CROWCON
Detecting Gas Saving Lives

Crowcon Technical Note

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Document applies to: **All Products**

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Subject: **Calibration and Bump Testing with Reactive Gases**

Some of the test gases which are used with our gas detection products are classified as "Reactive" gases.

A "Reactive gas" is described as a gas which will react with, or be absorbed by, the material with which it comes into contact. As a result, the gas concentration reaching the sensor can be reduced, leading to an incorrect calibration or bump test.

Reactive gases include the following (listed with the appropriate calibration gas: contact Crowcon for specific gas concentration information and cross-calibration values):

Target Gas	Calibration Gas
Ozone (O_3)	Ozone (via O_3 generator)
Hydrogen Chloride (HCL)	Hydrogen Chloride
Hydrogen Fluoride (HF)	Hydrogen Chloride or Sulphur Dioxide
Chlorine (Cl_2)	Chlorine (via Cl_2 generator)
Fluorine (F_2)	Chlorine (via Cl_2 generator)
Chlorine Dioxide (ClO_2)	Chlorine (via Cl_2 generator)
Phosgene ($COCl_2$)	Chlorine (via Cl_2 generator)
Sulphur Dioxide (SO_2)	Sulphur Dioxide
Nitrogen Dioxide (NO_2)	Nitrogen Dioxide
Nitrogen Monoxide (NO)	Nitrogen Monoxide
Ammonia (NH_3)	Ammonia

It is therefore very important that the appropriate accessories and precautions are applied when calibrating or bump testing sensors:

- For cylinder gas; use only stainless steel regulators.
- Use Teflon, FEP or PTFE tubing; the tube length must be kept as short as possible (<50 cm) and avoid connectors and unions.
- Ensure the correct calibration adaptor is used appropriate to the specific product.
- Allow the gas to flow through the regulator/pipe for at least three minutes for initial absorption to occur before applying to the sensor and attempting calibration.
- The recommended gas flow-rate is 0.5 litres-per-minute.
- Gas generators are recommended instead of gas cylinders for some very unstable gases, especially where very low ppm concentrations are required.

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