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

JUL 19 2018

OFFICE OF
SOLID WASTE AND
EMERGENCY RESPONSE

NOW THE
OFFICE OF LAND AND
EMERGENCY MANAGEMENT

MEMORANDUM

SUBJECT: Regulatory Status of Automotive Airbag Inflators and Fully Assembled Airbag Modules

FROM: Barnes Johnson, Director
Office of Resource Conservation and Recovery

TO: Regional RCRA Division Directors
Regional Enforcement Division Directors

The Office of Resource Conservation and Recovery (ORCR) and EPA regional offices continue to receive requests for clarification of the regulatory status of undeployed automotive airbag modules and airbag inflators, including both those that have never been installed in a vehicle and those removed from vehicles.

Undeployed airbag modules and airbag inflators are frequently reactive (D003) and/or ignitable (D001) due to the propellant contained in the inflator, and therefore hazardous wastes under the Resource Conservation and Recovery Act (RCRA) when discarded. Deployment of the airbag module consumes the propellant and removes the reactivity and ignitability characteristics.

The purpose of this memo is to explain how RCRA hazardous waste regulations and exemptions apply to different types of airbag modules and airbag inflators. In addition, for the convenience of the reader, attached is a table summarizing these regulatory interpretations.

Airbag Module vs. Airbag Inflator

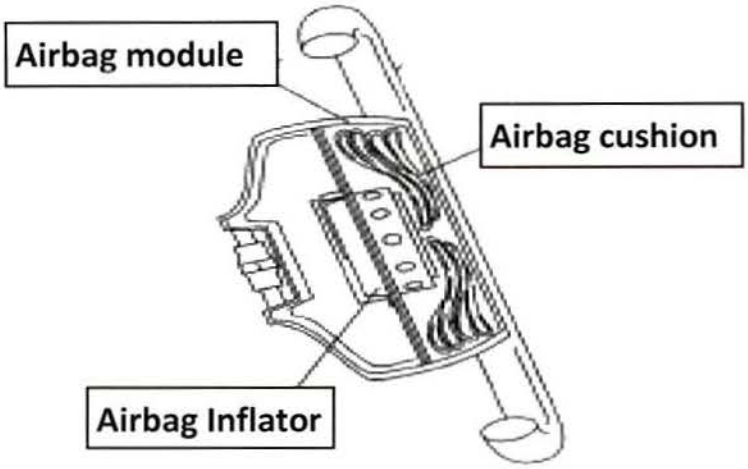
For the purposes of this memorandum, an airbag module is a fully assembled unit including both the airbag inflator and the fabric cushion. An airbag inflator is the small metal cannister within the airbag module that can house explosive propellant and an initiator. A fully assembled airbag module is a self-contained unit that is deployed when an internal gas generator (i.e., the airbag inflator) receives an electronic pulse from a crash sensor. In properly functioning airbag modules, chemical propellant contained in an airbag inflator unit burns in a fast and controlled manner, quickly emitting a gas through vents in the canister out into the airbag, which inflates the cushion.

EPA's consideration of discarded airbag modules and airbag inflators as separate waste streams under this memo is consistent with how the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) has

regulated these materials. Airbag modules are considered "propellant actuated devices" and are exempt from regulation as explosives in commerce per ATF regulations at 27 CFR 555.141(a)(8). However, the airbag inflator, once removed from the module, is not considered a propellant actuated device under ATF regulations. Instead, airbag inflators are considered special explosive devices, which can only be exempted from explosives regulation by first applying to ATF under the provisions in 27 CFR 555.32.

ATF regulations are designed to deal with explosives in commerce and do not directly address waste management aspects of used, discarded airbags. However, the different regulatory status of airbag modules versus airbag inflators under ATF regulations supports EPA's consideration of them when discarded as two different waste streams.

Simplified Diagram of Driver-Side Airbag Module Installed in the Steering Wheel Column[1]



<u>Summary of EPA's Regulatory Interpretations Regarding Airbag Modules and Airbag Inflators</u>

Below is an explanation of the regulatory status under RCRA of each category of airbag module and airbag inflator, including:

- Unused (never installed) airbag modules and airbag inflators,
- Used airbag modules and airbag inflators that can be legitimately reused,
- Used airbag modules and airbag inflators that are still installed in vehicles,
- Used airbag modules removed from vehicles that can be safely deployed electronically,
- Used airbag modules removed from vehicles that <u>cannot</u> be safely deployed electronically (e.g., modules containing recalled Takata inflators), and
- Used airbag inflators (that are not being legitimately reused).

