

**Table 1**  
**Exposure Parameters, 2015 OEHHA Methodology**  
**SMAQMD Estimated Risk and PM2.5 Concentrations from Highway and Rail Road Sources**  
**Sacramento County**

Period	Receptor Age Group	Exposure Parameters					
		Daily Breathing Rate (DBR) <sup>1</sup> (L/kg-day)	Exposure Duration (ED) <sup>2</sup> (years)	Fraction of Time at Home (FAH) <sup>3</sup> (unitless)	Exposure Frequency (EF) <sup>4</sup> (days/year)	Averaging Time (AT) (days)	Intake Factor, Inhalation (IF <sub>inh</sub> ) (m <sup>3</sup> /kg-day)
30-year Resident	3rd Trimester	361	0.25	1	350	25,550	0.0012
	Age 0-<2 Years	1,090	2	1	350	25,550	0.030
	Age 2-<16 Years	572	14	1	350	25,550	0.11
	Age 16-30 Years	261	14	0.73	350	25,550	0.037

**Notes:**

<sup>1</sup> Daily breathing rates reflect default breathing rates from OEHHA 2015 as follows: 95th percentile for 3rd trimester and age 0-<2 years; 80th percentile for ages 2-<9 years, 2-<16 years, and 16-30 years.

<sup>2</sup> Exposure durations reflect the default residential exposure durations from Cal/EPA 2015.

<sup>3</sup> Fraction of time at home was conservatively assumed to be 1 for age groups younger than 16 years old (100%). The FAH of 0.73 for age group 16 and above reflects the default value from Cal/EPA 2015.

<sup>4</sup> Exposure frequency reflects default exposure frequency for residents from Cal/EPA 2015.

**Calculation:**

Resident:

$$IF_{inh} = DBR * ED * FAH * EF * CF / AT$$

$$CF = 0.001 \text{ (m}^3\text{/L)}$$

**Abbreviations:**

Cal/EPA: California Environmental Protection Agency

L: liter

kg: kilogram

m<sup>3</sup>: cubic meter

**Reference:**

Cal/EPA. 2015. Air Toxics Hot Spots Program. Risk Assessment Guidelines. Guidance Manual for Preparation of Health Risk Assessments. Office of Environmental Health Hazard Assessment (OEHHA). February.

Available online at: [http://oehha.ca.gov/air/hot\\_spots/hotspots2015.html](http://oehha.ca.gov/air/hot_spots/hotspots2015.html).

**Table 2**  
**Speciation Values**  
**SMAQMD Estimated Risk and PM2.5 Concentrations from Highway and Rail Road Sources**  
**Sacramento County**

Source	Emission Type	Fraction	Chemical <sup>1</sup>
<b>Gasoline Roadway Traffic</b>	<b>Exhaust TOG</b>	0.0055	1,3-Butadiene
		0.0028	Acetaldehyde
		0.0247	Benzene
		0.0105	Ethylbenzene
		0.0158	Formaldehyde
		0.0005	Naphthalene
	<b>Evaporative TOG</b>	0.0036	Benzene
		0.0012	Ethylbenzene

**Note:**

<sup>1</sup> Compounds presented in this table are only those air toxic contaminants with carcinogenic toxicity values from Cal/EPA (2015) evaluated in the health risk assessment. Speciation profiles presented in this table are from the BAAQMD 5/2011 Guidance.

**Abbreviations:**

BAAQMD: Bay Area Air Quality Management District

PM: particulate matter

TOG: total organic gas

**References:**

BAAQMD. 2011. Recommended Methods for Screening and Modeling Local Risks and Hazards. May.

**Table 3**  
**Toxicity Values**  
**SMAQMD Estimated Risk and PM2.5 Concentrations from Highway**  
**and Rail Road Sources**  
**Sacramento County**

Chemical <sup>1</sup>	Cancer Potency Factor (mg/kg-day) <sup>-1</sup>
Diesel PM	1.1
Acetaldehyde	0.01
Benzene	0.1
1,3-Butadiene	0.6
Ethylbenzene	0.0087
Formaldehyde	0.021
Naphthalene	0.12
Nickel	0.91

**Note:**

1. Chemicals presented in this table reflect air toxic contaminants emitted from roadway and railway sources in Sacramento County

**Abbreviations:**

Cal/EPA: California Environmental Protection Agency  
(mg/kg-day)<sup>-1</sup>: per milligram per kilogram-day  
OEHHA: Office of Environmental Health Hazard Assessment  
PM: particulate matter

**Reference:**

Cal/EPA. 2015. OEHHA/ARB Consolidated Table of Approved Risk Assessment Health Values. May 13.

**Table 4**  
**Age Sensitivity Factors**  
**SMAQMD Estimated Risk and PM2.5 Concentrations from Highway and Rail Road Sources**  
**Sacramento County**

Receptor Age Group	Age Sensitivity Factor <sup>1</sup> (ASF)
3rd Trimester	10
Age 0-<2 Years	10
Age 2-<16 Years	3
Age 16-30 Years	1

**Note:**

<sup>1</sup> Based on Cal/EPA 2015.

**Abbreviation:**

Cal/EPA: California Environmental Protection Agency

**References:**

Cal/EPA. 2015. Air Toxics Hot Spots Program. Risk Assessment Guidelines. Guidance Manual for Preparation of Health Risk Assessments. Office of Environmental Health Hazard Assessment (OEHHA). February.

Available online at: [http://oehha.ca.gov/air/hot\\_spots/hotspots2015.html](http://oehha.ca.gov/air/hot_spots/hotspots2015.html).