

New York State Department of Health

Tenant Notification Fact Sheet for Tetrachloroethene (Perc)

This fact sheet is provided to fulfill New York State Department of Health (NYS DOH) requirements for preparation of generic fact sheets under Article 27 (Title 24, Section 27-2405) of the Environmental Conservation Law.

Tetrachloroethene (Perc)

Tetrachloroethene (also known as perchloroethylene or Perc) is a man-made volatile organic chemical that is widely used in the dry-cleaning of fabrics, including clothes, and in manufacturing other chemicals. It was also used for degreasing metal parts and in consumer products, including some paint and spot removers, water repellents, brake and wood cleaners, glues, and suede protectors.

Sources of Perc in Indoor Air

Household products containing Perc could be a possible source for Perc in indoor air. Perc also may evaporate from dry-cleaned clothes or dry-cleaning operations into indoor air. Another source could be evaporation from contaminated well water that is used for household purposes. Perc may also enter homes through soil vapor intrusion, which occurs when the chemical evaporates from groundwater, enters soil vapor (air spaces between soil particles), and migrates through building foundations into the building's indoor air. Perc has also been found at low concentrations in outdoor air.

Levels Typically Found in Air

The NYS DOH reviewed and compiled information from studies in New York State as well as from homes and office buildings across the United States on typical levels of Perc in indoor and outdoor air. Levels of Perc in the indoor air of homes and office settings and in outdoor air are expected to be below 10 micrograms per cubic meter (mcg/m³).

Health Risks Associated with Exposure

An association exists between exposure of people in the workplace to high levels of Perc in air and certain forms of cancer. Perc causes cancer in laboratory animals exposed to high levels over their lifetimes. Overall, the studies of humans and in animals do not prove that Perc causes cancer in people, but are highly suggestive that there may be an increased risk for cancer in people who are exposed to Perc (particularly at high concentrations) over long periods of time

People exposed to high levels of Perc in air had nervous system effects and slight changes to their liver and kidneys. Some studies show a slightly increased risk for some types of reproductive effects among workers (including dry-cleaning workers) exposed to Perc and other chemicals. The reproductive effects associated with exposure included increased risks for spontaneous abortion, menstrual and sperm disorders, and reduced fertility. The data suggest, but do not prove, that the effects were caused by Perc and not by some other factor or factors. Exposure to high levels of Perc has caused liver and kidney damage in laboratory animals and effects on the nervous system. Taken together, the human and animal studies indicate that human exposure to high levels of Perc causes effects on the nervous system, and suggest that human exposure to high levels of Perc may increase the risk for liver and kidney toxicity.

NYS DOH Air Guideline

The NYS DOH guideline for Perc in air is 30 mcg/m³. This level is lower than the levels that have caused health effects in animals and humans. The guideline is based on the assumption that people

are continuously exposed to Perc in air all day, every day for as long as a lifetime. This is rarely true for most people who, if exposed, are likely to be exposed for only part of the day and part of their lifetime. In setting this level, the NYS DOH also considered the possibility that certain members of the population (infants, children, the elderly, and those with pre-existing health conditions) may be especially sensitive to the effects of Perc.

The purpose of the guideline is to help guide decisions about the nature of the efforts to reduce Perc exposure. Reasonable and practical actions should be taken to reduce Perc exposure when indoor air levels are above those typically found in indoor air, even when they are below the guideline of 30 mcg/m³. The urgency to take actions increases as indoor air levels increase, especially when air levels are above the guideline. The NYS DOH recommends taking immediate action to reduce exposure when an air level is ten times or more higher than the guideline (that is, when the air level is 300 mcg/m³ or higher).

Ways to Limit Exposure to Perc in Indoor Air

In all cases, the specific actions to limit exposure to Perc in indoor air depend on a case-by-case evaluation of the situation. Removing household sources of Perc and maintaining adequate ventilation will usually help reduce indoor air levels of the chemical. A sub-slab depressurization system can reduce the amount of Perc entering indoor air by soil vapor intrusion. Use of an activated carbon filter on the water supply can reduce the amount of the chemical in contaminated well water that could evaporate into indoor air.

Reportable Detection Level

The reportable detection level for a chemical can vary depending on the analytical method used, the laboratory performing the analysis, and several other factors. Most laboratories that use the analytical methods recommended by the NYS DOH for measuring Perc in air (and approved by the National Environmental Laboratory Accreditation Conference or New York State's Environmental Laboratory Approval Program) can routinely detect the chemical at concentrations below 1 mcg/m³.

Additional Information

Additional information on Perc, ways to reduce exposure, indoor air contamination resulting from soil vapor intrusion, indoor and outdoor air levels and the Environmental Conservation Law can be found on the NYS DOH website at www.health.state.ny.us/environmental/indoors/air/contaminants.

If you have further questions about Perc and the information in this fact sheet, please call the NYS DOH at 1-518-402-7800 or 1-800-458-1158 (extension 2-7800), e-mail to ceheduc@health.state.ny.us, or write to the following address:

New York State Department of Health
Center for Environmental Health
Outreach and Education Group
Empire State Plaza-Corning Tower, Room 1642
Albany, New York 12237