BATTERY RECYCLING

Most batteries contain heavy metals which is the main cause for environmental concern. Disposed of incorrectly, the heavy metals may leak into the ground when the battery erodes. This contributes to soil and water pollution and endangers wildlife. Some components in batteries can be toxic to fish and make them unfit for human consumption.

Each year Australians discard about 8000 tonnes of used batteries. Batteries are the most common form of hazardous waste disposed of by Australian households, with 97% of those disposing of them via their usual rubbish collection.

In Australia, except for lead acid type chemistries, all other battery disposal collection for recycling overseas is carried out by MRI Australia. At present MRI export batteries to recycling facilities in France and Asia.

Australia's first plant for recycling alkaline batteries is currently being built. This will allow the recovery of up to 30% of the battery.

Battery World offer consumers a free battery recycling service. There is a Battery World store at 460 Payneham Road, Glynde. See www.batteryworld.com.au **for details of battery components and recycling methods.**

Businesses are welcome to contact a Battery World store to make commercial arrangements to dispose of their batteries or the can go to MRI direct - www.mri.com.au.

Battery reprocessing

Batteries contain a range of metals which can be reused as a secondary raw material. There are well-established methods for the recycling of most batteries containing lead, nickel-cadmium, nickel hydride and mercury. For some, such as newer nickel-hydride and lithium systems, recycling is still in the early stages.

There are a number of different recycling processes for batteries, which are aimed at recovering a variety of materials:

- Lead-acid batteries used in vehicles are re-processed in SA and can be returned to recycling centres. eg Scouts Recycling, 16 Payneham Road, Stepney
- Lead can be recovered by either separating the different materials that make up the battery (lead, plastics, acid, etc.) prior to metallurgical processing. Alternatively, batteries can be processed as a whole through heat treatment in a particular type of furnace with metals being recovered at the end of his process
- NiCd batteries can be reprocessed through a similar thermal technique, which recovers cadmium and iron-nickel for steel production

- Batteries containing mercury (button cells) are most commonly processed using a vacuum-thermal treatment, in which the mercury vaporises. It condenses and eventually solidifies when temperatures are reduced and can then be reintroduced into the material cycle
- NiMH batteries are reprocessed by mechanically separating the individual materials (plastic, hydrogen and nickel) within a vacuum chamber to prevent the escape of hydrogen. The output of this process is a product with high nickel content which can be used in the manufacture of stainless steel
- Li-Ion batteries are currently reprocessed through pyrolysis (heat treatment) with the primary recovery the metal content
- Zinc-carbon/air and alkaline-manganese batteries can be reprocessed using a number of different methods, which include smelting and other thermal-metallurgical processes to recover the metal content (particularly zinc)

What you can do

- Use the mains when possible
- Use rechargeable batteries and a battery charger. This saves energy because the energy needed to manufacture a battery is on average 50 times greater than the energy it gives out. However, rechargeable batteries are not suitable for smoke alarms as they tend to run out suddenly, preventing the alarm from warning when battery power is low
- Opt for appliances that can use power derived from the sun via solar panels or from a winding mechanism, eg radios, mobile phone wind-up chargers
- Return disposable batteries to the retailer where they were purchased, or to Battery World, 460 Payneham Rd, Glynde
- NPSP Council at present states batteries may be placed in the red-top bin but may consider collection for recycling at some future date

See www.npsp.sa.gov.au and www.zerowaste.sa.gov.au for more information.