

Rounding of Modeled Concentrations for Comparison with the National Ambient Air Quality Standards

Each National Ambient Air Quality Standard (NAAQS) has its own rounding convention found in 40 CFR Part 50. Although the rounding conventions are focused on monitored data, the same principles apply to modeled concentrations. It is acceptable to apply these rounding conventions to non-PSD modeled concentrations for comparison with the NAAQS. The rounding truncation criteria and rounding conventions for each NAAQS as described in 40 CFR Part 50 are summarized in Table 1.

Table 1. Truncation Criteria and Rounding Conventions

Pollutant	Averaging Period	Truncation Criteria and Rounding Convention	Reference 40 CFR 50
NO ₂	1-hr	Values truncated after one decimal place. Round to nearest 1 ppb (values 0.5 or greater round up).	Appendix S, Section 4
	Annual	Values truncated after one decimal place. Round to nearest 1 ppb (values 0.5 or greater round up).	Appendix S, Section 4
SO ₂	1-hr	Values truncated after one decimal place. Round to nearest 1 ppb (values 0.5 or greater round up).	Appendix T, Section 4
	3-hr	Round to nearest 0.1 ppm (values 0.05 or greater round up)	40 CFR 50.5
PM _{2.5}	24-hr	Values truncated after one decimal place. Round to nearest 1 µg/m ³ (values 0.5 or greater round up)	Appendix N, Sections 3,4
	Annual	Values truncated after one decimal place. Round to nearest 0.1 µg/m ³ (values 0.05 or greater round up)	Appendix N, Sections 3,4
PM ₁₀	24-hr	Round to nearest 10 µg/m ³ (values 5 or greater round up)	Appendix K, Section 1
CO	1-hr	Round to nearest 0.1 ppm (values 0.5 or greater round up)	40 CFR 50.8
	8-hr	Round to nearest 0.1 ppm (values 0.5 or greater round up)	40 CFR 50.8
Pb	3-mo rolling average	Round to nearest 0.01 µg/m ³ (values 0.005 or greater round up)	Appendix R Section 4

Based on the rounding conventions and truncation criteria found in 40 CFR Part 50, modeled values that would be considered to demonstrate attainment of the NAAQS have been determined. For consistency and ease of comparison, the modeled values acceptable for demonstrating attainment with the NAAQS are listed in Table 2. There is no guidance available for rounding of µg/m³ NAAQS values calculated for gaseous pollutants, therefore the calculated values for NO₂ and the 1-hour averaging period of SO₂ were truncated at one decimal place and the 3-hour averaging period for SO₂ and the CO values were rounded to 1 decimal place.

Table 2: Modeled Values that Demonstrate Attainment of the NAAQS

Pollutant	Averaging Period	Modeled Attainment of NAAQS*	
		ppb/ppm	µg/m ³
NO ₂	1-hr	100.4 ppb	188.8
	Annual	53.4 ppb	100.4
SO ₂	1-hr	75.4 ppb	197.4
	3-hr	0.54 ppm	1414.3
PM _{2.5}	24-hr	NA	35.4
	Annual	NA	12.04
PM ₁₀	24-hr	NA	154
CO	1-hr	35.4 ppm	40,538.1
	8-hr	9.4 ppm	10,764.3
Pb	3-mo rolling average	NA	0.154

* For gaseous pollutants with ppb and ppm NAAQS, calculation µg/m³ values are converted using the formula µg/m³ = (ppm X molecular weight)/0.02446 @ 25 C.