

Electronic Nose Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

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Report description:

The Global Electronic Nose Market is expected to register a CAGR of 11.3% during the forecast period. Technological advances, such as artificial intelligence (AI), the cloud, and the Internet of Things (IoT), have positively impacted the demand for electronic nose technology. These advancements have been dynamic and have enhanced computing systems, one of the key components of the products in the electronic nose industry.

Key Highlights

Electronic noses (eNoses) are used to detect odorless compounds, which has created a scope for the use of eNoses in detecting food authenticity. The eNose is also widely used in healthcare for quality control (QC) and quality assurance (QA) purposes.

One of the challenges facing modern medicine is the effective diagnosis of diseases through the early detection of pathogenesis or disease conditions to facilitate the application of immediate treatments. This requirement significantly reduced the need for invasive diagnostic procedures.

The eNose can also be used for safety and health applications. For instance, electronic noses could detect explosives or drugs for airport security or use innovative fire monitor modules to catch fire for catastrophe prevention. Some diseases affect internal organs or the metabolism and change the composition of exhaled air. Diabetes patients, for example, exhale relatively high amounts of volatile organic substances such as acetone. Equipped with an easy-to-use odor sensor, the eNose could be used to determine blood sugar levels and thus monitor diabetes settings, thus resulting in significant market growth.

Electronic noses have provided external benefits to various commercial industries, including agriculture, biomedical, cosmetics, environmental, food, water, and scientific research. The electronic nose detects hazardous or poisonous gas that is impossible for human sniffers.

Advanced machine learning (ML) methods are gaining momentum for the eNose to achieve high performance and strengthen its capability in many applications, including robotics, food engineering, environment monitoring, and medical diagnosis. Many ML

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techniques have been studied, developed, and integrated into feature extraction, modeling, and gas sensor drift compensation. The outbreak of COVID-19 triggered the eNose market to re-evaluate its conventional production processes and practices across the production lines. The manufacturers are forced to devise and deploy multiple new and agile approaches to monitor product and QC. COVID-19 pandemic created economic turmoil globally for small, medium, and large-scale industries. The government's lockdown was inflicted to minimize the virus's spread, resulting in sectors taking a hit.???

Electronic Nose Market Trends

Food and Beverage Industry to Hold Significant Market Share

eNoses are used widely in the food and beverage industries for process monitoring, shelf-life investigation, quality control, freshness evaluation, and authenticity assessment. The technology is expected to find numerous applications in the industry, owing to the number of odor-based metrics used to measure quality, freshness, ingredients, ripeness, etc.

The demand for eNose has grown rapidly in recent years for alcohol authentication due to its several benefits, including non-destructiveness, speed, repeatability, and no complex sample preprocessing process.

Fermented foods and beverages have become a part of daily diets worldwide. Emitted volatile organic compounds are essential in determining fermented foods and beverages' chemical composition and other information. The demand for eNose technologies has been increasing significantly as eNose enables non-destructive measurement and fast analysis has low operating costs and simplicity and has been employed for this purpose over the past decades.

eNose applications in environmental monitoring are of great interest nowadays because of the instruments' proven capability of recognizing and discriminating between various gases and odors using just a small number of sensors.

In March 2022, the Consumer Price Index (CPI) in the south Asian country of India for food and beverages across urban areas was 171.5. This indicated that the price had increased by approximately 71% in the past decade. eNoses are valuable tools for evaluating microbiological food quality and safety. Strengths of the eNose include good sensitivity and correlation with data from microbial tests. E-noses of various configurations are an emerging tool for testing the authenticity of food products, thus driving the demand for significant market growth in the food and beverages industry.

North America To Witness Significant Growth

The stringent regulations in North America have insisted industries adopt technology to enhance the safety of the working environment. Preventive measures, such as using sensors to improve and enhance the workers' safety in an industrial setup, are higher to avoid bans or controls on the industries.

The North American region is expected to witness a growing demand for eNose to supplement safety measures in case of hazardous or harmful gas leaks. The improvements in the supportive technological infrastructure have resulted in the functionality improvement of the eNose and have been an augmenting factor for the buoyant demand in the regional market.

