

Cross-interferences

Aeroqual ozone sensors may exhibit a response to gases other than ozone. The magnitude of the response is a function of both the interference gas and its concentration. Typical sensor responses to some common gases are shown in the tables below (these are indicative responses and the actual response of a specific sensor may vary). A negative response means that the ozone sensor may under-read in the presence of that compound and this should be taken into account in ozone control applications.

| Interfering gas ppm | Sensor response ppm |
|----------------------|---------------------|
| Ammonia 25 | -0.020 |
| Butane 100 | -0.005 |
| Carbon monoxide 10 | -0.005 |
| Carbon dioxide 400 | 0.000 |
| Chlorine 0.5 | 0.200 |
| Ethanol 20 | -0.020 |
| Ethyl acetate 10 | -0.020 |
| Heptane 100 | -0.005 |
| Hydrogen sulfide 0.5 | -0.100 |
| Isopropanol 20 | -0.010 |
| Methane 100 | 0.000 |
| Nitrogen dioxide 0.5 | 0.040 |
| Ozone 0.1 | 0.100 |
| Perchloroethylene 20 | 0.000 |
| Propane 100 | -0.005 |
| Sulfur dioxide 1 | -0.005 |
| Toluene 20 | -0.010 |

Environmental factors

Volatile Organic Compounds (VOCs) are sometimes present in applications and can produce cross-sensitive readings. The term "VOC" applies to a very wide range of hydrocarbons with different behaviours. At high concentrations of VOCs the sensor background compensation may become overwhelmed and the reading lower than actual. Users should also be aware that measurements of ozone in the presence of high concentrations of VOCs, particularly alkenes, may be lower than expected due to gas phase ozone reaction with the VOC.

The Aeroqual GSS ozone sensor will be poisoned by exposure to specific compounds such as silanes, silicones, phosphate esters and organochlorides. Silicones and silanes are present in many products such as lubricants, polishes, mold-release agents and adhesives and can permanently damage the sensor due to the formation of an impermeable glassy layer on the GSS sensor. **Exposure to these compounds must be avoided.**

Cleaning processes in rooms fitted with Aeroqual ozone sensors should be carefully considered to ensure the process does not impact on the sensor accuracy. Cleaning systems that use mists or sprays may damage the sensor and the sensor should be powered down and removed or covered before cleaning starts.

Many applications require measurement and control of very low ozone concentrations below 200 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 compounds and surfaces such as walls, flooring, plastic testing chambers and people.
- **Ozone concentration gradients are common** in rooms and are greatly influenced by air movement and mixing. Concentrations may be lower near walls and surfaces or in areas with low air flow.
- The ozone sensor head has a clean **stainless steel mesh** to filter out dusts. If this becomes dirty over time the sensor head will start to read incorrectly and will need to be replaced.

Health and Safety

The Aeroqual GSS ozone sensor should be regularly tested and calibrated to ensure its correct operation. This is particularly important if used as part of a health and safety system.