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- “Introducing AQMD”
- “Simple Things You Can Do to Clean the Air...”



South Coast AQMD

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Cleaning the air that we breathe...™

www.aqmd.gov

We, at the South Coast
Air Quality Management
District, are committed to
protecting public health
by ensuring, in a manner
sensitive to the economic
needs of the basin’s busi-
nesses, that all residents
have the right to live and
work in an environment
of clean air.



Air

Dirty

In the past decade, air quality has improved significantly in Southern California. Some of the efforts that have helped our air quality include:

- Cleaner engines
- Smog Check
- Vapor recovery nozzles on gasoline dispensers
- Regulations on solvents contained in paints and coatings
- Statewide regulation on the amount of solvents in consumer products
- Regional air quality control rules that continually reduce the emissions released from more than 25,000 businesses

Unfortunately, poor air quality is still a real health threat in our region – which covers all of Orange County and the urban areas of Los Angeles, Riverside and San Bernardino counties. If you live or work in this area, chances are you've heard advisories of unhealthy air, seen how pollution masks the beauty of our landscape, or know someone whose health is affected by dirty air.

The U.S. Environmental Protection Agency has designated our region an extreme ground-level ozone non-attainment area. This means that, particularly during the summer smog season, we fail to meet air quality health standards and are ranked among the smoggiest areas in the nation.

Over 75% of our area's smog problem is caused by vehicles and other mobile sources with internal combustion engines, including trucks, buses, agricultural equipment, construction equipment, and gas-powered lawn and garden equipment. With 16 million residents and 9.5 million motor vehicles, motorists in the basin drive more than 332 million vehicle-miles every day. Future growth means more vehicles on our roadways adding pollution to the air we breathe.

Air Quality Levels

The U.S. Environmental Protection Agency has found that ground-level ozone and particulate matter affect people's health at lower levels than previously thought.

For ozone, scientific evidence shows that prolonged exposure to lower levels of this pollutant poses the greatest health risk. Averaging ozone levels over eight-hours provides a higher level of protection, especially for children and adults who spend a significant amount of time working or playing outdoors – a group that is particularly vulnerable to the effects of ozone.

The standard for airborne particles up to 10 microns in diameter (PM10) remains in effect. But now EPA says smaller particulate air pollution measuring less than 2.5 microns in diameter (PM 2.5) also is a health concern. Breathing fine particle air pollution can cause ill health effects – including premature death and an increase in respiratory illness. The South Coast Air Quality Management District, the regional air pollution control agency, now monitors and provides forecast information for these finer particles.



Air Quality Index

POLLUTANT SPECIFIC CAUTIONARY STATEMENTS

Health Categories	Ozone	Very Small Particles PM2.5	Small Particles PM10	Carbon Monoxide (CO)
VERY UNHEALTHY (201 TO 300)	Active children and adults, and people with respiratory disease, such as asthma, should avoid all outdoor exertion (participation in strenuous sports activities or exercise); everyone else, especially children, should limit outdoor exertion.	People with respiratory or heart disease, the elderly and children should avoid any outdoor activity; everyone else should avoid prolonged exertion.	People with respiratory or heart disease, the elderly and children should avoid any outdoor activity; everyone else should avoid prolonged exertion.	People with cardiovascular disease, such as angina, should avoid exertion and sources of CO, such as heavy traffic.
UNHEALTHY (151 TO 200)	Active children and adults, and people with respiratory disease, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children, should limit prolonged outdoor exertion.	People with respiratory or heart disease, the elderly and children should avoid prolonged exertion; everyone else should limit prolonged exertion.	People with respiratory or heart disease, the elderly and children should avoid prolonged exertion; everyone else should limit prolonged exertion.	People with cardiovascular disease, such as angina, should limit moderate exertion and avoid sources of CO, such as heavy traffic.
UNHEALTHY FOR SENSITIVE GROUPS (101 TO 150)	Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion.	People with respiratory or heart disease, the elderly and children should limit prolonged exertion.	People with respiratory or heart disease, the elderly and children should limit prolonged exertion.	People with cardiovascular disease, such as angina, should limit heavy exertion and avoid sources of CO, such as heavy traffic.
MODERATE (51 TO 100)	Unusually sensitive people should consider limiting prolonged outdoor exertion.	Unusually sensitive people should consider reducing prolonged or heavy exertion.	Unusually sensitive people should consider reducing prolonged or heavy exertion.	None
GOOD (0 TO 50)	None	None	None	None



POLLUTION AFFECTS EVERYONE

Many residents experience some kind of air pollution-related symptoms such as watery eyes, coughing, or wheezing. Even for healthy people, polluted air can cause respiratory irritation or breathing difficulties during exercise or outdoor activities. Your actual risk depends on your current health status, the pollutant type and concentration, and the length of exposure to the polluted air.

