



Building Material Emission Rate Measurements and Requirements

California Architectural Specification – 01350 Proposition 65 Safe Harbor Levels

California 01350 is a Special Environmental Requirements architectural specification developed by the State of California to cover key environmental performance issues related to the selection and handling of building materials. All projects that adopt this architectural specification, must use materials that meet the chemical emission rate criteria. The following are the maximum emission factors for floor coverings, wall coverings, wall base cove, acoustic ceiling tiles, and thermal insulation for a partial list of the volatile organic compounds (VOCs).

California 01350 Maximum VOC Emission Factors ($\mu\text{g}/\text{m}^2\text{-hr}$) ^a					
Compound	Floor Coverings	Wall Coverings	Wall Base Cove	Acoustic Ceiling Tiles	Thermal Insulation
Acetaldehyde	131	31	1159	65	131
Benzene	56	13	497	28	56
1,4-Dichlorobenzene	746	179	6,624	371	746
Ethylene glycol	373	89	3,312	186	373
Formaldehyde	31	7	273	15	31
n-Hexane	6,527	1,565	57,960	3,249	6,527
Naphthalene	8	2	75	4	8
Phenol	186	45	1,656	93	186
Styrene	839	201	7,452	418	839
Tetrachloroethene	33	8	2,90	16	33
Toluene	280	67	2,484	139	280
Trichloromethane (chloroform)	280	67	2,484	139	280
Vinyl acetate	186	45	1,656	93	186
m,p-Xylene	653	156	5,796	325	653
o-Xylene	653	156	5,796	325	653

a.) Maximum emission factors as required by California Standard Practice - 01350, "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental". Office scenario. Partial list of VOC's

California also has another regulation that requires consideration of chemical emission rates.

California Proposition 65 Safe Harbor Levels requires “warning labels’ for all products sold in California that cause exposures that exceed the No Significant Risk Levels (NSRL) for carcinogens or the Maximum Allowable Dose Levels (MADL) for chemicals causing reproductive toxicity. The emission factors below are for a residential scenario, and assume a continuous 24-hour exposure. The NSRL is the daily intake level calculated to result in one excess case of cancer in an exposed population of 100,000. The MADL is the level at which reproductive toxicity would have no observable effect assuming exposure at 1,000 times that level. The following are the maximum 70 year average emission factors for floor coverings, wall coverings, wall base cove, and thermal insulation for a partial list of the volatile organic compounds (VOCs).

California Proposition 65 Safe Harbor Level Maximum VOC Emission Factors ($\mu\text{g}/\text{m}^2\text{-hr}$) ^a				
Compound	Floor Coverings	Wall Coverings	Wall Base Cove	Thermal Insulation
Acetaldehyde	3.3	0.9	47	6.7
Benzene	0.5	0.1	7.2	1.0
1,4-Dichlorobenzene	0.7	0.2	10	1.5
Formaldehyde	1.5	0.4	21	3.0
Naphthalene	0.2	0.1	3.1	0.4
Tetrachloroethene	0.5	0.1	7.2	1.0
Toluene	259	73	3,616	517

a.) Average 70 year emission factors for a residential scenario with an average minimum outdoor air ventilation rate of 0.35 air changes per hour in a 1,500 ft², 12,000 ft³ residence, to meet the Proposition 65 Safe Harbor Levels, assuming continuous 24 hour exposure.

Indoor Environmental Engineering provides laboratory test chamber measurements of the chemical emission rates of new building materials, office furnishings, office equipment, and consumer products.

Healthy Building Services

Contaminant Emission Rate Testing

Measurement of contaminant emission rates in situ using the Field Laboratory Environmental Cell (FLEC), or off-site, using small, medium or large laboratory environmental test chambers.

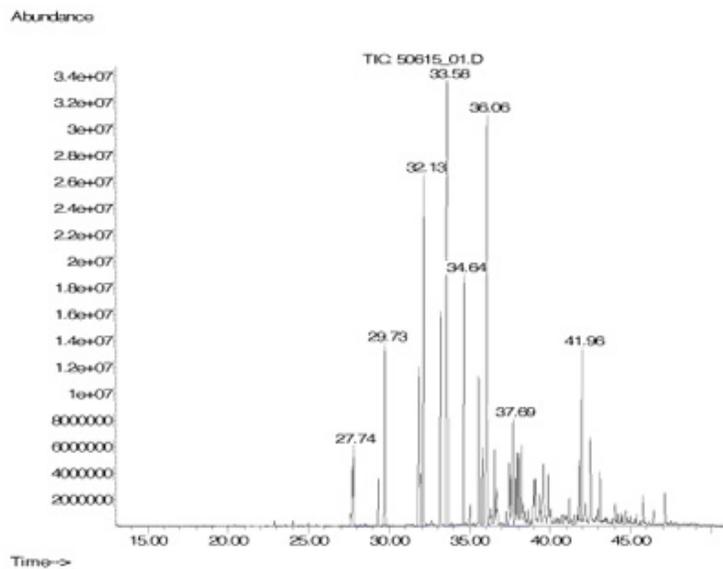


Indoor Environmental Engineering provides on-site measurements of the chemical emission rates from installed flooring and other indoor finishes.

Diagnostic Services

Contaminant Emission Rate Testing

Measurement of contaminant emission rates in situ using the Field Laboratory Environmental Cell (FLEC), or off-site, using small, medium or large laboratory environmental test chambers.



Chromatogram depicting the response peaks and retention times of individual volatile organic compounds from gas chromatography/mass spectrometry analysis of an "in situ" emission rate sampling of a building material surface.



Picture of the FLEC emission cell that can be used to measure contaminant emission rates of building materials onsite after materials have been installed.