

AQI

Colour guide:

BLUE: good | **GREEN: moderate** | **AMBER: poor** | **RED: unhealthy** | **DARK RED: hazardous**

PM2.5 → US AQI categories (24-hour average)

PM2.5 (µg/m ³)	AQI category	Colour	Health interpretation
0–12.0	Good	BLUE	Ideal conditions
12.1–35.4	Moderate	GREEN	Acceptable for most
35.5–55.4	Unhealthy for sensitive groups	AMBER	Risk for vulnerable individuals
55.5–150.4	Unhealthy	RED	General health risk
150.5+	Hazardous	DARK RED	Serious health effects

PM10 → US AQI categories (24-hour average)

PM10 (µg/m ³)	AQI category	Colour	Health interpretation
0–54	Good	BLUE	Clean air
55–154	Moderate	GREEN	Acceptable for most
155–254	Unhealthy for sensitive groups	AMBER	Risk for vulnerable individuals
255–354	Unhealthy	RED	General health risk
355+	Hazardous	DARK RED	Serious health effects

Sources: US EPA AQI Calculator, WHO Air Quality Guidelines

Particle Count (PCN) and AQI

Unlike PM, particle count (PCN) does not yet have a formal air quality index (AQI) standard. However, organisations such as GoAQI and recent research suggest that a custom index can be derived from individual particle size bins (channels), as each size range reflects different health impacts.

- **0.3 µm bin** represents ultrafine particles (UFPs). These are the most numerous and can enter the bloodstream via the lungs
- **0.5 - 1.0 µm bins** represent fine particles that are highly relevant for respiratory exposure and indoor air quality assessment
- **3.0 - 10.0 µm bins** represent coarse particles such as dust and pollen. These are less penetrative but can still cause irritation or settle on surfaces

Using bin data in this way helps identify which size fractions are driving changes in overall air quality. For instance, a rise in the 0.3 µm bin suggests combustion or ultrafine pollution, whereas an increase in the 3.0 - 10.0 µm range points to coarse dust or mechanical disturbance.