron range is most satisfactory. Avoid use of thermal type fog generators. BBJ Model 903 is preferred. Contact BBJ Customer Service at 800.889.2251 for information on other devices.

Generally a fog will carry and provide adequate coverage up to 8 feet from the point of application so adequate penetrations must be cut in cabinets or ducts to assure complete coverage without over wetting. SMACNA, NADCA and NAIMA have established standards and guidelines for making and sealing openings in HVAC system components and ducts. Operators should be trained on proper application techniques as well as correct duct penetration and sealing procedures using these standards and guidelines. Operators should also carefully read and follow directions for the brand of equipment used. BBJ Customer Service personnel should be contacted at 800.889.2251 for information on training for using various types of equipment. Housing and duct penetrations should be properly closed following application, in accordance with industry standards.

**3.2.3 Automated Atomizing or Spray System**

There are a number of automated spraying systems on the market including those that are carried by a "robot" through air ducts. These may provide an excellent option for application of BBJ MAINTAIN C-1 FOR HVAC SYSTEMS in parts of air ducts that are difficult to access if they produce the correct spray pattern and application quantity. These devices must be visually monitored using video or other means while applying spray so proper application rate will be maintained. Please contact BBJ Customer Service at 800.889.2251 regarding a specific device should you have questions.

**3.2.4 Brush, Mop or Wipe Application**

Brush, Mop or Wipe Application may be specified by some facility maintenance or remediation plans. These

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techniques are generally more labor intensive than other methods and are normally used only when specifications require. These methods are suitable only for smooth uniform surfaces. Do not use on porous or non-uniform surfaces. If in doubt about a given surface, contact BBJ Customer Service at 800.889.2251 before proceeding. When using brush or mop application, tools and materials used should be reserved only for application of BBJ MAINTAIN C-1 FOR HVAC SYSTEMS, kept clean and protected between uses and replaced when worn or visibly soiled. Natural fiber brushes are preferred although any quality brush is acceptable. Mops should be of the types that leave minimal lint behind. Micro-fiber or other non linting cloths are preferable. Where other types of cloths are used, they must be soft enough that they absorb a sufficient quantity of liquid to provide uniform application.

During Brush, Mop or Wipe Application, the applicator must have access to the surfaces being treated. Usually this will require entering the component or air ducts. In such cases, application must start from the point most distant from the point of entry. The applicator will then work from that point back to the entry point covering a 3 foot length of duct at a time. Apply to the top of the area to be treated first, followed by the sides then the floor. Overlap applications to assure complete coverage. Cover completely while avoiding runs or pooling.

**3.3 Application Techniques**

BBJ MAINTAIN C-1 FOR HVAC SYSTEMS must be applied evenly to surfaces that are being treated. Even and uniform application is essential for satisfactory results. The procedures, equipment and techniques described below have been tested and provide the desired results. Other procedures, equipment or techniques may also achieve satisfactory results but should not be used without discussing the specific situation and equipment with a BBJ Customer Service Representative who can be reached toll free at 800.889.2251.

**3.3.1 Application from Exterior of the HVAC System or Air Duct**

BBJ MAINTAIN C-1 FOR HVAC SYSTEMS may be sprayed into existing access openings where these provide adequate access. Normally these consist of removable panels or access doors. Completely cover all non-electrical components until they are thoroughly and uniformly covered using hand or powered spray equipment. This is the technique of choice for large penthouse or built up air handlers and other components with access panels or doors.

When applying to ductwork, spray into openings at a minimum of every 8 feet. Existing supply openings can be used where they provide a clear view of the surfaces being sprayed so that uniform application can be achieved. However, additional penetrations will have to be made, as needed, so enough openings will be available to achieve total and uniform coverage.

Spray application is not an acceptable technique where openings are greater than 8 feet apart, additional openings cannot be made and properly sealed, and/or the duct geometry does not allow for uniform coverage. In such cases, application from within the HVAC system is necessary (see 3.3.2 below).

**3.3.2 Application from Within the HVAC System**

When BBJ MAINTAIN C-1 FOR HVAC SYSTEMS cannot be sprayed into openings at intervals throughout the HVAC or duct system, you must gain entry into the system and spray the product onto interior surfaces until they are thoroughly and uniformly covered using hand or powered spray equipment. This is the most frequently used technique and is the technique of choice for air handlers, other components with access panels or doors and large diameter (generally 20" x 20" minimum) ducts where direct access can be gained to surfaces being treated.

Some protection is provided for drain pans by excess BBJ MAINTAIN C-1 FOR HVAC SYSTEMS that runs off of cooling coils when they are treated. Additional protection can be provided by spraying BBJ MAINTAIN C-1 FOR HVAC SYSTEMS onto the surfaces of the pan or pouring into the drain pan until the bottom of the pan is uniformly wetted. Systems greater than 20 tons may require BBJ Pan control strips. Before treating the drain pan, check to determine that the drain line is clear and free running and that the drain pan is clean and free of loose corrosion. Replace badly deteriorated ~~HOPE DRIP~~ drain pans that do not drain completely and retain water may experience microbial growth even when treated. Change drain pans and otherwise adjust them so water completely drains from them.

