

RCRA and Retail

Considering the Fate of Consumer
Aerosol Cans



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RCRA and Retail: Considering the Fate of Consumer Aerosol Cans.
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Introduction

Environmental regulation in the United States has followed a familiar pattern. Typically, statutes are enacted and regulations are adopted to address an environmental problem—either a chronic problem with broadly recognized and widespread adverse effects, or a problem identified as the result of high-profile incidents that affect the public.

The response generally takes the form of comprehensive regulations and reporting requirements intended to change practices in the relevant sector. Resulting federal regulations have often pursued technology-forcing paths, or at least requirements for the use of best available technologies and continuing improvements over time. Except where regulatory schemes have become fossilized, subsequent changes in regulation under these programs build on lessons learned from experience, address changes in the regulated community (such as technological changes or changes in the mix of regulated entities), and accommodate environmentally beneficial practices while reducing regulatory compliance costs if practicable.

Solid and hazardous waste regulation is built on the statutory foundations laid in the 1970s and 1980s—the Resource Conservation and Recovery Act of 1976 (RCRA) as amended by the Hazardous and Solid Waste Amendments of 1984 (HSWA), and the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendment and Reauthorization Act of 1986 (SARA). RCRA, in particular, set forth a cradle-to-grave identification, tracking, and management system for hazardous wastes, implemented by very detailed regulatory requirements addressed to every participant in the regulated universe at every stage of the process.

Now the U.S. Environmental Protection Agency (EPA) is faced with the question of how best to regulate effectively and innovatively concerning hazardous waste attributable to the rapidly evolving and diverse retail sector of the U.S. economy.

This economic sector includes over a million and a half facilities of one kind or another, employing millions of Americans—and over 41,000 locations that have notified EPA or states of their status as generators of hazardous waste under RCRA regulations.¹ While this sector is large and its establishments ubiquitous, its contribution to the total hazardous waste volume is relatively small in comparison with other sectors, including industrial, chemical, and manufacturing concerns.

¹ U.S. EPA, *Hazardous Waste Management and the Retail Sector: Providing and Seeking Information on Practices to Enhance Effectiveness to the Resource Conservation and Recovery Act Program, Notice of Data Availability*, 79 Fed. Reg. 8926, 8932 (Feb. 14, 2014) (hereafter NODA). Most of these are small quantity and very small quantity (formerly known as “conditionally exempt”) generators of hazardous waste. EPA believes that many additional retail facilities are very small quantity generators that deal with hazardous waste but that are not identified under either federal regulations or state laws.

EPA records show that the total volume of hazardous waste generated in 2015 by all large quantity generators and others required to report was 33.6 million tons.² In comparison, EPA has estimated that large quantity generators in the retail sector generate 32 *thousand tons* of hazardous waste annually, or just 0.1 percent of the total generated nationally. Moreover, of the latter estimate, fully 29,601 tons were attributed by EPA to “nonstore retailers” which includes not only internet and mail order retailers, but also heating oil and fuel sellers, among others.³

Among those elements of the retail sector that deal with hazardous waste issues are several hundred thousand establishments that: (1) use products that when discarded may be regulated as hazardous waste, or (2) sell products that when returned by consumers or damaged in-store may be regulated as hazardous waste.

Relevant Consumer Product Retailer Categories⁴

Sector	Establishments (2012)
Gasoline Stations	114,474
Supermarkets and Grocery Stores	66,343
Convenience Stores	26,506
Automotive Parts/Accessories/Tires	57,010
Pharmacies and Drug Stores	43,338
Home Centers	6,552
Hardware Stores	15,454
Sporting Goods Stores	21,132
Lawn and Garden Equipment and Supplies Stores	17,898
Cosmetics, Beauty Supplies, and Perfume Stores	15,370
Warehouse Clubs and Superstores	5,114

The consumer product retail sector is rapidly evolving. This sector experiences rapid and ongoing formation and dissolution of businesses. But it also is undergoing rapid innovation in business methods. These include the development of new methods of supply chain management and accountability, just-in-time inventory management, direct-to-consumer delivery and returns, and reverse logistics for handling of unsold or returned products. In much of the sector there is huge interest in sustainability both for the substantial savings associated with waste minimization and reduction, and also for reputational value with consumers, employees, and business partners.

² U.S. EPA 2015 Biennial Report Summary Results for National, *available at* <https://rcrainfo.epa.gov/rcrainfoweb/action/modules/br/summary;jsessionid=85A6F8E8438BAD97F6A0CCBC078955CA>.

³ NODA, 79 Fed. Reg. at 8932. The EPA estimate is substantially higher than retailers themselves estimate from EPA databases—*viz.* in the range of 2,864 tons/year. *Comments of the Retail Associations in Response to EPA’s NODA on the Application of RCRA to the Retail Industry* (May 30, 2014).

⁴ 2012 Economic Census, *available at* <https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk>.

At the same time, competitive concerns also are leading to increasing consumer expectations about product returns, responsiveness to environmental trends, and availability of new products.

What should we as a society strive for in terms of addressing regulatory challenges related to the disposition of materials from these retail establishments? What is a good outcome for society, for companies and their employees, for the environment, and for customers?

Regulatory Background—Consumer Products

Federal regulation of solid and hazardous wastes followed the familiar path. Beginning fifty years ago with fairly weak planning laws and with demonstration projects dealing with municipal solid waste (the Solid Waste Disposal Act of 1965 and the Resource Recovery Act of 1970),⁵ by the mid-1970s Congress responded to the environmental movement with an effort originally designed to improve recycling and resource recovery by amending the Solid Waste Disposal Act.⁶

But rising awareness of the widespread disposal of industrial chemicals and hazardous wastes, coupled with EPA concern that substances no longer entering the water or the air because of the Clean Water Act and Clean Air Act would be disposed of on the land in ways that posed risk to the public, led to Congress enacting the Resource Conservation and Recovery Act of 1976.⁷

RCRA created a detailed federal regulatory scheme for the identification, tracking, and management of hazardous waste from cradle-to-grave (Subtitle C), and a limitation on open dumping of non-hazardous solid waste (Subtitle D). RCRA was amended substantially in 1984 to set deadlines, impose land disposal prohibitions, and require numerous regulations to manage the treatment, storage and disposal of hazardous wastes.⁸

RCRA drove tremendous change in hazardous waste identification and management practices across American industry. Together with the strict liability scheme of CERCLA for releases of hazardous substances, and the disclosure requirements of the Toxics Release Inventory, created by 1986 amendments to CERCLA, these laws changed everything for managers of waste materials.

In general, RCRA recognized a division of labor in the regulation of waste management activities:

Subtitle D of RCRA addressed *non-hazardous solid waste*, and left it mostly to states to determine management requirements for these materials.

⁵ Pub. L. No. 89-272, tit. 11, 79 Stat. 997 (1965); Pub. L. No. 91-512, 84 Stat. 1227 (1970).

⁶ Environmental Law Institute, *Law of Environmental Protection* (Fall 2017 edition), Vol. 2, § 14.4.

⁷ Pub. L. No. 94-580, 90 Stat. 2795 (1976), 42 U.S.C. §§ 6901 et seq.

⁸ Pub. L. No. 98-616, 98 Stat. 3221 (1984).

Subtitle C addressed *hazardous waste*; it created a comprehensive federal regulatory scheme, with regulatory programs delegated to states subject to federal oversight.⁹

When is a Consumer Product a “Hazardous Waste”?

To determine whether a material is regulated under RCRA subtitle C, it must first be determined whether that item is a “solid waste,” and, if so, whether it meets the definition of “hazardous waste.” Materials handled by retailers can become “hazardous wastes” and thus be subject to the full array of regulations adopted by EPA to deal with large volumes of industrial and chemical wastes generated in manufacturing and processing operations. It is the “generator” of the waste (such as the retailer) who is responsible for making the waste determination and making it correctly.¹⁰

Solid Waste

RCRA defines a solid waste as “any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and *other discarded material*, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities. . . .”¹¹ The regulatory definition is more detailed: “any discarded material that is not excluded under [40 C.F.R.] § 261.4(a) or that is not excluded by a variance granted under §§ 260.30 and 260.31 or that is not excluded by a non-waste determination under §§ 260.30 and 260.34.”¹²

The definition of “discarded material” includes any material that is abandoned, recycled, or inherently waste-like.¹³ The term “recycled” means materials used in a manner constituting disposal, burned for energy recovery, reclaimed, or accumulated, stored, or treated prior to recycling.¹⁴ RCRA regulations specifically exclude certain materials from the definition of solid waste.¹⁵

Hazardous Waste

If a discarded material is a solid waste, it may be a hazardous waste, defined as “a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics, may—(A) cause or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (B) pose a substantial present or

⁹ States may impose more stringent requirements than the federal standards. 42 U.S.C. § 6929.

¹⁰ 40 C.F.R. § 262.11. Whether or not a discarded material is classed as hazardous waste determines how it may be legally handled, accumulated, managed, transported, and disposed of or recycled. This, in turn, affects the potential liability of any handler for criminal, civil, and administrative sanctions related to such activities.

¹¹ 42 U.S.C. § 6903(27).

¹² 40 C.F.R. § 261.2(a)(1).

¹³ 40 C.F.R. § 261.2(a)(1)(i).

