

Sensors for Trace Contaminant Detection in Air: Technologies & Market

https://marketpublishers.com/r/S2C55106195EN.html

Date: May 2019

Pages: 138

Price: US\$ 2,750.00 (Single User License)

ID: S2C55106195EN

Abstracts

REPORT SCOPE:

The scope of this report is broad and covers different types of sensor products available in the market and their potential applications. The total market revenue includes sensors (sensor modules integrated in various systems) such as electrochemical sensors, metal oxide sensors, photo ionization detectors and others that help in the detection of trace contaminants in the air. Sensors analyzed in this report include those for trace elements and other inorganic contaminants, volatile organic compounds, biological contaminants and physical contaminants such as dust particles.

The global market for sensors for trace air contaminant detection is segmented by product and pollutant. Revenue forecasts from 2017 to 2022 are given for product and pollutant segments and regional markets with estimated values derived from manufacturers' total revenues.

This report also includes a discussion of major players in each segment and region and the major drivers and regional dynamics of the industry.

The report concludes with a special focus on the vendor landscape and includes detailed profiles of major market vendors.

REPORT INCLUDES:

46 data tables and 80 additional tables

An overview of the global markets and technologies pertaining to sensor



modules used in air trace contaminant detection

Analyses of global market trends with data from 2016 and 2017, and projections of compound annual growth rates (CAGRs) through 2022

Characterization and quantification of market potential for sensor modules used in trace contaminant detection in air market on the basis of product category, pollutants type, geographical regions and application areas

Information on market dynamics and growth driving factors such as stricter government regulations, environment protection acts, technological advancements in sensors and adoption of smart air network in manufacturing industries etc.

Assessment of the vendor competitive landscape and their market share analysis

Company profiles of leading global players, including Analog Devices, Figaro Engineering Inc., Honeywell Sensing and Productivity Solutions, Omron Electronics, Parallax Inc., and Vernier



Contents

CHAPTER 1 INTRODUCTION

Study Goals and Objectives

Reasons for Doing This Study

Scope of Report

Information Sources

Methodology

Geographic Breakdown

Analyst's Credentials

BCC Custom Research

Related BCC Research Reports

CHAPTER 2 SUMMARY AND HIGHLIGHTS

CHAPTER 3 MARKET AND TECHNOLOGY BACKGROUND

Regulations/Standards

World-Class Emissions Standards

European Union

India

China

United States

Australia

Japan

Canada

South Africa

Supply Chain Analysis

Suppliers of Sensors for Trace Air Contamination Detection

Manufacturers of Sensors for Detecting Trace Contaminant in the Air

End Users

Market Factors

Market Overview

Products

Indoor Monitoring

Outdoor Monitoring

Wearables

Overview by Pollutant



Inorganic Pollutants

Organic Pollutants

Physical Pollutants

Biological Pollutants

Regional Analysis

North America

Asia-Pacific

Europe

Rest of the World

CHAPTER 4 MARKET BREAKDOWN BY PRODUCT

Indoor Monitoring

Particle Pollution

Gaseous Pollution

Biological Pollution

Outdoor Monitoring

Wearables

CHAPTER 5 MARKET BREAKDOWN BY TYPE OF POLLUTANT

Inorganic Pollutants

Next Generation Air Measurement Technologies

Trace Element Contaminants

Other Inorganic Contaminants

Biological Pollutants

Health Effects of Biological Pollutants

Organic Pollutants

Persistent Organic Pollutants (POPs)

Volatile Organic Compounds (VOCs)

Physical Pollutants

Particulate Matter

Other Physical Pollutants

Other Pollutants

CHAPTER 6 MARKET BREAKDOWN BY REGION

North America

United States



Canada

Europe

United Kingdom

France

Germany

Spain

Rest of Europe

Asia-Pacific Region

China

India

Japan

Australia

Rest of Asia-Pacific

Rest of the World (RoW)

Latin America

Middle East and South Africa

CHAPTER 7 MARKET DRIVERS

Increasing Levels of Air Pollution

Government Initiatives for Environment Monitoring

Ambitious Satellite Program

Under2 Coalition

India National Clean Air Programme

Unmask My City

U.S.-China Green Ports and Vessels Initiative

Clean Air Nation Movement

Technological Advancements in Sensors

Adoption of Smart Air Network in Manufacturing Industries

CHAPTER 8 COMPANY PROFILES

ADAFRUIT

ALPHASENSE

AMPHENOL ADVANCED SENSORS

AMS AG

ANALOG DEVICES

BLUESENS GAS SENSOR GMBH

BRIGHT SENSORS SA



CARLO GAVAZZI U.K. LTD.

DEXTER RESEARCH CENTER, INC.

DFROBOT

FIGARO ENGINEERING INC.

