



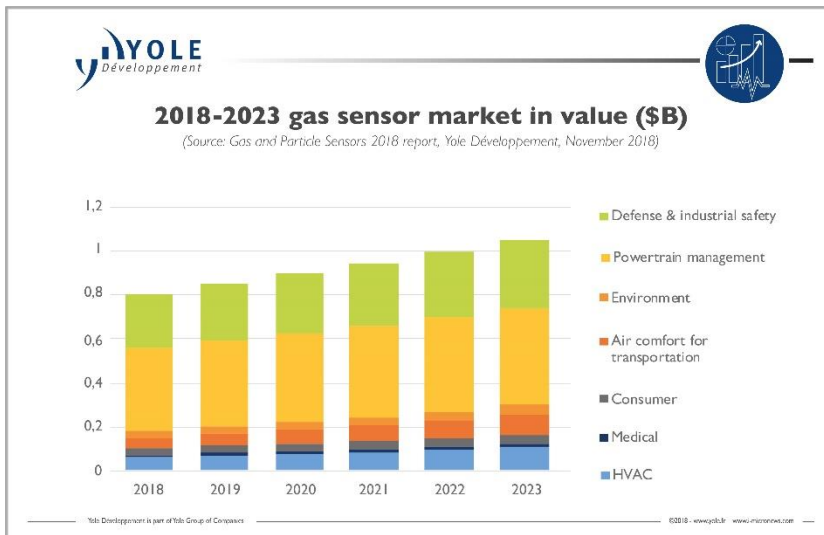
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## 空气质量监控：汽车、家居与建筑推动气体与颗粒物传感器市场发展

摘录自以下报告：Yole Développement 公司的《2018 年气体与颗粒物传感器》报告 – System Plus Consulting 公司的《2018 年微型气体传感器比较》报告

法国里昂讯—2018 年 11 月 27 日：汽车、住宅与其他建筑中的空气质量监控正在推动气体与颗粒物传感器市场的发展。

Yole 集团（Yole Group of Companies）旗下的 [System Plus Consulting](#) 和 [Yole Développement \(Yole\)](#) 两家公司针对气体与颗粒物传感器产业进行了两项专门分析：[气体与颗粒物传感器技术与市场分析](#)和[微型气体传感器比较](#)。两家公司结合各自的专业所长，合作分析了传感技术的发展进程，并指出其在不同气体与颗粒物监控细分市场中的影响。逆向工程与成本分析公司 [System Plus Consulting](#) 完成了一份关于结构、工艺和成本的详尽报告，重点分析了四款应用于消费市场的气体传感器，它们都来自领先设备制造商：博世（Robert Bosch）、AMS 和盛思锐（Sensirion）。为了进一步完善这项技术分析，市场调研与战略咨询公司 Yole 发布了对气体与颗粒物传感器市场的展望，其中包含详细的市场划分、竞争形势、市场预测、技术发展规划等……

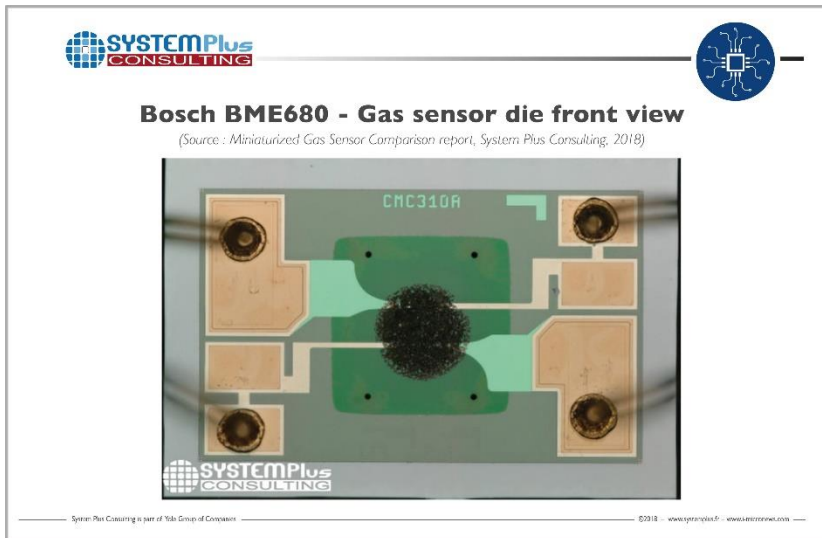


Yole 集团宣称，户外空气污染是 21 世纪的一大挑战。2014 年全球有大约 4 百万人因此而死亡。根据之后在 2016 年的另一项估算，全世界超过 90% 的人口生活环境中的空气污染物水平高于 WHO 设定的界限。