Long-term environmental monitoring is crucial for assessing the effectiveness of regulatory programs implemented for reducing emissions of multiple pollutants from coal-fired power plants and other stationary and mobile sources in the United States. The United States Environmental Protection Agency Clean Air Markets Division (USPACAMD) runs two environmental monitoring programs, the Clean Air Status and Trends Network (CASTNET) and the Long Term Monitoring (LTM) Program. It contributes to a complementary long-term program run by the National Atmospheric Deposition Program (NADP)

For over 30 years, CASTNET, LTM, and NADP have collectively provided data to evaluate changes in air quality, water quality in lakes and streams, and atmospheric deposition. The consistent, high-quality data these monitoring programs continue to offer are the cornerstone for tracking the extent to which emissions reductions are having their intended effects on improving human and

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ecosystem health, particularly as shifts in the energy sector and changes in the environment continue to occur, thus driving the demand for eNose in the environmental monitoring sector.

Electronic Nose Market Competitor Analysis

The eNose market is very competitive in nature. The market is highly concentrated due to the presence of various small and large players. Some of the significant players in the market are Alpha MOS Electronic, Sensor Technology, Plasmion GmbH?, Odotech, The eNose Company, Airsense Analytics GmbH, and many more.

In March 2022, Alpha MOS and New Max collaborated. New Max uses HERACLES, the eNose of Alpha MOS, for its sensory analyses. The company was satisfied because the eNose perfectly tackles research and development needs. New Max stated that the company has been using HERACLES for quality control, research, and development. The eNose offers a far more accurate analysis when compared to traditional gas chromatographs since it makes it easier to identify the chemical components present in the products. The use of HERACLES simplifies the sensory analysis while increasing the accuracy and confidence of the results.

Additional Benefits:

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

Table of Contents:

1 INTRODUCTION

- 1.1 Study Assumptions and Market Definition
- 1.2 Scope of the Study

2 RESEARCH METHODOLOGY

3 EXECUTIVE SUMMARY

4 MARKET INSIGHTS

- 4.1 Market Overview
- 4.2 Industry Attractiveness - Porter's Five Forces Analysis
 - 4.2.1 Bargaining Power of Suppliers
 - 4.2.2 Bargaining Power of Consumers
 - 4.2.3 Threat of New Entrants
 - 4.2.4 Threat of Substitutes
 - 4.2.5 Intensity of Competitive Rivalry
- 4.3 Impact of COVID-19 on the Electronic Nose Market

5 MARKET DYNAMICS

- 5.1 Market Drivers
 - 5.1.1 Introduction of AI and Neuromorphic Computing in E-nose Technology
- 5.2 Market Challenges
 - 5.2.1 High Initial Cost of E-noses

6 MARKET SEGMENTATION

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- 6.1 By End-user Vertical
 - 6.1.1 Military and Defense
 - 6.1.2 Healthcare
 - 6.1.3 Food and Beverage
 - 6.1.4 Waste Management (Environmental Monitoring)
 - 6.1.5 Other End-user Verticals
- 6.2 By Geography
 - 6.2.1 North America
 - 6.2.2 Europe
 - 6.2.3 Asia Pacific
 - 6.2.4 Latin America
 - 6.2.5 Middle East

7 COMPETITIVE LANDSCAPE

- 7.1 Company Profiles
 - 7.1.1 Alpha MOS
 - 7.1.2 Electronic Sensor Technology
 - 7.1.3 Plasmion GmbH
 - 7.1.4 Odotech
 - 7.1.5 The eNose Company
 - 7.1.6 Airsense Analytics GmbH
 - 7.1.7 Sensigent LLC
 - 7.1.8 Aryballe Technologies
 - 7.1.9 Stratuscent Inc.
 - 7.1.10 NASA
 - 7.1.11 E-Nose Pty Ltd

8 INVESTMENT ANALYSIS

9 FUTURE OF THE MARKET

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