Air Quality Fact Sheet
Ozone

WHAT IS GROUND-LEVEL OZONE POLLUTION?

Ozone is a gaseous compound made up of three oxygen molecules. While life-essential in the upper atmosphere, man-made ozone at the ground level is a dangerous pollutant. Ground level ozone quickly reacts with lung tissue and other organs, and inhaling it causes tissue damage. Haze, not ozone, causes haze and visual impairment.

HOW IS OZONE FORMED?

Pollutants from autos and smokestacks (nitrogen oxides) and manmade and chemical "volatile organic compounds" chemically react in sunlight to form ground-level ozone. Hot, sunny, summer days are ideal conditions for unhealthy levels of ground-level ozone.

Check **current** air pollution levels **near you** at EPA's web site: **www.epa.gov/airnow**

WHAT ARE THE HEALTH EFFECTS OF OZONE?

Human Health Impacts:

- Exposure to ozone results in coughing, wheezing, tightness in chest, difficulty in breathing, and aggravated asthma.
- Ozone affects your lungs much like a sunburn on your skin by damaging the affected cells within your lungs. Like a sunburn, ozone damage causes temporary inflammation.
- Though effects are temporary, continued exposure can result in permanent damage.
- Ozone increases sensitivity to allergens, aggravating asthma and wheezing. Recent studies indicate that ozone may actually induce asthma in children.

Biological impacts:

- Ozone enters plants through the leaves, just like other gases. It can cause visible leaf injury, reduced photosynthetic capacity, increased respiration, premature leaf death, and even mortality. It also can distress reproduction and growth of some plants.

ARE HIKERS AT RISK?

AMC, the Harvard School of Public Health and Brigham and Women's Hospital tested over 500 hikers for changes in lung capacity after a day of hiking from Pinkham Notch up Mount Washington, New Hampshire. Lung function decreased with higher ozone levels. Exposure of only a few hours can temporarily impact lungs. This study found that hikers experience health impacts when ozone is detected well below the current health standard set by the Environmental Protection Agency (EPA). Hiking, along with other active outdoor recreation, should be limited or even avoided when ozone concentrations is greater than moderate levels.

CHECK OUT REGIONAL RESULTS FROM AMC'S VIZ VOLS

You can find data from Visibility Volunteer hikes throughout the region at www.outdoors.org/mountainwatch. Stay up to date on air quality conditions along the Appalachian Mountain range.

WHAT CAN I DO TO IMPROVE AIR QUALITY?

- ✓ Most important - car pool, use a fuel efficient car and keep it well tuned, and conserve electricity at home and work.
- ✓ Join AMC's Conservation Action Network (www.outdoors.org/conservation/can) to receive email alerts on the latest issues affecting air quality.
- ✓ Write a personal letter to your members of Congress telling them about your own experiences hiking on poor air quality days. Ask them to support clean air legislation and rules that will ensure a speedy improvement in our region's air quality.
- ✓ Be an AMC Volunteer again to help document air quality from your favorite peaks.

Air Quality Fact Sheet
Haze

WHAT IS HAZE POLLUTION?

If you see haze you breathe it, and breathing it is not healthy! Haze is very small particles - over 20 times smaller in diameter than human hair - suspended in the air. Some of these particles are from natural sources, but many of them come from power plant and automobile emissions. Haze *pollution* is that portion of haze that comes from man-made sources, largely sulfate, carbon-based and nitrate particles.

HOW IS HAZE POLLUTION FORMED?

Pollution largely from coal-burning power plants (sulfur dioxide gas) reacts in the atmosphere to form small sulfate particles. This is the main compound in regional haze pollution. These sulfate particle absorb and reflect sunlight, obscuring views and turning a normally clear view to a hazy one. Automobiles and power plants are large sources of nitrogen oxides gas which can also be converted to particles, with similar hazy results. These gases and particles can travel hundreds of miles resulting regional haze.

WHAT ARE THE HEALTH EFFECTS OF HAZE PARTICLE POLLUTION?

Human Health Impact:

- Aggravated asthma and other Increases in respiratory symptoms
- Chronic bronchitis
- Decreased lung function
- Premature death

Check **current** air pollution levels **near you** at EPA's web site: **www.epa.gov/airnow**

Biological Impacts:

Acidic particles in haze pollution once they fall to the earth and enter forest ecosystems have similar impacts to that of acid rain. They're biological impacts include:

- Acid mist affecting cold tolerance of Red Spruce; it weakens the tree making them more susceptible to cold weather and disease.
- Acidification of surface waters that can kill sensitive aquatic organisms
- Depletion of soil nutrients

ARE HIKERS AT RISK?

When fine particle pollution is high the EPA warns that "People with heart or lung disease, older adults, and children should avoid prolonged or heavy exertion. Everyone else should reduce prolonged or heavy exertion." EPA considers hiking as "heavy exertion".

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