



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

SEP 10 2014

OFFICE OF  
SOLID WASTE AND  
EMERGENCY RESPONSE

Mr. Douglas Smith  
Sony Electronics, Inc.  
16530 Via Esprillo  
San Diego, CA 92127

Dear Mr. Smith:

Thank you for your letter dated March 26, 2014, in which you ask how the federal Resource Conservation and Recovery Act (RCRA) regulations would apply to glass from cathode ray tubes (CRTs) used as Alternative Daily Cover (ADC) at non-RCRA Subtitle C landfills.

In particular, I've considered your questions in terms of a situation where a person receives used CRTs from collection points and determines that these devices are intended for processing, treatment and use as ADC.<sup>1</sup> With this in mind, my responses to your questions are as follows.

*Question 1: Is the act of grinding and stabilizing a D008 waste considered treatment and be required to operate under a RCRA Part B TSD permit?*

Under 40 CFR 260.10 of the RCRA regulations, "treatment means any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such waste, or so as to recovery energy or material resources from the waste, or so as to render such waste non-hazardous, or less hazardous; safer to transport, store, or dispose of; or amenable for recovery, amenable for storage, or reduced in volume."

Therefore, grinding and stabilizing a solid waste that exhibits the characteristic of toxicity for lead (D008) is considered treatment under RCRA because these acts are designed to change the physical and chemical character of the waste. In this particular case, it is the Environmental Protection Agency's (EPA's) understanding that the treatment/stabilization process is intended to render such waste non-hazardous and safer to dispose as ADC.

Treatment of hazardous waste generally requires a RCRA part B permit; however, a permit would not be required for treatment of CRT glass if such treatment is conducted by the generator of the hazardous CRT glass in compliance with applicable 40 CFR 262.34 hazardous waste generator requirements, as well as 40 CFR part 268 land disposal restrictions.<sup>2</sup> For example, a generator of

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<sup>1</sup> For the purposes of this letter, the term "person" does not include entities discarding CRTs as "household hazardous wastes" under 40 CFR 261.4(b)(1) or businesses discarding CRTs that are considered "conditionally exempt small quantity generators" under 40 CFR 261.5.

<sup>2</sup> As a generator of hazardous waste, they would also be subject to the applicable generator regulations in 40 CFR part 262.

CRT glass may treat hazardous CRT glass to render it non-hazardous in an on-site hazardous waste generator accumulation unit (e.g., tank) without a hazardous waste permit if such treatment complies with the aforementioned requirements and if the treatment is not thermal treatment. Otherwise, treatment of the hazardous CRT glass is subject to the hazardous waste permitting requirements of 40 CFR parts 264, 265, and 270, as well as the aforementioned land disposal restrictions.

*Question 2: Does the treated CRT glass have to be analyzed using the exact same TCLP procedure defined under EPA method 1311? This entails taking a representative sample of treated CRT glass reducing in size to pass through a 3/8<sup>th</sup> inch sieve and tumbling in extraction fluid. The lead concentration in the resultant leachate could not exceed 0.5 ppm to be considered stabilized.*

Yes. With respect to determining compliance with the land disposal restriction (LDR) requirements for CRT glass, EPA Method 1311, the Toxicity Characteristic Leaching Procedure (TCLP), found in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846 must be used to determine compliance with the treatment standards set forth in 40 CFR part 268. This includes particle size reduction to ensure that material is capable of passing through a 3/8<sup>th</sup> sieve.

In the case of CRT glass, which would fall under the category of D008 non-wastewaters, the hazardous waste treatment standard is 0.75 mg/L, as determined using the TCLP defined under EPA Method 1311.

Additionally, any underlying hazardous constituents, as defined at 40 CFR part 268.2(i), would need to be treated, as appropriate, to attain the universal treatment standards under 40 CFR part 268.48. Treatment must also comply with all other applicable requirements of 40 CFR part 268.