GHI ELECTRONICS

HONEYWELL SENSING AND PRODUCTIVITY SOLUTIONS

INTEGRATED DEVICE TECHNOLOGY, INC.

ION SCIENCE

MIKROELEKTRONIKA

MURATA MANUFACTURING CO. LTD.

NEW COSMOS ELECTRIC CO. LTD.

OMRON ELECTRONICS

ORION SRL (MERGED WITH UNITEC)

PARALLAX INC.

PURPLEAIR

SENSIRION AG

SGX SENSORTECH

SIEMENS AG

SPEC SENSORS

SURREY SENSORS LTD.

UHOO

VERNIER

ZHENGZHOU WINSEN ELECTRONICS TECHNOLOGY CO. LTD.



List Of Tables

LIST OF TABLES

Summary Table: Global Market for Sensors for Trace Air Contaminant Detection, by

Product, Through 2022

Table 1: World-Class Emissions Standards

Table 2: Proposed Reduction Targets in EU28, Compared to 2005

Table 3: European Union Air Quality Standards

Table 4: AQI Categories, Pollutants and Health Breakpoints

Table 5: Defined Health Impacts Associated with AQI Values

Table 6: Ambient Air Quality Standards in China

Table 7: Additional Pollutant Quality Standards Defined in China

Table 8: National Ambient Air Quality Standards

Table 9: Standards and Goal for Pollutants in Australia

Table 10: Environmental Quality Standards in Japan

Table 11: Canadian Ambient Air Quality Current Standards and Projections

Table 12: National Ambient Air Quality Standards in South Africa

Table 13: Global Suppliers of Sensors for Trace Air Contamination Detection

Table 14: Manufacturers of Sensors for Detecting Trace Contaminant in the Air

Table 15: National Ambient Air Quality Standards for Six Principal Pollutants

Table 16: Air Pollutants and Their Effects on the Human Body

Table 17: Global Market Shares of Sensors for Trace Air Contamination Detection, by

Product, 2016, 2017 and 2022

Table 18: Important Indoor Air Quality Monitoring Parameters with Sensor Technologies

Table 19: Annual Deaths from Outdoor Air Pollution, by Region, 2010 and 2016

Table 20: CO2 Concentrations in the Atmosphere, 2000-2016

Table 21: Methane Emissions, 1990-2030

Table 22: Global Market for Sensors for Trace Air Contaminant Detection, by Product,

Through 2022

Table 23: Global Market for Indoor Monitoring Sensors for Trace Air Contaminant

Detection, by Region, Through 2022

Table 24: Primary Indoor Pollutants and Key Sources

Table 25: Different Connectivity Modes for Air Quality Detection Sensors

Table 26: Assumed PM2.5 Exposure Level Values for Households Primarily Dependent

on Polluting Technologies and Fuels for Cooking

Table 27: Recommended Levels of Exposure

Table 28: Operating Parameters of Solid-state Gas Sensors Technical Specification for

Indoor Monitoring



Table 29: Different Outdoor Air Pollutants and Their Impacts on Human Health

Table 30: Global Market for Outdoor Monitoring Sensors for Trace Air Contaminant

Detection, by Region, Through 2022

Table 31: Key Outdoor Air Pollutants

Table 32: Online Tools Deployed for Cost-effective Outdoor Air Quality Monitoring and

Research

Table 33: Global Market for Wearable Monitoring Sensors for Trace Air Contaminant

Detection, by Region, Through 2022

Table 34: Global Market for Sensors for Trace Air Contaminant Detection, by Type of

Pollutant, Through 2022

Table 35: Air Pollutants, Their Sources, and Likely Health Impacts

Table 36: Global Market for Sensors for Trace Inorganic Air Pollutants Detection, by

Region, Through 2022

Table 37: Environmental Standard Concentrations and Threshold Limit Values of Air

Pollutants

Table 38: Important Terms Describing Atmospheric Particles

Table 39: Relative Contribution of Radiatively Active Gases to Global Temperature

Increases

Table 40: The Main Sources of Trace Element Contamination

Table 41: Trace Elements and the Potential Impacts of Replenishment, Prophylaxis and

Pharmacological Effects

Table 42: Summary of Potential Sensor Technologies That Can Address Environmental

Monitoring Needs

Table 43: Effects of Ammonia Exposure (Without Protective Clothing)

Table 44: Requirements for Ammonia Analysis Equipment (Sensors) in Different

Application Areas

Table 45: Global Market for Biological Pollutants Sensors for Trace Air Contaminant

Detection, by Region, Through 2022

Table 46: Global Market for Organic Pollutants Sensors for Trace Air Contaminant

Detection, by Region, Through 2022

Table 47: Persistent Organic Pollutants (POPs)

Table 48: Common Sources of Volatile Organic Compounds (VOCs)

Table 49: Global Market for Physical Pollutants Sensors for Trace Air Contaminant

