

EPA BASE Study Findings - Airborne Biological Contaminants:

Mean Concentrations of Airborne Culturable Bacteria (CFU/m³)

Total Bacteria and Thermophilic Bacteria

Total bacteria (sum of mesophilic and thermophilic bacteria)

Sampling location	Bacterial group	Average	Std Dev	Maximum	Median
Indoors	Gram+ rods	11.0*	10.7	67.1	7.8
	Gram+ cocci	38.9**	27.4	146.4	32.5
	Gram- rods	3.0*	5.2	38.0	1.7
	Gram- cocci	1.5	5.1	30.1	<0.8
	Unknown	47.4*	41.6	206.2	38.2
	Total bacteria (All groups)	101.9*	54.7	281.1	91.4
Outdoors	Gram+ rods	38.4*	55.9	353.6	19.3
	Gram+ cocci	24.1**	36.4	203.6	10.3
	Gram- rods	13.0*	32.0	183.5	2.6
	Gram- cocci	2.2	8.0	66.5	<2.5
	Unknown	101.4*	111.3	754.1	62.6
	Total bacteria (All groups)	179.2*	168.2	958.8	121.2

Thermophilic bacteria

Indoors	Gram+ rods	2.0*	3.4	23.9	0.8
	Unknown	1.7*	7.1	59.3	<0.8
	Total thermophilic bacteria (All groups)	3.6*	8.0	60.1	1.2
Outdoors	Gram+ rods	7.8*	16.9	94.6	2.5
	Unknown	2.9*	7.0	54.4	<2.5
	Total thermophilic bacteria (All groups)	10.7*	22.3	149.0	3.8

Notes:

- (1) All minimum concentrations were below detection.
- (2) Summer and winter data, and all Gram-positive rods, were combined.
- (3) * $p < 0.05$ (higher outdoor concentration using Kruskal-Wallis test)
- (4) ** $p < 0.001$ (higher indoor concentration using Kruskal-Wallis test)

Source: Tsai, F.C.; Macher, J.M. 2005. Concentrations of airborne culturable bacteria in 100 large U.S. office buildings from the BASE study. Indoor Air 15(Suppl 9):71-81.