因此，解决这一问题已成为一项全球行动，具体来说就是通过开发并安装气体与颗粒物传感器。以下由 Yole

集团的分析师为您带来这一产业的简明概览。

长久以来，气体和颗粒物传感器市场都只限于工业应用，用以保障空气质量控制和工人们的安全。之后，气体传感技术稳步进入暖通空调领域。推动这一过程的主要是改善空调控制所带来的能耗节约。如今，全球空气质量每况愈下，影响着许多不同的场所：住宅、办公室、酒店、汽车和城市区域。



这一市场也因此发展前进，今天，最主要的市场动力是确保居住者和使用者安全所需的空气质量监控。空气质量控制甚至正在成为酒店或餐厅营销推广的一项卖点！这种趋势还延伸到了其他环境，如私家车、公共交通和住宅。

举个例子，空气净化系统中往往嵌有气体与颗粒物传感器，而这类系统的市场可望从 2017 年的 160 亿美元增

长到 2023 年的 330 亿美元，高达 12.5% 的 CAGR 令人咋舌。

为了确保顾客能呼吸到优质空气，越来越多的商用车已经装载了气体与颗粒物传感器。以往的传感器都嵌入在车厢内，以便在二氧化碳和 VOC 浓度达到临界时启用空气调节系统。而今天车厢外也可加装传感器，用来感应外部环境，一旦探测到污染就关闭通风系统。这方面的优选技术是 MOS，因为它成本低、体积小，而且敏感度较上一代技术更高。为了满足这一日益增长的市场需求，传统气体传感器供应商如今也在开发颗粒物传感器，比如 Paragon 和并购了 SGX 的 Amphenol。而像博世和盛思锐这样的传感器巨头们都认为空气质量监控市场前景极佳，因此也都在利用自身的专有技术为气体和颗粒物感应开发新型技术解决方案。

消费市场固然潜力巨大，但它要在气体传感器市场上占据真正举足轻重的份额，所需的时间仍会比预期更长。尽管如此，像消费型环境净化系统这样的领域发展还是相当迅猛，尤其是在亚洲。而这类系统往往包含气体和颗粒物传感器。

*“气体传感器微型化让它们得以进入消费型应用，也实现了大规模量产”，System Plus Consulting 的成本分析师 Audrey Lahrach 解释道。她进一步补充说：“针对博世、ams 和盛思锐这样的业界领先企业所开发的技术，System Plus Consulting 进行了深入分析，我们的目标是找出技术上的选择并了解它们，同时评估相关的制造成本。我们的结果显示，技术选择，尤其是集成层面上的技术选择能反映每种设备的性能，从而反映制造商的目标细分市场。”*

System Plus Consulting 在其微型气体传感器报告中评述了来自三家制造商的四款不同气体传感器。分析师们对以下产品进行了对比：ams 生产的 AS-MLV-P2 和 CCS801、博世生产的 BME680，以及盛思锐生产的 SGP30。报告描述了每款产品的结构和设计，还介绍了相关的技术选择、工艺流程和成本。

气体传感器市场的价值预期将在 2022 年超过 10 亿美元，面对这样的大好市场前景，Yole 和 System Plus Consulting 结合各自的专业强项，对技术生产变革和商业机遇进行了全面评述。两家公司合作发布了一系列报告，对技术要求、需要测量的气体、市场预测、技术、主要供应商和相关法规进行了全套分析。

在 Yole 集团网站上获取 [《气体与颗粒物传感器技术与市场分析》](#) 和 [《微型气体传感器比较》](#)，即可了解这两份报告的详细内容。

**ABOUT THE REPORTS:****Gas and Particle Sensors 2018**

*Air quality is breathing life into the sensor market!* – Performed by Yole Développement, part of Yole Group of Companies.

**Companies cited in the report:**

Air Liquid, AKM, AlphaMOS, AlphaSense, Alphasenzors, Amphenol, ams, APIX, Aryballe, Bosch, DD Scientific, Delphi, DENSO, E+E, Edinburgh Sensors, eLichens, Figaro, GSS, Hanwei, Honeywell, IDT, Infineon Technologies... [Full list](#)

*Note: The focus on Asia of this report has been realized in partnership with IEK Consulting.*

*IEK Consulting is a consulting service provided by the Industry, Science and Technology International Strategy Center of the Industrial Technology Research Institute (ITRI). ITRI has over 6,000 researchers whose research in applied technology covers information and communication: green energy; and the biomedical, materials and chemical industries. ITRI had devoted itself to advanced technology development and industry commercialization and made world-class achievements. For example, over 25 advanced technologies developed by ITRI have won the R&D 100 Awards in the past five years. IEK Consulting, with support from ITRI technology researchers, plays a key role as a world-class think tank in helping industry in Taiwan achieve value creation.*

**Authors:**

- With almost 20 years of experience in MEMS, Sensors, and Photonics applications, markets, and technology analyses, **Eric Mounier**, PhD provides deep industry insight into current and future trends. As a Fellow Analyst, he is a daily contributor to the development of MEMS and Photonics activities at Yole Développement (Yole), with a large collection of market and technology reports as well as multiple custom consulting projects: business strategy, identification of investments or acquisition targets, due diligence on both the buy and sell sides, market and technology analysis, cost modelling, technology scouting, etc.

