

# Important Information about Trichloroethylene (TCE) in Residential Indoor Air

## Where can I get more information on TCE health effects?

More information can be found on the Agency for Toxic Substances and Disease Registry web site. A fact sheet with answers to the most frequently asked questions about TCE is available at:

<https://www.atsdr.cdc.gov/toxfaqs/tfacts19.pdf>

## Where can I get more information on TCE investigation and cleanup?

Ecology has developed a guidance document titled: “Vapor Intrusion (VI) Investigations and Short-term Trichloroethene (TCE) Toxicity” which is available at:

<https://fortress.wa.gov/ecy/publications/SummaryPages/1809047.html>

## Special Accommodations

To request ADA accommodation or materials in a format for the visually impaired, visit <https://ecology.wa.gov/accessibility> call Ecology at 360-407-7285, Relay Service 711, or TTY 877-833-6341.



**Figure 1.** Sampling indoor air with a Summa canister.  
Photo: U.S. Environmental Protection Agency

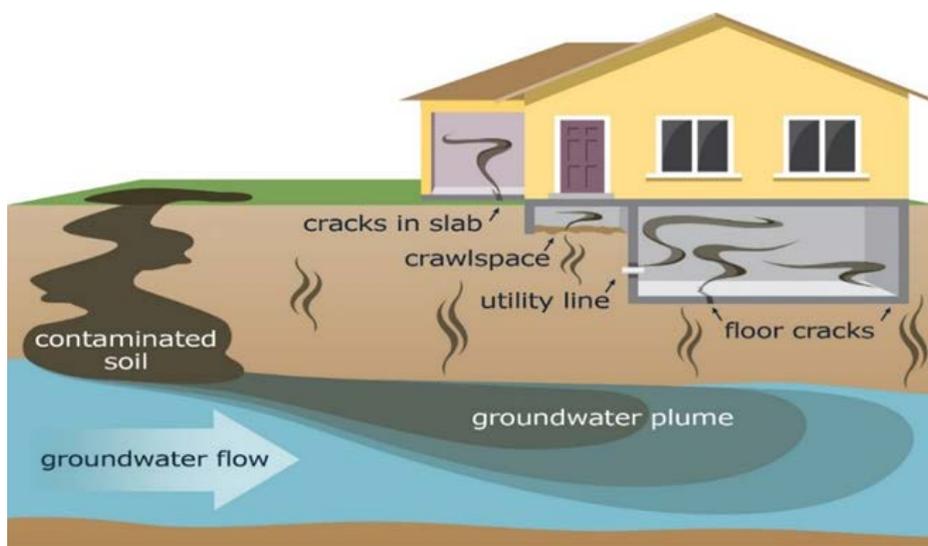
## What is TCE?

TCE is a human-made, colorless liquid solvent used to remove grease from metal parts. It is also an ingredient in some consumer products such as glues, paint removers, and gun cleaners. TCE can enter the environment from releases at commercial or industrial facilities that have or are currently using this chemical. The primary source is typically from releases of tetrachloroethylene (PCE), a chemical commonly used in the dry cleaning process. This chemical can breakdown over time into TCE.

## How might I be exposed?

When TCE is underground in soil or groundwater, it can vaporize and contaminate the air space between grains of soil. This “soil gas” can pollute indoor air by moving through cracks in building foundations and openings used for utility lines.

The figure below shows this migration of vapors in soil gas called *vapor intrusion*. Vapor intrusion can lead to contamination of indoor air.



## What are the potential health effects from indoor air TCE exposure?

According to the Environmental Protection Agency, potential health effects from breathing TCE depend on levels in indoor air, length of exposure, and whether and when a person is exposed. TCE has the potential to increase the risk of heart malformations in the developing fetus. Women in the first 8 weeks of pregnancy, before some may even be aware they are pregnant, are most sensitive to TCE exposures.

