

Tetrachloroethylene (PCE, Perc) in Air

Tetrachloroethylene (perchloroethylene, PCE, and PERC) is widely used for dry cleaning. PCE is also used for degreasing metal parts and in manufacturing other chemicals. It can be found in consumer products, including some adhesives, automotive parts cleaners, and stain removers.

PCE...

- is a nonflammable, colorless liquid at room temperature.
- evaporates easily into air.
- has an ether-like odor at high concentrations; at lower levels, there is no odor to warn people that contaminants are in the air.



People may contact PCE by...

- working in industries that produce or use PCE.
- living or working near dry cleaning facilities or from recently dry-cleaned clothes.
- using PCE-containing products.
- breathing PCE vapors that come from contaminated soil or groundwater underneath homes and buildings.

Health concerns from breathing PCE:

Health effects can occur when people breathe *high* concentrations of PCE vapors in the air over many years.

- Exposure can result mainly in effects like vision changes, delayed reaction time, and reduced mental function. These symptoms usually go away after exposure stops.
- PCE may cause cancer based on human studies. The studies suggest there may be an increase in bladder cancer, non-Hodgkin's lymphoma, and multiple myeloma. PCE exposure to rodents also increases liver tumors and leukemias.

The potential for a person to actually experience a health effect depends on the amount of a chemical that a person is exposed to and the length of the exposure. Exposures to chemicals for most people are likely to be at low levels for part of a day, or part of a year, etc.; these exposures are unlikely to be associated with health effects.

About PCE Air Values (measured in micrograms per cubic meter, or $\mu\text{g}/\text{m}^3$)

The Minnesota Pollution Control Agency (MPCA) develops Intrusion Screening Values (ISVs) to understand when actions may need to be taken to protect health. The Residential ISV is an amount of PCE that is safe for people to breathe. This level is protective for sensitive people, including children, pregnant women, and people who already have health issues.

ISVs are much less than regulatory limits for workplaces where the chemical is used. Breathing PCE above the ISVs does not mean health effects will occur, however, the risk for health impacts increases as the level of exposure increases. When ISVs are exceeded, MDH recommends steps be taken to reduce exposures.

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| 3.4 $\mu\text{g}/\text{m}^3$ | Residential ISV - a safe level that protects all people from health effects. |
| 33 $\mu\text{g}/\text{m}^3$ | Workplace ISV - a safe level for people who may have exposures in the workplace over many years. |
| 40,000 $\mu\text{g}/\text{m}^3$ | Level at which workers were found to experience a change in color vision after exposure for many years. |
| 170,000 $\mu\text{g}/\text{m}^3$ | Regulatory occupational exposure limit for dry cleaner workers. |