¹⁴ When recycled, some materials may qualify for an exclusion from the definition of solid waste and fall out of RCRA regulation or be subject to less-stringent regulatory controls.

¹⁵ 40 C.F.R. § 261.4(a).

potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise.¹⁶ The regulatory definition provides further detail.¹⁷ Generally, hazardous waste is either a solid waste possessing one more identified *characteristics* of hazardous waste—ignitability, corrosivity, reactivity, or toxicity,¹⁸ or it is a waste *listed* as hazardous waste by EPA in the regulations, and not excluded by regulation.¹⁹ Listed hazardous wastes are placed on one of four lists—the F, K, P, and U lists, based on their type and risk.²⁰ Acutely hazardous wastes are regulated even more strictly, and subject generators of such wastes to regulation at lower volume thresholds.²¹

Household Hazardous Waste

For discarded consumer products handled by retailers, the definitions and exclusions matter a great deal. For example, even if a solid waste meets the definition of hazardous waste by virtue of its characteristics or its listing, it is expressly *excluded* from regulation as hazardous waste if it is generated by a household. From the beginning of the Subtitle C program, EPA has excluded from the hazardous waste definition: “Household waste, including household waste that has been collected, transported, stored, treated, disposed, recovered (e.g., refuse-derived fuel) or reused.” Household waste means “any material (including garbage, trash and sanitary wastes in septic tanks) derived from households (including single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds and day-use recreation areas).”²² EPA has explained that it excluded household hazardous wastes based on its examination of the legislative history of RCRA and “not because these wastes can never pose risks associated with hazardous wastes.”²³

¹⁶ 42 U.S.C. § 6903(5).

¹⁷ 40 C.F.R. § 261.3.

¹⁸ 40 C.F.R. §§ 261.20-261.24.

¹⁹ 40 C.F.R. §261.31-261.34. Exclusions are at 40 C.F.R. §261.4(b).

²⁰ For example, and relevant to later discussion, the P-list identifies hazardous wastes from discarded commercial chemical products. 40 C.F.R. §261.33.

²¹ 40 C.F.R. §260.10. “*Acute hazardous waste* means hazardous wastes that meet the listing criteria in §261.11(a)(2) and therefore are either listed in §261.31 of this chapter with the assigned hazard code of (H) or are listed in §261.33(e) of this chapter.” The listing criteria in § 261.11(a)(2) essentially mean that the waste is highly toxic to humans in low doses with very serious effects on human health. The § 261.33(e) subset of P-wastes includes commercial chemical products, manufacturing chemical intermediates or off-specification commercial chemical products or manufacturing chemical intermediates referred to in paragraphs (a) through (d) of that section. Among retail products of concern to retailers are nicotine-containing smoking cessation products (P075).

²² 40 C.F.R. § 261.4(b)(1). The household hazardous waste exclusion also follows the wastes to a “resource recovery facility managing municipal solid waste” which shall not be “deemed to be treating, storing, disposing of, or otherwise managing hazardous wastes . . . if such facility: (i) Receives and burns only (A) Household waste (from single and multiple dwellings, hotels, motels, and other residential sources) and (B) Solid waste from commercial or industrial sources that does not contain hazardous waste; and (ii) Such facility does not accept hazardous wastes. . . .” *Id.* See RCRA § 3001(i), 42 U.S.C. § 6921(i).

²³ 49 Fed. Reg. 44978 (Nov. 13, 1984). EPA applied two general criteria: that the wastes are generated by individuals on the premises of their residences, and that the waste stream consists primarily of materials found in wastes generated by consumers at their homes.

But retailers who use these products themselves or who are responsible for handling damaged inventory cannot avail themselves of this exclusion. Nor, EPA has maintained, can retailers who receive and manage unsaleable products returned by customers use this exclusion.²⁴

Regulation of Generators of Hazardous Waste

Subtitle C applies detailed requirements to the generators of hazardous waste,²⁵ the transporters to which they entrust hazardous waste for shipment, and the treatment, storage, and disposal facilities (TSDFs) that conduct the destruction or ultimate disposition of the hazardous waste.

There are three classes of generators, with differing obligations based on the quantity of hazardous waste they generate each month – large quantity generators (LQGs), small quantity generators (SQGs), and very small quantity generators (VSQGs). A generator must determine its own generator category, which may change from month to month.²⁶

RCRA establishes a comprehensive set of requirements that generators of hazardous waste must follow.²⁷ This includes recordkeeping practices; container labeling; providing chemical information to parties transporting, treating, storing, or disposing of the waste; use of appropriate containers; use of a manifest system to ensure “cradle-to-the-grave” tracking of hazardous waste from generation through transportation and ultimately to final disposition in permitted facilities; and biennial reports.²⁸ Requirements are summarized by generator size on the table below.

EPA determined in 2014 that over 41,000 retail facilities had notified EPA or an authorized state that they are hazardous waste generators (SQGs or LQGs), with less than 5% of these reporting as large quantity generators (LQGs).²⁹ Based on the size of the retail universe there are likely more than 100,000 retail very small quantity generators (VSQGs), which do not have to obtain an EPA identification number, but for which some states require state notification.

²⁴ 49 Fed. Reg. 44978 (Nov. 13, 1984) (reaffirmed by EPA in its 2016 Retail Strategy, at 4).

²⁵ EPA’s generator rules were updated in 2016. 40 C.F.R. Part 262. 81 Fed. Reg. 85732-85829 (Nov. 28, 2016).

²⁶ 40 C.F.R. § 262.13.

²⁷ 42 U.S.C. § 6922.

²⁸ Specifics on RCRA requirements applicable to generators are mainly found at 40 C.F.R. Part 262.

²⁹ 79 Fed. Reg. at 8932 (Feb. 14, 2014). In most states, VSQGs do not need to notify at all.

Categories of Hazardous Waste Generators³⁰

Very Small Quantity Generators (VSQGs)³¹ generate 100 kilograms (220 lbs.) or less per month of hazardous waste and 1 kilogram (2.2 lbs.) or less per month of acutely hazardous waste.

Requirements for VSQGs include:

- VSQGs must identify all the hazardous waste generated.
- VSQGs may not accumulate more than 1,000 kilograms of hazardous waste at any time.
- VSQGs must ensure that hazardous waste is delivered to a person or facility authorized to manage it.

Small Quantity Generators (SQGs) generate more than 100 kilograms (220 lbs.), but less than 1,000 kilograms (2,200 lbs.) of hazardous waste per month, and less than or equal to 1 kilogram of acutely hazardous waste.

Major requirements for SQGs include:

- SQGs may accumulate hazardous waste on-site for 180 days without a permit (or 270 days if shipping a distance greater than 200 miles).
- The quantity of hazardous on-site waste must never exceed 6,000 kilograms.
- SQGs must comply with the hazardous waste manifest requirements at 40 C.F.R. part 262, subpart B and the pre-transport requirements at 40 C.F.R. §§262.30 through 262.33.
- SQGs must manage hazardous waste in tanks or containers subject to the requirements found at 40 C.F.R. §§262.16(b)(2) and (3).
- SQGs must comply with the preparedness and prevention requirements at 40 C.F.R. §§262.16(b)(8) and (9), and the land disposal restriction requirements at 40 C.F.R. part 268.
- There must always be at least one employee available to respond to an emergency. This employee is the emergency coordinator responsible for coordinating all emergency response measures. SQGs are not required to have detailed, written contingency plans.

Large Quantity Generators (LQGs) generate 1,000 kilograms (2,200 lbs.) per month or more of hazardous waste or more than one kilogram per month of acutely hazardous waste.

Major requirements for LQGs include:

- LQGs may only accumulate waste on-site for 90 days. Certain exceptions apply.
- LQGs do not have a limit on the amount of hazardous waste accumulated on-site.
- Hazardous waste generated must be managed in tanks, containers, drip pads or containment buildings subject to the requirements found at 40 C.F.R. §§262.17(a)(1)-(4) and, specifically for drip pads and containment buildings, 40 C.F.R. part 265, subparts W and DD, respectively.
- LQGs must comply with the hazardous waste manifest requirements at 40 C.F.R. part 262 subpart B and the pre-transport requirements at 40 C.F.R. §§262.30 through 262.33.
- LQGs must comply with the preparedness, prevention and emergency procedure requirements at 40 C.F.R. part 262 subpart M and the land disposal restriction requirements at 40 C.F.R. part 268.
- LQGs must submit a biennial hazardous waste report.

³⁰ EPA, *Categories of Hazardous Waste Generators*, available at <https://www.epa.gov/hwgenerators/categories-hazardous-waste-generators>.

³¹ VSQGs were formerly known as “conditionally exempt small quantity generators” (CESQGs), and are still referred to by this term in many delegated state RCRA programs and in EPA guidance documents.

