



What is Ozone and Particulate Matter?

Ozone is a gas that occurs naturally in the atmosphere. Ozone exists in Earth's stratosphere as well as at Earth's surface. Typically, ozone located in the stratosphere is considered "good" ozone while ozone located at or near the surface is "bad" ozone. "Good" ozone is helpful to humans and their environment. Ozone in the stratosphere absorbs some of the Sun's harmful incoming ultraviolet radiation. Ozone that exists at the surface is not beneficial. It can negatively impact the environment and even jeopardize human health in the short and long terms.

Harmful ozone at the surface does not occur naturally. This ozone is a result of chemical reactions from sunlight and pollutants in the atmosphere such as volatile organic compounds (VOCs) and nitrogen oxides (NO_x). These pollutants come from the burning of fossil fuels, power plants, and chemical products.

Source: EPA



Particulate matter, abbreviated PM, are microscopic particles and droplets located in the air. There are various sizes of PM with the main sizes being PM₁₀ and PM_{2.5}. PM₁₀ are particles that are large yet still inhalable. PM_{2.5} are smaller particles with diameter usually ranging from 2.5 micrometers and smaller. Like PM₁₀, these fine particles can easily be inhaled and are detrimental for human health.

PM can come from both indoor and outdoor sources. Indoor sources can include burning candles, tobacco smoke and even cooking. Outdoor sources of PM include anthropogenic and natural causes. Emissions from gasoline powered vehicles and smoke from smokestacks constitute a majority of the source for anthropogenic causes. Most particles in the atmosphere form from reacting with chemicals emitted from power plants and smokestacks. Some natural causes include ash from volcanoes and smoke from wildfires, which cannot be controlled.

Sources: EPA, New York State Department of Health

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