

## Smoke Odors Can Be Removed

Fire damage affects thousands of homes and commercial properties causing millions of dollars in damages each year. In the past, the restoration of smoke or fire damaged buildings consisted primarily of removal and replacement of the affected materials. Today, the insurance industry is searching for companies that have the ability to minimize losses, both in time and cost. Purofirst and Puroclean businesses utilize state-of-the-art technology specifically designed to use the best methods and procedures available to clean and restore, rather than repair or replace.

Smoke and soot are the direct result of incomplete combustion causing both particulate and odor contamination throughout a structure. After a fire or other similar event, carbon particles and other particulates from the combustion can be visibly seen on both horizontal and vertical surfaces. This residue is often black, but it can also

be brown or yellow in color—depending on what types of materials burn, how long they burn, and how completely they are consumed during the fire. These “fuel” materials include wood and other organic materials, plastics and other manmade items, proteins, etc. All burning materials, as well as their charred remains and the resulting smoke and soot,

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create different odors—many of them extremely unpleasant.

Smoke seeps through the most minute cracks and crevices and leaves behind its residue, often in remote and inaccessible areas. In many cases the smoke also reaches structure components such as framing. Smoke odor is hard to remove because of its very nature and often because it is difficult to reach. To be effective, the deodorization process

must duplicate, to some extent, the behavior of the smoke by following the original path the smoke took during the fire. The deodorant must be able to penetrate the building to contact and counteract the odor causing molecules.

Smoke odor is classified into three categories:

1. Protein odor—resulting from burning (or scorching, since this type of fire sometimes never actually “flames”), meat, fish, poultry or other protein-rich foods, especially eggs.

2. Natural material odor—resulting from items made from wood, paper, wool, cotton, and other natural materials.

3. Synthetic material odor—resulting from burning synthetic materials such as all plastic and other polyvinylchloride items (pipes, etc.) nylon, polyester, polypropylene, etc.

During all “modern” fires, many different substances burn requiring more knowledge and complex procedures to remove the resulting odors.

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The deodorizing process will consist of several procedures or a combination of procedures to be effective. The following are some of these procedures:

**Source removal**—removal of charred or contaminated debris from the affected area. This is the first step and the most important. It is pointless to attempt to deodorize an area that still contains charred remains of the fire.

**Cleaning**—mechanical action with appropriate cleaning products to remove residue and decontaminate odor sites. This is actually a continuation of the “removal” process and is the natural and required second step in the process.

**Aeration**—the process where the contaminated air together with other odorous airborne substances are circulated out of the indoor environment by mechanical air movers while fresh air is drawn into the area to replace it.

**Filtration**—removal of airborne particles with HEPA filtration or carbon absorbent filters. This is used following aeration, or when aeration is not available; (for instance,

when the structure is sealed and cannot be opened.)

**Chemical change**—the use of an ozone generator to oxidize odor molecules and convert them into substances without an offensive odor.

**Masking**—fogging (and filling) the air space and structure materials with appropriate devices. The fog then moves through the building, following the same path as the original smoke. Many of the better systems use products that have been established to change the odor molecules to eliminate the offensive odor, as well as providing a pleasant “masking” odor. As the pleasant odor dissipates, the bad odor is also gone. *Note:* The use of solvent-based fogging systems is discouraged since they use a petroleum-based material that, under EPA guidelines, actually acts as a pollutant in the air.

**Sealing**—there are a number of very effective sealants on the market today that are the last step in the deodorizing process. Modern sealants are all water-based and have been developed to the level that they rival or actually exceed

the performance of earlier, oil-based compounds. They work by “sealing” the surface of materials and act as an effective “block” to keep the final molecules of odor from escaping into the surrounding air. *Note:* Cleaning is required prior to sealing since the sealant must have direct contact with the structural material. If it is placed on top of gross soiling or smoke or soot, it will most likely fail to provide an acceptable seal.

These technologies can be very effective when used appropriately by a trained professional. However, they are not a cure-all. It is important to remember that a thorough inspection and analysis conducted by a professional restorer is the best way to determine the optimum process to achieve the best results. Purofirst and Puroclean offices have the training, certification, and experience to understand the disaster situation and the best techniques, procedures and processes to achieve the best possible results.

WLS 12/2006

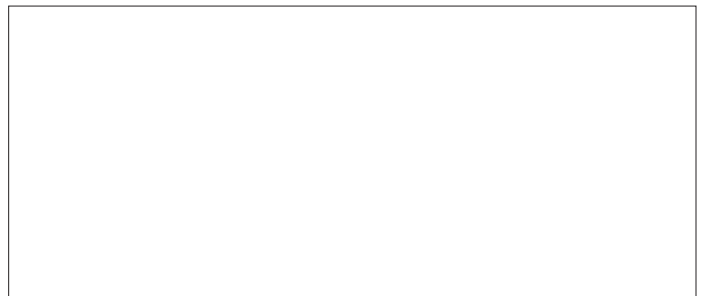


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