Many retail establishments are VSQGs. VSQGs are subject to reduced requirements due to the low volume of hazardous wastes they generate and manage. Unlike SQGs and LQGs, they are not required to obtain an EPA identification number, nor must they use a manifest to transport hazardous waste shipments for disposition. They are, however, required to ensure that their hazardous wastes are either treated or disposed of on-site in accordance with legal requirements, or (most often) conveyed to an appropriate facility for disposal—which may be a RCRA-permitted subtitle C treatment, storage, or disposal facility; a facility permitted by a state to manage **municipal or non-municipal solid waste** (with safeguards for these materials); a facility that beneficially uses or reuses, or legitimately recycles or reclaims its waste; or (more recently) to a large quantity generator that is *under the control of the same person* as the VSQG subject to stringent conditions on the LQG for its subsequent management and disposition of the hazardous waste.³²

If VSQGs or SQGs exceed generation standards in any month, even if episodically, generally speaking they must manage the hazardous waste in accordance with the higher category of generator into which they fall. Many retail businesses experience such fluctuations because of product recalls, incidents of damage to products in stores, and seasonal changes in product purchases (and related consumer returns to retailers). Thus, retailers can be faced with meeting more than one set of requirements.

Discarded materials that are *not hazardous wastes* may be managed in accordance with state and local requirements for commercial establishments' disposition of solid wastes. And RCRA recognizes forms of recycling activities that affect the classification of wastes as either solid waste or hazardous waste, which can present additional management challenges for retailers seeking to recycle these goods.

Consumer Aerosol Cans

Aerosol cans are a widely used consumer product (or method of consumer product delivery) in the United States. In 2016, an estimated 3.754 billion aerosol cans were produced in the U.S. The leading consumer aerosol products are personal care (24.69%), closely followed by household (23.86%), then food (15.35%), automotive products (14.16%), paints (12.82%) and insect-related (7.66%).³³

Among the many consumer aerosols sold by retailers to their customers are such things as non-stick cooking sprays, whipped dessert toppings, cleaning products, lubricants, personal care products, novelties, and air fresheners.

³² 40 C.F.R. § 262.14. Universal waste generated by a VSQG (see below) may be conveyed to a universal waste destination facility.

³³ Source: <https://www.spraytm.com/where-are-aerosol-products-headed-in-2018.html> (Original source of data CSPA 2016 Aerosol Pressurized Products Survey, available for purchase here <https://member.thehcupa.org/products/product/Aerosol-Pressurized-Products-Survey>). Fractional portions are miscellaneous (1.43%) and animals (0.04%).

Aerosol cans consist chiefly of three components: the can itself (generally steel or aluminum), the product (which may itself exhibit or not exhibit hazardous waste characteristics or be a listed waste, when discarded), and the propellant (which may be a commercial chemical commonly used as fuel, such as butane or propane, another fuel-type propellant, or a non-fuel propellant such as nitrogen). The contents are generally under pressure, so that when the actuator or button is pressed, the contents are dispensed. The cans are designed to prevent unwanted discharge under normal management, transportation, and use, and are in most instances disposed of by households or other end users after the product has been dispensed.

Consumer Aerosol Product Types (HCPA) ³⁴	
<p>Air Fresheners Double Phase Aerosol Single Phase Aerosol Dual Purpose Air Freshener/Disinfectant Odor Remover/Eliminator</p> <p>Cleaners/Degreasers Bathroom and Tile Cleaner Disinfectant Spray Dusting Aid General Purpose Cleaners General Purpose Degreaser Glass Cleaner Spray Metal Polish/Cleanser Spray Oven or Grill Cleaner Sanitizer Toilet/Urinal Care Product Wood Cleaner</p> <p>Detailing Products Motor Vehicle Wash Rubber/Vinyl Protectant</p> <p>Electronic Related Anti-Static Product</p> <p>Fabric/Upholstery Anti-Static Product Carpet & Upholstery Cleaner Fabric Protectant Fabric Refresher Spot Remover</p>	<p>Insecticides/Repellants Crawling Bug Insecticide Flying Bug Insecticide Insect Repellant Lawn or Garden Insecticide</p> <p>Laundry Products Laundry Prewash Spot Remover</p> <p>Maintenance & Repair Engine Degreaser</p> <p>Misc. Household Anti-Seize Lubricant Cutting or Tapping Oil Gear, Chain, or Wire Lubricant Rubber and Vinyl Protectant Rust Preventative or Rust Control Lubricant</p> <p>Misc. Solvent/Thinning Graffiti Remover Paint Thinner</p> <p>Shaving Products Shaving Cream Shaving Gel</p> <p>Shoe & Leather Care Footwear or Leather Care Product</p> <p>Waxes & Polishes Furniture Maintenance Products</p>

³⁴ <https://www.thehcpa.org/advocacy/divisions/aerosol-products/>.

Aerosol Cans in the Waste Stream

Society as a whole is properly concerned with both the ultimate disposition of consumer aerosol cans and with resource conservation and recovery related to valuable materials represented by this waste stream.

The total of municipal solid waste generated in the U.S. was approximately 258.5 million tons in 2014 according to EPA. Of this, 66.5 million tons was recycled – with metals comprising about 12 percent, or 8 million tons of recycled material.³⁵

Aerosol cans are a portion of this waste stream. If we assume that each discarded empty or partly empty consumer aerosol can weighs 1/3 lb.,³⁶ the annual contribution of aerosol cans to the national municipal solid waste stream is 620,000 tons. As household solid wastes or household hazardous wastes, most of these cans are handled in the municipal waste stream, including associated municipal recycling efforts.

In comparison, the Retail Associations (RILA, FMI, NACDS and NRF) in their comments to EPA in 2014 estimated that retail establishments of all sizes may manage as much as 22,000 tons of returned, used, or unsold aerosol cans—nearly all potentially subject to RCRA Subtitle C requirements.

Damaged or unwanted aerosol cans may be returned to retailers by consumers. Retailers themselves may have unsold (including expired) inventory that they need to manage as waste, or may be able to return to suppliers for credit. Retailers also must manage used aerosol cans that they have used in their own operations—such as in onsite bakeries, or for cleaning displays and merchandise. The management of discarded aerosol cans presents both legal and management challenges for these entities.

Recently, in the context of a regulatory proposal,³⁷ EPA estimated that large and small quantity generators that handle consumer aerosol cans subject to subtitle C (excluding those in CA, NM, UT, CO, because of the scope of the study, and excluding VSQGs), handled 17,600 tons of such discarded aerosol cans annually.³⁸ In the same analysis, the Agency determined that the reporting *retail* LQGs handled 397 tons of aerosol cans, and SQGs 31 tons/year (while noting that the number of SQGs is likely well short of the actual number).³⁹ However, based on other information, EPA’s estimate for the retail sector’s actual management of aerosol cans is likely a substantial underestimate (given the excluded states, the non-reporting VSQGs, and other retailers possibly not in the system). For example, Walmart alone estimates that it managed 4.3 million lbs. of aerosol cans (2,150 tons/year) as hazardous waste in 2017, accounting

³⁵ U.S. EPA, *Facts and Figures About Materials, Waste and Recycling (2015)*, <https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/national-overview-facts-and-figures-materials>.

³⁶ Figure from Comments of the Retail Associations in Response to EPA’s NODA on the Application of RCRA to the Retail Industry (May 30, 2014), page 17, note 15, citing public sources estimating empty and full can weights.

³⁷ 83 Fed. Reg. 11654 (March 16, 2018).

³⁸ U.S. EPA, Regulatory Impact Analysis of Proposed Rule to Add Aerosol Cans to the Universal Water Rule (Feb. 2018) (hereafter RIA), page ES-2. These four states currently allow aerosol cans to be managed as “universal waste” and so would not be affected by EPA’s pending proposal to extend such classification to aerosol cans nationally

³⁹ RIA, pages 4-10. EPA believed that the SQG number was low by as much as a factor of 18.

for more than half of its hazardous waste volume.⁴⁰ This quantity is more than the amount estimated by EPA in its Regulatory Impact Analysis for the whole retail sector—which includes many other large retailers, convenience stores, pharmacy chains, home improvement stores, garden stores, and supermarkets.

Hazardous Waste Management of Aerosol Cans

So when is an aerosol can in possession of a retailer subject to RCRA subtitle C hazardous waste management requirements?

The can and its contents become a solid waste when it is discarded. Because the household hazardous waste exclusion does not apply to materials in the possession of the retailer, the retailer must make its own determination, first that the can and its contents are discarded, and second whether it meets the definition of hazardous waste. Thus, products that are sold and treated as safe and used by consumers at home – and discarded by them in trash or recycling – must be handled differently by retailers when they are the manager of the discarded item. Is it a hazardous waste?

EPA observes that aerosol cans “frequently contain flammable propellants such as propane or butane which can cause the aerosol can to demonstrate the hazardous characteristic for ignitability.”⁴¹ In addition, the contents of the can may be a characteristic or listed waste (such as a commercial chemical product listed at 40 C.F.R. § 261.33(e) or (f)).⁴² And because these cans are under pressure, when considered together with propellants and their contents, under some circumstances – and according to some state hazardous waste programs and EPA regions – they may be deemed to have the “reactivity” characteristic, making them a hazardous waste.⁴³

⁴⁰ Walmart, pers. comm. April 16, 2018. This is the same weight it reported in 2013 comments (based on 2010 data) http://www.rila.org/sustainability/Documents/Compliance%20Documents/WMT_Proposal_Aerosols.pdf.

⁴¹ 83 Fed. Reg. 11656 (Mar. 16, 2018). See 40 C.F.R. § 261.21.

⁴² 83 Fed. Reg. 11656.

