

Nitrogen Dioxide (NO₂) Pollution

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Basic Information about NO₂

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- What are the harmful effects of NO₂?
- What is being done to reduce NO₂ pollution?

What is NO₂ and how does it get in the air?

Nitrogen Dioxide (NO₂) is one of a group of highly reactive gases known as oxides of nitrogen or nitrogen oxides (NO_x). Other nitrogen oxides include nitrous acid and nitric acid. NO₂ is used as the indicator for the larger group of nitrogen oxides.

NO₂ primarily gets in the air from the burning of fuel. NO₂ forms from emissions from cars, trucks and buses, power plants, and off-road equipment.

Effects of NO₂

Health effects

Breathing air with a high concentration of NO₂ can irritate airways in the human respiratory system. Such exposures over short periods can aggravate respiratory diseases, particularly asthma, leading to respiratory symptoms (such as coughing, wheezing or difficulty breathing), hospital admissions and visits to emergency rooms. Longer exposures to elevated concentrations of NO₂ may contribute to the development of asthma and potentially increase susceptibility to respiratory infections. People with asthma, as well as children and the elderly are generally at greater risk for the health effects of NO₂.

NO₂ along with other NO_x reacts with other chemicals in the air to form both particulate matter and ozone. Both of these are also harmful when inhaled due to effects on the respiratory system.

- Learn more about Particulate Matter <<https://epa.gov/pm-pollution>> and Ozone <<https://epa.gov/ground-level-ozone-pollution>>.

Environmental effects

NO₂ and other NO_x interact with water, oxygen and other chemicals in the atmosphere to form acid rain. Acid rain harms sensitive ecosystems such as lakes and forests.

- Learn more about Acid Rain <<https://epa.gov/acidrain>>.

The nitrate particles that result from NO_x make the air hazy and difficult to see though. This affects the many national parks that we visit for the view.

- Learn more about Visibility and Haze <<https://epa.gov/visibility>>.

NO_x in the atmosphere contributes to nutrient pollution in coastal waters.

- Learn more about Nutrient Pollution <<https://epa.gov/nutrientpollution>>.

What is being done to reduce NO₂ pollution?

EPA's national and regional rules to reduce emissions of NO₂ and NO_x will help state and local governments meet the National Ambient Air Quality Standard (NAAQS).

- Learn about how air quality standards help reduce NO₂ <<https://epa.gov/no2-pollution/setting-and-reviewing-standards-control-no2-pollution>>

EPA identifies areas where the air quality does not meet the national NO₂ standards. For these areas, state, local, and tribal governments develop plans to reduce the amount of NO₂ in the air.

- Learn more about NO₂ air quality designations and state implementation plans (SIPs) <<https://epa.gov/no2-pollution/applying-or-implementing-nitrogen-dioxide-standards>>.

[Nitrogen Dioxide Home <https://epa.gov/no2-pollution>](https://epa.gov/no2-pollution)

Nitrogen Dioxide Basics

[Setting & Reviewing NO₂ Standards <https://epa.gov/no2-pollution/setting-and-reviewing-standards-control-no2-pollution>](https://epa.gov/no2-pollution/setting-and-reviewing-standards-control-no2-pollution)

[Primary NO₂ Standard Regulatory Actions <https://epa.gov/no2-pollution/primary-national-ambient-air-quality-standards-naaqs-nitrogen-dioxide>](https://epa.gov/no2-pollution/primary-national-ambient-air-quality-standards-naaqs-nitrogen-dioxide)

[Secondary NO₂ and SO₂ Standard Regulatory Actions <https://epa.gov/so2-pollution/secondary-national-ambient-air-quality-standards-naaqs-nitrogen-dioxide-no2-and>](https://epa.gov/so2-pollution/secondary-national-ambient-air-quality-standards-naaqs-nitrogen-dioxide-no2-and)

[Implementing NO₂ Standards <https://epa.gov/no2-pollution/applying-or-implementing-nitrogen-dioxide-standards>](https://epa.gov/no2-pollution/applying-or-implementing-nitrogen-dioxide-standards)

[Primary NO₂ Standard Implementation Actions <https://epa.gov/no2-pollution/2010-nitrogen-dioxide-no2-national-ambient-air-quality-standards-naaqs-implementation>](https://epa.gov/no2-pollution/2010-nitrogen-dioxide-no2-national-ambient-air-quality-standards-naaqs-implementation)

[Implementation Data and Reports <https://epa.gov/no2-pollution/technical-data-and-reports-nitrogen-dioxide-measurements-and-sip-status>](https://epa.gov/no2-pollution/technical-data-and-reports-nitrogen-dioxide-measurements-and-sip-status)

[Other Criteria Air Pollutants <https://epa.gov/criteria-air-pollutants>](https://epa.gov/criteria-air-pollutants)

Contact Us <<https://epa.gov/no2-pollution/forms/contact-us-about-nitrogen-dioxide-no2-pollution>> to ask a question, provide feedback, or report a problem.

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