In addition, a summary chart of the regulatory status of airbag modules and airbag inflators is attached.

[1] Diagram adapted from *How Products Are Made – Air Bag*, http://www.madehow.com/Volume-1/Air-Bag.html.

Unused (Never Installed) Airbag Modules and Airbag Inflators are not Solid Wastes when Legitimately Reclaimed

In a previous memo, EPA said that airbag inflators that are not used because they fail a quality control program are off-specification commercial chemical products and are exempt from RCRA regulation when legitimately reclaimed.[2] However, these unused airbag modules and airbag inflators, when discarded, must be managed as a hazardous waste. Airbag modules and airbag inflators are considered unused when they have never been installed in vehicles intended for sale. Airbag modules and airbag inflators that were installed in vehicles for the purposes of quality control testing are still considered to be unused.

Used Airbag Modules and Airbag Inflators that can be Legitimately Reused are not Solid Wastes

A non-defective airbag module or airbag inflator removed from a vehicle that can be reused for its intended purpose in another vehicle is still a product and is not a waste unless it is discarded. Reuse of recalled Takata airbag inflators or other defective airbag modules or airbag inflators is not legitimate reuse and would be considered sham recycling under 40 CFR 261.2(g).

Used Airbag Modules and Airbag Inflators (both Takata and Non-Takata) still Installed in Vehicles that are Being Recycled as Exempt Scrap Metal are also Scrap Metal

Under 40 CFR 261.6(a)(3)(ii), exempt scrap metal is not subject to most RCRA hazardous waste requirements when recycled.[3] Scrap metal is defined in 40 CFR 261.1(c)(6) as: "bits and pieces of metal parts (e.g., bars, turnings, rods, sheets, wire) or metal pieces that may be combined together with bolts or soldering (e.g., radiators, scrap automobiles, railroad box cars), which when worn or superfluous can be recycled." EPA has also described scrap metal as "a used material that is no longer fit for use and must be reclaimed before it can be used again…," including "products made of metal that become worn out (or are off-specification) and are recycled to recover their metal content…"[4]

The definition of scrap metal at 40 CFR 261.1(c)(6) explicitly includes "scrap automobiles," which encompasses all component parts, including installed airbags. Therefore, installed airbag modules would not be subject to a separate hazardous waste determination unless and until they are removed from the vehicle. Such an interpretation is consistent with how other hazardous vehicle components (e.g., mercury switches) are regulated under RCRA.

EPA encourages scrap metal recyclers to follow appropriate safety procedures when processing scrap vehicles. Scrap metal recycled under 40 CFR 261.6(a)(3)(ii) is exempt from most RCRA requirements, including hazardous waste treatment permits; consequently, deployment of installed airbags in vehicles that are being managed as scrap metal would not be subject to RCRA permitting requirements.

---

[2] 40 CFR 261.2 Table 1; U.S. EPA, *Regulatory Status of Undeployed Automotive Airbag Inflators*, April 23, 1992, RCRA Online 11666.

[3] The scrap metal exemption only applies to material that would otherwise be regulated as hazardous waste; non-hazardous scrap metal is not subject to RCRA Subtitle C hazardous waste requirements in the first place.

[4] 50 FR 624 (Jan. 4, 1985).

Used Airbag Modules Removed from Vehicles that can Safely Undergo Electronic Deployment can be Recycled as Exempt Scrap Metal

As discussed in more detail below, used airbag modules that are not being legitimately reused are considered spent material when removed from the vehicle. However, airbag modules that can be safely deployed can also be classified as scrap metal and exempt under 40 CFR 261.6(a)(3)(ii) when removed from the vehicle for electronic deployment prior to recycling the metal.

The EPA made a similar interpretation that a material can be both a spent material and a scrap metal for printed circuit boards[5]. The EPA has explained that a secondary material may be classified as scrap metal if (1) metals can be recovered from it and (2) it is in a physical state similar to examples provided in the scrap metal definition, including a physical state that limits the dispersion of metal constituents during handling and transport. "Scrap metal is defined based in large part on the physical appearance of a secondary material, dependent on the presence of metal, and includes secondary materials that would otherwise be spent materials or by-products."[6]

The metal components of the airbag modules can be recovered, and the physical state of non-defective[7] airbag modules (solid, self-contained units) limits the dispersion of hazardous constituents during handling, including during electronic deployment. Unlike other types of used airbag materials or treatment methods, electronic deployment of fully assembled non-defective airbag modules does not pose a risk of fire or a shrapnel-producing explosion.[8] While deployment does involve ignition of a reactive material inside the module to inflate the airbag cushion, this process is how the airbag was designed to operate and the reaction is contained as part of the inflation of the airbag. Note that even though hazardous waste management standards would not apply to deployments of non-defective fully assembled airbags when recycled as scrap metal, <u>it is still a complex procedure that should only be performed by a trained technician according to the vehicle or airbag manufacturer's instructions</u>.

