

Clean Air Partners: Ozone Action Days Program

Ozone Action Days Conference

May 5, 2004



Overview

- Ground-Level Ozone
- Particle Pollution
- Health Effects
- Individual and Organizational Actions
- Resources

Ground-Level Ozone

- Ground level ozone is a main constituent of smog.
- Colorless-odorless gas
- Not emitted directly into the atmosphere.



Volatile Organic Compounds

- Chemical compounds made up of carbon, oxygen, hydrogen and other elements that evaporate easily and form gases.
- A primary component of ground level ozone.
- Formed naturally as well as from gasoline, paint, solvents, pesticides and charcoal lighter fluid.

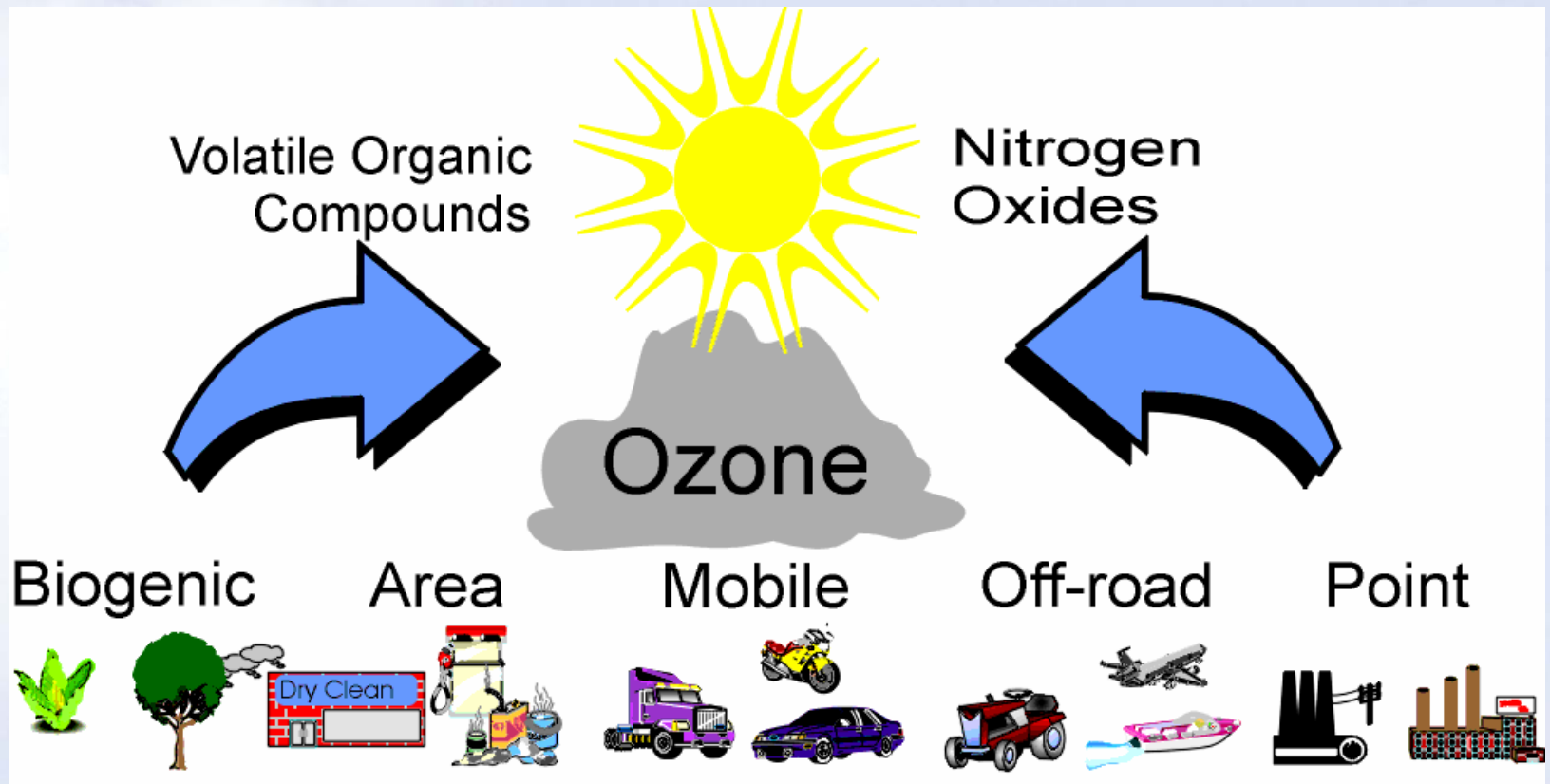


Nitrogen Oxides (NO_x)

