

OZONE (O₃): GOOD UP HIGH, BAD NEARBY

Good O₃ occurs in the atmosphere's upper level (stratosphere) and protects us from sun's harmful UV rays.

Bad O₃ or ground level O₃ occurs in the atmosphere's lower level (troposphere) during hot-dry summer days. It's the main ingredient of smog. It's bad for our respiratory system, especially for children, elderly, people with respiratory illnesses, and people who are active outdoors. Ground level O₃ is seasonal, April to October.

During hot, dry summer days, Volatile Organic Compounds (VOCs) react with Nitrogen Oxides (NOx) to form O₃. VOCs come from sources such as cars, pine trees and industrial and commercial processes. Sources such as vehicles and industrial, commercial, and residential fuel combustion produce NOx.

PARTICLE MATTER (PM)

Known also as particle pollution or particulate matter, PM is a complex mixture of extremely small particles and liquid droplets made up of acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. PM comes in many sizes and shapes and it's a year-round concern.

Sources of primary particles include construction sites, unpaved roads, fields, smokestacks, or fires. Sources of secondary particles include complicated reactions of chemicals in the atmosphere such as sulfur dioxides and nitrogen oxides. Emissions from power plants, industries and automobiles make up most of the fine particle pollution.

Coarse PM may be found near roads and dusty industries and range in size from 2.5 to 10 micrometers (µm) in diameter (the average human hair is about 70 µm in diameter). Fine PM_{2.5} particles may be found in smoke and haze, are smaller than 2.5 µm, and can be directly emitted from forest fires, gases emitted from power plants, industries, and automobiles.

HOW O₃ AND PM_{2.5} AFFECT YOUR HEALTH

High levels of ground level O₃ and PM_{2.5} affect children, elderly people, people with respiratory illnesses, and people who are active outdoors. The health effects of high levels of ground level O₃ and PM_{2.5} include:

- Irritation to the respiratory system;
- Coughing, throat irritation, and congestion;
- Reduction of lung function making it difficult to breathe and taking more rapid and shallow breaths than normal;
- Inflammation of and damage to cells that line lungs;
- Aggravation of chronic lung diseases (asthma, bronchitis, and emphysema). O₃ makes people more sensitive to allergens, which are the most common triggers of asthma attacks;
- Long term exposure to PM_{2.5} has been linked to the development of chronic bronchitis and premature death;
- Short term exposure to PM_{2.5} may increase vulnerability to respiratory infections and has been linked to heart attacks and arrhythmias;
- Cause permanent lung damage.

THINGS YOU CAN DO TO SPARE THE AIR IN GREENVILLE COUNTY:

- Consolidate trips by combining multiple errands and avoiding unnecessary driving.
- Use alternative modes of transportation such as public transportation, bicycles, walk.
- Accelerate and brake gradually.
- Refuel when it's cool and don't top off the gas tank.
- Use alternate fuels, if available and if your car is properly equipped.
- Pick at least one day a week to carpool to work, school, or meetings, especially during ground level O₃ alert days.
- Properly maintain fleet or personal vehicles to reduce emissions and enhance performance.
- Telecommute to work, if possible.
- Use energy efficient appliances and light bulbs to conserve energy.
- Make sure the lids on chemical products, especially janitorial products, paints, solvents, etc., are tightly closed to eliminate evaporation.

- Consider using manual (reel) or electric-powered lawn and garden maintenance equipment.
- If using gas-powered lawnmowers, mow lawns when it's cool, preferably early in the morning or late in the afternoon.
- Consider creating flower or plant beds to reduce lawn mowing areas.
- Thinking about buying a car? Consider purchasing hybrid, alternate fuel, fuel efficient, or lean burn vehicles. The State provides tax incentives for individuals who purchase these vehicles. The State's income tax credit equals to 20% of certain new hybrid, fuel cell, alternative fuel, or lean burn technology motor vehicle and tax credits are allowed against a taxpayer's federal income tax liability.
- Learn what you can burn before burning materials. In South Carolina, it's against the law to burn household garbage, trash, and cleaners, paper, plastics, paints, and farm chemicals, motor and waste heating oils, building and roofing materials (shingles and tar), tires and other rubber materials, electrical wire, insulation, and duct work. If in doubt on what you may burn, call SCDHEC at (864) 241-1090 or your local fire department.
- Observe speed limit, avoid driving at high speed, use cruise control on highways.
- Consider implementing alternate work schedules: doing this would reduce engine idling during egress both in employees' parking areas and on congested streets during rush hours.
- Reduce driving by providing in-house on-line training sessions, Web meetings/conferences, conference telephone calls.
- Drive to a central location and park, then, walk between your destinations.
- Spread the word! Tell your friends, family and co-workers what you are doing and why. Education and small changes in personal habits will do wonders to maintain the air cleaner.

Avoid:

- Long lines for drive-up windows—park your car and walk into the business.
- Driving from store to store looking for just one item—call ahead to find out if the item is in stock.
- Unnecessary trips during rush hours.
- Idling your car's engine for more than 30 seconds—late model vehicles need little warm-up during cold weather.
- Driving with unnecessary items in the trunk to reduce car load. This improves fuel efficiency and performance.

HOW TO PREVENT EXPOSURE:

- Avoid strenuous outdoor activities - substitute for an activity requiring less exertion (walk instead of jogging)
- Avoid long exposure to outdoor activities - reduce activity time or plan activities during days of lower air pollution levels
- Don't exercise near busy roads - air pollution levels are higher in these areas

BE ALERT:

USEPA:

- <http://airnow.gov> provides local and national air quality forecast.
- <https://enviroflash.epa.gov/airnow/subscriber> provides a free subscription service to daily automated air quality forecast.

SCDHEC:

- <http://www.scdhec.gov/eqc/baq> provides information on air quality.
- Call 1-866-238-4973 for air quality forecast in South Carolina.

Greenville County:

- www.greenvillecounty.org under "County Highlights: Air Quality."
- Cable TV Channel 2 subscribers.

Do your part to

**SPARE
THE
AIR!**



in Greenville County