Detection, by Region, Through 2022

Table 50: 24-Hour PM2.5 Standard

Table 51: 24-Hour PM10 Standard

Table 52: Particulate Matter (PM) Sensors

Table 53: Global Market for Other Pollutants Sensors for Trace Air Contaminant

Detection, by Region, Through 2022



Table 54: Global Market for Sensors for Trace Air Contaminant Detection, by Region, Through 2022

Table 55: North American Market for Sensors for Trace Air Contaminant Detection, by Product, Through 2022

Table 56: U.S. Energy-Related CO2 Emissions, 2016-2018

Table 57: North American Market for Sensors for Trace Air Contaminant Detection, by Type of Pollutant, Through 2022

Table 58: Typical Pollutants of Interest

Table 59: Canadian Ambient Air Quality Standards, 2015-2025

Table 60: Annual Deaths from Outdoor Air Pollution in Europe, by Country, 2010 and 2016

Table 61: EU Standards on Air Quality

Table 62: European Union Targets for Greenhouse Gas Emissions, 2020-2050

Table 63: European Market for Sensors for Trace Air Contaminant Detection, by

Product, Through 2022

Table 64: Road Traffic in Great Britain, by Vehicle/Road Type, 2017

Table 65: Percentage Share of Carbon Emissions in the U.K., by Sector, 2015

Table 66: Number of Deaths Blamed on Outdoor Particulate Matter and Ozone Pollution in the U.K., 2006-2016

Table 67: Total Suspended Particles Classification of the Sub-Sectors with the Highest Emission Levels in 2015

Table 68: Percentage of Urban Population in Germany Exposed to O3 Concentrations Above EU Standards, 2011-2015

Table 69: European Market for Sensors for Trace Air Contaminant Detection, by Type of Pollutant, Through 2022

Table 70: Percentage of Urban Population in Spain Exposed to Pollution Concentrations Above EU Standards, 2012-2015

Table 71: Percentage of Urban Population in Switzerland Exposed to O3 Air Concentrations Above EU Standards, 2011-2015

Table 72: Percentage of Urban Population in Hungary Exposed to Air Pollution Concentrations Above EU Standards, 2013-2015

Table 73: Asia-Pacific Market for Sensors for Trace Air Contaminant Detection, by Product, Through 2022

Table 74: Premature Deaths from Outdoor Air Pollution in Asia-Pacific, by Country, 2016

Table 75: Current Ambient Air Quality Primary Standards in China

Table 76: Asia-Pacific Market for Sensors for Trace Air Contaminant Detection, by Type of Pollutant, Through 2022

Table 77: Number of Deaths per Day from Ambient Air Pollution in India, 1990 and 2015



Table 78: Environmental Quality Standards in Japan

Table 79: Emission of Air Pollutants in Australia, 2005-2016

Table 80: Ambient Air Quality Targets in Singapore, 2020

Table 81: ROW Market for Sensors for Trace Air Contaminant Detection, by Product,

Through 2022

Table 82: ROW Market for Sensors for Trace Air Contaminant Detection, by Type of

Pollutant, Through 2022

Table 83: CO2 Emissions in Brazil, 2015-2016

Table 84: Air Quality Standards in Mexico

Table 85: Average Annual Population-Weighted PM2.5, by Country, 2014-2016

Table 86: Air Pollution Levels in the Middle East, by Country, 2015

Table 87: Total GHG Emissions Globally, by Year, 2015-2030

Table 88: Government Initiatives for Environment Monitoring

Table 89: Components of Wireless Sensor Networks Used in Manufacturing Industries

