



# GREENGUARD Certification Criteria for Building Products and Interior Finishes

Criteria	CAS Numbers	Maximum Allowable Predicted Concentrations GREENGUARD Tier Compliance Criteria		Units
		Certified	Gold	
		TVOC <sup>A</sup>	-	
Formaldehyde	50-00-0	61.3 (50 ppb)	9 (7.3 ppb)	µg/m <sup>3</sup>
Total Aldehydes <sup>B</sup>	-	100	43	ppb
Individual VOCs <sup>C</sup>	-	1/10th TLV	1/100th TLV	
4-Phenylcyclohexene	4994-16-5	6.5	6.5	µg/m <sup>3</sup>
Particle Matter less than 10 µm <sup>D</sup>	-	50	20	µg/m <sup>3</sup>
<b>Individual VOC Criteria<sup>E</sup></b>				
Acetaldehyde	75-07-0	-	70	µg/m <sup>3</sup>
Benzene	71-43-2	-	16 <sup>F</sup>	µg/m <sup>3</sup>
Carbon disulfide	75-15-0	-	310 <sup>F</sup>	µg/m <sup>3</sup>
Carbon tetrachloride	56-23-5	-	20	µg/m <sup>3</sup>
Chlorobenzene	108-90-7	-	460 <sup>F</sup>	µg/m <sup>3</sup>
Chloroform	67-66-3	-	150	µg/m <sup>3</sup>
Dichlorobenzene (1,4-)	106-46-7	-	400	µg/m <sup>3</sup>
Dichloroethylene (1,1)	75-35-4	-	35	µg/m <sup>3</sup>
Dimethylformamide (N,N-)	68-12-2	-	40	µg/m <sup>3</sup>
Dioxane (1,4-)	123-91-1	-	720 <sup>F</sup>	µg/m <sup>3</sup>
Epichlorohydrin	106-89-8	-	1.5	µg/m <sup>3</sup>
Ethylbenzene	100-41-4	-	1,000	µg/m <sup>3</sup>
Ethylene glycol	107-21-1	-	200	µg/m <sup>3</sup>
Ethylene glycol monoethyl ether	110-80-5	-	35	µg/m <sup>3</sup>
Ethylene glycol monoethyl ether acetate	111-15-9	-	150	µg/m <sup>3</sup>
Ethylene glycol monomethyl ether	109-86-4	-	30	µg/m <sup>3</sup>
Ethylene glycol monomethyl ether acetate	110-49-6	-	45	µg/m <sup>3</sup>
Hexane (n-)	110-54-3	-	1,760 <sup>F</sup>	µg/m <sup>3</sup>
Isophorone	78-59-1	-	280 <sup>F</sup>	µg/m <sup>3</sup>
Isopropanol	67-63-0	-	3,500	µg/m <sup>3</sup>
Methyl chloroform	71-55-6	-	500	µg/m <sup>3</sup>
Methylene chloride	75-09-2	-	200	µg/m <sup>3</sup>
Methyl t-butyl ether	1634-04-4	-	1,800 <sup>F</sup>	µg/m <sup>3</sup>
Naphthalene	91-20-3	-	4.5	µg/m <sup>3</sup>
Phenol	108-95-2	-	100	µg/m <sup>3</sup>
Propylene glycol monomethyl ether	107-98-2	-	3,500	µg/m <sup>3</sup>
Styrene	100-42-5	-	450	µg/m <sup>3</sup>
Tetrachloroethylene	127-18-4	-	17.5	µg/m <sup>3</sup>
Toluene	108-88-3	-	150	µg/m <sup>3</sup>
Trichloroethylene	79-01-6	-	300	µg/m <sup>3</sup>
Vinyl acetate	108-05-4	-	100	µg/m <sup>3</sup>
Xylenes (m-, o-, p- combined)	-	-	350	µg/m <sup>3</sup>
1-Methyl-2-pyrrolidinone <sup>G</sup>	872-50-4	-	160	µg/m <sup>3</sup>

