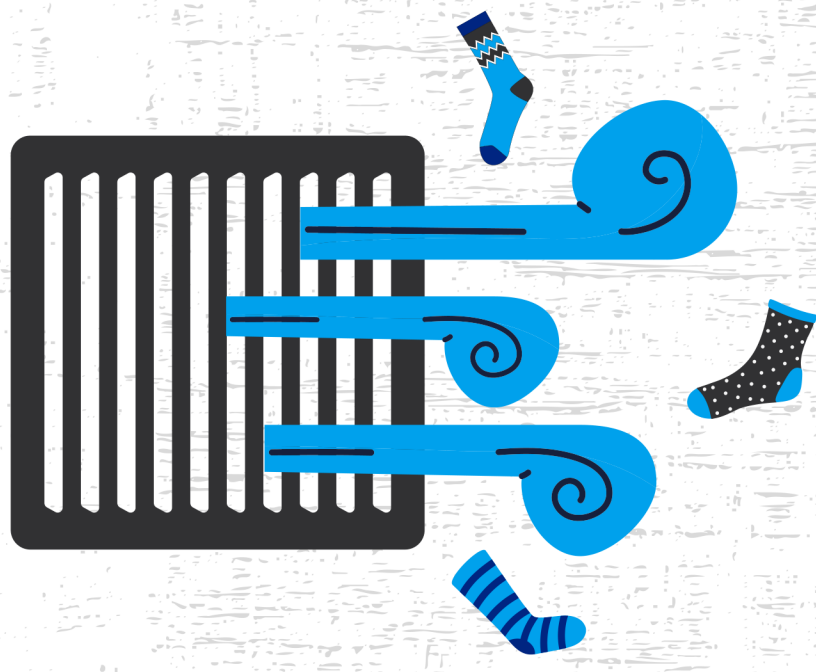


Dirty Sock Syndrome

A Guide for Homeowners

by **aircon.**



Approximately two decades ago manufacturers of HVAC equipment began receiving complaints from homeowners of a transient, foul-odor that would occur on HVAC systems when the system was switched from heating cycles to cooling cycles. This odor was most often described as being like “dirty socks” and thus began being referred to as Dirty-Sock-Syndrome by HVAC professionals. In recent years, with consumers being more concerned about indoor air quality, many more homeowners are noticing and voicing complaints about the odor. This has led various organizations to attempt to discover the root-cause of, and means to mitigate, the odor. *None of these efforts has been successful at finding causation, nor for developing fool-proof methods for preventing the odor from occurring in the future.*

HEAT PUMPS ARE MOST AFFECTED



Heat pump technology is wonderful for reducing energy usage during winter months as it is much more efficient during heating cycles than traditional electric heat. However, due to the lower heating element temperatures, the periodic defrosting cycle of the compressor, and other run-time factors; heat pumps may experience dirty sock odor during winter months whereas gas heat tends to only experience the phenomenon when switching from heating to cooling.

THE ODOR IS TRANSIENT



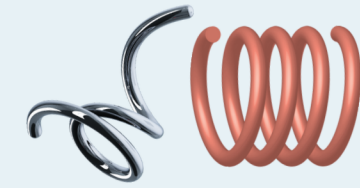
Dirty-Sock odor is transient, and typically resolves itself within 24 to 48 hours of continuous cooling cycles. For most who experience the odor, it will resolve in hours after first being experienced.

THE ODOR IS NOT DANGEROUS



None of the studies that have been performed on the phenomenon have identified any health hazards associated with the odor. There are anecdotal accounts of individuals experiencing worsening allergies or asthma symptoms while the odor is present, but this has not been confirmed in any published studies.

BOTH COPPER AND ALUMINUM COILS ARE AFFECTED



There is misleading information that this phenomenon is only associated with modern aluminum evaporator coils, but this is simply not borne out by the fact that these odors have been reported before the adoption of aluminum coils.