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**3.4.1 Fans and Fan Housings**

Fans create air turbulence, which can lead to condensation of water that supports mold and other growth. As a

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result, fan blade and blower wheel surfaces as well as associated housings are especially prone to fouling from both microbial growth and soil accumulation. It may be necessary to partially or completely remove and disassemble these components so they may be properly cleaned prior to application of BBJ MAINTAIN C-1 FOR HVAC SYSTEMS. Complete cleaning must take place before attempting to treat these components.

**3.4.2 Humidifiers and Dehumidifiers**

Because of the amount of water present, humidifiers and dehumidifiers are often sites especially prone to microbial growth. They also attract and hold soil as growth related contamination builds up over time. This accumulated material must be thoroughly removed prior to treatment with BBJ MAINTAIN C-1 FOR HVAC SYSTEMS. For some units, cleaning may also signal the need to replace pads, belts, wheels or service other components. The manufacturer of the unit being maintained should be consulted on the proper maintenance and cleaning procedure.

**3.4 Rate of Application**

The recommended rate of application for BBJ MAINTAIN C-1 FOR HVAC SYSTEMS varies depending on the surface being treated. Users of this product must carefully follow the rate of application instructions provided below:

**3.4.1 Bare Metal and Flexible Ducts**

Apply until surface is evenly wet. Mist or wipe coverage 1,000 ft<sup>2</sup> per gallon. Spray coverage 500 ft<sup>2</sup> per gallon. If the above application rates result in surface runoff or liquid pooling on the bottom of the duct, lower the application rate until the surface is thoroughly and evenly wet without runoff or pooling. The exception to this is when treating coil assemblies. In this case, the spray should be applied generously until there is runoff into the drain pan so as to penetrate the coil assembly to the greatest possible depth.

**3.4.2 Semi Porous Surfaces such as Concrete or Plaster**

Apply until surface is evenly wet. Mist coverage 500 ft<sup>2</sup> per gallon. Wipe not recommended. Spray coverage 250-ft<sup>2</sup> per gallon. BBJ MAINTAIN C-1 FOR HVAC SYSTEMS must penetrate into surface crevices and irregularities or it will not be effective. Inspect and assure that penetration is satisfactory. It may be helpful to apply half of the quantity needed for full coverage spraying from side to side then repeat the application moving the spray from top to bottom.

**3.5 Frequency of Application**

Normally, infrequent application (every 3 months for HVAC Systems and every 6 months to every two years for air ducts) will provide effective control. Some critical applications such as HVAC and duct systems serving critical health care spaces or clean rooms where it is essential to minimize the generation of particulate matter that may be released as a byproduct of microbial growth may require more frequent treatment. Do not apply more often than monthly and then only if there is evidence of re-growth. This product must only be used in those cases where visible microbial growth has been detected in the system and then only after removing that growth and identifying and correcting the conditions that led to that growth. Prior to reapplication in such cases, investigate to determine the cause of re-growth and correct that problem prior to re-application. Before embarking on a program of frequent application (more frequent than every three months) contact BBJ Customer Service at 800.889.2251 and discuss the specific application and situation. Also make sure the reoccurrence of microbial growth does not have another cause such as persistently high humidity, standing water or hidden leaks.

Prior to reapplication, the interior of the ducts and other surfaces must be inspected and found to be free of accumulated soil. If soil or growth is found, the cause should be determined and corrected and then the ducts cleaned in accordance with accepted industry practice.

If microbial growth persists in air ducts following application re-inspect for duct leaks, carryover of water from cooling coils or humidifiers and other sources of moisture promoting growth. Eliminate such sources of moisture before retreating.

**3.6 Returning the System to Operation Following Application**

Equipment being treated and the fans and blowers in the section of duct being treated must be turned off during

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application of BBJ MAINTAIN C-1 FOR HVAC SYSTEMS. If the system cannot be shut down, the section of the system being treated must be isolated until treatment is complete. This will prevent the spray of fog from being blown away from the surface that is being treated.

Do not attempt to use the system fan or blower to carry BBJ MAINTAIN C-1 FOR HVAC SYSTEMS to the surfaces within system. Such a practice will not result in uniform application of the product to the surfaces being treated and will lead to ineffective control. This should never be attempted.

The system can be returned to full operation as soon as treatment is completed or at any time following completion of treatment. BBJ MAINTAIN C-1 FOR HVAC SYSTEMS will dry on surfaces within 15 minutes following application. Extended drying time does not have an impact on effectiveness of treatment. BBJ MAINTAIN C-1 FOR HVAC SYSTEMS should not be rinsed off following application so it will continue to inhibit the growth of microorganisms on treated surfaces.

When the above directions are followed properly, there will not be significant concentrations of BBJ MAINTAIN C-1 For HVAC SYSTEMS released to the spaces served by a system being treated. There is no need to have occupants leave the building during application.

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