Monitor Design and Use

- AP's ozone monitors are designed with "active sampling" to maximize air sampling at the sensor (to minimize ozone losses).

  More expensive, analytical instruments also employ active sampling (e.g. UV photometry).

- Products without "active sampling" (electrochemical and conventional HMOS products) will normally under-read ozone concentrations below 200 parts per billion and struggle with sensitivity and accuracy, particularly in low air flow.

Measuring Ozone in Air

Ozone Characteristics
Many applications require measurement and control of very low ozone concentrations under 300 parts per billion.

At such low concentrations, you need to consider the following sampling issues to successfully measure and control ozone.

- Ozone is highly reactive. Ozone will rapidly react with organic materials and surfaces such as walls, flooring, plastic testing chambers and people.

  The greater the accuracy of the ozone monitor, the more such variations in ozone concentration will become apparent.

  If you are testing the accuracy of ozone monitors in test chambers, ensure the chamber and devices inside the chamber are clean and non-reactive, e.g. glass or a fluoropolymer.

- Ozone will react with dust and oils. Do not use dusty and dirty air inlets as they will lower the measured ozone concentration.

- Ozone concentration gradients are common in rooms and are greatly influenced by air movement and mixing.

  This is more pronounced at concentrations below 100 parts per billion). High accuracy ozone monitors will detect differences in ozone concentrations and variations with time. Use monitors with Min/Max/ Average measurement cycles to reduce the effect of these fluctuations.

- "Active sampling" requires air to be blown or pumped to the sensor under precise flow conditions.

  AP fan based monitors are designed to be held at right angles to any direct stream being measured.

  Avoid forcing pressurized air into active sampling monitors.

- Air inlets are manufactured from cleaned stainless steel mesh and fluoropolymer materials to minimize ozone loss.

  Do not use sampling tubing:

  ◊ that alters flow characteristics,
  ◊ that reacts with ozone,
  ◊ longer then 1 foot or 30 cm on pumped based monitors without PTFE filters, e.g. centralized monitoring systems.