Table 90: Adafruit: Product Portfolio

Table 91: Alphasense: Product Portfolio

Table 92: Amphenol Advanced Sensors: Product Portfolio

Table 93: AMS AG: Product Portfolio

Table 94: AMS AG: Recent Developments, 2015-August 2018

Table 95: Analog Devices: Product Portfolio

Table 96: Bluesens Gas Sensor GmbH: Product Portfolio

Table 97: Bright Sensors SA: Product Portfolio

Table 98: Carlo Gavazzi U.K. Ltd.: Product Portfolio

Table 99: Dexter Research Center, Inc.: Product Portfolio

Table 100: DFRobot: Product Portfolio

Table 101: Figaro Engineering Inc.: Product Portfolio

Table 102: GHI Electronics: Product Portfolio

Table 103: Honeywell Sensing and Productivity Solutions: Product Portfolio

Table 104: Integrated Device Technology, Inc.: Product Portfolio

Table 105: Integrated Device Technology, Inc.: Recent Developments, 2015-August

2018

Table 106: ION Science: Product Portfolio

Table 107: MikroElektronika: Product Portfolio

Table 108: Murata Manufacturing Co. Ltd.: Product Portfolio

Table 109: New Cosmos Electric Co. Ltd.: Product Portfolio

Table 110: Omron Electronics: Product Portfolio

Table 111: Orion SRL: Product Portfolio

Table 112: Parallax Inc.: Product Portfolio

Table 113: PurpleAir: Product Portfolio



Table 114: PurpleAir: Recent Developments, 2015-August 2018

Table 115: Sensirion AG: Product Portfolio

Table 116: Sensirion AG: Recent Developments, 2015-August 2018

Table 117: SGX Sensortech: Product Portfolio

Table 118: SGX Sensortech: Recent Developments, 2015-August 2018

Table 119: Siemens AG: Product Portfolio

Table 120: SPEC Sensors: Product Portfolio

Table 121: Surrey Sensors Ltd.: Product Portfolio

Table 122: Uhoo: Product Portfolio

Table 123: Uhoo: Recent Developments, 2015-August 2018

Table 124: Vernier: Product Portfolio

Table 125: Zhengzhou Winsen Electronics Technology Co. Ltd.: Product Portfolio



List Of Figures

LIST OF FIGURES

Summary Figure: Global Market for Sensors for Trace Air Contaminant Detection, by Product, 2016-2022

Figure 1: Supply Chain for Sensors for Trace Air Contaminant Detection

Figure 2: Global Market Shares of Sensors for Trace Air Contamination Detection, by

Product, 2016 and 2022

Figure 3: Annual Deaths from Outdoor Air Pollution, by Region, 2010 and 2016

Figure 4: Overview of Covered Pollutants

Figure 5: CO2 Concentrations in the Atmosphere, 2000-2016

Figure 6: Methane Emissions, 1990-2030

Figure 7: Global Market Shares of Sensors for Trace Air Contamination Detection, by

Region, 2016 and 2022

Figure 8: Classification of Sensor Products

Figure 9: Types of Indoor Air Pollution

Figure 10: Block Diagram of Indoor Air Quality Monitoring System

Figure 11: Cost-Effective PM2.5 Methods to Detect and Monitor Wildland Fire Smoke

Figure 12: Block Diagram of a Wearable Air Quality Sensor

Figure 13: Types of Pollutants

Figure 14: Aspects of Particle Reactions and Effects in the Atmosphere

Figure 15: U.S. Energy-Related CO2 Emissions, 2016-2018

Figure 16: Annual Deaths from Outdoor Air Pollution in Europe, by Country, 2010 and 2016

Figure 17: Road Traffic in Great Britain, by Vehicle/Road Type, 2017

Figure 18: Percentage Share of Carbon Emissions in the U.K., by Sector, 2015

Figure 19: Number of Deaths Blamed on Outdoor Particulate Matter and Ozone

Pollution in the U.K., 2006-2016

Figure 20: Percentage of Urban Population in Germany Exposed to O3 Concentrations

Above EU Standards, 2011-2015

Figure 21: Percentage of Urban Population in Spain Exposed to Pollution

Concentrations Above EU Standards, 2012-2015

Figure 22: Percentage of Urban Population in Switzerland Exposed to O3 Air

Concentrations Above EU Standards, 2011-2015

Figure 23: Percentage of Urban Population in Hungary Exposed to Air Pollution

Concentrations Above EU Standards, 2013-2015

Figure 24: Premature Deaths from Outdoor Air Pollution in Asia-Pacific, by Country, 2016



- Figure 25: Emission of Air Pollutants in Australia, 2005-2016
- Figure 26: CO2 Emissions in Brazil, 2015-2016
- Figure 27: Average Annual Population-Weighted PM2.5, by Country, 2014-2016
- Figure 28: Different Types of Air Pollutants
- Figure 29: Total GHG Emissions Globally, by Year, 2015-2030
- Figure 30: Major Focus Areas of EPA and Aeroqual for Air Sensor Advancements



I would like to order

Product name: Sensors for Trace Contaminant Detection in Air: Technologies & Market

Product link: https://marketpublishers.com/r/S2C55106195EN.html

Price: US\$ 2,750.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer

Service:

info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page https://marketpublishers.com/r/S2C55106195EN.html

To pay by Wire Transfer, please, fill in your contact details in the form below:

| First name: | | |
|---------------|---------------------------|--|
| Last name: | | |
| Email: | | |
| Company: | | |
| Address: | | |
| City: | | |
| Zip code: | | |
| Country: | | |
| Tel: | | |
| Fax: | | |
| Your message: | | |
| | | |
| | | |
| | | |
| | **All fields are required | |
| | Custumer signature | |
| | | |
| | | |

Please, note that by ordering from marketpublishers.com you are agreeing to our Terms & Conditions at https://marketpublishers.com/docs/terms.html

To place an order via fax simply print this form, fill in the information below and fax the completed form to +44 20 7900 3970