Alabama Department of Environmental Management
Land Division
P. O. Box 301463
Montgomery, AL 36130-1463
Telephone 334-271-7730
Fax 334-279-3050
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Alabama Department of Environmental Management

Hazardous Waste Management

Cathode Ray Tubes – Management & Disposal

Information presented in this fact sheet is intended to provide a general understanding of the regulatory requirements governing the management and disposal of cathode ray tubes. This information is not intended to replace, limit, or expand upon the complete regulatory requirements found in Division 14 of the Alabama Department of Environmental Management Administrative Code.

Changes in technology and consumer interest in buying new electronic products have resulted in increased disposal of older items. Electronic equipment (e.g., computers, televisions, communication equipment, test equipment) can contain a variety of toxic metals such as lead, cadmium, and mercury, which can be harmful to the environment if not properly disposed. Cathode ray tubes (CRTs) are most commonly found in computer monitors and older televisions and the management of these discarded items is a growing concern in the State of Alabama.

Note
"Cathode Ray Tube" means a vacuum tube, composed primarily of glass, which is the visual or video display component of an electronic device.

WHY ARE CRTs AN ENVIRONMENTAL CONCERN?

Specific research conducted on CRTs at the University of Florida shows the tendency of lead to leach out of the glass when samples are subjected to the Toxicity Characteristic Leaching Procedure (TCLP). For more information on this research, visit this website:

https://www.hinkleycenter.org/pubs/597-characterization-of-lead-leachability-from-cathode-ray-tubes-using-the-toxicity-characteristic-leaching-procedure.html

WHAT IS THE REGULATORY STATUS OF CRTs?

In the State of Alabama, electronic equipment, including CRTs, generated by business and/or industry that is bound for disposal is a solid waste and is subject to a hazardous waste determination [ADEM Admin. Code rule 335-14-3-.01(2)]. While it is up to a waste generator to make this determination, it is likely that a CRT contains enough lead to cause an intact television or computer monitor to fail the TCLP, making it a hazardous waste when disposed. Business and/or industrial generators of waste CRTs should investigate alternative options to land disposal.

WHAT ARE SOME ALTERNATIVES TO LAND DISPOSAL?

One way to decrease the number of CRTs making their way into the nation's landfills is to ***reduce*** the turnover by choosing products that are more durable and keeping those products as long as they remain useful and functional. A second option is ***reuse***. Once you decide to discard a CRT, keep in mind that it may still be useful (provided it is functional) to someone else. A third alternative is to ***recycle***. More and more companies are offering this service as a way to reclaim useful components of CRTs (e.g., glass, lead).

In accordance with ADEM Admin. Code rule 335-14-2-.01(4)(a)22., used, intact CRTs are not solid waste unless they are disposed or accumulated speculatively. In other words, under certain conditions, used, intact CRTs bound for recycling (either within the United States or exported outside the country) do not have to be managed as hazardous waste.

Note
*An **intact** CRT is one whose vacuum has not been released.*

Used, broken CRTs are not solid wastes provided they are destined for recycling, are not accumulated speculatively, and meet the requirements of ADEM Admin. Code rule 335-14-2-.05(1)(a), including the conditions identified below:

- Store used, broken CRTs in a building with a roof, floor, and walls or in a closed container that minimizes releases of CRT glass to the environment.
- Label containers of used, broken CRTs with the words "Used cathode ray tube(s) – contains leaded glass" or "Leaded glass from televisions or computers". Also, mark the containers with the words "Do not mix with other glass materials."

Note
*A **broken** CRT is one whose vacuum has been released.*

HOW ARE PROCESSORS OF USED, BROKEN CRTs REGULATED?

Used, broken CRTs undergoing processing are not solid waste if they meet the following requirements [ADEM Admin. Code rule 335-14-2-.05(1)(b)]:

- Must not speculatively accumulate the used, broken CRTs
- Must not manage used, broken CRTs in a manner constituting disposal
- Processing must be performed in a building with a roof, floor, and walls
- Processing must not be performed at temperatures high enough to volatilize lead from CRTs

Note

"CRT Processing" means conducting all of the following activities:

- *receiving intact or broken CRTs*
- *intentionally breaking intact CRTs or further breaking or separating broken CRTs*
- *sorting or otherwise managing glass removed from CRT monitors*

WHERE CAN I DONATE MY CRTs FOR REUSE?

Here are internet links to some sites that accept used CRTs for reuse. Keep in mind that this is neither a complete list nor an endorsement of those listed.

Computers with Causes	http://www.computerswithcauses.org/
Educational Assistance Ltd.	http://ealgreen.org/
The Freecycle Network	https://www.freecycle.org/
Goodwill Industries International	https://goodwillnne.org/donate/computer-donations/
Human I-T	https://human-i-t.org/impact/?gclid=COCcmauNidUCFY89gQodmBwFIA
National Cristina Foundation	https://www.cristina.org/
The Salvation Army	https://satruck.org/

WHERE CAN I SEND MY CRTs FOR RECYCLING?

Here are internet links to some sites that accept used CRTs for recycling. Keep in mind that this is neither a complete list nor an endorsement of those listed.

Best Buy	http://www.bestbuy.com/site/clp/recycling/pcmcat149900050025.c?id=pcmcat149900050025
Staples	https://www.staples.com/sbd/cre/marketing/sustainability-center/recycling-services/?icid=SustProducts:topnav:3:RECYCLE
Newtech Recycling	https://www.newtechrecycling.com/disposal/monitor-tv-recycling/disposal-monitors-tvs.html
STS Electronics Recycling	http://www.stselectronicrecyclinginc.com/montgomery

WHERE CAN I GET ADDITIONAL INFORMATION?

On-line Resources:

EPA Guidance – https://www.epa.gov/recycle/electronics-donation-and-recycling

ADEM Guidance - http://www.adem.state.al.us/programs/land/guidanceReports.cnt

Hazardous Waste: The Basics Hazardous Waste Determination

Small Quantity Generator Handbook

ADEM Administrative Code Division 14 - http://www.adem.alabama.gov/alEnviroRegLaws/files/Division14.pdf

Telephone Resources:

ADEM Ombudsman • • • • • • • • • • • • • • • • • • • 800-533-ADEM (2336)

Hazardous Waste Compliance Inspectors • • • 334-271-7730

Outreach (to order copies of the regulations) • • • • • 334-271-7718