- Light brown gas compound made up of nitrogen and oxygen.
- Prime component in the formation of ground level ozone.
- Sources of NO_x include motor vehicles, power plants burning fossil fuels and coal-burning stoves.
- Irritates the respiratory system.



How is Ground-Level Ozone Formed?



Health Effects of Ground Level Ozone

Short Term Exposure

- shortness of breath
 - dry cough or pain when taking a deep breath
 - tightness of the chest, wheezing
 - reduced lung capacity
 - triggers asthma, pneumonia, bronchitis

Long Term Exposure

- Permanent scarring of lung tissue
 - Long-term impairment of lung capacity
 - Reduced immunity

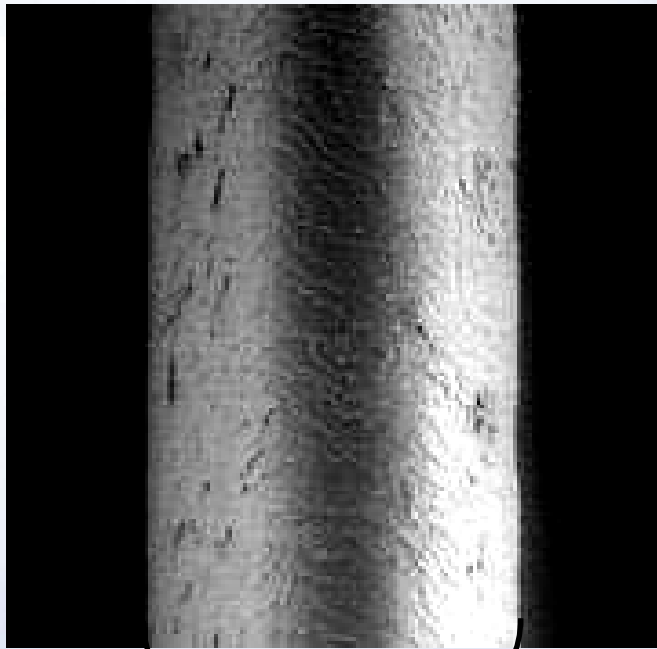
Particle Pollution

- Mixture of microscopic solid and liquid particles suspended in air.
- Particles vary in size.
- The size of the particles is directly linked to their potential for causing health problems.
- Particle pollution can occur year-round.

