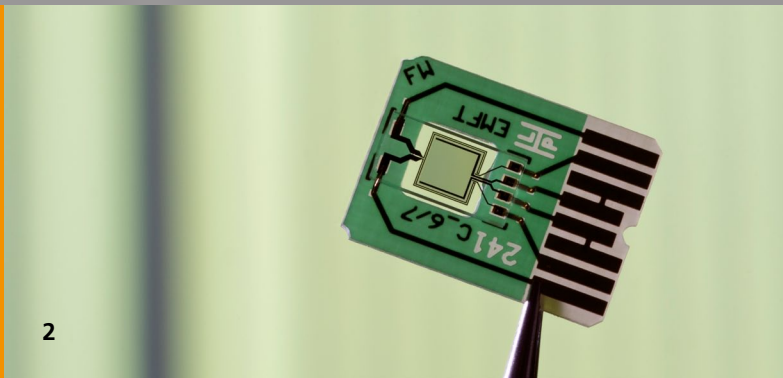


1

1 USB-Stick for monitoring the air quality

2 CO₂-Sensor chip on circuit board



2

HiCO2 – A LONG-TERM STABLE, HIGHLY SENSITIVE CO₂/HUMIDITY SENSOR

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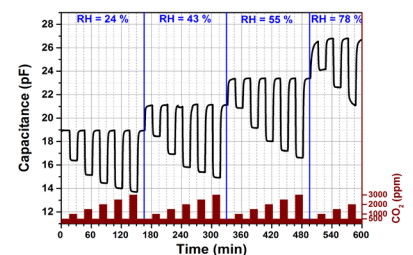
Applications

Carbon dioxide (CO₂) is considered an important indicator for indoor air quality. Currently there is a great demand for efficient and reliable CO₂-Sensors, especially due to the constantly growing smart home market.

Technological Innovation

Whereas the solutions available on the market today are based on optical measurement, the combined CO₂-/humidity sensor developed at Fraunhofer EMFT relies on an impedimetric measurement principle. The sensor signal corresponds to a change in the sensitive material capacitance, dependent on the concentration of CO₂ gas in the ambient air. A novel, hybrid sensor material, consisting of organic and inorganic substances, was developed by Fraunhofer EMFT for this purpose. The benefits of the new sensor concept include:

- High sensitivity: the sensor is able to detect low concentrations in the surrounding environment
- Fast reaction and regeneration times below 2,5 minutes
- Long-term stability for several weeks, without any signal drift



Typical capacitance change depending on CO₂ concentration under different relative humidities

Outlook

Besides CO₂ detection for monitoring the air quality, our group plans to use the new sensor concept to detect other gases such as carbon monoxide (CO) or Sulphur dioxide (SO₂).