*Question 3: At which point does the "waste determination" apply when the downstream processing is not excluded by the CRT rule or the commodity-like exclusions such as 40 CFR 261.2(e)(ii)? It is my understanding that, when a non-household generator gives up an unwanted CRT product, the waste determination is made at the point it is destined for dismantling or found non-functional.*

Used/intact CRTs (i.e., CRTs that are functioning or could be made functional after being refurbished) intended for reuse, used/intact or used/broken CRTs intended for recycling, and processed CRT glass sent for recycling at a CRT glass manufacturer or a lead smelter would not be solid wastes under the "CRT Rule" at 40 CFR 261.4(a)(22). Additionally, processed CRT glass may be excluded from solid waste and hazardous waste regulation under another exclusion, such as processed CRT glass used as an effective substitute for a fluxing agent at copper smelters (40 CFR 261.2(e)(1)(ii)).

However, if used CRTs are not specifically excluded as solid wastes under the "CRT Rule" or do not fall under another exclusion, then they would be considered solid wastes, as defined at 40 CFR 261.2. Likewise, if CRT glass is generated as a result of the recycling of used CRTs and is not excluded as a solid waste under 40 CFR 261.4(a)(22) or another exclusion, then that CRT glass would be subject to solid and hazardous waste regulations at the point of generation. For example, if a person who receives used CRTs, including the CRT glass therein, decides that this material will be discarded, then this material would be considered a solid waste and the person making the decision would be the generator of solid waste. The point at which this material first meets the definition of solid waste would, therefore, be considered the point of generation. At such point and time, in accordance with 40 CFR 262.11, the generator would be required to determine if the waste is a hazardous waste, as defined at 40 CFR 261.3(a).



On the other hand, if used CRTs (both intact and broken) are sent for recycling (for example, to recover plastics, metals, circuit boards, etc.), they are not solid wastes provided the conditions of 40 CFR 261.4(a)(22) are met. However, subsequent to recycling portions of a used CRT, if a person decides that the CRT glass will be discarded, then this material would be considered a solid waste and the person making the decision would be a generator of solid waste. This would again represent a point of generation. At such point and time, in accordance with 40 CFR 262.11, the generator would be required to determine if the waste is a hazardous waste, as defined at 40 CFR 261.3(a).

As an example, a recycling facility may collect used electronics, including used CRTs, and then decide which CRTs and CRT components can be reused, refurbished, recycled or disposed. CRTs being recycled may be recycled on-site or sent off-site to a third party for recycling. In either case, the CRTs are often broken down into separate components, such as plastics, circuit boards, metals, and glass. Generally, the plastics, circuit boards, and metals are recycled for their commodity value into various products. The recycling facility may choose to recycle or dispose of the CRT glass. If the recycling facility discards CRT glass, for example by disposing in a landfill, then this is when the glass becomes a solid waste and when the recycling facility would be required to make a hazardous waste determination.

Waste determined to be hazardous would need to be managed as such under applicable federal RCRA regulations. In this case, CRT glass intended for processing, treatment and subsequent use as ADC would be subject to the applicable hazardous waste regulations at 40 CFR parts 261 through 265, as well as 40 CFR part 268.

*Question 4: After the treatment/stabilization process, is the D008 listing removed thus allowing the treated waste to be managed with greater flexibility such as the direct landfill application in non-Title C landfills?*

Hazardous waste, such as CRT glass, that has been treated in accordance with RCRA's land disposal restrictions outlined in 40 CFR part 268 and that no longer exhibits hazardous characteristics may be disposed in a landfill not regulated under RCRA Subtitle C (i.e., municipal or Subtitle D landfill). This includes use of treated CRT glass as ADC. In the case of using treated CRT glass as ADC, state approval may be required pursuant to 40 CFR 258.21.

In closing, please note that states that are authorized to implement the RCRA regulations may establish regulations that are more stringent than the federal regulations. For example, federal exclusions for used CRTs and CRT glass may not be in effect in all states. Additionally, certain states may impose additional requirements associated with the land application of treated CRT glass. Therefore, I encourage you to check with your state regarding any state-specific regulations that may apply.

If you have any further questions or want to discuss this matter further, please feel free to contact Drew Lausch of my staff at [lausch.robert@epa.gov](mailto:lausch.robert@epa.gov) or 703-603-0721.

Sincerely,



Barnes Johnson, Director  
Office of Resource Conservation and Recovery