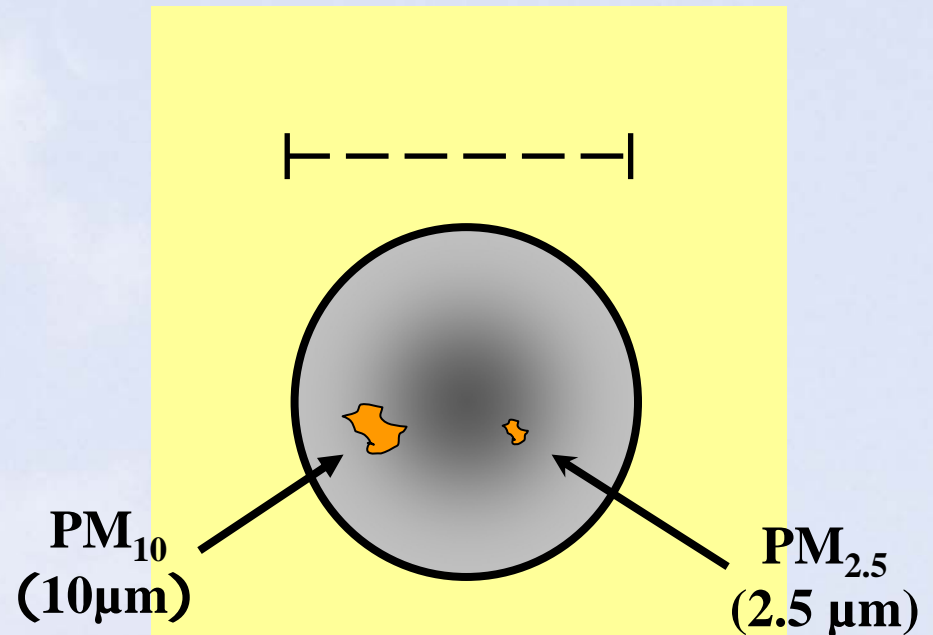


How Fine is Fine?

Particles are only a fraction of the size of a human hair



Human Hair (70 μm diameter)



Hair cross section (70 μm)

