

Collector Best Management Practices: Electronic Waste

Proper handling of end-of-life electronics protects site workers and the public; prevents pollution; and helps ensure that electronics remain recyclable. The following best management practices for electronics collection sites could help save the entire electronics collection system money while making your site safer.

Unless specifically noted, best management practices are not laws or requirements under the E-Cycle Wisconsin program. They were developed to help run your program efficiently while protecting human health and the environment.

Site selection

Electronics should be protected from the elements so they do not crack, leak and weather. Ideally, electronics should be stored indoors. The next best option is covered containers. If covered storage is not possible, limiting exposure to the weather by sending electronics off-site more frequently can help keep electronics recyclable.

Regardless of the storage methods your collection site uses, keep all storage areas clean and orderly. If possible, have an attendant on duty during open hours to help customers understand where to place items and to assist with handling items safely to prevent breakage.

Storage, labeling and packaging

All materials should be sent off-site for recycling within one year of their arrival. Otherwise, additional solid and hazardous waste regulations may apply. This is true regardless of whether your site is part of the E-Cycle Wisconsin program. All electronics should be labeled with the date they were received to help track how long they have been at your site. If items fit into containers, such as Gaylords, each container should be labeled with the main type of electronics it contains and the date the first item was placed inside (e.g., "Monitors – 6/1/2019").

Only electronics from households and K-12 schools count toward E-Cycle Wisconsin program weights. Therefore, if your site is registered with E-Cycle Wisconsin and accepts electronics from businesses or institutions, keep the items separated and labeled accordingly as non-eligible electronic devices (i.e., non-EEDs or business electronics) so your recycler knows to keep the electronics separate.

Your recycler may have tips to help maximize loads and prepare items in a way that will prevent breakage and make handling safe for the recycler's staff. Recyclers may offer other services, such as providing packaging materials and assistance in loading materials onto a truck. It is always a good idea to work with your recycler, but the following tips can also help you manage your site effectively:

- ✓ Full truck loads will help reduce transportation costs. If you have a small collection site that cannot fill a truck during the year, check for other nearby sites you can work with to make a full load.
- ✓ Consolidate electronics, with similar items placed in the same container. Check with your recycler to see if you can get a better price for sorting items in a certain way.
- ✓ Gaylords or other containers placed on pallets can be used for all but very large items. Stack electronics



This simple shed provides indoor storage and can be locked for security purposes.

as efficiently as possible inside Gaylords. Small, flat-screen TVs and monitors can be placed upright with screens facing inward inside the Gaylord. Use shrink wrap to reinforce and cover Gaylords when full.

- ✓ Never drop TVs and monitors into containers. If using a large roll-off container, make sure customers or staff can walk inside to place electronics, rather than dropping them over the sides.
- ✓ Store large TVs and monitors directly on pallets. Keep them upright with screens facing inward and shrink wrap them together to stabilize them for transport.
- ✓ Stacks on pallets should not exceed 5-7 feet. Items in Gaylords should not extend over the top of the container.



CRT TVs stacked on a pallet with screens facing inward and secured with shrink wrap.

Do not dismantle electronics before sending them to your recycler unless you have a specific agreement with your recycler to do so. This includes clipping cords, removing toner cartridges and removing batteries. Talk with your recycler about how to handle items that come to your site already broken or dismantled.

Security concerns

Electronics contain valuable materials and sensitive data. It is a good idea to have an attendant on duty during open hours and secure your site when closed by locking buildings and gates and monitoring with video cameras to protect against theft, vandalism and illegal dumping. You may also want to store electronics in locked containers, especially if it is difficult to prevent unwanted access to your site or if there is no attendant on duty.



Signs and surveillance equipment may help protect your site.

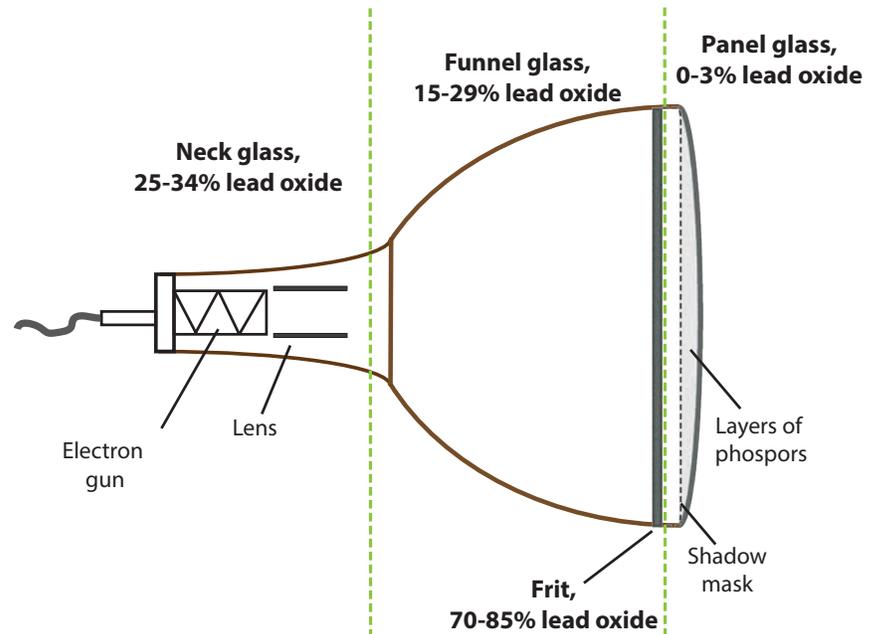
In E-Cycle Wisconsin's household surveys, a significant share of respondents said concern about data security was the main reason they were not recycling electronics. Electronics that contain personal data should be stored in areas with limited public access (and/or attendants on duty) that are locked when the site is closed to reduce risk of theft. If you do not provide this service, explain to your customers that they can destroy data themselves or may want to choose a location that provides data security.



