

Fig. 1: Use of gas filter cells to block unwanted spectral bands in optical gas analysis and to eliminate cross-sensitivities.

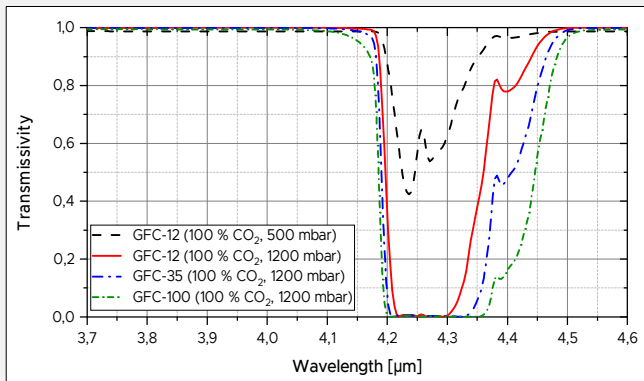


Fig. 2: Application example with 100 % CO₂ gas filling: transmissivity, i.e. radiation blocking, depends on gas filter cell length and fill pressure.

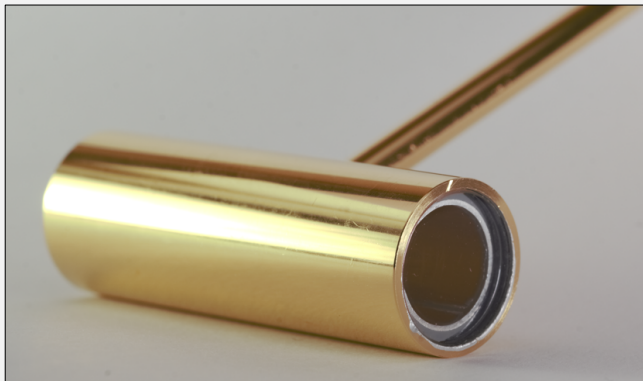


Fig. 3: INFRASOLID's standard gas filter cell GFC-35 with soldered CaF₂ windows and a length of 35 mm (aperture diameter is 10 mm).

HIGHLIGHTS

- ☑ **SOLIDSEAL**[®] hermetic housing technology: hermetically sealed and long-term stable.
- ☑ Easy and cost-efficient calibration of optical gas analyzers.
- ☑ Broad range of applications from UV to far infrared wavelengths.

Eliminate cross-sensitivities, simplify calibration in optical gas analysis

Hermetically sealed gas filter cells

Gas filter cells (GFC) are essential components in high-performance gas measurement devices, e.g. for non-dispersive infrared (NDIR) measurement systems (Fig. 1). These gas-filled cells serve various purposes (Fig. 2):

- eliminating cross-sensitivities to interfering gases by absorbing (i.e. blocking) unwanted spectral bands,
- enabling precise calibration of laser-based gas analyzers by adjusting the laser wavelength to a specific gas absorption band, and
- enabling easy recalibration of gas measurement systems by measuring the known gas and gas concentration inside the cell.

However, state-of-the-art gas filter cells suffer from long-term stability mainly due to insufficient gas tightness. This results in high maintenance costs but also limits the use of highly reactive, corrosive, flammable, and explosive gases and gas mixtures as gas filling.

INFRASOLID[®] has developed a unique packaging process with soldered filter windows, called **SOLIDSEAL[®] technology**, to solve these limitations. It provides hermetically sealed gas filter cells for use in harsh industrial environments (Fig. 3).

Applications and benefits

Soldered windows provide long-term gas tightness for many years, even with highly reactive and corrosive gases. In addition, long-term stable gas filling at very low gas pressure is also ensured (see Fig. 2). This allows the formation of very narrow gas absorption bands inside the cell, e.g. to calibrate or recalibrate a laser wavelength in laser-based gas analyzers.

Soldered CaF₂ windows offer high transmissivity from UV to far infrared wavelengths. This enables a wide range of applications. A dedicated filling tube allows users to evacuate, fill, and seal these gas filter cells themselves, providing additional flexibility for customized applications. We provide step-by-step filling and sealing instructions for this.

Gas filter cells from INFRASOLID[®]: **Make it your calibration standard** – easy to use, reliable, cost-effective, and long-term stable.

Are you looking for detailed technical information or would you like to have a customized solution? – **CLICK/SCAN ME!** ↓