- A. Defined to be the total response of measured VOCs falling within the  $C_6 - C_{16}$  range, with responses calibrated to a toluene surrogate.
- B. The sum of all measured normal aldehydes from formaldehyde through nonanal, plus benzaldehyde, individually calibrated to a compound specific standard. Heptanal through nonanal are measured via TD/GC/MS analysis and the remaining aldehydes are measured using HPLC/UV analysis.
- C. Any VOC not listed must produce an air concentration level no greater than the acceptable fraction of the Threshold Limit Value (TLV) industrial work place standard (Reference: American Conference of Government Industrial Hygienists, 6500 Glenway, Building D-7, and Cincinnati, OH 45211-4438).
- D. Particle emission requirement only applicable to HVAC Duct Products with exposed surface area in air streams (a forced air test with specific test method) and for wood finishing (sanding) systems.
- E. Individual VOC levels derived from the lower of 1/2 the California Office of Environmental Health Hazard Assessment (OEHHA) Chronic Reference Exposure Level (CREL) as required per the CDPH/EHLB/Standard Method v1.1.
- F. Individual VOC levels for these chemicals are derived from the 1/100th TLV criteria which results in a lower threshold than the CREL.
- G. Based on the CA Prop 65 Maximum Allowable Dose Level for inhalation of 3,200  $\mu\text{g}/\text{day}$  and an inhalation rate of 20  $\text{m}^3/\text{day}$ .



# GREENGUARD Certification Criteria for Furniture and Mattresses

Criteria	CAS Numbers	Maximum Allowable Predicted Concentrations GREENGUARD Tier Compliance Criteria		Units
		Certified	Gold	
TVOC <sup>A</sup>	-	500	220	µg/m <sup>3</sup>
Formaldehyde	50-00-0	61.3 (50 ppb)	9 (7.3 ppb)	µg/m <sup>3</sup>
Total Aldehydes <sup>B</sup>	-	100	43	ppb
Individual VOCs <sup>C</sup>	-	1/10th TLV	1/100th TLV	
4-Phenylcyclohexene	4994-16-5	6.5	6.5	µg/m <sup>3</sup>
<b>Individual VOC Criteria<sup>P</sup></b>				
Acetaldehyde	75-07-0	-	70	µg/m <sup>3</sup>
Benzene	71-43-2	-	16 <sup>E</sup>	µg/m <sup>3</sup>
Carbon disulfide	75-15-0	-	310 <sup>E</sup>	µg/m <sup>3</sup>
Carbon tetrachloride	56-23-5	-	20	µg/m <sup>3</sup>
Chlorobenzene	108-90-7	-	460 <sup>E</sup>	µg/m <sup>3</sup>
Chloroform	67-66-3	-	150	µg/m <sup>3</sup>
Dichlorobenzene (1,4-)	106-46-7	-	400	µg/m <sup>3</sup>
Dichloroethylene (1,1)	75-35-4	-	35	µg/m <sup>3</sup>
Dimethylformamide (N,N-)	68-12-2	-	40	µg/m <sup>3</sup>
Dioxane (1,4-)	123-91-1	-	720 <sup>E</sup>	µg/m <sup>3</sup>
Epichlorohydrin	106-89-8	-	1.5	µg/m <sup>3</sup>
Ethylbenzene	100-41-4	-	1,000	µg/m <sup>3</sup>
Ethylene glycol	107-21-1	-	200	µg/m <sup>3</sup>
Ethylene glycol monoethyl ether	110-80-5	-	35	µg/m <sup>3</sup>
Ethylene glycol monoethyl ether acetate	111-15-9	-	150	µg/m <sup>3</sup>
Ethylene glycol monomethyl ether	109-86-4	-	30	µg/m <sup>3</sup>
Ethylene glycol monomethyl ether acetate	110-49-6	-	45	µg/m <sup>3</sup>
Hexane (n-)	110-54-3	-	1,760 <sup>E</sup>	µg/m <sup>3</sup>
Isophorone	78-59-1	-	280 <sup>E</sup>	µg/m <sup>3</sup>
Isopropanol	67-63-0	-	3,500	µg/m <sup>3</sup>
Methyl chloroform	71-55-6	-	500	µg/m <sup>3</sup>
Methylene chloride	75-09-2	-	200	µg/m <sup>3</sup>
Methyl t-butyl ether	1634-04-4	-	1,800 <sup>E</sup>	µg/m <sup>3</sup>
Naphthalene	91-20-3	-	4.5	µg/m <sup>3</sup>
Phenol	108-95-2	-	100	µg/m <sup>3</sup>
Propylene glycol monomethyl ether	107-98-2	-	3,500	µg/m <sup>3</sup>
Styrene	100-42-5	-	450	µg/m <sup>3</sup>
Tetrachloroethylene	127-18-4	-	17.5	µg/m <sup>3</sup>
Toluene	108-88-3	-	150	µg/m <sup>3</sup>
Trichloroethylene	79-01-6	-	300	µg/m <sup>3</sup>
Vinyl acetate	108-05-4	-	100	µg/m <sup>3</sup>
Xylenes (m-, o-, p- combined)	-	-	350	µg/m <sup>3</sup>
1-Methyl-2-pyrrolidinone <sup>F</sup>	872-50-4	-	160	µg/m <sup>3</sup>