⁴³ 40 C.F.R. § 261.23. EPA has not clearly addressed this issue, which has been raised repeatedly for several decades. See, e.g., Elizabeth A. Cotsworth, U.S. EPA, to T.L. Nebrich, Technical Director, Waste Technology Services, Inc. (May 19, 1997) (RCRA Online #14235) (“We are not at this time able to make a categorical determination as to whether various types of cans that may have contained a wide range of products exhibit the characteristic of reactivity.”) In the public comments on the 2014 Retail NODA, several commenters requested guidance from EPA on the reactivity issue for aerosol cans, but it was not addressed in the 2016 Retail Strategy other than in summarizing comments (“Clarify the Agency’s position regarding whether aerosol cans are considered a reactive hazardous waste.”) U.S. EPA, *Strategy for Addressing the Retail Sector under RCRA’s Regulatory Framework* (Sept. 12, 2016), at 4. In the March 2018 proposal to regulate aerosol cans as universal wastes, EPA did not address the issue. 83 Fed. Reg. 11654-11667 (Mar. 16, 2018). State approaches vary. Nebraska, for example, expressly says that even “RCRA empty” aerosol cans *that have not been punctured* must be managed “as D003 reactive hazardous waste.” Nebraska Dept. of Env’tl. Quality, *Aerosol Can Waste*, 05-181 (revised October, 2016).

Recycling

Facilities that treat, store, or otherwise dispose of hazardous waste require a permit and operate under a complex regulatory scheme.⁴⁴ But treatment is exempt from RCRA permitting requirements if performed for the purpose of recycling.⁴⁵ Crucially, while the process of *recycling* itself is not regulated under RCRA Subtitle C, the *recyclable materials* (hazardous waste materials amenable to being reclaimed) may be subject to regulation unless they are excluded or exempted.

A material is “recycled” if it is used, reused, or reclaimed. A material is “reclaimed” if it is processed to recover a usable product, or if it is regenerated.⁴⁶ Reclaimed material includes scrap metal.

Recyclable hazardous wastes are subject to certain requirements for generators, transporters, and storage facilities.⁴⁷ These requirements are stated under 40 C.F.R. §261.6(b) and (c) (these are the requirements for generators and transporters, notification requirements, and requirements for owners and operators of facilities that store recyclable materials before they are recycled). There is an exception for materials listed in 40 C.F.R. §261.6(a)(2)-(3), which are not subject to these requirements. This list of exceptions includes scrap metal not otherwise excluded under §261.4(a)(13).⁴⁸

EPA interprets the regulations as exempting from RCRA subtitle C regulations aerosol cans that are treated— punctured and drained—for the purpose of recycling.⁴⁹ The reasoning applies only to aerosol cans that generators generate themselves, and is explained as follows: First, the process of emptying a can is exempt. This is because the *process* of emptying the aerosol cans is part of a recycling process (i.e., scrap metal recycling). As discussed above, the recycling process is exempt from RCRA regulation under 40 C.F.R. §261.6(c) (except as specified in 40 C.F.R. §261.6(d)).⁵⁰ Second, a can itself is exempt from RCRA regulation under 40 C.F.R. §261.6(a)(3) if recycled.⁵¹ Aerosol cans that have been punctured

⁴⁴ See, i.e., 40 C.F.R. Part 264; see also U.S. EPA. Hazardous Waste Permitting. <https://www.epa.gov/hwpermitting> (visited Apr. 26, 2018).

⁴⁵ 40 C.F.R. § 261.6(c) The recycling process itself is exempt from regulation except as provided in § 261.6(d) (governing recycling at RCRA-permitted facilities).

⁴⁶ 40 C.F.R. § 261.2(c)(3). 40 C.F.R. § 261.1(c)(7).

⁴⁷ 40 C.F.R. §261.6(a)(1). Certain recycling rules were changed by EPA in 2015, relating to conditions for a “verified recycler exclusion,” to address concerns with transfers of materials to recyclers of secondary materials that might pose hazards, 40 C.F.R. § 261.4(a)(24), but portions of this rule were recently vacated by the U.S. Court of Appeals for the D.C. Circuit; the court generally reinstated portions of the 2008 requirements. *American Petroleum Institute v. EPA*, No. 09-1038 (D.C. Cir. Mar. 6, 2018, amending July 7, 2017 judgment).

⁴⁸ 40 C.F.R. § 261.6(a)(3)(ii) exempts from hazardous waste regulation scrap metal which is being recycled. The exemption does not include scrap metal that is already excluded from the definition of “solid waste”—and therefore from the definition of “hazardous waste”—under § 261.4(a)(13). Excluded scrap metal includes processed scrap metal, unprocessed home scrap metal, and unprocessed prompt scrap metal being recycled. Thus, scrap metal that is intended to be reclaimed is exempt from Subtitle C regulation at the point of generation.

⁴⁹ See EPA 1993 Regulatory Status of Used Residential and Commercial/Industrial Aerosol Cans. Memo from Jeff Denit, Acting Director, Office of Solid Waste, to John DiFazio, Chemical Specialties Manufacturers Association, October 7, 1993. RO #11780. See also Memo from Jeff Denit, Acting Director, Office of Solid Waste, to Gregory L. Crawford, Steel Recycling Institute, October 7, 1993. RO #11782.

⁵⁰ See 1993 letter to Gregory L. Crawford.

⁵¹ *Id.* (citing former § 261.6(a)(3)(iv) (1992)).

so that most of any liquid remaining in the can may flow from the can, and drained, would not contain significant liquid. A steel or aluminum aerosol can that does not contain a significant amount of liquid meets the definition of scrap metal under 40 C.F.R. §261.1(c)(6).⁵² Therefore, a determination of reactivity or any other characteristic is not relevant.⁵³

By implication, retailers should be able to recycle aerosol cans as scrap metal under the current scheme without being subjected to the significant regulatory burdens imposed by Subtitle C. However, *any removed liquids or gases* may be subject to regulation as hazardous wastes if they are listed hazardous wastes or exhibit any characteristics of hazardous waste.⁵⁴ Conversations with industry experts indicate that retailers are concerned about managing this residue, and the risk that Subtitle C could still apply.

RCRA-Empty Cans

In order to dispose of an aerosol can as non-hazardous waste – rather than conducting a recycling process – a generator needs to determine that the can is empty under 40 C.F.R. §261.7, or that the product it contained was not hazardous *and* that the can itself is not hazardous. This means the can must meet the regulatory definition of “RCRA empty.”⁵⁵ Hazardous waste residue remaining in a RCRA empty container is not subject to Subtitle C regulation. A container that has held any hazardous waste, *except compressed gas* or acute hazardous waste, is “RCRA empty” if:

- All wastes have been removed that can be removed using the practices commonly employed to remove materials from that type of container, e.g., pouring, pumping, and aspirating, *and*
- No more than 2.5 centimeters (one inch) of residue remain on the bottom of the container or inner liner, *or*
- No more than 3 percent by weight of the total capacity of the container remains in the container.

Furthermore, a container that has held a hazardous waste that *is a compressed gas* is empty when the pressure in the container approaches atmospheric.⁵⁶ In general, these requirements have presented retailers managing putatively empty aerosol cans with the prospect that without the safe puncturing of these cans to ensure that ignitable propellant is no longer at pressure, the cans may not be deemed by regulators to be RCRA empty. The safer course from a regulatory standpoint has been to manage these as Subtitle C hazardous wastes.

⁵² *Id.* 40 C.F.R. § 261.1(c)(6) defines “scrap metal” 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.”

⁵³ *Id.*

⁵⁴ *Id.*

⁵⁵ 40 C.F.R. § 261.7.

⁵⁶ 40 C.F.R. § 261.7 (b)(2). However, a container that has held an *acute* hazardous waste must be triple rinsed using a certain solvent or other scientifically-validated method to achieve equivalent removal. 40 C.F.R. § 261.7(b)(3).

Commercial chemical products (such as butane or propane) burned for energy recovery are excluded from the definition of solid waste (and hence from regulation as hazardous waste).⁵⁷ They can be recovered from aerosol cans without subjecting the recovery operation to regulation.⁵⁸ However, retailers are not well-positioned to recover this material for energy recovery.

Aerosol Cans—Fate and Disposition of Materials

Limited information is available about where aerosol cans end up after use. Most of these products are used by individual households and enter the municipal solid waste management stream. Due to the complicated nature of collecting and tracking such data, it is generally unknown what proportion of aerosol cans and product contents end up as recycled versus incinerated and/or disposed of in municipal and commercial solid waste landfills. This is, in part, due to the way such data on the general waste stream are tracked.

For example, aerosol cans that are punctured and drained may be categorized by their contents and not as aerosol cans. Also, hazardous waste databases do not capture data from households or very small quantity generators, which collectively are a large proportion of the waste stream.⁵⁹

Commercial hazardous waste incineration is a typical waste management option for aerosol cans managed as hazardous waste under Subtitle C of RCRA. It involves incinerating the can and disposing of the resulting contents (metal, as ash) into a landfill. In ash form, the metal is about $\frac{1}{3}$ of its original weight. While incineration is generally a more expensive process, some perceive it as an unambiguous disposal pathway that mitigates concerns about regulation compliance.⁶⁰

Aerosol cans can pose distinct challenges for recycling, although the RCRA regulations acknowledge regulatory exceptions and exclusions for scrap metal recycling and fuel recovery, as well as recycling of products. The industrial waste management firm, Grr! defines an aerosol can as completely recycled if the three main components of an aerosol product (propellants, concentrates, and metal containers) are used, reused, or reclaimed. Partial recycling occurs when a mixture of recycling and waste disposal occurs (for example, recycling the can and incinerating the contents).⁶¹ In addition to Grr!, other companies such as Clean Earth Inc. and Recycle Aerosol have the capacity to fully recover all components of post-consumer aerosol products.

