

Dan Spohn

From: ARM, Inc. <dspohn@arminc.com>
Sent: Thursday, April 6, 2017 4:16 AM
To: dspohn@arminc.com
Subject: Taxing illegal drugs you say?



Advanced Research Manufacturing 719-538-5959
Innovative High Purity Gas Supply System Solutions

[Website](#) | [About](#) | [Bulk Solutions](#) | [Industries](#) | [Standard Products](#) | [Service/Maintenance](#) | [Contact](#)



Dear Dan,

In 1913 the 16th amendment was ratified by 42 of the then 48 United States of America, giving Congress power to impose and collect taxes on incomes regardless of the source of that income. That year Congress levied a 1% tax on incomes over \$3,000.00 (a whopping \$30.00), and a 6% tax on incomes >\$500,000.00. It was also the birth of the Form 1040!

That has led to taxing about everything from sin (cigarette and booze tax) to talking (phone tax), so what else can be taxed you ask? Absurd as it sounds, illegal drugs are taxed in 23 states. Laws vary, but in North Carolina when you acquire your illegal drugs, you have 48 hours to pay your tax in exchange for a tax stamp to put on your illegal drugs to be compliant. No fear of arrest, you do not have to show ID, and it is also illegal for the revenue employees to turn you in. North Carolina has had this tax on the books for 15 years and has collected over \$78 million so far, almost all from those arrested for drug possession and found to be without the appropriate tax stamp! But there is a break for the lawbreakers, after having paid your taxes on your illegal drugs, you can decide to go into drug addiction treatment and legally deduct inpatient treatment costs.

Remember, Al Capone didn't spend time in Alcatraz for illegal booze, it was for tax evasion. He got 11 years of 'inpatient treatment'. He couldn't deduct it though, the law was not yet enacted, didn't matter really because the 'treatment' was pro bono.

But that's not what I wanted to talk about.....

In this issue.....

[Cycle Purging: An Effective Method to Reduce Impurity Concentrations.](#)

[ARM Inc. at Pittcon & Semicon China.](#)

[Dual 07KC Microbulk system ships!](#)

Cycle Purging: An Effective Method to Reduce Impurity Concentrations

Purging is a simple way to remove impurities from a system. Two methods can be employed, continuous flow purging, and cycle purging. Which is best for a given system depends primarily on the type of system being purged.

Continuous flow purging is a very efficient means of driving impurities from a piping run. Flow purging is used in construction of high purity piping systems in laboratories or wafer fabs, where each leg of the piping run is open to atmosphere until the final component is welded into place. Regardless of diameter or run length, impurities will be entrained in the purge gas flow and removed from the piping run as the purge gas vents to atmosphere.

But for systems that can have dead legs, or complex shapes that will not assure continuous purge gas flow, cycle purging can be a very effective means to reduce impurities to required limits. Cycle purging in short is alternating pressurization and depressurization of a closed system with a clean purge gas.

When pressurized with the purge gas, the impurities in a closed system will permeate throughout the purge gas coming to an equilibrium concentration. When vented, the impurities mixed together with the purge gas are removed. The concentration of impurities is reduced with each pressurization/depressurization cycle.

In theory one can determine the impurity concentration after cycle purging through the following calculation:

$$C_2 = C_1(P_1/P_2)$$

where:

C₂ is the post-purge cycle impurity concentration

C₁ is the pre-purge cycle impurity concentration

P₁ is the depressurization stage pressure

P₂ is the pressurization stage pressure.

Take as an example a tank that has been purged with CDA. O₂ in air (essentially N₂) is ~20% which we will use for C₁. Cycle purging this tank with clean N₂ by pressurizing it to 264.7 PSIA (250 PSIG) and venting to atmosphere (14.7 PSIA) would reduce the O₂ concentration to 1.11%.

$$C_2 = 20(14.7/264.7)$$

$$C_2 = 1.11\%$$

Repeating the cycle a second time.....

$$C_2 = 1.11(14.7/264.7)$$

$$C_2 = 0.06\%$$

After a third cycle.....

$$C_2 = 0.06(14.7/264.7)$$

$$C_2 = 0.003\%$$

After 3 cycle purges the N₂ in the tank is at 99.997% pure. Running the calculation for 2 more cycles the O₂ concentration is reduced further to .00001% or 99.99999 pure!

The cycle purging process is influenced by many things including the purity of the purge gas, the time the system is at P₂, and any physical restrictions of the system being purged hindering the normalization of the impurities within the purge gas at pressure. All that said it is still a very reliable and effective means of cleaning up a closed system.

ARM at Pittcon & Semicon China!

It seems a never ending objective, building the ARM brand and getting recognized in the industries we serve. To that end ARM exhibited at Pittcon and Semicon China in March.

At Pittcon we met with many potential customers and some current customers. Featured was our GC purifier designed to be used to purify GC carrier gases to ensure high quality analytical results. There was discussions around the use of ARM's Nova point-of-use purifiers on the outlet of small laboratory gas generators to improve the purity performance of those devices. All-in-all it was a good show!