- A. Defined to be the total response of measured VOCs falling within the  $C_6 - C_{16}$  range, with responses calibrated to a toluene surrogate.
- B. The sum of all measured normal aldehydes from formaldehyde through nonanal, plus benzaldehyde, individually calibrated to a compound specific standard. Heptanal through nonanal are measured via TD/GC/MS analysis and the remaining aldehydes are measured using HPLC/UV analysis.
- C. Any VOC not listed must produce an air concentration level no greater than the acceptable fraction of the Threshold Limit Value (TLV) industrial work place standard (Reference: American Conference of Government Industrial Hygienists, 6500 Glenway, Building D-7, and Cincinnati, OH 45211-4438).
- D. Individual VOC levels derived from the lower of 1/2 the California Office of Environmental Health Hazard Assessment (OEHHA) Chronic Reference Exposure Level (CREL) as required per the CDPH/EHLB/Standard Method v1.1 and BIFMA level credit 7.6.2.
- E. Individual VOC levels for these chemicals are derived from the 1/100th TLV criteria which results in a lower threshold than the CREL.
- F. Based on the CA Prop 65 Maximum Allowable Dose Level for inhalation of 3,200  $\mu\text{g}/\text{day}$  and an inhalation rate of 20  $\text{m}^3/\text{day}$ .