⁵⁷ 40 C.F.R. § 261.2(c)(2)(ii) (“commercial chemical products listed in §261.33 are not solid wastes if they are themselves fuels”).

⁵⁸ Memorandum from Sylvia K. Lowrance, Director, Office of Solid Waste, to Karl E. Bremer, Chief, RCRA Permitting Branch, EPA Region 5 (Dec. 30, 1992), (R.O. #11717) (“Since propane and butane [propellants] are materials that are normally both used as fuels, when unused, they can be burned as fuels without being considered solid wastes.”).

⁵⁹ Tracy Atagi, EPA Office of Land and Emergency Management (personal comm. April 2018).

⁶⁰ CSPA/RILA Meeting with EPA/OSWER, Grr! [Giant Resource Recovery] Presentation “Toward Recycling Retailers’ Waste Aerosols,” (Dec. 12, 2012) (hereafter Grr! Presentation).

⁶¹ Grr! Presentation.

Most used aerosol cans end up in the household waste stream, either as ordinary solid waste (if empty) or as exempt household hazardous waste.

Recycling Potential for Metal from Aerosol Cans

The Consumer Specialty Product Association (CSPA), which was renamed the Household and Commercial Products Association (HCPA) in 2018, estimates that 75% of aerosol containers are made of steel, and 25% are made of aluminum. According to CSPA, 3,019,937,902 steel cans and 810,822,088 aluminum cans were produced and shipped in the U.S. 2016.⁶²

Once used and discarded by a household, or punctured and drained of contents by a recycler, many metal aerosol cans are believed to enter the regular recycling stream. Post-consumer aluminum and steel cans can be recycled indefinitely without compromising the quality of the metal. CSPA estimates that today's steel aerosol cans contain about 35% recycled content.⁶³

Aerosolv[®], a company that manufactures can puncturing devices for aerosol can recycling, estimates that 3.5 billion aerosol cans represents about 437,500 tons of steel. If expressed in current recycled steel prices, this quantity would have a market value of \$131 million.⁶⁴ According to the Steel Recycling Institute, each pound of recycled steel saves 5,450 BTUs of energy, compared to steel production from raw materials.⁶⁵ Since steel takes up to 100 years to fully degrade, recycling steel also relieves strain on available landfill storage; one ton of recycled steel saves 4 cubic yards of landfill space.⁶⁶

In general, about 70% of all metals are used only once before getting discarded. Of the remaining 30% that gets recycled initially, only 0.25% returns to the recycle stream after five cycles.⁶⁷

Access to Municipal Recycling of Aerosol Cans

About 99% of aerosols purchased are completely emptied through normal use, mostly by consumers.⁶⁸ The 2015-16 Centralized Study on Availability of Recycling for Aerosol Containers found, using statistical sampling methods, that more than 60% of the U.S. population has access to steel and aluminum aerosol can recycling, with 52% of the population with curbside recycling programs that accept aluminum aerosol cans and 51% with steel aerosol can curbside recycling. Approximately another 20% of the population has only drop off options for aerosol can recycling.⁶⁹

⁶² <https://ehsdailyadvisor.blr.com/2017/07/managing-aerosol-cans-disposal/>.

⁶³ *Id.*

⁶⁴ <https://www.aerosolv.com/article/save-money-through-aerosol-can-recycling/>.

⁶⁵ <http://www.krylon.com/community/recycling-aerosol-cans/>.

⁶⁶ <https://utahrecycles.org/get-the-facts/the-facts-steel/>.

⁶⁷ <https://utahrecycles.org/get-the-facts/the-facts-steel/>.

⁶⁸ Grr! Presentation.

⁶⁹ Resource Recycling Systems and Moore Recycling 2015-16 Centralized Study on Availability of Recycling for Aerosol Containers, available at <http://www.recycle-steel.org/~media/Files/SMDI/Containers/2015%20%202016%20Centralized%20Availability%20of%20Recyclin>

While it appears that that a majority of Americans have access to aerosol recycling programs, there is not enough information available to determine how many aerosol cans actually enter the recycling stream.⁷⁰ And not all household recycling programs accept all aerosol cans; many require households to dispose of these cans in household hazardous waste collection locations or at particular times.⁷¹ For example, at the municipal level in California, aerosol cans may be recycled through curbside pickup programs, but full or partially-full containers must be disposed of at local household hazardous waste collection sites.⁷² The ISRI Curbside Recycling Guidelines, an industry-developed standard, lists among its specifications (materials not preferred, or prohibited): “Aerosol cans with liquids, propellants or pressure still in the can are prohibited.”⁷³

Reclaiming Product Contents

Typically, aerosol cans need to be emptied of their contents prior to disposal. However, there may be opportunities to recycle full and partially-full aerosol cans. For example, Recycle Aerosol accepts full and partially-full aerosol products in bulk. If the minimum amount of the same product is collected, they can purify the content and prepare it for reuse.⁷⁴

Reclaiming Propellants

Propellants can be captured and recycled as fuel. Clean Earth Inc., for example, captures and separates propellants from aerosols for recycling and re-blending into fuels.⁷⁵

Alternatives to recycling propellants for fuels are carbon absorption, thermal oxidation, and other air pollution control.⁷⁶

[g%20Study%20%20CMISRITAACSPA%20%20Full%20Report%20release.pdf?la=en](https://www.eli.org/sites/default/files/elr/featuredarticles/48.10377.pdf). For context, a new study based on longitudinal household surveys shows that in 2013, 74 percent of households recycled metal cans of any type, a rate that has held within a percentage point since 2007. W. Kip Viscusi, Joel Huber, and Jason Bell, *Lessons From Ten Years of Household Recycling in the United States*, 48 ELR 10377 (May 2018).

<https://www.eli.org/sites/default/files/elr/featuredarticles/48.10377.pdf>.

⁷⁰ <https://www.spraytm.com/where-are-aerosol-products-headed-in-2018.html> (Original source of data CSPA 2016 Aerosol Pressurized Products Survey, available for purchase.

⁷¹ For example, in Maryland, if a product contained a hazardous material, it is not permitted for municipal recycling, even if emptied of contents,

<http://www2.montgomerycountymd.gov/DepHowDol/material.aspx?tag=cans&key=302>.

⁷² <http://www.calrecycle.ca.gov/metals/PaintCans.htm>.

⁷³ ISRI, Curbside Recycling Guidelines and Specifications Subcommittee, ISRI Paper and Plastic Division, Joint MRF Council, *Curbside Recycling Guidelines: Inbound Residential Curbside Mixed Recyclables for Material Recovery Facilities, Specification and Additional Materials* (“2. Inbound Material Recovery Specifications”), p. 4.

⁷⁴ <http://www.recycleaerosol.com/>.

⁷⁵ <https://cleanearthinc.com/aerosols>.

⁷⁶ Grr! Presentation.

Retail Sector Focus

In recent years, the retail sector has become the focus of a great deal of governmental activity concerning its management of materials that intersect with the regulations governing solid and hazardous waste. This is a relatively recent development, following decades in which government regulators focused their attentions on manufacturing, regulation of RCRA hazardous waste treatment, storage, and disposal facilities (TSDFs), recyclers and sham recyclers of hazardous waste, and municipal solid waste management.

The retail sector is diverse and ubiquitous and presents some unique issues for both regulators and the companies dealing with a large mix of products. And the sector's engagement with every consumer and household in America in terms of product distribution and return policies, and its concerns for consumer expectations, makes the sector inclined to move in fairly high-profile ways to respond to "green" initiatives as well as to respond to reputational risks.

Enforcement Focus (2007-present)

Over the last decade, state and EPA hazardous waste enforcement programs began and have maintained a substantial focus on waste management systems in the retail sector. California has been the center of much of this activity. Enforcement actions by the state and its counties since 2007 have resulted in multi-million dollar settlements and consent agreements involving (chronologically): Home Depot, Kmart, Walmart, Target, CVS, Costco, Walgreens, Rite-Aid, Save Mart, WinCo Foods, Lowes, and Safeway. U.S. EPA and the U.S. Department of Justice brought administrative and criminal cases against Walmart related to hazardous waste management; these were settled in 2013 with penalties and a detailed administrative consent order defining how the company would manage, track, train employees, and integrate hazardous waste management into its entire spectrum of operations—including an agreement to manage all of its VSQGs as subject to the requirements of SQGs for five years. Connecticut's Department of Energy and Environmental Protection took enforcement actions in the last several years against nine separate retail companies for hazardous waste management violations, including reaching a substantial settlement with CVS. New York, Missouri, and others have pursued enforcement actions affecting this sector.

