



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Air Quality: Sulfur Dioxide (SO₂)

www.idem.IN.gov

Mitchell E. Daniels, Jr.

Governor

Thomas W. Easterly

Commissioner

100 North Senate Avenue, Mail Code 61-53, Indianapolis, IN 46204

Phone: (317) 233-0178

Toll Free: (800) 451-6027

Description:

- Sulfur dioxide (SO₂) derives from fossil fuel combustion at power plants and other industrial facilities. Other sources of SO₂ include industrial processes such as extracting metal from ore and the burning of high sulfur fuels by locomotives, large ships and non-road equipment.
- The U.S. Environmental Protection Agency (USEPA) sets National Ambient Air Quality Standards (NAAQS), for six "criteria" pollutants, including SO₂, to protect public health and the environment.
- Federal and state programs, such as the Acid Rain Program, Tier 2 Tailpipe and Fuel Standards, diesel fuel sulfur standards, existing rules and other programs have resulted in a substantial reduction in SO₂ over the past 30 years.

National Ambient Air Quality Standards for Sulfur Dioxide:

- On June 2, 2010, USEPA revised the primary NAAQS, establishing a new 1-hour standard at a level of 75 parts per billion (ppb) and revoked the two existing primary standards of 140 ppb over 24 hours and 30 ppb over a year. The new 1-hour standard provides substantial protection from high, short-term (five minutes to 24 hours) concentrations of SO₂.
 - The revised standard includes a new "form." The form is the air quality statistic that is compared to the level of the standard to determine if an area meets the standard. The new form is the 3-year average of the 99th percentile of the annual distribution of daily maximum 1-hour average concentrations.
- Based on ambient air quality monitoring data from 2007 through 2009, Indiana has 13 out of 23 monitors in ten counties above the new 1-hour standard of 75 ppb. The Indiana Department of Environmental Management (IDEM) and USEPA are working together to determine nonattainment recommendations for those counties which currently measure SO₂ levels above the new 1-hour standard.

Environmental Impacts:

- Breathing SO₂ has been linked to an array of adverse respiratory effects, including:
 - Narrowing of the airways leading to breathing difficulty (bronchoconstriction).
 - Increased asthma symptoms, especially during exercise.
 - Increased emergency-department visits and hospital admissions for all respiratory illnesses and asthma.

IDEM's Role:

- IDEM is responsible for protecting human health and the environment while providing for safe industrial, agricultural, commercial and governmental operations vital to a prosperous economy.
- IDEM's Office of Air Quality is responsible for protecting air quality in Indiana through the implementation of federal, regional and state control measures, regulations and ambient monitoring.
- For areas not achieving (attaining) the air quality standard for SO₂, IDEM will work to help communities implement programs to achieve the standard as quickly as possible.

Citizen's Role:

- There are a number of actions every citizen can take to reduce their contribution to SO₂ pollution and improve overall air quality:
 - Use energy efficient appliances, such as USEPA-approved Energy Star brand appliances, whenever possible.
 - Reduce home energy consumption by turning off lights, televisions, and other appliances when not in use to reduce emissions from energy production.



More Information:

- For information about IDEM's continuous SO₂ air monitoring program, please visit IDEM's Web site at <http://www.in.gov/idem/4665.htm>.
- For air quality questions and concerns, please call IDEM's Office of Air Quality at (317) 233-0178 or (800) 451-6027 extension 3-0178.