Sources of Particle Pollution

Wood-Burning Stoves



Power Plants



Heavy Duty Diesel Engines



Natural Sources



Fine Particles Can Be Emitted Directly or Formed in the Air from Gases

Cars and Trucks



Non-Road Vehicles



Forest Fires

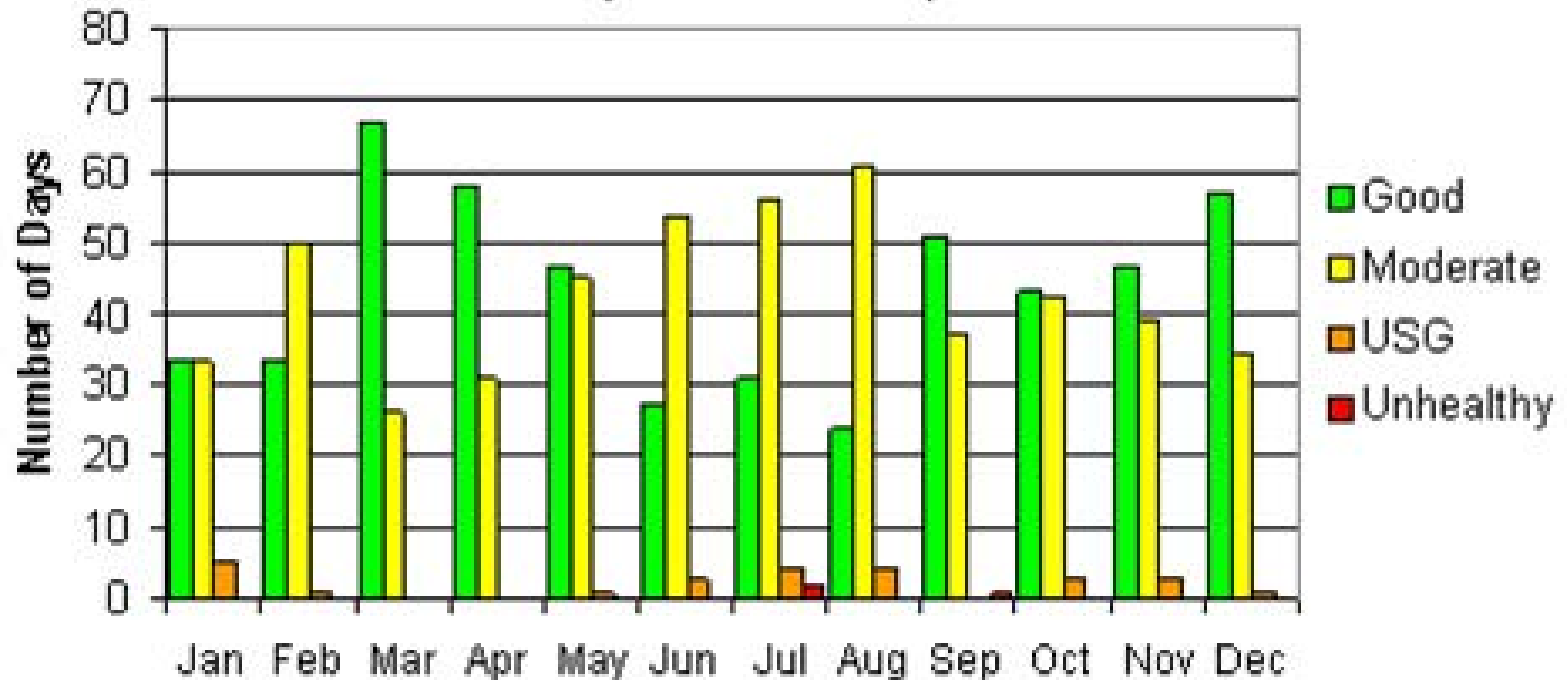


Industrial Sources



Particle Climatology

**AQI Category by Month for Washington D.C.
(FRM, 1999-2001)**



Health Effects of Particle Pollution

Respiratory System Effects

- Chronic bronchitis
- Asthma attacks
- Respiratory symptoms (cough, wheezing, etc.)
- Decreased lung function
- Airway inflammation

Cardiovascular System Effects

- Heart attack
- Cardiac arrhythmia
- Changes in heart rate and heart rate variability
- Premature death

Some Groups are at Greater Risk



- People with lung or heart disease
 - Conditions make them vulnerable
- Older adults
 - Greater prevalence of heart and lung disease
- Children
 - More likely to be active
 - Breathe more air per pound
 - Bodies still developing

Individual Actions To Protect Your Health

Metropolitan Washington Area Forecast

Air Quality Index* Report for:

Thursday, April 29, 2004

GREEN

AQI of 50 (16 locations reporting)

Afternoon report (3:30 P.M. (EST) update) gives the estimated AQI for the day (1 hour ozone standard). Evening report (7:30 P.M. (EST) update) shows the actual AQI for the day (8 hour ozone standard).

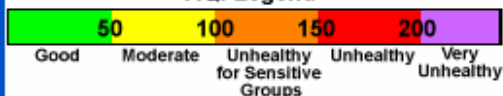
Air Quality Forecast for:

Wednesday, April 28, 2004

GREEN

Air Quality Index Report Last Updated at:
4/29/2004 10:51:26 AM

AQI Legend



[Current Air Quality Map](#)

For more up-to-date information, call our Air Quality Hotline at **(202)962-3299**.

[Forecast and Action Guide](#)

[Current Air Quality Map](#)

[Links to Ozone Data and Forecasts](#)

[Location of Regional Air Quality Monitors](#) (PDF 67 KB)

[2003 Ozone Exceedances](#)

- Check the daily air quality forecasts and air quality index.
- Plan outdoor activities accordingly.
- When air quality is **unhealthy**
 - Kids should limit outdoor activities.
 - Individuals with respiratory and heart ailments should avoid prolonged outdoor exertion.
 - Healthy adults should reduce outdoor activities.

Individual Actions To Reduce Air Pollution

- Limit driving: carpool or use public transportation
- If you must drive, use your most fuel-efficient and well-tuned car
- Trip chain: schedule multiple errands in one trip
- Refuel after dark
- Avoid using gas-powered lawn equipment
- Paint with water-based paints, not oil-based
- Avoid using aerosol products

Organizational Actions

- Encourage your company to offer telework and transit benefits
- Start or expand your company's Ozone Action Day Program
- Discourage prolonged idling
- Include an article about ground level ozone in the company newsletter
- Encourage carpooling and trip chaining
- Offer free sodas with meal purchase at company cafeteria



How Can We Help

- Baltimore and Washington area Coordinators
 - Baltimore: Russ Ulrich, rulrich@baltometro.org
 - Washington: Jen Desimone, jdesimone@mwkog.org
- Supply educational materials
- Provide on-site visits to help set up or expand your Ozone Action Days Program

Additional Resources

- cleanairpartners.net
- air-watch.net
 - Sign up for Air Alert
- epa.gov/airnow
- Air Quality Hotline:
 - Washington, DC 202-962-3299
 - Baltimore, MD 410-537-3247



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