



Biological Contaminants

What Are Biological Contaminants?

Biological contaminants are or were living organisms. They can cause poor indoor air quality and some can damage surfaces inside and outside the home. These contaminants can travel through the air and are often invisible. Common indoor biological contaminants include bacteria, molds, mildew, viruses, animal dander and cat saliva, house dust mites, cockroaches, and pollen. There are many sources of these pollutants:

- Bacteria are carried by people, animals, and soil and plant debris.
- Viruses are transmitted by people and animals.
- Pollens originate from plants.
- The protein in urine from rats and mice is a potent allergen. When it dries, it can become airborne.

The two conditions that are necessary to support biological growth are nutrients and moisture. These conditions can be found in many locations, such as bathrooms, damp or flooded basements, wet appliances (humidifiers and air conditioners), and some carpets and furniture. Mold, mildew and other biological contaminants can grow in contaminated central air handling systems. These systems can distribute the contaminants through the home.

What Are the Health Effects?

Many health effects are associated with biological contaminants:

- Some may trigger allergic reactions, including hypersensitivity pneumonitis, allergic rhinitis, and some types of asthma. Allergic reactions occur only after repeated exposure to a specific biological allergen. However, that reaction may occur immediately upon re-exposure or after multiple exposures over time. As a result, people who have noticed only mild allergic reactions, or none at all, may suddenly find themselves very sensitive to particular allergens.
- Infectious diseases, such as influenza, measles, tuberculosis, and chicken pox, are transmitted through the air.
- Some molds and mildews can release disease-causing toxins. These toxins can damage a variety of organs and tissues in the body, including the liver, central nervous system, digestive tract, and immune system. Some diseases, like humidifier fever, can be traced to microorganisms that grow in home heating and cooling systems, although it is not certain whether the disease is an allergic reaction or a toxic response.
- Symptoms of exposure to biological contaminants include sneezing, watery eyes, coughing, shortness of breath, dizziness, lethargy, fever, and digestive problems. Children, elderly people, and people with breathing problems, allergies, and lung

diseases are particularly susceptible to disease-causing biological agents in the indoor air.

How Can I Reduce Exposure?

You can reduce your exposure to biological contaminants in several ways:

- Install and use exhaust fans that are vented to the outdoors in kitchens and bathrooms. Vent clothes dryer air to the outdoors.
- Keep the relative humidity level of the house between 30 to 50 percent. Dry off wet surfaces and correct water problems.
- Thoroughly clean and dry water-damaged carpets and building materials (within 24 hours if possible) or consider removal and replacement.
- Dust mites, pollens, animal dander, and other allergy-causing agents can be reduced, although not eliminated, through regular cleaning.
- Ventilate the attic and crawl spaces to prevent moisture buildup.
- Take steps to minimize biological pollutants in basements. Regularly clean and disinfect any basement floor drain. If needed, use a dehumidifier to keep relative humidity levels between 30 to 50 percent.
- Maintain and clean all appliances that come in contact with water. Have a professional inspect and clean appliances, such as furnaces, heat pumps, central and wall air-conditioning units, and furnace-attached humidifiers. Change the filters on heating and cooling systems frequently according to the manufacturer's directions.