# GREENGUARD Certification Criteria for Individual Office Furniture Products

Criteria	CAS Numbers	Maximum Allowable Predicted Concentrations				Units
		GREENGUARD Tier Compliance Criteria				
		Certified		Gold		
		Open Plan	Private Office	Open Plan	Private Office	
TVOC <sup>A</sup>	-	345	694	152	306	µg/m <sup>3</sup> ·hr
Formaldehyde	50-00-0	42.3	85.1	6.2	12.5	µg/m <sup>3</sup> ·hr
Total Aldehydes <sup>B</sup>	-	2.8	5.7	1.2	2.4	µmol/m <sup>3</sup> ·hr
Individual VOCs <sup>C</sup>	-	1/10th TLV	1/10th TLV	1/100th TLV	1/100th TLV	
4-Phenylcyclohexene	4994-16-5	4.5	9.0	4.5	9.0	µg/m <sup>3</sup> ·hr
<b>Individual VOC Criteria<sup>P</sup></b>						
Acetaldehyde	75-07-0	-	-	48	97	µg/m <sup>3</sup> ·hr
Benzene	71-43-2	-	-	11 <sup>E</sup>	22 <sup>E</sup>	µg/m <sup>3</sup> ·hr
Carbon disulfide	75-15-0	-	-	214 <sup>E</sup>	432 <sup>E</sup>	µg/m <sup>3</sup> ·hr
Carbon tetrachloride	56-23-5	-	-	14	28	µg/m <sup>3</sup> ·hr
Chlorobenzene	108-90-7	-	-	318 <sup>E</sup>	640 <sup>E</sup>	µg/m <sup>3</sup> ·hr
Chloroform	67-66-3	-	-	103	209	µg/m <sup>3</sup> ·hr
Dichlorobenzene (1,4-)	106-46-7	-	-	276	557	µg/m <sup>3</sup> ·hr
Dichloroethylene (1,1)	75-35-4	-	-	24	49	µg/m <sup>3</sup> ·hr
Dimethylformamide (N,N-)	68-12-2	-	-	28	56	µg/m <sup>3</sup> ·hr
Dioxane (1,4-)	123-91-1	-	-	497 <sup>E</sup>	1,002 <sup>E</sup>	µg/m <sup>3</sup> ·hr
Epichlorohydrin	106-89-8	-	-	1	2.1	µg/m <sup>3</sup> ·hr
Ethylbenzene	100-41-4	-	-	689	1,392	µg/m <sup>3</sup> ·hr
Ethylene glycol	107-21-1	-	-	138	278	µg/m <sup>3</sup> ·hr
Ethylene glycol monoethyl ether	110-80-5	-	-	24	49	µg/m <sup>3</sup> ·hr
Ethylene glycol monoethyl ether acetate	111-15-9	-	-	103	209	µg/m <sup>3</sup> ·hr
Ethylene glycol monomethyl ether	109-86-4	-	-	21	42	µg/m <sup>3</sup> ·hr
Ethylene glycol monomethyl ether acetate	110-49-6	-	-	31	63	µg/m <sup>3</sup> ·hr
Hexane (n-)	110-54-3	-	-	1,215 <sup>E</sup>	2,450 <sup>E</sup>	µg/m <sup>3</sup> ·hr
Isophorone	78-59-1	-	-	193 <sup>E</sup>	390 <sup>E</sup>	µg/m <sup>3</sup> ·hr
Isopropanol	67-63-0	-	-	2,413	4,874	µg/m <sup>3</sup> ·hr
Methyl chloroform	71-55-6	-	-	345	696	µg/m <sup>3</sup> ·hr
Methylene chloride	75-09-2	-	-	138	278	µg/m <sup>3</sup> ·hr
Methyl t-butyl ether	1634-04-4	-	-	1,243 <sup>E</sup>	2,506 <sup>E</sup>	µg/m <sup>3</sup> ·hr
Naphthalene	91-20-3	-	-	3	6	µg/m <sup>3</sup> ·hr
Phenol	108-95-2	-	-	68.9	139	µg/m <sup>3</sup> ·hr
Propylene glycol monomethyl ether	107-98-2	-	-	2,413	4,874	µg/m <sup>3</sup> ·hr
Styrene	100-42-5	-	-	310	627	µg/m <sup>3</sup> ·hr
Tetrachloroethylene	127-18-4	-	-	12.1	24.4	µg/m <sup>3</sup> ·hr
Toluene	108-88-3	-	-	103	209	µg/m <sup>3</sup> ·hr
Trichloroethylene	79-01-6	-	-	207	418	µg/m <sup>3</sup> ·hr
Vinyl acetate	108-05-4	-	-	68.9	139	µg/m <sup>3</sup> ·hr
Xylenes (m-, o-, p- combined)	-	-	-	241	487	µg/m <sup>3</sup> ·hr
1-Methyl-2-pyrrolidinone <sup>F</sup>	872-50-4	-	-	110	223	µg/m <sup>3</sup> ·hr

- A. Defined to be the total response of measured VOCs falling within the  $C_6 - C_{16}$  range, with responses calibrated to a toluene surrogate.
- B. The sum of all measured normal aldehydes from formaldehyde through nonanal, plus benzaldehyde, individually calibrated to a compound specific standard. Heptanal through nonanal are measured via TD/GC/MS analysis and the remaining aldehydes are measured using HPLC/UV analysis.
- C. Any VOC not listed must produce an air concentration level no greater than the acceptable fraction of the Threshold Limit Value (TLV) industrial work place standard (Reference: American Conference of Government Industrial Hygienists, 6500 Glenway, Building D-7, and Cincinnati, OH 45211-4438).
- D. Individual VOC levels derived from the lower of 1/4 the California Office of Environmental Health Hazard Assessment (OEHHA) Chronic Reference Exposure Level (CREL) as required per the CDPH/EHLB/Standard Method v1.1 and BIFMA level credit 7.6.2.
- E. Individual VOC levels for these chemicals are derived from the 1/100th TLV criteria which results in a lower threshold than the CREL.
- F. Based on the CA Prop 65 Maximum Allowable Dose Level for inhalation of 3,200  $\mu\text{g}/\text{day}$  and an inhalation rate of 20  $\text{m}^3/\text{day}$ .



