

GAS SENSORS



Abstract: The inventions include a room temperature and high temperature Hydrogen (H₂) gas sensors, and a Nitrogen dioxide (NO₂) gas sensor. The sensors have fast response and high stability, along with high selectivity and repeatability.

Inventions

The inventions include:

- Two sensors for detection of Hydrogen (*one for room temperature applications and the other for high temperature (upto 400 °C) applications*)
- A sensor for detection of NO₂

Applications

Potential applications include sensing of Hydrogen in:

- Petroleum refining
- Medical diagnostics
- Space shuttle and space station systems
- Nuclear reactors
- Battery charging
- Mine safety and ore reduction operations
- Hydrogenation of edible oils
- Ammonia and methanol production

Advantage(s)

- High sensitivity
- High selectivity
- Long term stability
- Good repeatability (or reproducibility)
- Low cost
- Separate sensors for room temperature and high temperature applications

Market Size and Growth

As per the Frost and Sullivan market report on analysis of global gas sensors market, the total global gas sensors, detectors, and analysers market generated a revenue of \$2,819.4 million in 2014 and is expected to reach \$3,824.3 in 2021, as shown in Figure 1.

The compound annual growth rate (CAGR) is expected to be 4.5%.

[Source: Analysis of the Global Gas Sensors, Detectors, and Analysers Market, Frost and Sullivan, 2015]

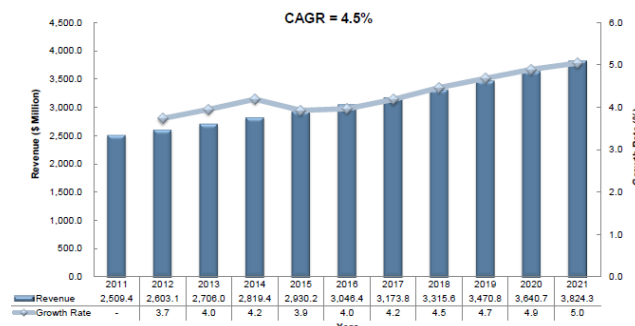


Figure 1: Total Gas Sensors, Detectors, and Analyzers Market: Revenue Forecast, Global, 2011-2021

Looking for Industrial Partner for Technology Development

KFUPM is interested in seeking market feedback from industry, licensing the technology to a company to commercialize it and/or partner with a company for further development of this technology.

Intellectual Property (IP) Protection

The invention covering H₂ sensor for high temperature applications is protected through US patent application 15/863,823 that was filed on Jan 05, 2018. It covers the sensor composition and its method of making. The IP is owned by King Fahd University of Petroleum & Minerals.

About KFUPM

King Fahd University of Petroleum & Minerals is a leading educational organization for science and technology. The Innovation & Industrial Relations (IIR) office at KFUPM is tasked with taking innovation from lab to market place. For any inquiries regarding this technology, please get in touch with IIR using the contact details below.

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