

# **Air Cleanup Levels WAC 173-340-750**

## **Equations and Default Values for calculating Concentrations Protective of Human Health Inhalation Pathway**

**Noncarcinogens:** Equation 750-1

$$\text{Air Cleanup Level (ug / m}^3\text{)} = \frac{RfD_i \times ABW \times UCF \times HQ \times AT}{BR \times ABS_i \times ED \times EF}$$

Parameter	Default Value		Units	
	Method B	Method C		
<b>Risk</b>				
• Hazard Quotient	HQ	1	1	unitless
<b>Toxicological Parameters</b>				
• Inhalation Reference Dose	RfD <sub>i</sub>	chemical-specific	chemical-specific	mg/kg-day
<b>Exposure Parameters</b>				
• Average Body Weight	ABW	16	70	kg
• Averaging Time	AT	6	30	years
• Exposure Duration	ED	6	30	years
• Exposure Frequency	EF	1	1	unitless
• Air Breathing Rate	BR	10	20	m <sup>3</sup> /day
• Inhalation Absorption Fraction	ABS <sub>i</sub>	1.0	1.0	unitless
<b>Unit Conversion Factors</b>				
• Unit Conversion Factor	UCF	1,000	1,000	µg/mg

NOTE: Default values highlighted in green differ for Method B and Method C.

**Carcinogens:** Equation 750-2

$$\text{Air Cleanup Level (ug / m}^3\text{)} = \frac{RISK \times ABW \times AT \times UCF}{CPF_i \times BR \times ABS_i \times ED \times EF}$$

Parameter	Default Value		Units	
	Method B	Method C		
<b>Risk</b>				
• Carcinogenic Risk	RISK	1 x 10 <sup>-6</sup>	1 x 10 <sup>-5</sup>	unitless
<b>Toxicological Parameters</b>				
• Inhalation Cancer Potency Factor	CPF <sub>i</sub>	chemical-specific	chemical-specific	kg-day/mg
<b>Exposure Parameters</b>				
• Average Body Weight	ABW	70	70	kg
• Averaging Time	AT	75	75	years
• Exposure Duration	ED	30	30	years
• Exposure Frequency	EF	1	1	unitless
• Air Breathing Rate	BR	20	20	m <sup>3</sup> /day
• Inhalation Absorption Fraction	ABS <sub>i</sub>	1.0	1.0	unitless
<b>Unit Conversion Factors</b>				
• Unit Conversion Factor	UCF	1,000	1,000	µg/mg

NOTE: Default values highlighted in green differ for Method B and Method C.

## Air Cleanup Levels

### Summary of Default Values for calculating Concentrations Protective of Human Health

#### Inhalation Pathway

Parameter		Default Value				Modifiable?	
		Method B		Method C		Cleanup Level	Remediation Level
		Noncarcinogen	Carcinogen	Noncarcinogen	Carcinogen		
<b>Risk – Noncarcinogens</b>							
Hazard Quotient (Single)	HQ	1 (unitless)	—	1 (unitless)	—		
Hazard Index (Total)	HI	1 (unitless)	—	1 (unitless)	—		
<b>Risk – Carcinogens</b>							
Carcinogenic Risk (Single)	RISK	—	$1 \times 10^{-6}$ (unitless)	—	$1 \times 10^{-5}$ (unitless)		
Carcinogenic Risk (Total)	—	—	$1 \times 10^{-5}$ (unitless)	—	$1 \times 10^{-5}$ (unitless)		
<b>Toxicological Parameters</b>							
Inhalation Reference Dose	RfD <sub>i</sub>	Chemical-specific	—	Chemical-specific	—	x	x
Inhalation Cancer Potency Factor	CPF <sub>i</sub>	—	Chemical-specific	—	Chemical-specific	x	x
<b>Exposure Parameters</b>							
Average Body Weight	ABW	16 kg	70 kg	70 kg	70 kg		x
Averaging Time	AT	6 years	75 years	30 years	75 years		x
Exposure Duration	ED	6 years	30 years	30 years	30 years		x
Exposure Frequency	EF	1 (unitless)	1 (unitless)	1 (unitless)	1 (unitless)		x
Air Breathing Rate	BR	10 m <sup>3</sup> /day	20 m <sup>3</sup> /day	20 m <sup>3</sup> /day	20 m <sup>3</sup> /day		x
Inhalation Absorption Fraction	ABS <sub>i</sub>	1.0 (unitless)	1.0 (unitless)	1.0 (unitless)	1.0 (unitless)	x	x
<b>Unit Conversion Factors</b>							
Unit Conversion Factor	UCF	1,000 µg/mg	1,000 µg/mg	1,000 µg/mg	1,000 µg/mg		

**NOTE:** Default values highlighted in green differ for Method B and Method C.