SOME PRODUCTS CLAIM TO PREVENT DIRTY-SOCK SYNDROME



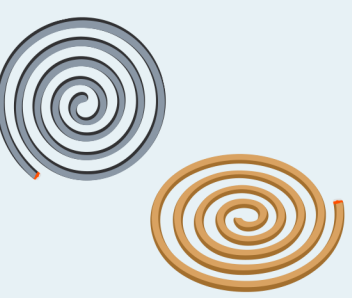
There are no products that are proven to be 100% effective at preventing the odor. This leaves professionals in a bind- do we sell a client a promised solution that we may or may not be able to deliver, or do we admit that we may not be able to solve the odor problem? Either way, HVAC professionals are the ones who bear the brunt of anger and frustration from our clients. If there were a silver bullet, we would absolutely employ it to solve this problem. We receive numerous complaints during the wild winters of Houston as we have to cycle between heating our homes and cooling our homes, often within a matter of days.

THE HOME'S AIR QUALITY CONTRIBUTES TO THE ODOR



Trane, Lennox, and other manufacturers have spent a lot of time investigating this odor problem. One of their avenues of investigation was to replicate the issue in homes of their employees, laboratories, and other settings. In most cases, they were unable to replicate the odor outside of the home in which the problem was first identified, and to make matters worse for the homeowner, replacement coils offered by the manufacturer would soon begin exhibiting the same odor issues.

DIPPED COILS ARE PERHAPS AN ANSWER, BUT NOT FOOL PROOF



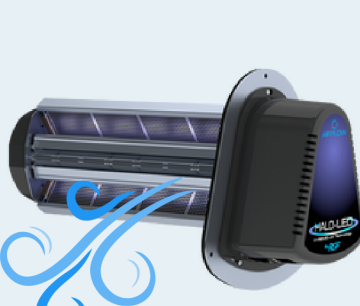
Aircon has worked with Lennox to test 'dipped' evaporator coils. This is a time-intensive and inconvenient activity for all involved, especially the home's owner. To dip the coil, it must be uninstalled, shipped to a third-party for dipping in the coating, shipped back to the contractor, and then re-installed in the home. In our experience, there was only about a fifty-percent chance that this solution would resolve the issue. None of this is covered by warranties and is costly for the homeowner.

HVAC PROFESSIONALS ARE NOT EXEMPT



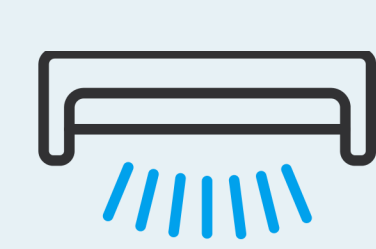
As the owner of an HVAC provider, I have access to all possible solutions on the market for resolving these odors, and I still experienced them each spring when switching from heating to cooling. I have experimented on my own home to attempt to find a solution for our clients, but nothing I've tried has resolved the odor. Some 'solutions' on the market lessened the intensity of the odor, some did nothing, others made the situation worse by heavily perfuming the air stream; but none of them completely resolved the problem.

FOR PEACE OF MIND, INSTALL A REME HALO







Reme Halos produced ionized hydrogen peroxides that can kill mold, mildew, bacteria, and viruses in the air stream and on surfaces in the home. These devices are based on NASA technologies that are currently used on the ISS, and the Reme is the choice of the Department of Defense in controlling air quality. While no solution can prevent contaminants from entering your home, products like the Reme Halo will make sure that those contaminants are destroyed upon entry. As a plus, the ionized H2O2 clumps contaminants together through static-electricity to reduce particulate matter in the air- particulates like dust, pollen, pet dander, human skin cells, and any other airborne matter.

UV LIGHTS DO NOT CLEAN AIR STREAMS



UV Light is wonderful at destroying biological materials, but only if those materials are exposed to the light for a long enough period. Material that does not get exposed to the light is not affected. This leads to UV lights only being effective at cleaning those surfaces which are directly exposed to the light, and only provides a modest reduction in the air stream.

So what can be done?

-  **CLEAN THE EVAPORATOR COIL**
Dirty evaporator coils contribute to an environment that is more favorable for the odor to arise.
-  **INSTALL A REME HALO**
As explained above, having a Reme Halo provides many benefits beyond helping control dirty-sock-syndrome.
-  **HAVE PATIENCE**
For most homeowners the odor will resolve with 48 hours, with most resolving with a few hours of continuous use.
-  **CONTRACT AIRCON TO HAVE THE COIL DIPPED**
This is our least favorite options as it will cost more than any other solution and will result in the loss of cooling for potentially weeks. The last coil we sent to have dipped had a turn-around-time of two months.

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