



Product Development of Low-K Materials

Steve Mayorga

Welcome to another Podcast from Air Products.

Our guest today is Steve Mayorga and our topic is "Product Development of Low-K Materials." Hello, I'm Ed McKendry. Steve Mayorga has been an employee of Air Products for 15 years. He's a PhD chemist and a lot of his work has been focused in inorganic materials chemistry. For the last 5 years Steve has been in product development of Low-K materials. He's a published author and he holds multiple patents and Steve, thank you very much for being with us today.

Thanks.

The first question Steve to get started is tell me about the product development work that you're doing in Low-K materials.

I work as part of the Low-K team. You've already heard from Drs. Mary Haas, Ray Vrits, and Mark O'Neill about materials development in application work where they look at structure property relationships as they relate to Low-K materials. My work is focused on product development, purity, and analytical issues that are associated with our products in general. I work directly with our customers in order to provide them with products they need with the appropriate specifications.

Can you give us some specific examples of that work?

Sure. Currently we are very active in product development activities around Low-K materials. For the past few years there has been a lot of focus around Low-K products such as ZTOMCATS and diethoxymethylsilane also known as DEMS as well as various porogen products that we are developing in support of PDEMS or porous Low-K offering.

You mentioned PDEMS and some other programs. We've talked to, as you say, Mary Haas, Ray Vrits, and Mark O'Neill about PDEMS and materials development standpoint. Can you talk about PDEMS from the product development angle?

Our PDEMS product line involves a variety of different products including DEMS and various organic chemicals. It is my job to ensure that we have a good understanding of the stability and compatibility issues that are associated with our products. For example, we need to carry out very carefully controlled shelf life studies for each of our products in order to provide shelf life and storage information to our customers that they can depend on. We also need to carry out detail studies in order to ensure to our customers that there are no unexpected chemical incompatibility issues for materials that might come into contact with each other during normal processing. In some respects, I think that we truly go above and beyond. We approach this from the position that it is our duty and our responsibility to understand the chemical and physical properties of our products such that we can proactively avoid any chemical issues that might result from unexpected chemical reactivity.

So what are some the key issues the customers are faced with when they're dealing with Low-K materials?

We've done a lot of work around product quality issues. Purity and product quality issues are very important for our customers because the films deposited from these chemicals remain in the device for its lifetime. So you can see that quality and reliability are of paramount importance.

If I'm a customer or a potential customer getting involved with Low-K materials and I'm looking for a Low-K supplier, why would I choose Air Products over another supplier? In other words, what makes Air Products special?

Good question. As a company we feel that we have a better knowledge of these materials than our competitors do. We've been developing new Low-K materials for over 10 years now. We've been working closely with our customers to help them integrate these materials. During that time we've developed a deep understanding of product quality issues.

So we can provide for our customers the understanding they need to successfully integrate these materials into their production lines. Product quality and purity are a big part of what we deliver in addition to the chemical itself. This is what sets us apart. This is why you should work with Air Products.

Before we close if any of our listeners would like more information on this topic, how can they contact you?

They can contact me directly at
mayorgsg@airproducts.com.

That's great. Steve, thank you very much for your time and information today.

Thank you.

Once again for our listeners you can contact Steve Mayorga directly via e-mail. His e-mail address is mayorgsg@airproducts.com. Thank you very much for listening today. We encourage you to continue to visit airproducts.com/electronics to listen to additional Podcasts as they become available.

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