Previously, Dr. Mounier held R&D and Marketing positions at CEA Leti, France. He has spoken at numerous international conferences and has authored or coauthored more than 100 papers.

Eric has a Semiconductor Engineering degree and a Ph.D in Optoelectronics from the National Polytechnic Institute of Grenoble, France.

- **Benjamin Roussel, PharmD** is Director, Life Sciences and Healthcare at Yole Développement (Yole), part of Yole Group of Companies. By supporting industrial companies and R&D institutes in their development, Benjamin and his team are creating the bridge between innovative microtechnologies and numerous diagnostic, pharmaceutical, life science and medical device applications. Benjamin Roussel is the author of a large collection of market & technology reports focusing on bioMEMS, microfluidics and solid state medical imaging, and performs multiple custom consulting projects.

Thanks to his deep knowledge of these industries and related technologies, he has spoken in more than 20 industry conferences worldwide over the last five years.

Before joining Yole, Benjamin worked in an International Pharmaceutical company in the pharmacovigilance department.

He holds a Pharmacy diploma from the University Claude Bernard Lyon, France, in addition to a master's degree in Technology and Innovation Management from EM Lyon Business School, France

**Miniaturized Gas Sensor Comparison 2018**

*Comparison of four gas sensors for consumer applications made by Bosch, ams and Sensirion* – Performed by System Plus Consulting, part of Yole Group of Companies.

**A complete teardown analysis with:** Package views and dimensions - Package cross-sections - Precise measurements - Die descriptions - Technology

descriptions - Cost analyses - Cost comparison...

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- **Audrey Lahrach** is in charge of costing analyses for IC, LCD & OLED Displays and Sensor Devices. She holds a Master degree in Microelectronics from the University of Nantes.

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- **Yvon Le Goff** has joined System Plus Consulting in 2011, in order to setup the laboratory of System Plus Consulting. He previously worked during 25 years in Atmel Nantes Technological Analysis Laboratory as fab support in physical analysis, and 3 years at Hirex Engineering in Toulouse, in a DPA lab.



#### ABOUT SYSTEM PLUS CONSULTING

System Plus Consulting specializes in the cost analysis of electronics, from semiconductor devices to electronic systems. Created more than 20 years ago, System Plus Consulting has developed a complete range of services, costing tools and reports to deliver in-depth production cost studies and estimate the objective selling price of a product. System Plus Consulting engineers are experts in Integrated Circuits – Power Devices & Modules – MEMS & Sensors – Photonics – LED – Imaging – Display – Packaging – Electronic Boards & Systems. Through hundreds of analyses performed each year, System Plus Consulting offers deep added-value, reports to help its customers understand their production processes and determine production costs. Based on System Plus Consulting's results, manufacturers are able to compare their production costs to those of competitors. System Plus Consulting is a sister company of Yole Développement (Yole). More info. on [www.systemplus.fr](http://www.systemplus.fr)



#### ABOUT YOLE DÉVELOPPEMENT

Founded in 1998, Yole Développement (Yole) has grown to become a group of companies providing marketing, technology and strategy consulting, media and corporate finance services, reverse engineering and reverse costing services and well as IP and patent analysis. With a strong focus on emerging applications using silicon and/or micro manufacturing, the Yole group of companies has expanded to include more than 80 collaborators worldwide covering MEMS & Sensors - Imaging - Medical Technologies - Compound Semiconductors - RF Electronics - Solid State Lighting - Displays - Photonics - Power Electronics - Batteries & Energy Management - Advanced Packaging - Semiconductor Manufacturing - Software & Computing - Memory and more...

The "More than Moore" market research, technology and strategy consulting company Yole Développement, along with its partners System Plus Consulting, PISEO and KnowMade, support industrial companies, investors and R&D organizations worldwide to help them understand markets and follow technology trends to grow their business. . For more information, visit [www.yole.fr](http://www.yole.fr) and follow Yole on [LinkedIn](#) and [Twitter](#).

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Yole Développement, System Plus Consulting, Knowmade, PISEO and Blumorpho are part of Yole Group of Companies.

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