

Trichloroethylene (TCE) Summary

Below is a summary of the Region 4 Removal Management Levels (RMLs) for trichloroethylene (TCE) in air. RMLs are values used by EPA to help determine if any future actions may be needed but a sample result higher than a RML by itself does not imply that adverse health effects will occur. Region 4 typically uses the lower value of a 1×10^{-4} (one in ten thousand) cancer risk level or a non-cancer hazard quotient (HQ) of 3 as the RML when both values are available because it is protective of both cancer and non-cancer effects. The table below contains RMLs and EPA's Regional Screening Levels (RSLs) for TCE. RSLs are screening values (the lower of the 1×10^{-6} or $HQ=1$) used by the EPA to help determine if a contaminant should be considered for further evaluation.

- Prior to September 2011, Integrated Risk Information System (IRIS) toxicity values for TCE were under development by EPA, therefore Region 4 used California EPA carcinogenic toxicity values, as the best available science.
- In September 2011, EPA published cancer and non-cancer toxicity values for trichloroethylene in IRIS. The 2011 IRIS assessment for TCE was significant because it derived non-cancer toxicity values, which were previously not available to consider for RMLs. The 2011 IRIS assessment also identified TCE as a developmental toxicant due to the potential for cardiac malformations in a developing fetus if mothers are exposed to TCE vapors in the early stages of pregnancy.
- Region 4 Scientific Support Section (SSS) consulted with EPA Headquarters, Region 9 and Region 10 on vapor intrusion and TCE toxicity. Based on these consultations, and our understanding of TCE toxicity, Region 4's SSS developed a RML for TCE in residential air of 2 ug/m^3 (HQ of 1) for homes with sensitive populations present (i.e., women of child bearing age) and 6 ug/m^3 (HQ of 3) for less sensitive populations. These concentrations are expected to be protective for potential non-cancer health effects, including developmental effects. SSS follows the same process for other media.

TCE	RSL (lower 1×10^{-4} or $HQ=1$)	RML (HQ=3)	RML (HQ=1) (sensitive sub-population)
Residential Air	0.5 ug/m^3	6 ug/m^3	2 ug/m^3
Commercial/Industrial Indoor Air	3 ug/m^3	26 ug/m^3	9 ug/m^3
Tapwater	0.5 ug/L	9 ug/L	3 ug/L
Residential Soil	0.9 mg/Kg	12 mg/Kg	4.1 mg/Kg
Industrial Soil	6 mg/Kg	56 mg/Kg	19 mg/Kg