



Low-k 101

Mark O'Neill & Tracey Lawson

Welcome to another Podcast from Air Products.

I'm Ed McKendry. Today's program will focus on Air Products portfolio of Low-k Materials. With us today are two members of that team. First is Mark O'Neill, who is a PhD chemist and has 12 years industrial experience and most of that time spent with new material development for Low-k. He's a published author. Hold multiple patents specific to Low-k and leads a team of chemists and engineers who are concentrating on research and application development.

Also with us is Tracey Lawson, who is the global Low-k product manager. She has been with Air Products for 11 years. Began as a chemist in the technology group and moved into product management where she has been managing the Low-k Program since 1999 for Air Products. Most of Tracey's work concentrates on the coordination point between the commercial group and a technology organization in working with customers. She is leading our Air Products Low-k Portfolio in the marketplace.

Thank you both for being with us today.

Thanks Ed.

Let's get started. This program I would tell our listeners is really Low-k 101. So let's start with our first question to you, Mark. What do we mean when we say Low-k materials?

Well, Ed, Low-k materials are just basically the insulators in an integrated circuit. Traditionally they were more robust types of silicate materials but now as dimensions get smaller, we need more functionality, faster speed. We need better materials as these insulators and that's really what we're focusing on—the need for speed and functionality in these chips.

So Tracey to you - What are some of key challenges that customers face in Low-k materials?

Some of the challenges that I see customers facing is how to use these new materials. These are new porous Low-k materials that are very difficult to integrate. So we bring a lot of value in our technical expertise and try to enable the customer to use a more user friendly molecule. One area that we focus on is PDEMS™ and Mark, why don't you give some information on PDEMS.

Well PDEMS is one of our new offerings and it really focuses on porous Low-k material, but that's just the beginning. We do work on the development of these materials. We develop new UV cure process to help enable the integration of these materials, but as I mentioned that's just the beginning. There's a real ripple effect when you bring in any new material. So we also do a lot of work around understanding the technology of integrating these materials. So its effect on chamber cleans. The impact on the etch and ash processes in these things. The wet stripping of these materials. The dielectric restoration and pore sealing and so we really offer a holistic approach to the technology of bringing in new materials.

So it sounds like Air Products has a full portfolio of materials to offer, but beyond that and maybe some experience beyond that. Can you describe for me or summarize, what's the value that Air Products brings to this Low-k market—Tracey?

Well Ed as you mentioned, we have a robust portfolio that we bring not only in proven materials solutions and 3MS and ZTOMCATS™ and Z4MS™, but Air Products is the market leader in developing these technologies and along with being a technical leader in providing solutions to the customer. Areas that we focus on in enabling the customer to have a successful integration and new materials that we introduce that Mark and his team focus on and providing those solutions to the customer.

And Mark.

Well, our team, we have a pretty diverse set of backgrounds, but a tremendous amount of experience—probably greater than 50 years of experience now in Low-k introduction and Low-k product development. So we really use all those aspects in a diverse background to bring solutions to the market and work directly with customers because each customer has different needs. So we try to tailor our solutions to their needs.

So if our listeners wanted additional information, how can they get that information Tracey?

Well they can certainly contact me should they have any commercial questions or general product information. They can contact me or for technical inquiries they can contact Mark O'Neill.

How about your e-mail addresses? Would you be willing to give those out?

Sure absolutely. My e-mail address is lawsontr@airproducts.com.

And Mark.

Mine is oneillml@airproducts.com.

Well thank you both for being with us. Once again for our listeners; if you have commercial questions, you can send your e-mail directly to Tracey Lawson at lawsontr@airproducts.com and for technical inquiries you can also e-mail Mark O'Neill at oneillml@airproducts.com. I want to thank you both for being with us.

We'd like to remind our listeners for more information, visit airproducts.com/electronics again where you will be able to download additional Podcasts on our specific offerings within the Low-k Portfolio including PDEMS and ZTOMCATS. Thank you for listening.

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