

Perchloroethylene (PCE, PERC)

This sheet is about exposure to perchloroethylene in pregnancy and while breastfeeding. This information is based on available published literature. It should not take the place of medical care and advice from your healthcare provider.

What is perchloroethylene?

Perchloroethylene is a chemical. It is sometimes referred to as PCE or PERC. Other names include perchlor and tetrachloroethylene. For this sheet, we will use the PCE abbreviation.

PCE has been used as a degreaser and dry-cleaning agent. It has also been in paints, spot removers, printing inks, household cleaners and glues.

How would I be exposed to PCE?

PCE is a liquid that quickly evaporates (turns into a gas and gets into the air) when it is being made and being used. It can get into water and soil when there is an accidental spill or a leak. PCE enters our body mostly through the air we breathe. People could also be exposed from getting it on the skin or from drinking contaminated water.

How can I limit exposure to PCE?

The use of PCE among industries, such as dry-cleaning, has decreased over the past 35 or so years. Because of this, levels of PCE in air measurements have been dropping. In addition, newer dry-cleaning machines and practices have greatly lowered worker exposure to PCE.

Products with PCE should be used outside whenever possible. If you are using products with PCE inside the house, open doors and windows and turn on fans to bring in fresh air. Air out items that have been dry cleaned with PCE before bringing them into the house or before you wear them.

If you work with PCE or other chemicals, make sure that you use all recommended protective gear as outlined by the product's safety data sheet (SDS). Employers should provide the proper safety gear and SDS. Always follow the directions outlined in the SDS on how to store, use, and clean up the products you use.

The Occupational Safety & Health Administration (OSHA) has information on how to reduce workplace exposure to PCE and has set limits on exposure to PCE in the workplace. If you are concerned that your workplace is not following these OSHA standards, contact The National Institute for Occupational Safety and Health (NIOSH). They offer a free service called Health Hazard Evaluation (HHE): <https://www.cdc.gov/niosh/hhe/contact.html>. The HHE investigates workplace exposure concerns. You can also see our MotherToBaby fact sheet on Reproductive Hazards of the Workplace at <https://mothertobaby.org/fact-sheets/reproductive-hazards-workplace/> for general tips on working with chemicals.

Does the level of exposure (high versus low) to PCE matter?

Like other chemical exposures, the amount (level) and duration (time) are important in thinking about the chance for health problems. In general, ongoing exposure through a work setting would be expected to give a higher total exposure than an occasional household exposure. Smell is not a good measure of the level of exposure for chemicals. If someone becomes very ill from a chemical exposure, this may signal a higher exposure.

What are the side effects of PCE exposure?

The effects of PCE depend on how often and for how long people are exposed. People exposed to high amounts of PCE might have dizziness and nausea. They may also have headaches, confusion, or itching of the eyes, throat, and nose. If PCE is on the skin, it could cause redness and/or blistering.

Can exposure to PCE make it harder for me to get pregnant?

It is not known if exposure to PCE alone would make it harder to get pregnant. Studies from the 1970s to the 1990s did not agree if it would take longer to get pregnant after exposure to PCE from working at a dry-cleaning business. Available studies did not measure the persons' actual level of exposure to PCE.

Can exposure to PCE increase the chance of miscarriage?

Miscarriage is common and can occur in any pregnancy for many different reasons. Some, but not all, studies from the 1970s to the 1990s suggested that long-term exposure to high levels of PCE at work might increase the chance for miscarriage. Currently, dry-cleaning machines are better at reducing a worker's exposure to PCE. This means high level exposure would be unlikely in dry-cleaning workplaces that follow proper use and storage of PCE. General exposure to background levels is unlikely to increase the chance for miscarriage.

Can exposure to PCE increase the chance of birth defects?

Every pregnancy starts out with a 3-5% chance of having a birth defect. This is called the background risk. It is unlikely that PCE would increase the chance for birth defects with general background exposure. It is not known if exposure to high levels of PCE over time (for example drinking water contaminated with high levels of PCE) is linked to a higher chance of birth defects. Some, but not all studies on exposure to PCE-contaminated water reported a higher chance for birth defects, like cleft lip and/or palate (an opening in the upper lip or the roof of the mouth). However, many of these studies looked at people who lived close to the contaminated water but was not able to confirm if the people who lived close by actually drank the water or had a true exposure.

Can exposure to PCE in pregnancy increase the chance of other pregnancy related problems?

Available studies have not measured the persons' actual level of exposure to PCE so it is difficult to apply study findings. However, most studies do not find an increased chance for babies to have low birth weight (weighing less than 5 pounds, 8 ounces [2500 grams] at birth) or be delivered preterm (birth before 37 weeks gestation) with PCE exposure during pregnancy.

Can exposure to PCE in pregnancy affect future behavior or learning for the child?

It is not known if exposure to PCE increases the chance for behavior or learning issues after prenatal exposure.

I work around PCE and I am breastfeeding my baby.

PCE can enter breast milk. PCE has not been well studied regarding potential side effects in a nursing child if PCE is in the breastmilk. The Centers for Disease Control and Prevention (CDC) reports that for most persons the benefits of breastfeeding would outweigh possible concerns with exposure to environmental chemicals in general. They note that side effects for a nursing infant have been reported with environmental chemicals when the breastfeeding person is clinically ill from their chemical exposure. Be sure to talk to your healthcare provider about all of your breastfeeding questions.

If a male works around PCE, could it affect fertility (ability to get partner pregnant) or increase the chance of birth defects in a partner's pregnancy?

Some studies have suggested that PCE might cause changes in sperm that could make it harder to get a partner pregnant. In general, exposures that fathers or sperm donors have are unlikely to increase the risks to a pregnancy. For more information, please see the MotherToBaby fact sheet Paternal Exposures at <https://mothertobaby.org/fact-sheets/paternal-exposures-pregnancy/>.

Whom can I contact for more information?

If you have specific concerns regarding your work site discuss them with your healthcare provider or call MotherToBaby. In addition, you or your employer could contact an industrial hygienist (<https://www.aiha.org/about-ih/Pages/Find-an-Industrial-Hygienist.aspx>) to have your work site evaluated for ways to make your work site as safe as possible. Small businesses can also contact OSHA's on-site consultation services to help determine whether there are hazards at their worksite: 1-800-321-OSHA (6742).

Please click here for references

Questions? Call 866.626.6847 | Text 855.999.3525 | Email or Chat at [MotherToBaby.org](https://www.MotherToBaby.org).

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