FACT SHEET – IMPROVING RESOURCE RECOVERY CENTRES

Batteries

Batteries are energy storage devices used to power electrical equipment, including power tools, toys, torches and vehicles. Batteries must be separated from the processing and disposal of general waste, as they contain both hazardous and valuable materials that can be safely disposed of or recovered through treatment or recycling.

Items classifying as batteries

Types of batteries that apply to this fact sheet include:

› lead-acid batteries from cars (and farm equipment in regional areas only)
› alkaline (AA, AAA, 9-volt and 6-volt lantern (or spring) batteries) and nickel-metal hydride (NiMH) batteries (used in toys, torches, radios, etc.)
› rechargeable alkaline, nickel cadmium (NiCad) and lithium metal batteries (for use in hearing aids)
› lithium ion batteries (used in power tools, mobile phones and laptop computers)
› mercury batteries (usually in button cells) used in older small devices.

Regulatory requirements and standards (OH&S and environmental)

Various acts, regulations and guidelines apply to the storage, transfer, transport and recycling of batteries at resource recovery centres/transfer stations. These include:

› Occupational health and safety (OH&S):
  – Occupational Health and Safety Regulations 2007 (Victorian Government)
  – Guide to Best Practice at Resource Recovery Centres (Sustainability Victoria)
  – Safety Alert: Preventing battery explosions (Work Safe Victoria)
  – Handheld Battery Recycling: Guidelines for aggregation points (Sustainability Victoria)
  – Guideline: Bunding (EPA Victoria)

› Environmental:
  – Environment Protection Act 1970 (EPA Victoria)

› Dangerous goods storage:
  – Code of Practice for the Storage and Handling of Dangerous Goods (Work Safe Victoria).

› Relevant Australian standards:
  – Packaging Standard for Used Lead Acid Batteries (The Australian Battery Recycling Initiative (ABRI))
  – AS 3780:1994 – The storage and handling of corrosive substances
Potential hazards and OH&S requirements

Due to the electrical, toxic and flammable nature of batteries, there are numerous potential hazards and OH&S requirements to be considered when receiving and handling batteries. These hazards include:

› chemicals from leaking batteries (can be toxic and cause burns or skin irritation)
› chemicals in batteries (can be flammable and potentially explosive)
› batteries can produce sparks and have the potential to be an ignition source
› electrocution (from larger batteries still containing significant energy)
› some batteries can be heavy and awkward to lift (e.g. a lead acid car battery weighs approximately 14.5kg).

When handling batteries, it is important that resource recovery centre/transfer station operators:

› always treat batteries as though they are fully charged
› use equipment to aid handling (e.g. forklifts)
› wear appropriate personal protective equipment (PPE), particularly eye protection, when handling batteries
› keep batteries away from flammable and combustible materials and ignition sources
› have a minimum of one person per work area trained in spill response
› have rescue equipment available on-site and regularly conduct emergency response drills
› follow the correct safe manual handling and management procedures (refer to WorkSafe Victoria’s Code of Practice for Manual Handling).

Acceptance criteria

Criteria regarding the acceptance of batteries at resource recovery centres/transfer stations include:

› ensure batteries are separated from general waste and other waste streams (e.g. e-waste) within loads
› separate battery accessories (e.g. chargers) from batteries and store with an appropriate e-waste recycling stream
› avoid accepting leaking or corroded batteries
› only accept domestic quantities of car batteries (i.e. up to five at once). Commercial sources and quantities should be handled by private waste contractors
› avoid accepting larger batteries (e.g. truck batteries), which are typically managed by private waste contractors who specialise in their transportation, treatment and recycling (farm equipment batteries are generally only accepted at regional facilities).

Storage guidelines

The storage of batteries is an important consideration for resource recovery centres/transfer stations. If not stored correctly, batteries can leak toxic chemicals and potentially explode or become an ignition source. Storage should be undertaken in accordance with minimum requirements and, ideally, best practice.

Best practice storage of batteries is in a roofed and bunded area (consistent with the EPA’s Bunding Guidelines), to prevent stormwater infiltration and to contain potential spills. This is in addition to minimum requirements below.

For lead acid car batteries, best practice is to store batteries on pallets, up to two batteries high, and then shrink wrap (in clear plastic wrap) ready for transport. It is recommended that no more than two pallets of lead acid batteries (approximately 56 batteries) are stored before collection for recycling.

For alkaline and recyclable batteries (e.g. AA, AAA, 9-volt and 6-volt lantern (or spring) batteries), best practice is to store batteries in lined 205 litre (44 gallon) drums. It is recommended that no more than two drums are stored before collection for recycling.

As a minimum requirement, all batteries need to be:

› stored in a secure, ventilated and roofed area on a sealed surface
› stored away from combustible or flammable items (e.g. gas bottles, waste oil, cooking oil, tyres, green waste and timber)
› collected and transported to recyclers regularly and not stored for more than six months
› stored in a suitably signed area (refer to Sustainability Victoria’s signage library) and accompanied by applicable safety signs.
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Transport and recycling guidelines
There are numerous OH&S and environmental hazards that can arise when transporting batteries. Consequently, transportation and recycling of batteries must only be undertaken by suitably qualified contractors or suppliers.

Best practice and minimum standards in the transport and recycling of batteries are not significantly differentiated and the following standards should be met at resource recovery centres/transfer stations:
› intrastate transport of used lead acid batteries may require a waste transport licence and a waste transport certificate (contact EPA Victoria for more information)
› batteries must not be placed in landfill, as they may explode or leak toxic and flammable material.

Record keeping guidelines
Keeping records of batteries received and sent for recycling at the resource recovery centre/transfer station will enable tracking of resource recovery from the site, as well as management of on-site storage.

Best practice is to gain a certificate of reuse/recycling from the processing/recycling of the batteries, in addition to the minimum requirements.

Minimum requirements for record keeping includes the following:
› recording the receipt of lead acid batteries at the gatehouse
› conducting monthly stocktakes of batteries being stored at the facility, to ensure the site does not exceed the recommended maximum number of batteries stored
› recording the number or kilograms of batteries collected from the site by the approved contractor.

Framework for continuous improvement
The priority for any decision regarding the acceptance and management of batteries should be to divert these from landfill, while protecting the health and safety of all stakeholders (especially operators and customers) and the environment.

A continuous improvement framework for the recycling and resource recovery of batteries is to:
› communicate and engage with other local municipalities, waste and resource recovery groups and Sustainability Victoria to investigate consolidated collection/joint procurement activities
› seek out and build relationships with local collection and recycling contractors who meet the relevant standards and regulations
› improve storage areas towards storing batteries undercover and on pallets (lead acid batteries) and in drums on pallets (alkaline and rechargeable batteries) to enable collection, transport and loading via forklifts.
› consider becoming a member of the Australian Battery Recycling Initiative (ABRI), which is a not-for-profit association that promotes responsible environmental management of batteries at end-of-life. Membership demonstrates the facility’s support for product stewardship and responsible recycling.

Resources
Australian Battery Recycling Initiative (ABRI)

WorkSafe Victoria
Phone (03) 9641 1444 or 1800 136 089 (toll free)
http://www.worksafe.vic.gov.au

EPA Victoria
Phone 1300 372 842 (1300 EPA VIC)

Further information
For further information and resources, please contact Sustainability Victoria on 03 8626 8700 or visit www.sustainability.vic.gov.au