As scrap metal exempted under 40 CFR 261.6(a)(3)(ii), <u>non-defective</u> airbag modules (i.e., modules that can be safely deployed electronically) are not subject to most RCRA requirements from the point of generation when legitimately recycled after electronic deployment, but would be subject to speculative accumulation limits under 40 CFR 261.1(c)(8). However, airbags subject to a recall due to an explosive, shrapnel-producing defect (e.g., Takata airbags) cannot be safely deployed by the generator and, therefore, do not qualify as exempt scrap metal when removed from the vehicle. Specifically, these airbags are not in a physical state that limits the dispersion of constituents during handling.

In some cases, vehicle manufacturers have made arrangements with salvage recovery vendors to buy airbag modules from automobile salvage yards. As part of this airbag module recovery process, the salvage recovery vendor examines the airbag module to evaluate whether it is part of the Takata recall, and therefore a hazardous waste, or whether it can be safely reused or deployed and recycled as scrap

---

[5] "Regulatory Status of Printed Circuit Boards" (Lowrance, Aug. 26, 1992) RCRA Online 11689. Printed circuit boards are another class of secondary material that meets the definition of spent material in 40 CFR 261.1(c)(1) as well as the definition of scrap metal in 261.1(c)(6).

[6] Ibid

[7] In this context, "non-defective" airbag modules are those modules that do not contain an inflator with potentially degraded propellant that may produce dangerous shrapnel when the airbag is deployed. Airbags may exhibit other types of defects that would not affect their potential to be recycled as scrap metal via safe deployment.

[8] Airbags containing ignitable and reactive propellants would still be considered characteristic hazardous waste if disposed of or managed in a way that does not address the propellant due to risks posed by the oxidizing chemical being released from a crushed airbag.

metal. For the purpose of hazardous waste determination, EPA considers this evaluation step, at the salvage recovery vendor, the point of generation for the salvaged airbag.

Used Airbag Inflators that Cannot be Reused are Spent Materials that Cannot be Recycled as Exempt Scrap Metal when Exhibiting the Hazardous Waste Characteristic of Ignitability and/or Reactivity

Airbag inflators that were installed in and then removed from vehicles are considered "used" and are classified as spent material under RCRA unless they are reused for their intended purpose. As explained earlier, an airbag inflator reused for its intended purpose in another vehicle is still a product and is not a waste. In a June 23, 2017, memo, EPA clarified that used Takata airbag inflators subject to preservation for testing or as evidence are not solid waste. A Department of Transportation preservation order currently requires that the Takata units be preserved; however, when the order is lifted, their status changes to spent material, and therefore hazardous waste based on two facts: 1) Takata airbags can no longer be used in any manner and must be discarded, and 2) they exhibit the hazardous waste characteristics of ignitibility and reactivity. [9]

Regulating used airbag inflators (and used airbag modules) as spent material is consistent with EPA's long-standing interpretation for regulating manufactured articles exhibiting hazardous waste characteristics, such as spent batteries.[10] While the June 2017 memo was specific to recalled Takata airbag inflators, the same logic of used airbag inflators being considered spent materials also applies to other (non-Takata) airbag inflators when they are not going to be reused. Even though other airbag inflators do not exhibit the explosive defect that the recalled Takata inflators do, they can still contain propellant that would cause the inflators to exhibit the hazardous waste characteristics of ignitibility and reactivity.

As discussed above, in some cases spent material may also qualify as exempt scrap metal. However, just because a spent material has recoverable metal content does not necessarily mean it qualifies for the scrap metal recycling exemption. For example, EPA has identified several metal-containing wastes as not covered by the "scrap metal" definition, including drosses, slags, or sludges; liquid wastes containing metals; and wastes with a significant liquid component.[11] The physical forms of those materials, including liquids and materials that may generate dust, make them susceptible to dispersion of hazardous constituents during handling and transport. In addition, EPA has concluded that tantalum powder does not fit the underlying rationale for the scrap metal exemption, i.e., that its physical state did not allow for safe handling and transport without the need for hazardous waste management standards.[12]

Unlike their profile when part of a fully assembled airbag module, the physical form of airbag inflators removed from the module (whether recalled or not) facilitates the dispersion of the ignition reaction into the air rather than containing it in a specifically designed airbag cushion. The physical form of ignitable and reactive airbag inflators (whether containing defective propellant or non-defective propellant) pose a risk during transport and recycling that ordinary scrap metal does not. Therefore, used airbag inflators that exhibit the hazardous characteristic of ignitability and/or reactivity that are not going to reuse are regulated as hazardous waste from their point of generation, regardless of whether they are sent for reclamation or disposal.