While many of the hazardous waste management issues involving these retailers concerned consumer electronics, pesticides, and pharmaceuticals, management and disposal of waste, aerosol cans were a component of the enforcement activities and resulting settlements concerning management practices.⁷⁷

⁷⁷ See, e.g., *California v. Wal-Mart Stores, Inc.*, No. 37-2010-0089145-CU-TT-CFL (Cal. Super. Apr. 8, 2010) (Stipulation for Entry of Final Judgment on Consent), para. 5.1.i (handling of "discarded or no longer usable non-empty aerosol cans," "returned non-empty aerosol cans").

EPA's Retail Sector Notice of Data Availability (2014)

In 2014, EPA issued a “Notice of Data Availability” (NODA) and request for comment on how to enhance effectiveness of RCRA with respect to hazardous waste management by the retail sector.⁷⁸ EPA acknowledged differences between the retail sector and other portions of the RCRA regulated community, and solicited comment on specific issues related to challenges experienced by retailers. The NODA stated that regulation of hazardous waste in the retail sector presents different sets of retailers with the difficulty of making hazardous waste determinations about millions of discrete products at thousands of locations, and ensuring that materials are identified, contained, labeled, and transported appropriately. EPA also specifically noted concerns raised by retailers concerning the management of aerosol cans, which make up a “large percentage of the retail sector’s hazardous waste stream.”⁷⁹ While many aerosol cans could be recycled as scrap metal and remaining propellants captured for fuel recovery, many if not most retailers manage these as hazardous waste both because they have no capacity to conduct recycling of such limited quantities at their facilities and because of concern with liability for sending these cans for recycling outside the hazardous waste system.

EPA's Retail Strategy (2016)

Rather than prepare detailed findings resulting from the NODA process, EPA released its *Strategy for Addressing the Retail Sector under RCRA's Regulatory Framework* on September 12, 2016.⁸⁰

The Retail Strategy outlined several actions that EPA had underway that could affect retailers. These included EPA's recent revisions to the definition of solid waste,⁸¹ the then-pending generator improvements rule,⁸² and the still-pending pharmaceuticals rule.⁸³

More significantly, the strategy identified several *future actions* by EPA that could affect management practices by the retail sector, including management of used, returned, and unsaleable consumer aerosol cans.

⁷⁸ 79 Fed. Reg. 8926-8935 (Feb. 14, 2014).

⁷⁹ 79 Fed. Reg. at 8929.

⁸⁰ https://www.epa.gov/sites/production/files/2016-09/documents/strategy_for_addressing_the_retail_sector508.pdf (hereafter “Retail Strategy”).

⁸¹ Final rule issued 80 Fed. Reg. 1694 (Jan 13, 2015) (portions of this rule imposed new requirements related to determining when a material was legitimately recycled—being sent to a “verified recycler”; some of these provisions were later invalidated in court as imposing conditions on generators that were not supported by RCRA).

⁸² Final rule issued 81 Fed. Reg. 85732 (Nov. 28, 2016) (effective May 30, 2017) (this rule redefined some issues relevant to retailers, including providing flexibility for ‘episodic’ generators of hazardous waste, and allowing consolidation of hazardous waste from VSQGs at LQGs under the same ownership).

⁸³ 80 C.F.R. 58014 (Sept. 25, 2015) (Proposed rule, still not finalized, proposing some different classifications for “health care facilities” including retailers with pharmacies, and management of certain materials currently identified as P-listed wastes).

- First, EPA stated that it is “developing a guide on how to recycle aerosol cans under the existing Subtitle C recycling exclusions, including recycling aerosol cans for scrap metal recovery.”⁸⁴ However, EPA staff confirmed in April 2018 that the Agency is not currently preparing this guide, given its current proposal to allow aerosol cans to be managed as universal waste (see next item).⁸⁵
- Second, EPA indicated its intent to develop a proposed rule to allow aerosol cans to be managed as universal waste.⁸⁶ Universal wastes are managed under the streamlined universal waste requirements of 40 C.F.R. Part 273, rather than subject to the full panoply of Subtitle C regulations.⁸⁷ Currently, the federal universal waste regulatory scheme is limited to batteries, pesticides, thermostats, and certain lamps. Parties may petition for additional categories to be listed as a universal waste by following the process established under Subpart G of the regulations.⁸⁸ EPA must find that regulation under the universal waste scheme is appropriate for the hazardous waste or category of hazardous waste; that it will improve management practices; and that it will also improve implementation of the hazardous waste program.⁸⁹

The EPA evaluates the candidate hazardous waste against a series of factors, including:

- The waste is not exclusive to a specific industry/group of industries, and is commonly generated by a wide variety of types of establishments.
- It is generated by a large number of generators, and frequently in relatively small quantities.
- Systems to be used for collection would ensure close stewardship of the waste.
- Relatively low risk is posed during accumulation and transport, and specific management standards would be protective of human health and the environment during accumulation and transport.
- Regulation of the waste under Part 273 would increase the likelihood that the waste would be diverted from non-hazardous waste management systems to recycling, treatment, or disposal in compliance with RCRA subtitle C.

⁸⁴ Retail Strategy, at 6.

⁸⁵ T. Atagi, personal communication (April 24, 2018). (“The preamble to the proposed rule includes information on how RCRA regulations apply to aerosol cans, including how they apply to the puncturing and draining of cans prior to recycling the cans for their metal value.”).

⁸⁶ EPA proposed the rule 83 Fed. Reg. 11654 (Mar. 16, 2018), with a comment period closing May 15, 2018. The agency anticipates completing the rulemaking in 2019.

⁸⁷ 40 C.F.R. § 260.10.

⁸⁸ Petitions to Include Other Wastes Under 40 C.F.R. Part 273, 40 C.F.R. §§ 273.80, et seq.

⁸⁹ 40 C.F.R. § 273.80(b).

- Regulation will improve implementation of and compliance with the hazardous waste regulatory program.
 - Such other factors as may be appropriate.⁹⁰
- Third, EPA announced its intention “to develop a policy that addresses the reverse distribution process for the retail sector as a whole,” taking into account the nature, extent, and significance of challenges incurred when managing consumer goods in the retail sector.⁹¹ Issues the agency said it will consider include the “extent to which the reverse distribution process results in appropriate management of unsalable consumer goods originating from retail stores, such that the percentage of retail items disposed as solid or hazardous waste is reduced to the maximum extent possible.”⁹²

Transportation Regulations (2016)

The U.S. Department of Transportation promulgated its “Reverse Logistics Rule” in March 2016.⁹³ Reverse logistics means “the process of offering for transport or transporting by motor vehicle goods from a retail store for return to its manufacturer, supplier, or distribution facility for the purpose of capturing value (e.g., to receive manufacturer’s credit), recall, replacement, recycling, or similar reason.”⁹⁴ It addresses hazardous materials, but does not include materials that “meet the definition of a hazardous waste.”⁹⁵ These rules simplify safely shipping materials, including hazardous materials, with respect to identification, packaging, labeling, and training of employees. PHMSA states that “shipments of aerosol cans transported as reverse logistics shipments should be packaged in accordance with the limited quantity provisions specified in § 173.306.”⁹⁶

⁹⁰ 40 C.F.R. § 273.81. If a hazardous waste is designated as a universal waste under federal regulations, however, authorized states are not obliged to adopt this approach. 83 Fed. Reg. 11663. Moreover, generators and others may also elect to continue to handle the waste under the full subtitle C regulations. 40 C.F.R. § 273.1(b).

⁹¹ Retail Strategy, at 7.

⁹² *Id.* See also Appendix to Retail Strategy.

⁹³ Pipeline and Hazardous Materials Safety Administration, Hazardous Materials: Reverse Logistics, 81 Fed. Reg. 18527 (Mar. 31, 2016) (codified at 49 C.F.R. Parts 171 and 173) [Docket No. PHMSA–2011–0143 (HM–253)] RIN 2137–AE81].

⁹⁴ 49 C.F.R. § 171.8.

⁹⁵ *Id.* Specifically “hazardous materials that meet the definition of a hazardous waste as defined in § 171.8 of this subchapter are not permitted to be offered for transport or transported under [reverse logistics requirements]” 49 C.F.R. § 173.157. “Hazardous waste, for the purposes of this chapter, means any material that is subject to the Hazardous Waste Manifest Requirements of the U.S. Environmental Protection Agency specified in 40 C.F.R. part 262.” 49 C.F.R. § 171.8. If used aerosol cans are eventually classified as universal wastes, possibly reverse logistics shipping rules could apply.

⁹⁶ 81 Fed. Reg. 18533. “Hazardous materials meeting the definition of “reverse logistics” under § 171.8 of this subchapter and in compliance with this section may be offered for transport and transported in highway transportation in accordance with § 173.157. For the purposes of this paragraph a cylinder or aerosol container may be assumed to meet the definition of a Division 2.1 or 2.2 material, respectively, even if the exact pressure is unknown.” 49 C.F.R. § 171.306(m).

* * *

In general, a focus on the needs of the retail sector in the context of managing ubiquitous low volume materials is needed to drive toward greater recycling and materials recovery. The attention of regulatory agencies and continued engagement on management challenges provides some opportunities for improvement in management of valuable materials and a possibly simpler regulatory environment. The next section examines some opportunities and reasons to incorporate sustainability principles into these solutions.

