



Common air pollutants: nitrogen oxides

Nitrogen oxides include the gases nitrogen oxide (NO) and nitrogen dioxide (NO₂). NO_x is formed primarily from the liberation of nitrogen contained in fuel and nitrogen contained in combustion air during combustion processes. NO emitted during combustion quickly oxidizes to NO₂ in the atmosphere. NO₂ dissolves in water vapour in the air to form acids, and interacts with other gases and particles in the air to form particles known as nitrates and other products that may be harmful to people and their environment.

Both NO₂ in its untransformed state, and the acid and nitrate transformation products of NO₂, can have adverse effects on human health or the [environment](#). NO₂ itself can cause adverse effects on respiratory systems of humans and animals, and damage to vegetation. When dissolved by water vapour, the acids formed can have adverse effects on the respiratory systems of humans and animals. Nitric acid (HNO₃) can cause damage to vegetation, buildings and materials, and contribute to acidification of aquatic and terrestrial ecosystems. When NO₂ is transformed into nitrate particles that are subsequently deposited on aquatic and terrestrial ecosystems, acidification can result. When nitrate is combined with other compounds in the atmosphere, such as ammonia, it becomes an important contributor to the secondary formation of respirable [particulate matter \(PM_{2.5}\)](#). NO₂ is one of the two primary contributing pollutants, along with [volatile organic compounds \(VOCs\)](#), to the formation of [ground-level ozone](#). Both ozone and PM_{2.5} is known to have harmful effects on human health and the environment.

- [Nitrogen oxides: main emission sources](#)

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Date modified: 2013-04-24

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