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Particulate Matter

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NATURE AND SOURCES OF THE POLLUTANT

Particulate matter is the generic term used for a type of air pollution that consists of complex and varying mixtures of particles suspended in the air we breathe. Particles are present everywhere, but high concentrations and/or specific types of particles have been found to present a serious danger to human health.

Particulate matter is a combination of fine solids such as dirt, soil dust, pollens, molds, ashes, and soot; and aerosols that are formed in the atmosphere from gaseous combustion by-products such as volatile organic compounds, sulfur dioxide and nitrogen oxides.

Particulate pollution comes from such diverse sources as factory and utility smokestacks, vehicle exhaust, wood burning, mining, construction activity, and agriculture.

HEALTH EFFECTS

Particles of special concern to the protection of lung health are those known as fine particles, less than 2.5 microns in diameter. (For comparison, a human hair is about 75 microns in diameter.) Fine particles are easily inhaled deeply into the lungs where they can be absorbed into the bloodstream or remain embedded for long periods of time. A recent study showed a 17% increase in mortality risk in areas with higher concentrations of small particles.

Particulate matter air pollution is especially harmful to people

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with lung disease such as asthma and chronic obstructive pulmonary disease (COPD), which includes chronic bronchitis and emphysema. Exposure to particulate air pollution can trigger asthma attacks and cause wheezing, coughing, and respiratory irritation in individuals with sensitive airways.

Recent research has also linked exposure to relatively low concentrations of particulate matter with premature death. Those at greatest risk are the elderly and those with pre-existing respiratory or heart disease.

NATIONAL AMBIENT AIR QUALITY STANDARDS

The Clean Air Act requires the U.S. Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for the six major air pollutants considered harmful to public health and the environment. Localities where air pollution levels exceed the NAAQS are required to develop plans to reduce emissions.

The current federal standard for particulate matter (PM₁₀) is 150 micrograms per cubic meter (ug/m³) of air averaged over 24 hours and 50 ug/m³ averaged over a one-year period.

In July 1997, the EPA set a new stricter standard that will regulate fine particulate matter (PM_{2.5}) for the first time: 65 ug/m³ measured over a 24-hour period and 15 ug/m³ averaged over a year. This new standard will be phased in over the next decade.

FOR MORE INFORMATION

For more information about the EPA's air quality standards, visit the EPA website at

<http://www.epa.gov/oar/oaqps/cleanair.html>.

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