Hexachlorodibenzo-p-dioxin
CAS  57653-85-7

Current North Carolina AAL = 7.6 x 10^{-8} \text{ mg/m}^3 (\text{annual carcinogen})

**AAL Documentation**

\[
\text{Inhalation Unit Risk}^1 (\text{IUR}) = 1.3 \times 10^0 \text{ per } \mu\text{g/m}^3
\]

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

\[
\text{Modified IUR} = \frac{1.3 \times 10^0}{10} = 1.3 \times 10^{-1} \text{ per } \mu\text{g/m}^3
\]

Hexachlorodibenzo-p-dioxin 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.

\[
\text{Linear Calculation} \quad \frac{1}{1.3 \times 10^{-1} \text{ per } \mu\text{g/m}^3} = \frac{x}{1 \times 10^{-5}}
\]

\[
x = \frac{1 \times 10^{-5}}{1.3 \times 10^{-1}}
\]

\[
x = 7.6 \times 10^{-6} \text{ } \mu\text{g/m}^3
\]

\text{AAL for Hexachlorodibenzo-p-dioxin}^2 = 7.6 \times 10^{-8} \text{ } \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 Source: EPA Health Assessment Document for Polychlorinated Dibenzo-P-Dioxins (1985), EPA/600/8-84/014F. Estimated from an oral slope factor of 6.2 x 10^{-3} (mg/kg-day)^{-1} using standard conversion assumptions of 20 m^3 daily breathing rate and 70 kg average body weight, and a 0.75 assumed percentage of inhaled material absorbed.

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