

Dirty Sock Syndrome

Why it happens!
How to resolve it!

Why it happens!

- From information gathered over many years, most professionals agree the "Dirty Sock Syndrome" is caused by bacteria that collects and grows on the indoor coils of heat pumps and air conditioners.

Complaints normally surface when heat pumps go into defrost, or when systems are run in heating for a brief time then switched back into cooling. The bacteria or odor collects and grows on the coil during this heating time and is released all at once when the indoor coil gets cool and damp. Heat pump owners notice the odor when the system goes into defrost, usually when the outdoor temperature dips below 40 degrees. Heat pumps and air conditioners experience the problem, when the air conditioner is turned back on after the heating has been used. Our climate can require heating in the morning and cooling in the afternoon. This is a perfect condition for a complaint to surface.

Why it happens!

- Most customers describe the odor as a musky, dirty, locker room smell. The problem is similar to an odor that is blown out of a car air conditioner when the AC has not been used for a while.

It is very important to properly identify the problem before any action can be taken, since many odor problems are incorrectly labeled as a dirty sock problem. Eliminate dirty drain pans holding water, drain lines connected to plumbing systems without adequate traps or dry traps, return air leaks in ductwork or chases, or dead animals in ductwork or near the living space. If the odor is present ALL the time, especially during heat, the problem is NOT a dirty sock syndrome complaint. Dirty sock complaints only smell when the indoor coil gets cool and the bacteria releases its odor into the air stream.

Why it happens!

- The Dirty Sock Syndrome plagues 0.5 to 2 percent of heat pumps in the southern states, with Texas being on the lower side of the percentage. The syndrome is not brand specific, with all manufacturers acknowledging complaints. The problem itself is sporadic and limited to isolated households and is somehow related to the living style or products in the home. This can be proven as Rheem and other manufacturers have documented changing out systems with new product and the complaint returns. After removing a "stinky" unit from a complaint house, the unit can be cleaned and installed elsewhere without a complaint surfacing. Changing the brand of equipment is met with a similar lack of success. In one instance a complaining customer underwent a divorce and when one of them moved out of the home, the problem went away.

Why it happens!

- Once the problem has been properly identified, action can then be taken to resolve or reduce the complaint, starting with a thorough cleaning of the evaporator coil with a non-acid coil cleaner. Cleaning will bring the system back to normal and will usually prevent a complaint for the rest of the heating season. Some systems cleaned early in the season or those having more of a problem may have repeated problems during the same season, especially if the weather conditions force a system back and forth from heating to cooling. The majority of complaints are resolved with a thorough cleaning.

Why it happens!

- Dirty Sock Syndrome complaints can be quite emotional and are generally aimed at the equipment manufacturer. Hopefully the information in this document will educate customers and service providers to the real cause of the problem: Airborne Contaminants that are circulated into the heating and air conditioning system via the return air duct system!

How to resolve it!



We have two different methods that we have found to make Dirty Sock Syndrome (DSS) go away. One method involves the use of Nu-Calgon chemicals that Wittichen Supply Company actually keeps in their inventory. The other method requires you to get a new indoor coil and have it sent to a company in Florida to have it dipped and coated. This Bronz-Glow coating will prevent the (DSS) bacteria formation on the new coil, but this procedure is considerably more expensive. The Nu-Calgon chemicals that Wittichen actually stocks is the much less expensive route to go. It also takes less time and is the method that is usually chosen 99% of the time.

This method requires the use of two different Nu-Calgon products. One product is a coil cleaner and the other is a Teflon coating to be applied after cleaning removes all the bacteria. The coil cleaner is called Bio-Fresh and it comes in a quart bottle or a gallon jug. The quart is a part # 4126-34, the gallon is a part # 4126-38!



How to resolve it!

The Cal-Shield, which is the Teflon coating for the coil, also comes in a quart bottle or a gallon jug. The part number for the quart bottle is 4148-32 and the part number for the gallon jug is 4148-08.

When using this technique it is very important to pay close attention to these instructions to be sure to resolve the situation!

First, all need to understand that the goal is to clean the indoor coil and kill all of the bacteria and contaminants on the coil. This is why Nu-Calgon Bio-Fresh is the chosen cleaner for Dirty Sock Syndrome. Bio-Fresh is a ready-to-use bacteriostat, fungistat and deodorizer based upon chlorine dioxide technology. It is recommended for control of bacteria, mold, mildew, fungi and yeast in indoor air quality applications. Its EPA registration includes application in HVACR ventilating equipment, including coils, condensate pans, filters and duct-work.



Directions!

- 1. The first step to preventing DSS is to clean the coil with the Nu-Calgon Bio-Fresh coil cleaner. It is important to know that this act of coil cleaning has to be very thorough. It should be the best job of cleaning a coil you have ever done before. It is very important to kill all of the bacteria and clean the coil to remove it! Doing so will make the smell go away and also make the indoor air quality much better. However, that is not the final step.

Direction!

- 2. The next step to help prevent DSS is to coat the coil with the Nu-Calgon Cal-Shield. A revolutionary product formulated with DuPont Teflon surface protector. It utilizes the recognized ability of Teflon to shield and protect finned cooling and heating coils. Cal-Shield is a synergistic liquid formulation based upon DuPont's Teflon fluoroadditives.
- It is specifically designed for application on air-cooled condensers, evaporator coils and other finned heating and cooling coils where it forms a micro-thin or molecular film made with Teflon. Once applied, Cal-Shield will shield and protect the coil from adverse conditions within the operating environment.

Directions!

- The most important thing to know about Cal-Shield is, before applying the product, the indoor coil needs to be as dry as possible. If the coil is not dry it will just make the Teflon coating (Cal-Shield) run right off the coil. We recommend after cleaning the coil, to allow the blower to run on fan-only and let it assist in drying the coil faster.
- Once the coil is completely dry, then the Cal-Shield can be applied. For best results it is better to use a spray bottle to enable the product to be applied in a fine mist. The Cal-Shield can be purchased in a quart sized spray bottle. However, if only the gallon jug size is readily available, it is best to find a spray bottle for applying the product.

Conclusion!

- We have had great results with this method to resolve Dirty Sock Syndrome. Although, it is important to understand that in many cases this will not prevent DSS from EVER returning. Due to this being environmentally related, over a period of time, the bacteria can re-surface and the smell can come back.
- Many people have their service company do this treatment annually, during routine preventive maintenance, to keep it away for good. Others choose just to treat it as it occurs. No matter how often you choose to treat DSS, this is an excellent, less expensive, but most of all, PROVEN method to resolve the situation!