Opportunities for Progress

The goals of solid and hazardous waste management activities, consistent with RCRA’s foundational principles, are to protect human health and the environment while minimizing waste generation and maximizing re-use and recycling. This is in general terms, an objective of achieving progress toward sustainability.⁹⁷

RCRA’s purposes expressly call for “minimizing the generation of hazardous waste and the land disposal of hazardous waste by encourage process substitution, material recovery, properly conducted recycling and reuse, and treatment.” Coupled with this is the idea of “establishing a cooperative effort among the Federal, State and local governments and private enterprise in order to recover valuable materials and energy from solid waste.”⁹⁸

RCRA Subtitle C in its own way supports and ratifies these goals. RCRA §3002(b), for example, requires “waste minimization” by generators in connection with tracking and managing hazardous waste.⁹⁹ Under the regulations each large quantity generator must, on each manifest for hazardous waste tracking, certify that it has a program in place to reduce the volume or quantity and toxicity of hazardous waste to the degree economically practicable, and that the proposed method of treatment, storage, or disposal it has select minimizes present and future threats to human health and the environment. Likewise, the small quantity generator certifies its good-faith effort to minimize waste generation and select the best waste management method available to it.¹⁰⁰ Minimizing waste generation includes diverting waste streams to re-use and recycling, and recapture of materials.

Additional support for such solutions also is found in NEPA, the National Environmental Policy Act, signed into law in 1970. NEPA § 101(b) expressly directs the federal government to improve and coordinate its “plans, functions, programs and resources” to “enhance the quality of renewable

⁹⁷ Scott Fulton, *Waste Not, Want Not—An Instruction for Regulatory Reform?* ENVTL. F. (March-April 2018) (“Treated as hazardous waste, the fate of the material is certain—the vast majority is incinerated. Apart from the enormous cost of this approach, there is a sustainability tragedy. . . . Can we work together to find a getter path for waste streams like this? To me, that sounds like smart reform, anchored by the sustainability ideal.”)

⁹⁸ RCRA § 1003(a)(6), (11), 42 U.S.C. § 6902(a)(6), (11).

⁹⁹ 42 U.S.C § 6922(b).

¹⁰⁰ 40 C.F.R. § 262.27(a),(b).

resources and approach the maximum attainable recycling of depletable resources.”¹⁰¹ And § 102 “authorizes and directs that, to the fullest extent possible the policies, regulations, and public laws of the United States” shall be “interpreted and administered in accordance with the policies” set forth in section 101.¹⁰² This means that in devising new approaches for management of materials and diversion of wastes under RCRA, federal regulators can draw on additional sources of authority.¹⁰³

Retailers may also find that in their preparation of pollution prevention plans under state laws, their management of aerosol cans for recycling and materials recovery can help meet important goals.

EPA’s Proposed Rule to Add Aerosol Cans to the Universal Waste Regulations

EPA issued its proposed rule to add hazardous waste aerosol cans to the universal waste program under RCRA in March 2018.¹⁰⁴ States would be free to adopt or not adopt the classification if EPA finalizes the proposal.¹⁰⁵ EPA hopes that this proposal will lead to increased recovery and recycling of aerosol cans, and that it will reduce regulatory burdens on at least some generators of aerosol cans.

Under the general framework for universal wastes, retailers disposing of or recycling universal wastes are regulated as “handlers” within the universal waste framework. A universal waste handler is 1) a generator of universal waste, or (2) owner or operator of a facility that receives universal waste from other universal waste handlers, accumulates universal waste, and sends universal waste to another universal waste handler, to a destination facility, or to a foreign destination.¹⁰⁶

A large quantity universal waste handler (LQUWH) is defined as a person that accumulates 5,000 or more kilograms of universal waste at any time; while a small quantity handler (SQUWH) accumulates less than 5,000 kg.¹⁰⁷ Large quantity handlers must send written notification of universal waste management to the EPA and receive an EPA Identification Number before meeting or exceeding the 5,000 kg storage limit.¹⁰⁸ Large quantity handlers must also maintain a record of each shipment of universal waste received and sent to other facilities, and retain those records for at least three years.¹⁰⁹

¹⁰¹ NEPA § 101(b)(6), 42 U.S.C. § 4331(b)(6).

¹⁰² NEPA § 102(1), 42 U.S.C. § 4332(1).

¹⁰³ NEPA § 105 makes these policies and goals “supplementary to those set forth in existing authorizations of Federal agencies.” 42 U.S.C. § 4335.

¹⁰⁴ 83 Fed. Reg. 11654 (Mar. 16, 2018). While this ELI report includes information relevant to the EPA universal waste proposal, it is not itself intended to advocate a particular decisional outcome by the agency on the issues raised by the agency or that may be identified by commenters.

¹⁰⁵ 83 Fed. Reg. 11663. EPA concludes that its proposed rule is less stringent than existing Subtitle C regulation, and so authorized states would not be required to adopt the EPA regulations; although states that already regulate discarded aerosol cans as universal wastes might need to amend their regulations if the EPA final rule is more stringent than theirs.

¹⁰⁶ It is not a person who treats (*except* under §273.13(a) or (c) or 273.33(a) or (c)), disposes, or recycles universal waste . . . or a person engaged in off-site transportation of universal waste.40 C.F.R. § 273.9.

¹⁰⁷ 40 C.F.R. § 273.9.

¹⁰⁸ 40 C.F.R. § 273.32. They are not required to re-notify.

¹⁰⁹ 40 C.F.R. § 273.39.

Small quantity handlers are not required to notify EPA of handling activities, nor required to keep records of shipments.¹¹⁰

Universal waste *is not counted* toward the monthly and annual totals of hazardous waste that define generators' respective status as VSQGs, SQGs, and LQGs under the Subtitle C regulations.

A universal waste handler cannot dispose, dilute, or treat universal waste (except for responding to releases). It must label the type of universal waste. Accumulation limits are no longer than *one year* from the date the universal waste is generated or received, unless a longer retention period is solely for purpose of accumulation of such quantities as necessary to facilitate proper recovery, treatment, or disposal. The handler must provide appropriate training to employees on proper handling and emergency procedures. It must immediately contain any releases and determine whether any material resulting from release is hazardous; if so, comply with all applicable RCRA Subtitle C and hazardous waste regulatory requirements. A handler cannot send universal waste anywhere but to another universal waste handler, a *destination facility*, or a foreign destination. If shipping hazardous materials, it must package, label, mark and placard, and prepare the proper shipping papers, but not a hazardous waste manifest.¹¹¹

A destination facility is a facility that "treats, disposes of, or recycles a particular category of universal waste." It must comply with RCRA permitting requirements, unless it is a recycler that recycles the universal waste without prior storage of the waste in accordance with §261.6(c)(2).¹¹²

The EPA Proposal

Under EPA's proposal, aerosol cans would be defined as *intact containers* in which gas under pressure is used to aerate and dispense any material through a valve in the form of a spray or foam. This encompasses all discarded, intact, non-empty cans.¹¹³ (If a can meets the definition of an empty container in 40 C.F.R. §261.7, it may be recycled as scrap metal.) Cans falling outside the scope of the proposed universal waste category include cans that show evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions.¹¹⁴

Handlers of universal waste aerosol cans must manage them in a manner designed to prevent releases to the environment. Handlers would be allowed to sort and mix the cans and may remove actuators.¹¹⁵ A handler would not be authorized to treat cans¹¹⁶ but would be permitted to puncture and drain non-empty cans that they generate themselves or receive from another universal waste handler. The

¹¹⁰ 40 C.F.R. § 273.12; 40 C.F.R. § 273.19.

¹¹¹ 40 C.F.R. §§ 273.10-273.20; 40 C.F.R. §§ 273.30-273.40.

¹¹² 40 C.F.R. § 273.9, § 273.60.

¹¹³ 83 Fed. Reg. 11664.

¹¹⁴ 83 Fed. Reg. 11665.

¹¹⁵ 83 Fed. Reg. 11666.

¹¹⁶ EPA notes that under Subtitle C, puncturing and draining an aerosol can if performed as part of the recycling process is exempt from RCRA permitting requirements, but that storage of hazardous waste aerosol cans prior to recycling requires a permit (unless exempt under some other provision). 83 Fed. Reg. 11660.

Proposed Rule would impose specific requirements on universal waste handlers that choose to engage in puncturing and draining of universal waste aerosol cans. They would be required to:

- Recycle the empty punctured aerosol cans.
- Use a commercial device specifically designed to safely puncture aerosol cans and effectively contain residual contents and any emissions.
- Have a written procedure on how to safely puncture and drain, and perform related tasks.
- Train employees on the proper procedures.
- Puncture in manner designed to prevent fires and to prevent release of any component of universal waste to the environment.
- Ensure that contents from cans are immediately transferred to an appropriate container or tank, and subjected to a hazardous waste determination.¹¹⁷
- Provide a written procedure for spill or release, and provide spill clean-up kit.
- Satisfy labeling/marketing requirements identifying the cans or on a container in which the cans are contained.

