Ozone standards and health effects

• National Ambient Air Quality Standards (NAAQS) currently in effect
  • 2015: 0.070 ppm (or 70 ppb)
  • 2008: 0.075 ppm (or 75 ppb)
  • Both defined as the 3-year average of the daily 4th maximum 8-hour values (truncated)

• Health effects
  • Irritates the airways and reduces lung function, causing coughing, sore or scratchy throat, and shortness of breath
  • Aggravates chronic lung diseases such as asthma, emphysema and bronchitis
  • Increased risk of premature death in people with heart and lung disease
  • Groups at risk include:
    • People with lung disease, especially children with asthma
    • Children and older adults
    • People who are active outside, especially children and people who work outdoors

Analogy: 1 ppb is 1 drop in a large gas tanker truck
Ozone formation

- Typically not directly emitted but secondarily formed
- Formed through complex interaction between volatile organic compounds (VOCs) and nitrogen oxides (NOx) in presence of sunlight
- Highest ground-level ozone concentrations usually occur in the summer
- Precursor emissions include:
  - motor vehicles
  - industry
  - oil and gas production
  - Biogenic (i.e. vegetation)
Highest Mid-day Averages
per hour of day

Ozone (ppb)

Hour

Nursery
Bondad
Ignacio

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