# GREENGUARD Certification Criteria for Office Furniture Seating

Criteria	CAS Numbers	Maximum Allowable Predicted Concentrations GREENGUARD Tier Compliance Criteria		Units
		Certified	Gold	
TVOC <sup>A</sup>	-	250	220	µg/m <sup>3</sup>
Formaldehyde	50-00-0	30.7 (25 ppb)	4.5 (3.67 ppb)	µg/m <sup>3</sup>
Total Aldehydes <sup>B</sup>	-	100	43	ppb
Individual VOCs <sup>C</sup>	-	1/10th TLV	1/100th TLV	
4-Phenylcyclohexene	4994-16-5	3.25	3.25	µg/m <sup>3</sup>
<b>Individual VOC Criteria<sup>P</sup></b>				
Acetaldehyde	75-07-0	-	35	µg/m <sup>3</sup>
Benzene	71-43-2	-	15	µg/m <sup>3</sup>
Carbon disulfide	75-15-0	-	200	µg/m <sup>3</sup>
Carbon tetrachloride	56-23-5	-	10	µg/m <sup>3</sup>
Chlorobenzene	108-90-7	-	250	µg/m <sup>3</sup>
Chloroform	67-66-3	-	75	µg/m <sup>3</sup>
Dichlorobenzene (1,4-)	106-46-7	-	200	µg/m <sup>3</sup>
Dichloroethylene (1,1)	75-35-4	-	17.5	µg/m <sup>3</sup>
Dimethylformamide (N,N-)	68-12-2	-	20	µg/m <sup>3</sup>
Dioxane (1,4-)	123-91-1	-	720 <sup>E</sup>	µg/m <sup>3</sup>
Epichlorohydrin	106-89-8	-	0.75	µg/m <sup>3</sup>
Ethylbenzene	100-41-4	-	500	µg/m <sup>3</sup>
Ethylene glycol	107-21-1	-	100	µg/m <sup>3</sup>
Ethylene glycol monoethyl ether	110-80-5	-	17.5	µg/m <sup>3</sup>
Ethylene glycol monoethyl ether acetate	111-15-9	-	75	µg/m <sup>3</sup>
Ethylene glycol monomethyl ether	109-86-4	-	15	µg/m <sup>3</sup>
Ethylene glycol monomethyl ether acetate	110-49-6	-	22.5	µg/m <sup>3</sup>
Hexane (n-)	110-54-3	-	1,750	µg/m <sup>3</sup>
Isophorone	78-59-1	-	280 <sup>E</sup>	µg/m <sup>3</sup>
Isopropanol	67-63-0	-	1,750	µg/m <sup>3</sup>
Methyl chloroform	71-55-6	-	250	µg/m <sup>3</sup>
Methylene chloride	75-09-2	-	100	µg/m <sup>3</sup>
Methyl t-butyl ether	1634-04-4	-	1,800 <sup>E</sup>	µg/m <sup>3</sup>
Naphthalene	91-20-3	-	2.25	µg/m <sup>3</sup>
Phenol	108-95-2	-	50	µg/m <sup>3</sup>
Propylene glycol monomethyl ether	107-98-2	-	1,750	µg/m <sup>3</sup>
Styrene	100-42-5	-	225	µg/m <sup>3</sup>
Tetrachloroethylene	127-18-4	-	8.75	µg/m <sup>3</sup>
Toluene	108-88-3	-	75	µg/m <sup>3</sup>
Trichloroethylene	79-01-6	-	150	µg/m <sup>3</sup>
Vinyl acetate	108-05-4	-	50	µg/m <sup>3</sup>
Xylenes (m-, o-, p- combined)	-	-	175	µg/m <sup>3</sup>
1-Methyl-2-pyrrolidinone <sup>F</sup>	872-50-4	-	80	µg/m <sup>3</sup>

- A. Defined to be the total response of measured VOCs falling within the  $C_6 - C_{16}$  range, with responses calibrated to a toluene surrogate.
- B. The sum of all measured normal aldehydes from formaldehyde through nonanal, plus benzaldehyde, individually calibrated to a compound specific standard. Heptanal through nonanal are measured via TD/GC/MS analysis and the remaining aldehydes are measured using HPLC/UV analysis.
- C. Any VOC not listed must produce an air concentration level no greater than the acceptable fraction of the Threshold Limit Value (TLV) industrial work place standard (Reference: American Conference of Government Industrial Hygienists, 6500 Glenway, Building D-7, and Cincinnati, OH 45211-4438).
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- E. Individual VOC levels for these chemicals are derived from the 1/100th TLV criteria which results in a lower threshold than the CREL.
- F. Based on the CA Prop 65 Maximum Allowable Dose Level for inhalation of 3,200  $\mu\text{g}/\text{day}$  and an inhalation rate of 20  $\text{m}^3/\text{day}$ .