

## **Chemical Sensor Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)**

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### **Report description:**

The chemical sensor market is expected to grow by registering a CAGR of 7.51% during the forecast period. Chemical sensors are in high demand because pollution is getting worse and there are more uses for them in the healthcare industry.

#### Key Highlights

The adoption of chemical sensors is attributed to the increasing applications of these sensors in analyzing the chemical composition of different samples. The low cost and portable nature of chemical sensors, such as higher-order orthogonal sensors, are significant trends in the global market and are expected to fuel the growth of the market studied.

The primary benefit of chemical sensors is their resistance to challenging environmental factors (such as electromagnetic interference, high temperatures, and high pH levels) and their ability to operate without an electrical connection to the sample. These characteristics have led to the creation of many fibre-optic chemical sensors for analytical purposes in the clinical, environmental, and industrial domains.

In addition to environmental issues, the market is integrating the use of chemical sensors for analytes in the chemical industrial process. Sensors are being used as cutting-edge equipment in the healthcare, research labs, and defense industries, driving the market.

Optical sensors rely on variations in optical analysis (light intensity or wavelength) due to analyte-transducer interaction. The interaction causes changes in the ambient light levels. To determine whether an analyte was present, the physical quantity of light was measured and transformed into electrical signals.

Also, traditional sensors are less accurate at measuring low-concentration chemicals in the oil and gas industries because they are hard to maintain, need shelter rooms with air conditioning, need to be recalibrated often, and can be affected by other chemicals. Even though sales of chemical sensors will be high and demand will remain steady, the growth of the global market is expected to be slowed by their fluctuating prices.

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The COVID-19 epidemic significantly impacted the worldwide market for chemical sensors. Lockdowns were implemented by governments all over the world as a preventative measure. Due to this, all businesses in the automobile industry were temporarily suspended. There was a lack of the raw materials and components needed for manufacturing automobiles as a result of disrupted supply chain operations. This limited the demand for the production of chemical sensors, which have numerous uses in the automobile industry. As a result, the pandemic saw moderate expansion in the global chemical sensor market.

## Chemical Sensor Market Trends

### Medical Industry to Hold the Major Share

Due to the rising demand for quick, small, precise, and portable diagnostic sensing equipment, the healthcare and biomedical sectors are a significant market for chemical sensors. Additionally, nanotechnology is becoming increasingly popular on the market and has significantly altered how chemical sensors operate. In vitro sensors for diagnostics have advanced, and a few items are about to be released in the near future. Chemical nanosensors also provide point-of-care diagnostics. The prevalence of diseases is anticipated to rise sharply as the population ages and becomes more susceptible to illness. Because of this, there is a need for chemical sensors, which are used in many clinical settings to do things like measure blood glucose or blood gasses.

Opportunities with exponential growth potential have been established due to the growing need for the next generation of clinical diagnostic, measuring, and monitoring sensors in implanted and wearable devices. Due to cheaper raw materials and the use of nano- and microfabrication techniques in the industrial manufacturing process, the number of chemical sensors used in healthcare that are sold to the public has grown by a lot.

Moreover, with the increasing rates of patients suffering from diabetes, government bodies in various countries are investing in developing effective diagnostic techniques, which is stimulating the adoption of chemical sensors in the healthcare sector.

Cancer, diabetes, and neurological illnesses have all been successfully diagnosed using electrochemical sensors. These sensors are simple to use at home or at a doctor's office. Future advancements in electrochemical sensors could make them significant analytical tools for process analysis in healthcare facilities.

### Asia-Pacific is Expected to Grow Significantly

The concerning pollution levels in China, India, and other Asia-Pacific countries are driving the demand for chemical sensors. Low prices, flexible applications, and speedy technological implementations are fueling the need for chemical sensors in the Asia-Pacific market.

Throughout the forecast period, growth is anticipated in the Asia Pacific area. Asia-Pacific nations frequently make investments in the oil and gas industry. New plants are being built to address the energy needs of countries like India, Bangladesh, Taiwan, and others. Chemical sensors are needed in the oil and gas industry to detect leaks and monitor confined spaces, among other things; thus, the building of new plants will raise demand for them. As a result, the Asia Pacific region is anticipated to experience growth in the worldwide chemical sensor market over the forecast period.

The chemical sensors market forecast appears promising, owing to the increasing usage of chemical sensors in industrial safety operations and environmental monitoring programs. In addition, the defense industry urgently needs the development of sensors for early warning and protection of military troops against potential chemical and biological (C/B) attacks. Asia's military superpowers keep spending a lot on their military, which is part of a larger trend of growing defense spending around the world. The market is driven by rising investments in new oil and gas plants. The fast development of the oil sector in recent years has made accurate monitoring of environmental toxins a top priority. Energy demand has increased by 60% in the 10 ASEAN

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(Association of Southeast Asian Nations) nations over the previous 15 years. By 2040, the region's energy demand is anticipated to increase by two-thirds (source: IEA). Since electrochemical sensors can accurately identify a specific type of gas and even the smallest leak, many oil and gas corporations promote their use.

Moreover, the greatest multifunctional research platform for nanotechnology is being constructed in China. In Suzhou, Jiangsu Province, the Vacuum Interconnected Nano-X Research Facility combines cutting-edge capabilities for material growth, device fabrication, and testing in a single ultra-high vacuum environment. The market for nano chemical sensors in defense and security is anticipated to support market expansion in the near future.

## Chemical Sensor Market Competitor Analysis

The Chemical Sensor Market is highly competitive due to the rise in chemical sensor companies across the world. The manufacturing cost of the sensor is low, which is drawing the attention of new players in the market. Innovations pertaining to artificial intelligence (AI) are the new unexplored space for the chemical sensor market. Some of the key players in the market are Smiths Detection Inc., General Electric Co., Hans Turck GmbH & Co. KG, Honeywell International Inc., and MSA Safety. These players are constantly innovating and upgrading their product offerings to cater to increasing market demand.

In August 2022, Honeywell International Inc. and Invensys plc announced that Honeywell Automation and Control Solutions (ACS) had signed an agreement to acquire Invensys Sensor Systems for USD 415.0 million in cash. Invensys Sensor Systems, a leading supplier of sensors and controls used in the medical, office automation, aerospace, HVAC, automotive, and consumer appliance industries, will become part of the Automation and Control Products unit of ACS.

In September 2022, ABB announced that it is acquiring a 10% stake in Samotics, the Dutch electrical signature analysis (ESA) technology provider, and has entered into a long-term strategic partnership with the company to offer enhanced condition monitoring services. The technology from Samotics works well with the ABB Ability Condition Monitoring service for powertrains, which is a sensor-based solution that analyzes the health and performance of rotating equipment.

### Additional Benefits:

The market estimate (ME) sheet in Excel format  
3 months of analyst support

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