Breathing TCE over a long period of time may affect individuals’ immune system and increase susceptibility to infections. Long-term exposures may also increase the risk of cancers of the kidney, liver, and non-Hodgkin’s lymphoma.

## What should I know about TCE if I am or might become pregnant?

Because TCE exposure during the first 8 weeks of pregnancy could affect fetal heart development, women of child-bearing age may want to consult with a physician familiar with chemical exposures. Depending on the specific situation, they may also want to limit their potential exposure while efforts are underway to determine if indoor air is contaminated.

## What about exposures before or after the first eight weeks of pregnancy?

Information from the Massachusetts Department of Environmental Protection (March 2014) indicates:

- Exposures that occurred two weeks or more before pregnancy are unlikely to contribute to fetal risk since most TCE is eliminated from the body within a day.
- After the first 8 weeks of pregnancy, TCE does not present a risk to the developing fetal heart because it is fully formed.

## What level of TCE in indoor air can present a health threat to pregnant women?

Ecology has adopted EPA's TCE action level of 2 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) for pregnant women that may be exposed in their home. Developmental effects to the fetus will not necessarily occur at exposures at or above the action level, but they cannot be ruled out and steps to address the potential risk should be taken.

## What options are available if TCE in indoor air exceeds the established levels?

Individuals, particularly women who are pregnant or of child-bearing age, should minimize the time they spend in these indoor spaces until actions are taken to reduce TCE levels. Options include installation of piping below the building that is connected to a fan to remove vapors before they enter the building. Indoor treatment units can also be used to reduce concentrations until a more permanent system is installed.

☒☒☒클로로 에틸렌 (TCE) 은 관리소홀로 인해 지하수나 토양 오염을 야기시키는 화학 물질이다. 일반환경에 누출되면 증발하여 실내에 유해한 공기오염을 발생시킨다. 호흡경로를 통해 TCE 가 체내에 흡수되면, 유해하며, 특별히 임신 첫 8주 동안에 태아에 더욱 유해하다. 좀더 자세한 사항은 “실내 공기중의 트라이 클로로 에틸렌 (TCE) 에 관한 알람” 을 참조할것:

<https://fortress.wa.gov/ecy/publications/SummaryPages/1909044.html>

Trichloroethylen (TCE) là hóa chất có thể gây ô nhiễm đất hoặc nước ngầm nếu không được quản lý tốt. Khi đã ở trong môi trường, nó có thể biến thành hơi, và có thể tạo ra không khí trong nhà không an toàn. Hít thở TCE có thể gây ảnh hưởng có hại cho sức khỏe, đặc biệt là đối với trẻ chưa sinh trong 8 tuần đầu của thai kỳ. Để biết thêm thông tin, hãy đọc “Đặt trọng tâm vào Trichloroethylen (TCE) trong không khí trong nhà” tại:

<https://fortress.wa.gov/ecy/publications/SummaryPages/1909044.html>

三氯乙烷 (TCE) 是一種化學物品。若管理不好, TCE 可能會污染土壤或地下水。當它出現在著環境裡面, 它會轉變為蒸氣使室內空氣變成有害氣體。吸入 TCE 會對身體造成危害特別是懷孕初期八星期內的胎兒。欲知更多有關居所室內空氣所含三氯乙烷 (TCE) 資訊請參閱:

<https://fortress.wa.gov/ecy/publications/SummaryPages/1909044.html>

El tricloroetileno (TCE) es un químico que puede contaminar el suelo o el agua subterránea si no se maneja bien. Al estar en el medio ambiente, puede convertirse en vapor y crear aire interior inseguro. Respirar TCE puede causar efectos nocivos para la salud, en particular a un feto durante las primeras 8 semanas de embarazo. Para obtener más información, lea “Focus on Trichloroethylene (TCE) in residential Indoor Air” “Enfoque en tricloroetileno (TCE) en el aire interior residencial” en: <https://fortress.wa.gov/ecy/publications/SummaryPages/1909044.html>