People most susceptible to severe health problems from air pollution are:

- Individuals with heart or lung disease
- Individuals with respiratory problems such as asthma or emphysema
- Pregnant women
- Outdoor workers
- Children under age 14, whose lungs are still developing
- Elderly residents, whose immune systems are weaker
- Athletes who exercise vigorously outdoors

High air pollution levels can cause immediate health problems:

- Aggravate cardiovascular and respiratory illness
- Add stress to heart and lungs, which must work harder to supply the body with oxygen
- Damage cells in the respiratory system

Long-term exposure to polluted air can have permanent health effects:

- Accelerated aging of the lungs and loss of lung capacity
- Decreased lung function
- Aggravated diseases such as asthma, bronchitis, emphysema, and increase cancer risk
- Shortened life span

Defining DIRTY AIR



■ **Smog** is the general term used to describe a variety of air pollutants, including ground-level ozone (smog's main ingredient), particulate matter, carbon monoxide and nitrogen oxide. It refers to air pollution that is formed when gases from many sources are released into the air and chemically react with each other in sunlight.

Ocean breezes sweep the smog inland toward the mountains. An inversion layer of warm air traps the smog close to the ground where we live and breathe.

■ **Ground-level ozone** (O₃) is a colorless pollutant formed by a chemical reaction between volatile organic compounds (VOCs) and oxides of nitrogen (NO_x) in the presence of sunlight. The primary source of VOCs and NO_x is mobile sources, including cars, trucks, buses, plus agricultural and construction equipment. In contrast, stratospheric ozone in our upper atmosphere, better known as the ozone layer, occurs naturally and shields the earth from the sun's harmful ultraviolet rays.

■ **Particulate matter** (PM) is the term used for a mixture of solid particles and liquid droplets found in the air. It originates from a variety of sources, including motor vehicles, power plants, construction activities, soil dust, soot and industrial processes. Coarse particles (PM₁₀) are generally emitted from sources such as vehicles traveling on unpaved roads, crushing and grinding operations and windblown dust. Fine particles (PM_{2.5}) can come from fuel combustion (motor vehicles, power generation, industrial facilities) and fugitive dust. PM_{2.5} is formed primarily in the atmosphere from gases such as sulfur oxides, NO_x, and VOCs.

■ **Carbon monoxide** (CO) is a colorless, odorless gas by-product of combustion produced primarily by motor vehicles. Burned wood and charcoal also emit carbon monoxide.

How Specific Pollutants Can Affect You

Ground-level Ozone

Ozone is a strong irritant that can cause constriction of the airways, forcing the respiratory system to work harder in order to provide oxygen. It can:

- Aggravate respiratory disease such as emphysema, bronchitis and asthma
- Damage deep portions of the lungs, even after symptoms such as coughing or a sore throat disappear
- Cause wheezing, chest pain, dry throat, or headache
- Reduce resistance to infection and increase fatigue

Particulate Matter

A series of scientific studies have linked particulate matter, especially fine particles, with a variety of significant health problems, such as:

- Aggravated emphysema, asthma, heart, or lung disease
- Respiratory-related hospital admissions and emergency room visits
- Reduced growth of lung function in children
- Decreased lung function which is a measure of how well the lungs are working
- Increased bronchitis
- Premature death

Carbon Monoxide

Carbon monoxide reduces the ability of the body's red blood cells to carry oxygen. People with heart disease are more susceptible to developing chest pains when exposed to low levels of carbon monoxide. Exposure to high levels of carbon monoxide can:

- Slow reflexes and cause confusion and drowsiness
- Result in death in confined spaces (i.e., an enclosed garage) at very high concentrations



When to Blow the Whistle on Outdoor Youth Activities

According to medical experts, children are at risk from air pollution in two ways. First, they have greater exposure. They breathe more air in relation to their body weight and lung size and they play outside more, with higher breathing rates. Second, children have greater vulnerability. Their bodies are still developing and are more susceptible to adverse effects.

To protect our youth, it's a good idea for everyone to be aware of air quality, especially anyone who supervises children or teenagers. AQMD advises school officials to avoid vigorous outdoor activities, like running, soccer, football, etc., when unhealthy air quality conditions are forecast. If a health advisory occurs during the day, teachers, coaches and others should take immediate steps to reduce children's exposure to air pollution, such as substituting indoor activities for more strenuous outdoor exercise. Teachers should discuss air pollution and its effects on our health and make the air quality forecast a part of the class routine.