



名人講堂

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檢測技術與客戶服務是電子氣體市場的競爭關鍵要素 兩者缺一不可



作為電子材料的一部分，電子氣體市場一直都比较不受關注，但其實在半導體、面板、太陽能板、LED等產品的製程上，電子氣體都是相當重要且不可忽視的一環，尤其在半導體等製程越來越精密的今日，所需的氣體配方要求也更加細緻，因此無論是產品本身還是客戶服務，電子氣體產業面臨的挑戰可說是越來越艱鉅，不過就另一個角度來看，這也是一個突破的契機。



電子氣體市場的經營策略不外乎就是兩個面向，其一是在客戶緊密合作，畢竟要持續在第一時間解決客戶問題，才能建立良好的信任關係。第二個面向則是，永遠要比客戶的技術領先一步，這基本上是所有電子材料業者都必須做到的事情，透過與客戶之間的溝通過程，了解到客戶下一代技術與製程可能的材料需求，並提早投入資本進行開發；之後提供的產品，更得在氣體純度這類標準上，盡可能高於客戶現有需求，以備不時之需。這兩個面向可以說是相輔相成，一旦有任何一邊做得不完善，就會影

響到另一個面向的表現。這兩個面向與業務的拓展有重大關係，其實電子氣體產業與其他電子材料商一樣，多半都是先專注經營現有客戶，隨著客戶的營運表現提升，規模逐漸成長，作為電子氣體供應商自然也會受到頂尖水平不得缺少的一環。以在地化來說，除了第一時間貼近客戶需求之外，產品供應風險的大幅降低更是在地化能帶來的一大好處。

舉例來說，八氟環丁烷(C4F8)是半導體製程中的重要氣體材料，尤其在7奈米製程中，對這項材料的品質需求又提高了不少，過去這項氣體大多數是由日本及大陸的廠商提供，然而，由海外廠商提供的風險其實不小，包括地緣政治因素、天災因素、長途運送過程中帶來的各種不確定因素等等。另外與海外廠商的互動緊密程度，絕對不比與在地廠商來得高，在產品品質的確保上就更加不容易了。

而在精密檢測技術部分，說實話這跟產品開發並沒有直接的關係，不過這能讓我們盡可能解決客戶在氣體使用上的問題，在製程和產品的精密度都持續提升的情況下，電子氣體配方任何微小的重要持續演進，包括產品的輸送、產品的安全性、緊急狀況的應對等等，在經營上可說是容不得一點失誤，同時還得贏得技術賽跑的情況。正如前面所述，材料業者永遠要走得比客戶快一步，而如果要跟同業競爭中脫穎而出，肯定得走得更前面才行。

(本文由Anshul Sarada口述，記者劉麗杰採訪整理)

Anshul Sarada為現任林德集團電子材料副總裁，負責大陸及台灣地區的電子材料業務，擁有亞洲理工學院會計學士學位和工商管理碩士學位，並擁有歐洲管理學院金融管理碩士學位。他在亞太地區的多項業務管理中具備豐富經驗，同時與非盈利組織有著良好關係。林德集團是全球最大的氣體和工程公司，聯華林德是聯華實業公司和林德集團共同成立的合資公司，也是台灣最大的工業氣體製造商之一。

English Translation

Clinical Analysis & Diagnostics and Customer Services are key in the competitive electronics gas market. Both are indispensable

As a part of electronics materials, electronics gas market has not received too much attention while in fact, electronics gases are integral to the production of semiconductors, displays, LEDs and solar power panels. The semiconductor processes in particular have become more and more sophisticated, and the requirements of gas recipes are higher and higher. The electronics gas industry is facing more and more challenges in developing their products and customer services. On the other hand, the challenges can present breakthrough opportunities.

The management strategy of the electronics gas market focuses on two aspects: close cooperation with customers and advanced technologies. After all, staying at the front line, understanding customer demands, solving their problems as soon as possible are what it takes to build trust. Secondly, the electronics gas businesses have to always be ahead of their clients in terms of technologies. That is the minimum requirement for everyone in the electronics material business. Through communication with clients, suppliers can find out what materials may be needed for the next-generation technologies and processes, and invest early to deliver such products. In terms of purity, suppliers have to anticipate higher standards to prepare for the future. The two aspects are complementary. Any imperfection in one aspect can influence the other aspect.

The two aspects are significant to the growth of business. Like other electronics material suppliers, electronics gas industry focuses on managing existing customers, and as the performances of their customers improve, their scales increase, and electronics gas suppliers are beneficiaries of such growth of course. With trust and brand images built, more business opportunities will follow. For example, China has been encouraging the development of semiconductor industry, our experiences and credibility in Taiwan has helped us gain access to the market. In other industries – displays for example – we can fulfill their demands with our portfolio.

In the current competition, localization and diagnostics are definitely our strongest advantages, as well as two ingredients that top electronics gas suppliers cannot live without. Localization means we are closer to customer demands, and it contributes to

significantly lowering the risk for product supply. C_4F_8 , for example, is an important material for semiconductors, especially the 7-nanometer process, which has raised its requirement for the quality of this gas. In the past, Octafluorocyclobutane was mostly imported from Japan or China while the risks of oversea supply cannot be underestimated. Geopolitical issues, natural disasters and uncertainty in long hauls are only a few of the risks. On top of that, local suppliers definitely have a closer and stronger connection than international suppliers. That applies to quality assurance too.

Clinical Analysis & Diagnostics not only guide product development but they allow us to solve all problems our customers encounter when they use the gases. Now that the processes and products are getting increasingly sophisticated, any slight difference in electronics gas recipes can impact yield rate. Our diagnostics technologies have to be precise to parts per billion to meet customer demands. It is more difficult than searching for a needle in a haystack and to accomplish that, a considerable capital investment in facilities and talent pool is necessary. The amount of investment determines the level of your service, and therefore is a key to company credibility, reputations and image.

With the development of new technologies, the importance of the semiconductor industry in global economy will only increase. To mirror the accelerated growth of the semiconductor industry, electronics gas industry cannot save on the long-term investment in technology development and customer services. A large number of details need to be optimized continuously, including delivery, product safety and contingency responses. This industry tolerates no mistake while we have to win the technology race. As I mentioned, material suppliers have to anticipate the needs of their customers, and to stand out in the competition, we have to be more than a step ahead.

(This article is a summary of the interviews of Jason Chow, Anshul Sarda and Carl Jackson by Jay Liu from Digitimes)