



Bulk Specialty Gas Supply (BSGS)

Bob Ford

Welcome to another Podcast from Air Products.

Hello, I'm Ed McKendry. We're here once again with Bob Ford, the manager of BSGS (Bulk Specialty Gas Supply) at Air Products. Bob has 21 years with Air Products and during that time has been involved with specialty gas all over the world. Over a decade of that time as an innovator of bulk specialty gas supply. Bob is a published author of many articles and holds 8 patents related to BSGS. Once again Bob, thank you for being here.

Well thanks for the introduction Ed.

What is Air Products ammonia capability?

Well Ed, we actually have three ammonia plants today. Two in Pennsylvania (Morrisville and Hometown), of course, both in the United States, as well as one in Ulsan, Korea with the capability for purity of anywhere from five 9s VLSI grade to seven 9s white grade with a one part per billion moisture specification.

So with those types of specifications, how is that product being analyzed?

Actually Ed, we have to use a variety of different instrumentation. Gas chromatography is utilized from measuring the atmospheric contaminants. ICP mass spec or inductively coupled plasma. Mass spec is used for the analysis of proper billion concentrations of metals. And then we utilize an instrument called an FTIR or Ferrier Transform Infrared to do moisture levels down to the specifications. The process being so unique that we actually published a paper which was delivered at SEMICON West.

So you have this range of specifications for your product, what types of packages do you put the product in?

Actually we have three different packages presently available. There's a Y-cylinder of 8 foot length/2 foot diameter which holds 500 pounds, a 930 liter drum made of stainless steel holding 1,000 pounds, and a 26,000 pound ISO module.

This is probably a good opportunity to remind our listeners that earlier Bob had recorded a Podcast, a program, on ISO Module Supply. You may want to check that out within our airproducts.com/electronics website. But continuing on this subject, now you have these packages—you have great product in those packages, what do you hook these various packages up to at the customer site?

Actually there's a variety of different equipment requirements specifically for this kind of a product being low vapor pressure. The containers have to be heated, so there's a heater controller and in the case of the smaller containers, a blanket that is wrapped around it to provide heat vaporization. The ISO module with its installed heater capability just has to be hooked up to its heater controller. The valves on the top of the ISO module require a platform where a pigtail connection utilizing our universal pigtail is recommended. That way it interfaces with the heater controller and ensures the safety, as well as the reliability of the system. The output of that universal pigtail would then be sent to our bulk specialty gas supply system which further controls and regulates the gas to the appropriate temperature to ensure the process purity and pressures.

So Bob, let me ask you to put on your commercial hat now and tell us in the eyes of a customer, what would differentiate Air Products from other suppliers of this similar technology?

Well we've always endeavored to be the leader in bulk specialty gas supply. So we've been approaching this totally differently than has been done in the past of just selling equipment or just selling gas. What we endeavor to be is a total solution provider which includes everything up to turnkey installation and we'll even do that as an all in pricing option for the gas and equipment, but unlike some competitors, Air Products is willing to own, operate, and maintain the BSGS and ISO at the customer's site. Which begs a question, if a vendor won't own their own equipment—should a customer? In effect, a customer is forming a true partnership with Air Products because APCI is investing its capital at the customer's site and this is typically done via a Product Supply Agreement with a monthly service charge that we've been willing to contract up to 15 years. But in effect, it's an extended warranty utilizing our experts to service the BSGS and change out the ISOs.

So Bob, I have one more question for you. If you could briefly summarize, what are the key benefits of Air Products bulk specialty gas supply?

Well we have purification plants that can manufacture the highest purity ammonia ever put into a container with a one part per billion deliverable specifications. We have unique heated ISO modules that have eight patents and the largest ammonia and indeed the largest specialty gas fleet in the entire world. But in summary, we are the largest BSGS supplier with more BSGS than all our competition combined.

All right, well Bob, thank you very, very much again for this information and how could people get more information on this subject?

Well Ed, they could actually contact me direct at fordr@airproducts.com.

So once again you can contact Bob Ford directly if you have any questions on bulk specialty gas supply at fordr@airproducts.com. We'd like to thank you for listening today and remind you that for additional information on BSGS and other subjects, please visit our website at airproducts.com/electronics. There you can subscribe to receive other Podcasts and presentations.

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