Dan Spohn talking with an interested attendee during Pittcon 2017



We have grown our distribution channels in China in the last couple of years and are committed to supporting these organizations with our presence at key trade shows. To that end we sent our Sales Manager to Shanghai for Semicon China in March. Silpac, our distributor in China exhibited and Steve Wright was there to provide sales and technical support both at the show, and during customer visits. ARM's Korean distributor, ATC was also attending the show and stopped in the Silpac booth.



Ryan Seo - ATC (ARM's Korea distributor), Clark Yuan - Silpac, Steve Wright - ARM, and Patrick Choe - ATC



Silpac distributes for a wide variety of high purity component manufacturers including ARM.

Latest Installation & Start-up!

Cold climate dual 07KC purifier ships.

An ARM Micro-Bulk purifier has shipped and been installed to provide high purity Argon to a wafer processing tool. The purifier enclosure houses the two 07KC purifiers along with the manual and pneumatic valves, and plumbing required to alternate vessels for operation and automatic regeneration.



Dual 07KC Purifier Enclosure

ARM's Advantage Series control and instrumentation package was modified somewhat for this system to allow for manual switching between on-line and regeneration, but keeping the fully automated regeneration intact.



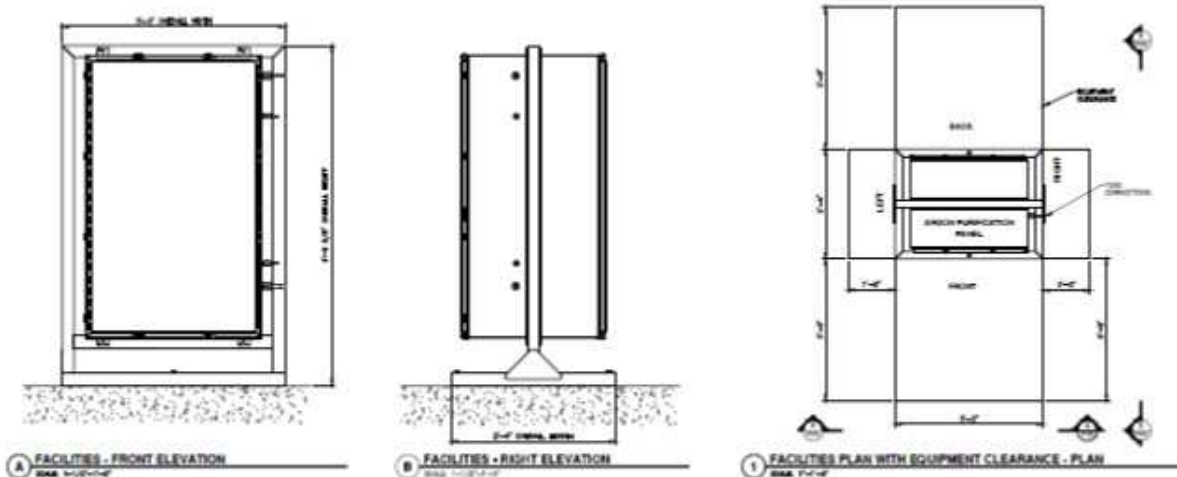
Dual 07KC Control Enclosure

Mounting both the Purifier Enclosure and the Control Enclosure onto a single stainless steel square tube frame completed the purifier system's integration. Designed for installation in unprotected areas (gas pad), the system included thermostatically controlled heaters for cold season operation and filtered vent fans for the warmer seasons.



Dual 07KC Completed System

Overall dimensions of the finished system, 38" wide, 57-5/8" tall, and 26" deep.



Argon purifier system specifications include:

200 psi MAWP

150 scfh maximum flow

Main gas line 1/2", regen gas line 1/4"

CO, CO₂, H₂, H₂O, O₂ and NMHC impurities removed to <1ppb

ARM's is much more than a supplier of point-of-use purifiers, our skill and experience covers all aspects and equipment from the gas source to the gas use point. Send us an [e-mail](#) or call 719-538-5959 for additional information on these or any of ARM's UHP solutions.

Thanks for reading this far!

We understand that there is very little time in the day to read all the newsletters that make it to your inbox. We will strive to not be 'that company' spamming the world with useless information seemingly every other day for no better reason than some webinar told them that is what they should do.

As noted above if you opt out we will honor your request. If you do tho, you may want to like us on Facebook or follow us on LinkedIn so you can keep your inbox clear, but still keep in touch with what is going on with ARM Inc. in the gas world.

Sincerely,

Dan Spohn
ARM, Inc.



SUBSCRIBE TO LIST

FORWARD EMAIL

Copyright © 2015. All Rights Reserved.

ARM, Inc., PO Box 60518, Colorado Springs, CO 80960

SafeUnsubscribe™_dspohn@arminc.com

[Forward this email](#) | [Update Profile](#) | [About our service provider](#)

Sent by dspohn@arminc.com in collaboration with



Try it free today