Perchloroethylene (tetrachloroethylene)
CAS 127-18-4

Current North Carolina AAL = $1.9 \times 10^{-1} \text{ mg/m}^3$ (annual carcinogen)

AAL Documentation

\[
\text{Inhalation Unit Risk}^1 (\text{IUR}) = 5.2 \times 10^{-7} \text{ per } \mu\text{g/m}^3
\]

The Inhalation Unit Risk Factor was divided by 10 to compensate for animal to human extrapolation.

Modified IUR = \( \frac{5.2 \times 10^{-7}}{10} = 5.2 \times 10^{-8} \text{ per } \mu\text{g/m}^3 \)

Perchloroethylene is classified as a probable human carcinogen by EPA, Group B2. In accordance with North Carolina guidelines, a 1 in 100,000 risk estimate was used to derive the AAL.

\[
\text{Linear Calculation} \quad \frac{1}{5.2 \times 10^{-8} \text{ per } \mu\text{g/m}^3} = \frac{x}{1 \times 10^{-5}}
\]

\[
x = \frac{1 \times 10^{-5}}{5.2 \times 10^{-8}}
\]

\[
x = 1.9 \times 10^{2} \mu\text{g/m}^3
\]

AAL for Perchloroethylene\(^2\) = $1.9 \times 10^{-1} \text{ mg/m}^3$

This information has been reconstructed using the decision matrix established by the North Carolina Academy of Sciences Air Toxics Panel, September, 1986.

*Final version- June 2013 (NBJ)*

\(^1\) EPA Addendum to the Health Assessment Document for Tetrachloroethylene (perchloroethylene), 1986. EPA/600/8-82/005FA. IUR based on a range of cancer slope factors for mouse and rat inhalation studies of 2.9 to $9.5 \times 10^{-7}$ (mg/kg-day)\(^1\).

\(^2\) 1 $\mu\text{g/m}^3 = 10^{-3} \text{ mg/m}^3$