---

[9] U.S. EPA, *Recalled Takata Airbag Inflators*, June 23, 2017, RCRA Online 14893.

[10] U.S. EPA, *Clarification of When a Secondary Material Meets the Definition of "Spent Material"*, Memo from Michael Shapiro, Director, Office of Solid Waste to the EPA Regional Division Directors, March 24, 1994, RO#11822

[11] 50 FR 624 (Jan. 4, 1985).

[12] See letter from Barnes Johnson to Chris Bryant, Feb. 24, 2017 (Tantalum letter). RCRA Online 14888.

Implementation in Authorized States

Under RCRA section 3006, states may be authorized to administer the state hazardous waste program in lieu of the federal program, and under RCRA section 3009, state requirements may be more stringent than those of the federal program. The EPA therefore recommends that entities managing airbag modules or airbag inflators also consult with the appropriate state regulatory authority in determining the applicable requirements.

Possible Future Regulatory Action on Recalled Airbags

The application of RCRA regulations to the end-of-life management of used airbag modules and airbag inflators poses unique regulatory challenges, particularly in the context of the recall of Takata airbag inflators. This memo reflects EPA's current understanding of how the RCRA regulations apply to airbag modules and airbag inflators when they can no longer serve their intended purpose and become discarded.

However, EPA is considering developing a rule that would exempt discarded airbag modules and airbag inflators from some RCRA regulatory requirements provided certain conditions are met. The goal of such a rule would be to protect human health by helping to expedite the removal of defective airbag modules and airbag inflators (whether at dealerships, autobody shops, or salvage yards), while maintaining key environmental and human health protections during airbag collection, storage, and disposal. Key considerations for a rule could be the extent that such an exclusion includes conditions that would ensure the defective airbags are safely destroyed in a manner that is protective of human health and the environment, and are not sham recycled by being diverted back into vehicles.

If you have any questions, please contact me or Tracy Atagi at 703-308-8672, or atagi.tracy@epa.gov.

Attachment

Attachment: Summary of Airbag-Related Regulatory Interpretations

Type of Airbag or Inflator	RCRA Status
Unused airbag modules and airbag inflators that fail QA/QC program and are never installed in vehicles for sale	Off-spec Commercial Chemical Product (CCP) are not solid waste when legitimately reclaimed and not discarded. (40 CFR 261.2(c)(3))
Used airbag modules and airbag inflators that can be legitimately reused.	Still considered to be a product (i.e., not yet a spent material under 40 CFR 261.2(c)(3)) unless discarded. Recalled Takata airbags cannot be legitimately reused.
Used airbag modules (Takata and non-Takata) installed in cars and remaining in the car when it is recycled as scrap metal.	Considered part of vehicle and exempt scrap metal when legitimately recycled. (40 CFR 261.6(a)(3)(ii)) Deployment of airbag in vehicle does not need a RCRA treatment permit because scrap metal is not subject to regulation under parts 262 through parts 268, 270 or 124 of this chapter, and are not subject to the notification requirements of section 3010 of RCRA.
Used airbag modules removed from vehicle that can safely undergo electronic deployment prior to recovery of metal	Exempt scrap metal when electronically deployed and legitimately recycled for metal value. (40 CFR 261.6(a)(3)(ii)) Deployment of airbag does not need a RCRA treatment permit because scrap metal is not subject to regulation under parts 262 through parts 268, 270 or 124 of this chapter, and are not subject to the notification requirements of section 3010 of RCRA.
Takata recalled airbag modules (or other airbag modules that cannot be safely deployed electronically) removed from vehicle.	Spent material and therefore solid waste when recycled (40 CFR 261.2(c)(3). Not exempt scrap metal because cannot be safely recycled via electronic deployment. They also cannot be safely reused. In the case of airbag modules scavenged from scrap yards, the point of generation for the purposes of hazardous waste determination is when the airbag module is confirmed to be a recalled airbag module.
Used airbag inflators that are not legitimately reused.	Spent material and solid waste when recycled (40 CFR 261.2(c)(3)). Not exempt scrap metal because they cannot be safely recycled via electronic deployment.