

Midas[®] SENSOR CARTRIDGE SPECIFICATIONS

HCl Group MIDAS-S-HCL, MIDAS-E-HCL



| Gas Measured | Hydrogen Chloride (HCl) |
|---|---|
| Cartridge Part Number | MIDAS-S-HCL 1 year extended warranty MIDAS-E-HCL 2 year extended warranty |
| Sensor Technology | 3 electrode electrochemical cell |
| Measuring Range (ppm) | HCl 0 – 8ppm |
| Minimum Alarm 1 Set Point | 1ppm |
| Repeatability | < ± 10% of measured value |
| Linearity | < ± 20% of measured value |
| Response Time | $t_{62.5}$ < 30 seconds based on 3 min. exposure t_{90} < 140 seconds based on 3 min. exposure |
| Sensor Cartridge Life Expectancy | 24 months under typical application conditions |
| Operating Temperature | 0°C to +40°C (32°F to 104°F) |
| Effect of Temperature | < ± 0.001ppm / °C (0°C to 20°C) < ± 0.005ppm / °C (20°C to 40°C) |
| Zero Sensitivity | < ± 0.4% of measured value / °C |
| Operating Humidity (continuous) | 20 – 75% rH |
| Effect of Humidity | < ± 0.002ppm / % rH < ± 0.4% of measured value / % rH |
| Operating Pressure | 90 – 110kPa |
| Effect of Position | No effect in typical application |
| Long Term Drift | |
| Zero Sensitivity | Negligible < 15% of measured value / year |
| Calibration Gas | Hydrogen Chloride (4-6ppm HCl) |
| Challenge Gas (Bump Test) | Hydrogen Chloride (4-6ppm HCl) |
| Warm Up Time | < 20 minutes |
| Storage Temperature | +5°C to +25°C (+41°F to +77°F) |

The sensor data listed is based on the test data under normal Lab test conditions (20-25 C, 0 - 60%RH, normal atmosphere pressure); observed performance may vary based on the actual monitoring system and the sampling conditions employed

Other Detectable Gases

The following additional gases can be detected with this sensor cartridge. Sensor performance and characteristics will be representative of the data as tabulated above. Consult the Technical Manual to set up the Midas[®] transmitter with the designated identification code for each of the following gas types.

| Detectable Gas | Chemical Formula | Measuring Range |
|-------------------|----------------------------------|-----------------|
| Dichlorosilane | H ₂ SiCl ₂ | 0 – 8ppm |
| Boron Trichloride | BCl ₃ | 0 – 8ppm |
| Hydrogen Bromide | HBr | 0 – 8ppm |

Cross Sensitivities

Each Midas[®] sensor is potentially cross sensitive to other gases and this may cause a gas reading when exposed to other gases than those originally designated. The table below presents typical readings that will be observed when a new sensor cartridge is exposed to the cross sensitive gas (or a mixture of gases containing the cross sensitive species).

| Gas / Vapor | Chemical Formula | Concentration Applied (ppm) | Reading (ppm HCl) |
|-------------------|----------------------------------|-----------------------------|-------------------|
| Arsine | AsH ₃ | 1 | 0 |
| Carbon Monoxide | CO | 2000 | 0 |
| Chlorine | Cl ₂ | 5 | 5.6 |
| Diborane | B ₂ H ₆ | 1 | -1.3 |
| Hydrogen | H ₂ | 20000 | 0 |
| Hydrogen Fluoride | HF | 5 | 6.7 |
| Hydrogen Sulfide | H ₂ S | 25 | -3.6 |
| Iso Propanol | C ₃ H ₇ OH | 500 | 0 |
| Methanol | CH ₃ OH | 500 | 0 |
| Nitrogen Dioxide | NO ₂ | 5 | 0.9 |
| Phosphine | PH ₃ | 1 | -0.14 |
| Sulfur Dioxide | SO ₂ | 10 | 4.5 |

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