FACT SHEET

TETRACHLOROETHYLENE (PCE)

CAS#: 127-18-4

This fact sheet provides a summary of the Development Support Document (DSD) created by the Toxicology Section (TS) of the Texas Commission on Environmental Quality (TCEQ) for the development of Regulatory Guidelines (ESL and ReVs) for ambient exposure to this chemical. For more detailed information, please see the DSD or contact the TS by phone (1-877-992-8370) or e-mail (tox@tceq.texas.gov).

What is tetrachloroethylene?

Tetrachloroethylene (PCE) is a non-flammable liquid at room temperature and has a sharp, sweet odor described as ether-like. It is widely used as a solvent in the dry-cleaning and vapor-degreasing industry; as solvents for fats, greases, waxes, rubber, gums, and removing caffeine from coffee; as a drying agent for metals and certain other solids; as a medium for transferring heat; and in the manufacture of paint removers and printing inks, trichloroacetic acid, and fluorocarbons. PCE is also called perchloroethylene, 1,1,2,2-tetrachloroethylene, tetrachlroethene, perchlor, perclene, and PERC.

How is tetrachloroethylene released into ambient air?

PCE evaporates easily into the air at places where it is produced or used as a solvent and from chemical storage or waste sites.

How can tetrachloroethylene affect my health?

Permitted levels of PCE should not cause adverse health effects. Well-conducted human studies were available for developing the short-term health protective values. Short-term (one hour or less) inhalation exposure of humans to high concentrations of PCE can result in irritation of the upper respiratory tract and eyes and neurological effects such as headache, dizziness, sleepiness, impairment of coordination, and reversible mood and behavioral changes.

Long-term inhalation exposure of humans to high concentrations of PCE can result in neurological effects, including headaches, and impairment of memory, concentration, and intellectual function. Epidemiological studies on occupational exposure have shown mixed results for the carcinogenic effects of PCE. However, some animal studies were found demonstrating cancer potential in mice and rats exposed to PCE. The International Agency for Research on Cancer has designated PCE as carcinogenic in animals, with limited evidence in humans. The United States Environmental Protection Agency and the TCEQ has classified PCE as “Likely to Be Carcinogenic to Humans via Inhalation”.

Is tetrachloroethylene odorous or harmful to plants?

PCE may have a sharp, sweet odor described as ether-like at moderate to high levels. Long-term exposure to high concentrations of PCE has shown an adverse effect (e.g., bleaching of chlorophyll and photodecomposition) on several plants such as bean, wheat, kale, blueberry and pine.

Why does the TCEQ set Regulatory Guidelines for tetrachloroethylene?

The TCEQ has set various air quality guideline levels (ESLs and ReVs) to protect human health and welfare. Please see Definitions of ESLs, ReVs, and AMCVs located on the TCEQ DSD webpage for more information. The ESLs and ReVs for PCE have been designed to protect the general public from short-term and long-term adverse health and welfare effects. The general public includes children, the elderly, pregnant women and people with preexisting health conditions. If you would like to know more about the specific ESLs and ReVs developed, what the values are and what they are used for, please see the DSD.