

New York State Department of Health

Tenant Notification Fact Sheet for Trichloroethene (TCE)

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.

Trichloroethene (TCE)

Trichloroethene (also known as trichloroethylene or TCE) is a man-made, volatile organic chemical. It was used as a solvent to remove grease from metal. Trichloroethene was also used as a paint stripper, an adhesive solvent, an ingredient in paints and varnishes, and is used in the manufacture of other organic chemicals.

Sources of TCE in Indoor Air

Household products containing TCE could be a possible source for TCE in indoor air. Another source could be evaporation from contaminated well water that is used for household purposes. TCE 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. TCE 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 TCE in indoor and outdoor air. Levels of TCE in the indoor air of homes and office settings and in outdoor air are expected to be less than 1 microgram per cubic meter (mcg/m³).

Health Risks Associated with Exposure

Some studies of people exposed for long periods of time to high levels of TCE in workplace air or in drinking water show an association between TCE exposure and increased risks for certain types of cancer. These studies have limitations, and therefore we do not know with certainty if the increased risks are due to TCE or some other factor. Lifetime exposure to high levels of TCE has caused cancer in laboratory animals. Overall, the studies of humans and in animals do not prove that TCE causes cancer in people, but are highly suggestive that there may be an increased risk for cancer in people who are exposed (particularly at high concentrations) to TCE over long periods of time.

Long term exposure to high levels of TCE in workplace air is linked to effects on the central nervous system and irritation of the mucous membranes. One study showed an association between elevated levels of TCE in drinking water and effects on human fetal development. Other studies suggest an association between workplace TCE exposure and reproductive effects in men. Due to limitations in the studies, we do not know if the observed effects on fetal development and reproduction are due to TCE or some other factor is not known. In laboratory animals, exposure to high levels of TCE has damaged the central nervous system, liver and kidneys, and adversely affected reproduction and development of offspring. Taken together, the human and animal studies indicate that human exposure to high levels of TCE causes effects on the nervous system, and suggest that human exposure to high levels of TCE may increase the risk for reproductive and developmental health effects.

NYS DOH Air Guideline

The NYS DOH guideline for TCE in air is 5 mcg/m³. This level is many times 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 TCE 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 TCE.

The purpose of the guideline is to help guide decisions about the nature of the efforts to reduce TCE exposure. Reasonable and practical actions should be taken to reduce TCE exposure when indoor air levels are above those typically found in indoor air, even when they are below the guideline of 5 mcg/m³. The urgency to take actions increases as indoor air levels increase, especially when air levels are above the guideline.

Ways to Limit Exposure to TCE in Indoor Air

In all cases, the specific actions to limit exposure to TCE in indoor air depend on a case-by-case evaluation of the situation. Removing household sources of TCE and maintaining adequate ventilation will usually help reduce indoor air levels of the chemical. A sub-slab depressurization system can reduce the amount of TCE 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 evaporates 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 TCE 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 TCE, 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 <http://nyhealth.gov/environmental/indoors/air/contaminants/>.

If you have further questions about TCE 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:

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New York State Department of Health
January, 2009