# FACT SHEET

## carbon tetrachloride

## CAS Number: 56-23-5

This fact sheet provides a summary of the Development Support Document (DSD) created by the TCEQ Toxicology, Risk Assessment, and Research Division (TD) for the development of regulatory guidelines (effects screening levels [ESLs], air monitoring comparison values [AMCVs], and reference values [ReVs]) for ambient air exposure to this chemical. For more detailed information, please see the DSD or contact the TD by phone (1-877-992-8370) or e-mail (tox@tceq.texas.gov).

## What is carbon tetrachloride?

Carbon tetrachloride ($CCl_4$) is a colorless and volatile liquid at room temperature. $CCl_4$ currently is not permitted in products intended for home use. However, $CCl_4$ may be present in trace amounts in adhesive remover, paint, coatings, adhesives, and brake cleaners and is used as a feedstock in the production of perchloroethylene, hydrochlorofluorocarbons, hydrofluorocarbons, and hydrofluoroolefins. Because the production of $CCl_4$ for most uses has been phased out due to the Montreal Protocol and the Federal Clean Air Act, $CCl_4$ is only available for those uses for which no effective substitute has been found, such as chemical feedstock use, use as a processing agent, and laboratory or analytical use.

## How is $CCl_4$ released into ambient air?

The general population may be exposed to $CCl_4$ through breathing ambient air containing $CCl_4$. $CCl_4$ does not occur naturally and most atmospheric $CCl_4$ is a result of direct industrial releases to the atmosphere. Ambient air data collected by the TCEQ from 2007-2011 indicate that annual average air concentrations of $CCl_4$ at monitoring sites around Texas range from 0.07 to 0.19 ppb with a statewide mean annual average of 0.10 ppb. From 2012 to 2016, $CCl_4$ annual averages ranged from 0.07 to 0.15 ppb. From 2012 through June 2017, the 24-hour concentrations ranged from 0.051 to 0.153 ppb.

## How can $CCl_4$ affect my health?

Permitted levels of $CCl_4$ should not cause adverse health effects. Workers exposed to extremely high concentrations of $CCl_4$ for minutes to hours experienced central nervous system effects (drowsiness, headache, dizziness, and weakness) and gastrointestinal effects (nausea, vomiting, diarrhea, and abdominal pain). These effects dissipated after cessation of exposure. Exposure to high concentrations of $CCl_4$ over the long term in workers and in animals resulted in liver effects, including increased levels of hepatic enzymes in serum, and fatty degeneration, necrosis, fibrosis, and cirrhosis in the liver. Toxic effects on the kidney also were seen in animals, but these occurred at exposures higher than those in which only liver toxicity was seen. Although there is inadequate evidence of increased cancer risk in humans, long term

exposure to high concentrations of $CCl_4$ in laboratory animals resulted in liver tumors in multiple species and in adrenal gland tumors (pheochromocytomas). The United States Environmental Protection Agency and the TCEQ consider $CCl_4$ to be likely carcinogenic to humans.

## Why does the TCEQ set Regulatory Guidelines for $CCl_4$?

The TCEQ sets various air quality guideline levels (ESLs, AMCVs, and ReVs) to protect human health and welfare. Please see Definitions of ESLs, ReVs, and AMCVs located on the TCEQ final DSD webpage for more information. The TCEQ air quality guideline levels (e.g., acute and chronic ReVs and ESLs) for $CCl_4$ have been designed to protect the general public (including sensitive populations such as children, the elderly, pregnant women, and people with preexisting health conditions) from the potential adverse health effects of $CCl_4$ exposure. If you would like to know more about the specific ESLs, AMCVs, and ReVs developed for $CCl_4$, what the values are, and what they are used for, please consult the $CCl_4$ DSD.