



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

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OFFICE OF
SOLID WASTE AND
EMERGENCY RESPONSE

Mr. Donald J. Patterson, Jr.
Beveridge & Diamond
1350 I Street, N.W.
Suite 700
Washington, D.C. 20005-3311

Dear Mr. Patterson:

Thank you for your letter of February 3, 2006, and for coming in with representatives of Matheson Tri-Gas, Inc. (Matheson) on March 21, 2006 to discuss the regulatory status under the Resource Conservation and Recovery Act (RCRA) of Safe Delivery System (SDS) gas cylinders.

As I understand Matheson's operations, Matheson fills SDS gas cylinders with extremely high purity gases, such as arsine and phosphine, and delivers the filled cylinders to its customers. The customers use the gases in semi-conductor manufacturing. The SDS cylinders are not like traditional compressed gas cylinders where the gases are stored under positive pressure. Instead, the SDS cylinders contain a carbon-based medium which operates as a "molecular sieve" in which the gas is adsorbed and trapped within the interstitial spaces.¹ As a result, the gas is stored under sub-atmospheric pressure, which avoids safety concerns with high-pressure containment and also allows a greater volume of gas to be stored in the container.

After customers use the gases from the cylinders, they are returned to Matheson where they are inspected, refilled, and sent back to customers. When the cylinders are returned to Matheson, they often still contain between 30% and 50% of the original volume of gas because it is difficult to remove all of the gas from the medium. From the information provided, you state that about 90% of the cylinders (after inspection and refilling, and some percentage requiring minor repairs) are returned to the customers. However, you also state that approximately 10% of the SDS gas cylinders cannot be refilled or require more than minor repair (due to gas contamination, major valve damage, or obsolescence of the cylinders) and therefore have been sent to Integrated Environmental Services (IES) in Atlanta, Georgia. You explain that IES will extract any unused gases, and then reclaim the gas using purification steps to remove contaminants.

¹ See your letter to Matt Hale, February 3, 2006, page 4.

In both your letter and when meeting with me and my staff, you expressed concern with a position taken earlier by Environmental Protection Agency's Region 1 that indicated that SDS cylinders would be subject to RCRA jurisdiction under certain circumstances. In particular, the letters dated August 11, 2003 and September 25, 2003 stated that SDS cylinders sent to an off-site facility for thermal reclamation are spent materials subject to RCRA jurisdiction if the gas contained in the unit is a RCRA hazardous waste because the units have become contaminated/depleted and as a result of this contamination/depletion they no longer can be used without reclamation.² Conversely, you believe the cylinders are not subject to RCRA jurisdiction because they are containers holding unused commercial chemical products (CCPs) that are reclaimed.³

After your inquiry, we worked together with both Regions 1 and 4 to discuss this issue more fully and have come to the following conclusion. EPA agrees that the storage and delivery cylinders as you describe them are containers holding unused CCPs, rather than spent materials, and therefore are not subject to regulation under 40 CFR 261.2(c)(3) as spent materials.

The questions that you raise point out the need for EPA to clarify when an engineered unit should be classified as a container holding an unused CCP or spent material. In the past, we have determined that some units of concern, such as mercury switches or ignitron tubes were spent materials when they had become contaminated or when they had outlived their usefulness and no longer could be used.⁴ In other situations, we have determined that the units were containers holding an unused CCP. Examples include pressurized gas cylinders and "bubblers."⁵

There is an important distinction between these two situations. With respect to ignitron tubes and mercury switches, the chemical of concern (e.g., mercury) plays an integral role in the functioning of the unit, while the chemical is inside of the unit and the item's main purpose is to provide some function other than storage and delivery of the chemical. The mercury has no function outside of these units. Conversely, with the SDS cylinders and pressurized gas canisters, the principal purpose of the unit is to store and dispense the chemical, and the main purpose or function for which the chemical (e.g., phosphine or arsine) is used occurs outside of the unit. We consider these SDS canisters to be chemical storage and delivery units, whereas the mercury inside of the mercury switch and ignitron tube is integral to the proper functioning of the unit. In other words, the SDS cylinders are storage devices holding a CCP. Conversely, with the mercury switches, once the unit is no longer functioning, the chemical remaining inside of the unit has been used as part of the functioning of the item itself.

² See 40 CFR 261.1(c)(1) and 40 CFR 261.2(c)(3).

³ See 40 CFR 261.33 and 40 CFR 261.2(c)(3).

⁴ See letters from Bussard to Green, Sept. 28, 1994 (RCRA On-Line (RO) Document Number 11876), and Cochran to Oleszko, April 14, 1989 (RO 11419), respectively.

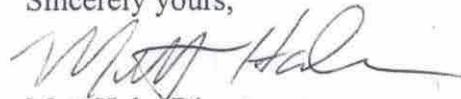
⁵ See letters from John Lehman, Director, Hazardous and Industrial Waste Division, EPA Office of Solid Waste to Lawrence W. Bierlein, Esq., Compressed Gas Association, November 3, 1980, and Christopher J. Capper, Acting Assistant Administrator, EPA Office of Solid Waste and Emergency Response to Lawrence W. Bierlein, Esq., Compressed Gas Association, November 6, 1981. Also see letters from Bussard to Morishita, Sept 14, 1994 (RO 11871) and Dec 16, 1994 (RO 13722), respectively.

Two further points are worth noting. First, be aware that containers that held unused CCPs and any residues generated from CCP recovery must undergo a new hazardous waste determination after the cylinders are emptied.⁶ Second, in general, those managing unused CCPs that require reclamation should be aware of the potential for these types of materials to be abandoned. Abandoned CCPs are solid wastes (see 40 CFR 261.2(i)), and if hazardous, hazardous wastes. For example, if unused CCPs were being stored for a long period of time without any foreseeable means of recovering the product, or if no foreseeable market existed for the recovered product, an overseeing regulatory agency might well conclude that they were abandoned, and thus subject to Subtitle C hazardous waste regulations. Determinations as to whether a CCP is abandoned are site-specific and are made by the Regions and states implementing the RCRA program.

Finally, please be aware that this interpretation is based on the federal RCRA hazardous waste regulations. EPA authorizes states to implement the RCRA hazardous waste program. States promulgate their own hazardous waste regulations and an authorized state's regulations are applicable within the state in lieu of the federal regulations. A state's regulations may be more stringent and/or broader in scope than the federal regulations. Thus, you should check with the appropriate state agency or, if the state is not authorized, the EPA regional office to determine the requirements applicable to any specific activities.

If you have any questions, please contact Jim O'Leary of my staff at (703) 308-8827 or oleary.jim@epa.gov.

Sincerely yours,



Matt Hale, Director
Office of Solid Waste

⁶ See, for example, 40 CFR 261.33 and 40 CFR 261.7(b)(3).