EPA requested comments on whether to limit puncturing and draining actions to handlers that are not commercial processors.¹¹⁸

RCRA authorizes states to manage their own hazardous waste programs, which must be consistent with federal regulations: states are prohibited from imposing requirements that are less stringent than the federal program and may impose standards that are more stringent.¹¹⁹

However, EPA has authorized states to designate universal wastes that are not federal universal wastes. California, Colorado, New Mexico, and Utah currently regulate aerosol cans as universal wastes. Ohio adopted rules effective December 21, 2017 regulating aerosol cans as universal wastes,¹²⁰ and Minnesota adopted policies regulating aerosol cans as universal wastes.¹²¹ With the exception of

¹¹⁷ If the contents are hazardous waste, then the handler is considered the generator and is subject to RCRA Subtitle C requirements under 40 C.F.R. §262. 83 Fed. Reg. 11667. *See* 40 C.F.R. § 262.11. “A person who generates a solid waste . . . must make an accurate determination as to whether that waste is a hazardous waste.”

¹¹⁸ 83 Fed. Reg. 11662. California requires offsite commercial processors of universal waste aerosol cans to be permitted.

¹¹⁹ 42 U.S.C. §§ 6926, 6929. “Nothing in this chapter shall be construed to prohibit any State or political subdivision thereof from imposing any requirements, including those for site selection, which are more stringent than those imposed by such regulations.”

¹²⁰ OHIO ADMIN. CODE §§ 3745-273-09(A), (Q)(5)(a), 3745-273-89(A) (adopted Dec. 8, 2017).

¹²¹ MPCA, *Universal Wastes*, w-hw4-62 (Feb. 2018); MPCA, *Waste Aerosols and Compressed Gas Cylinders*, w-hw4-00 (December 2017).

California,¹²² most exempt very small quantity universal waste generators and generators of household waste from the aerosol can universal waste regulations.

No state appears to prohibit handlers from recycling *damaged cans*,¹²³ beyond the general requirements for managing universal waste in a manner that prevents release, and immediately containing a universal waste showing evidence of leakage, spillage or damage. Ohio specifically gives handlers the option of addressing leaking aerosol containers by immediately emptying the container's contents in accordance with the recycling regulations.¹²⁴ Minnesota and other states authorize handlers to place “leaking or broken” universal waste aerosol cans that may release hazardous constituents “into a compatible closed container.”¹²⁵

Implications of EPA Proposal

The proposal, if finalized, presents a number of opportunities for integrating management of these materials with the practices of retailers, and for potential improvement in the overall waste system—including recovery of metals, fuels, and other materials:

Because universal wastes can be accumulated for one year, it is possible that sufficient volumes can be collected to warrant retailers dealing with these effectively and apart from other hazardous wastes as a separate waste stream. When aggregated, these cans could be sent for recycling at destination facilities, for example.

Consolidation of used and discarded consumer aerosol cans at distribution/reverse logistics centers that can themselves be universal waste handlers rather than being subject to regulation as TSDFs may present opportunities for puncturing/draining/recycling of cans if volumes warrant. This may change the dynamics for at least some retailers that currently consign all such materials to their subtitle C RCRA transporter for incineration at a TSDF.

Shipping these materials without a hazardous waste manifest (albeit still subject to DOT requirements for safe packaging and handling) may produce some savings. These materials will still be contained, labeled, and managed for safety of employees and the public.

For discarded aerosol cans that are managed as universal waste, ambiguities over ignitability and reactivity characteristics will become less important. However, these would remain a serious issue for damaged cans and for waste streams still managed under subtitle C.

¹²² CAL. HEALTH & SAFETY CODE, § 25201.16(d).

¹²³ CAL. CODE REG. tit. 22, §66261.7(m)(1); 6 CODE COLO. R. §§273.2(d), 273.13(d)(1), 273.33(d)(1); N.M. ADMIN. CODE § 20.4.1.1001(D); UTAH ADMIN. CODE R315-273-6(b).

¹²⁴ OHIO ADMIN. CODE §§ 3745-273-13(E)(3), 3745-273-33(E)(3).

¹²⁵ MPCA, *Universal Wastes*, w-hw4-62 (Feb. 2018). Colorado regulations provide that a handler must “immediately contain any universal waste aerosol can that shows evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions in a separate individual container. The individual container must be closed, structurally sound, compatible with the contents of the universal waste aerosol can, and must lack evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions.” 6 CODE COLO. R. §§ 273.13(d)(1), 273.33(d)(1). *See also* N.M. ADMIN. CODE § 20.4.1.1001 (D)(2).

Finally, it is possible that designation and subsequent management of aerosol cans as universal waste by retailers and others may help to stimulate a larger market for recycling of these materials—including raising the profile of these materials and increasing interest by the household sector (and municipal solid waste managers) in recycling such items.

There are also other potential outcomes:

EPA’s proposal to exclude coverage of damaged aerosol cans may considerably reduce the quantity of recycling, and use of the universal waste rules by retailers. Some of the aerosol cans they handle specifically enter the waste stream because they have been damaged in some way, including inventory handling, in-store damage, and consumer returns. The exclusion of these cans would likely present retailers with the need to manage these with differing containers, labeling, shipping, and waste management contracts. Because states that currently regulate aerosol cans as universal wastes do not appear to exclude these cans, finalization of the EPA proposal may make these programs less stringent than federal regulations, and require changes to the existing state programs.¹²⁶ EPA’s preamble says that these states have advised EPA that “these programs have been operating well and achieving their objective of facilitating safe management” of aerosol cans.¹²⁷

Some large retailers may still find it more convenient and less risky from an enforcement viewpoint to manage aerosol cans as hazardous wastes. Particularly, where they are handling multiple solid and hazardous waste streams, creation of an additional category for management at the store level may provide few advantages. In terms of material handling, separation, containment, labeling, shipping, and training, it may still be easier to label, manifest, and ship all materials for incineration as hazardous waste.

If EPA finalizes its proposal, but all states do not adopt a universal waste designation for aerosol cans, this may pose difficulties in managing across state lines (e.g. transport and disposition of wastes) in compliance with all requirements. Large retailers operating in many states also may prefer to adopt a single management system or approach given a potential patchwork of regulation.

More Actions Are Needed

EPA’s progress on universal waste classification does not obviate the need for action on the other portions of its Retail Strategy.

- For example, there is still a substantial need for the promised “guide to recycling aerosol cans”— addressing both subtitle C and universal waste (if the rule is finalized). There are still

¹²⁶ EPA states that “if a state’s [universal waste] standards for aerosol cans are less stringent than those in the final rule, the state would have to amend its regulations to make them at least equivalent to the federal standards.” 83 Fed. Reg. 11663.

¹²⁷ 83 Fed. Reg. 11659.

many issues concerning use of the scrap metal recycling exclusion, its interaction with rendering cans “RCRA empty”, and how product residuals can best be handled. This is an issue for small retail establishments and large.¹²⁸ Such a guide could also help to address the issues of ignitability and reactivity that have bedeviled some entities dealing with cans that are not empty, or that are believed to be empty based on their use and on observation (but have not been punctured). Some states have prepared guides,¹²⁹ but they are not all consistent and EPA’s own views of its own regulations are not entirely transparent. A practical guide including practices that can be used, and clear explanations using real-world retail examples would benefit the public immensely—and in all likelihood would lead to fewer violations, better understanding by regulators, and enhanced use of recycling and resource recovery methods.

- EPA’s intended “reverse logistics policy” is also needed. This may be extremely important not only for integrated retailers managing their own distribution and return centers but also for small independent retailers. Appropriate attention to return flows of unsaleable/damaged products may identify key points where recycling and recovery can best occur. As EPA expressed it in the 2016 Retail Strategy, there is a need to address the “extent to which the reverse distribution process results in appropriate management of unsalable consumer goods originating from retail stores, such the at the percentage of retail items disposed of as solid or hazardous waste is reduced to the maximum extent possible.”¹³⁰
- Additional actions could include identifying when environmental management systems can produce superior results for the environment, meeting RCRA waste minimization and recycling, and NEPA sustainability goals. This might include demonstration projects and pilot approaches using the enhanced tracking capabilities of modern retail logistics systems, where consolidation and tracking of materials can produce greater diversion of these waste streams away from incineration. This may benefit from legislative support, if needed, building on the knowledge base gained from the many activities of EPA, states, the retail sector, the Department of Transportation, the environmental community, and the recycling and waste management industries dealing with the drive toward sustainability and continuous improvement.

Waste management is not enough. Now, a generation after enactment of the “Resource Conservation and Recovery Act”, advancing toward effective materials management is where we should be going—just as its sponsors and proponents envisioned.

¹²⁸ The issue of when and how reverse logistics centers can engage in such recycling activity (when they are the ones making the determination of “discarded”) could benefit from attention in such a guide.

¹²⁹ *E.g.*, California Department of Toxic Substances Control, Aerosol Can Waste Management (October 2015), Delaware Department of Natural Resources and Environmental Control, Guidance for Managing Used Aerosol Cans Generated by Commercial Entities (n.d.), Michigan Department of Environmental Quality, On-Site Aerosol Can Drum Top Recycling Systems (November 2016), Wisconsin Department of Natural Resources, Aerosol Cans: Guide to Handling and Disposal for Businesses (May 2016), Hennepin County, Minnesota, noted in its comments to the Retail NODA that “Empty [aerosol] cans are difficult to recycle. We hope that US EPA will find a way to encourage their recycling.” (May 29, 2014).

¹³⁰ Retail Strategy, at 7.



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