Proper management of broken electronics

Many collection sites still handle cathode ray tube (CRT) TVs and monitors. CRTs are vacuum tubes (picture tubes), composed primarily of glass, that are the video display component in most TVs and monitors made before the mid-2000s. The glass portion of CRTs consists of the panel, frit, funnel and neck (see Figure 1 for diagram and lead content of each component). The front panel has very low lead content, though it contains a phosphor coating that must be cleaned off before the glass can be safely reused in most situations. The funnel and neck portions of a CRT and the frit line of material connecting the panel and funnel glass all contain significant amounts of lead. Because of this, CRTs should be protected from breaking on your site or during transport.

Figure 1: Cathode ray tube components and lead oxide content



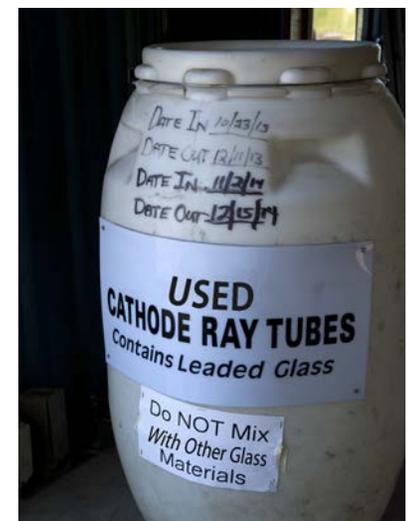
Any electronics that break on-site should be cleaned up immediately. Under s. NR 661.39(1), Wis. Adm. Code, broken CRT glass must be placed in a leak-proof, closeable container—such as a 55-gallon closed-top plastic drum—or stored inside a building with roof, floor and walls. Each container in which broken CRT glass is contained must be labeled or marked clearly with one of the following phrases: “Used cathode ray tubes — contains leaded glass” or “Leaded glass from televisions or computers.” The container must also be labeled: “Do not mix with other glass materials.” Site staff should be aware of what broken leaded glass looks like and that it should not be thrown away.

Your recycler may have additional handling requirements or charge a special fee for broken CRT glass. If your recycler will not accept broken CRT glass, check with other recyclers through the E-Cycle Wisconsin website.

If a broken CRT monitor or TV is brought to your site, handle as if it broke on-site. You may want to consider charging the person bringing the broken CRT an extra fee if your recycler will charge you. If you accept the broken CRT, you may want to specify that you will not accept broken leaded glass again. If you do not accept the broken CRT, try to help the person find someone who will accept it.

Flat-screen LCD (liquid crystal display) TVs and monitors use thin and fragile mercury-containing lamps to light the screens. Refer to DNR’s [Collector Best Management Practices: Universal Waste and Used Oil](#) to learn how to safely respond to a mercury exposure from a broken LCD screen.

Batteries in electronics, especially lithium-ion batteries, pose a fire risk. If you suspect a battery within an electronic device has been damaged or it has swollen, you can put the device in a fire-proof container with kitty litter or sand.



Clearly labeled broken CRT glass container.

If you suspect someone is dismantling electronics and bringing you the parts, you may want to work with DNR E-Cycle Wisconsin staff to write a “cease and desist” letter. In any case, you may want to make note of the name or license number of the person with the broken electronics, especially if it is a large amount. This could assist an investigation. Anonymous tips can be reported to 1-800-TIP-WDNR (1-800-847-9367).

Recordkeeping

Keep records (bills of lading, other documentation) of the number of Gaylords, pallets or other containers delivered to recyclers and the approximate weight of each shipment, if known. Record where and when you send materials for processing. Cross-check information you collect with information provided by your recycler. The records must show electronics were sent to a legitimate recycler within the proper timeframe.

In general, keep records like these that show legitimate recycling for at least three years. Inspectors visiting your site may ask you for the records to ensure you are complying with all state and federal laws.

More information

For more information about collector requirements and resources, visit dnr.wi.gov and search “ecycle.” You may also send an email to DNRWle-cycling@wisconsin.gov.



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