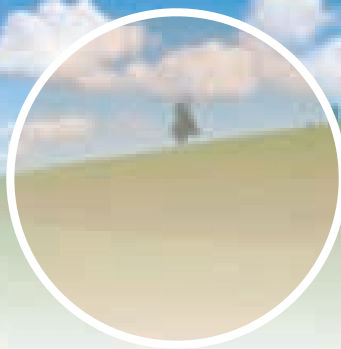


Battery Recycling Guide



REMADE
KENT & MEDWAY



This guide has been produced by ReMaDe Kent and Medway in conjunction with the Interreg IIIa Eco Enterprise Programme to help businesses in the South East comply with the requirements of the European Battery Directive which was adopted by the European Union (EU) in 2006. The UK must bring the requirements of the Directive into national law by 26 September 2008.

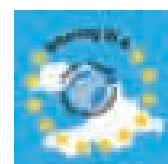
Information is provided in this guide on:

- **The European Battery Directive**
- **Battery types and waste facts**
- **Battery Recycling collections in the South East**
- **UK Battery Recycling schemes**

This guide has been produced through the Interreg IIIa Eco-Enterprise Programme. To find out more about the Interreg programme please visit www.ecoenterprise.eu



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Introduction:

Battery recycling in the UK is in its infancy with just 4% of the non lead acid batteries produced each year being recycled. This equates to 1,000 tonnes of the 25,000 tonnes of waste household and industrial batteries produced in the UK each year. The UK Government is planning to implement new legislation in September 2008 which will change the way that businesses and the general public dispose of waste batteries to increase the amount being recovered and recycled (Source LetsRecycle.com).

What is the European Battery Directive?

The European Battery Directive aims to make businesses that produce and sell batteries responsible for the collection and recycling of spent cells. It will require the collection and recycling of all batteries placed on the market regardless of their chemical composition. This legislation replaces an earlier Directive which only applied to batteries containing certain quantities of lead, mercury or cadmium.

The main aims of the Directive*:

- To minimise the negative impact of waste batteries on the environment
- To create an EU wide framework for national battery collection and recycling schemes
- To improve the environmental performance of batteries and accumulators
- To prevent the disposal of spent batteries in incinerators or landfills
- To promote the recovery of metals contained in batteries

The key elements of the Directive*:

- A ban on the use of significant quantities of hazardous metals like cadmium and mercury in the manufacture of batteries and accumulators, except in medical equipment, emergency or alarm systems, and in cordless power drills
- A ban on the disposal of untreated automotive and industrial batteries in landfill or by incineration.
- Collection targets of 25% of waste batteries by September 2012 and 45% by September 2016.

* Source: Environment Agency

Who does the Directive affect?

The Directive will affect all operators involved in the life cycle of batteries including producers, distributors, end-users and those involved in the treatment and recycling of waste batteries.

Hazardous Waste Regulations:

All batteries are classed as hazardous waste so the rules and regulations outlined in the Hazardous Waste Regulations (2005) must be followed when disposing of or recycling batteries. This is because batteries contain corrosive materials such as sulphuric acid or potassium hydroxide, as well as heavy metals such as cadmium and lead.



The Hazardous Waste Regulations (2005) contain strict rules for the storage, transportation and disposal of waste batteries:

The site at which the waste batteries are generated must be registered with the Environment Agency as a Hazardous Waste Producer

A Consignment Note must accompany each movement of waste batteries

The carrier who removes the waste batteries from a business premises must be registered with the Environment Agency as a Carrier of Hazardous Waste

Under the requirements covering Duty of Care, businesses must ensure that waste batteries are destined to be recovered or disposed of safely at a licensed facility

For more information regarding the Hazardous Waste Regulation and the European Battery Directive please contact:

The Environment Agency:

Telephone: **08708 502858**

Website: **www.environment-agency.gov.uk**
www.netregs.gov.uk

Email: **enquiries@environment-agency.gov.uk**

Battery Types:

There are three main battery types sold in the UK:

- **Consumer (non rechargeable and rechargeable)**
- **Automotive**
- **Industrial**

Each battery type can be broken down into the following categories:

Battery Type	Technology	Typical Use
Consumer (non-rechargeable)	<ul style="list-style-type: none">• General purpose (alkaline manganese, zinc carbon and other)• Button cells (zinc air and silver oxide)	<ul style="list-style-type: none">• Clocks, portable audio devices, torches, toys and cameras• Watches, hearing aids and calculators
Consumer (rechargeable)	<ul style="list-style-type: none">• Nickel cadmium (NiCd), nickel Metal hydrate (NiMH) and lithium Ion• Lead acid	<ul style="list-style-type: none">• Mobile phones, power tools, cordless telephones, laptops and emergency lighting• Torches, laptops and telephones
Automotive	<ul style="list-style-type: none">• Lead acid	<ul style="list-style-type: none">• Automotive/motorcycles, starter, lighter and ignition (SLI)
Industrial	<ul style="list-style-type: none">• Lead acid standby• Lead acid traction• Nickel cadmium (NiCd)	<ul style="list-style-type: none">• Alarm systems, emergency back-up systems (rail and telecommunication applications)• Motive power sources (forklift trucks and milk floats)• Motive and standby applications (satellite and rail applications)

Battery Waste Arising:

According to the latest figures available from the Department for Business, Enterprise and Regulatory Reform (BERR) around 680 million batteries were sold in 1999 which is equivalent to 180,000 tonnes. It is estimated that this figure has stayed relatively constant over the past 8 years.

Battery Type	Sales (1999) Tonnes	Waste Arising (2000)
Consumer (non-rechargeable)	21,670	16,630
Consumer (rechargeable)	3,510	1,290
Automotive	108,500	112,600
Industrial	45,600	41,300
Total	183,000	172,800

(Source: Department for Business, Enterprise and Regulatory Reform (BERR) Batteries Guide August 2002)

Battery Reprocessing**:

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

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

- 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 the process.
- Nickel cadmium (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.

- Nickel Metal hydrate (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.
- Lithium Ion (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).

(** Source: www.wasteonline.org.uk)

UK Recycling Rates:

Recycling rates in the UK for household waste batteries are low with around 4% of the 25,000 tonnes generated each year being recycled. This trend is reversed when it comes to recycling automotive and industrial batteries with around 90% being recycled. This is because the majority of automotive and industrial batteries are lead-acid and are easier to recycle than household batteries which are predominately non-lead acid.

Compared to other European countries the UK has a poor battery recycling rate with Belgium and Sweden leading the way. There are more than 20 reprocessing plants in Europe that accept spent batteries to recover components, including lead, cadmium, steel and plastics. Some are specialised battery recycling units whilst others accept batteries as one component of their feedstock. G & P Batteries based in the Midlands is the only facility in the UK that recycles domestic batteries. The majority of waste automotive and industrial lead acid batteries in the UK are recycled at one of two UK lead smelters, Britannia Refined Metals in Kent and H.J. Enthoven & Sons in Derbyshire.

The pending implementation of the Battery Directive has created an incentive for a number of waste companies in the UK to start collection services for waste batteries.



Battery collectors in the South East:

The list below indicates companies that collect consumer, automotive and industrial batteries.

Consumer Batteries

S Grundon (Waste) Ltd

Lakeside Road, Colnbrook
Slough SL3 0EG

Tel: **01491 834340**

Email: **technical@grundon.com**

Web: **www.grundon.com/whatWeDo/recyclableMaterialsBatteries.htm**

Greener World Ltd

Station Road, Langley
Slough SL3 6ED

Tel: **01753 545544**

Email: **enquiries@greenerworld.com**

Web: **www.greenerworld.com/batteries-recycle.htm**

Envirogreen

Regus House, 268 Bath Road
Slough SL1 4DX

Tel: **0845 712 5398**

Email: **info@envirogreen.co.uk**

Web: **<http://www.envirogreen.co.uk/battery-disposal-services.htm>**

Vinton Batteries

Albion Yard, Manor Road
Erith, Kent DA8 2AD

Tel: **01322 333046**

Email: **info@vintonbatteries.co.uk**

Web: **www.vintonbatteries.co.uk**

MDJ Light Bros

Greystone Quarry, Southerham, Lewes
East Sussex BN8 6JN

Tel: **01273 476862**

Email: **info@wasterec.co.uk**

Web: **www.wasterec.co.uk**

National collectors that collect household batteries from the South East:

G & P Batteries

Crescent Works Industrial Park, Willenhall Road
West Midlands WS10 8JR

Tel: **0121 568 3200**
E-mail: **enquiries@g-pbatt.co.uk**
Web: **www.g-pbatt.co.uk**

RABBITT Recycling

Worktwice Marketing Ltd
The Cottages, 27-29 New Street
Gloucestershire, GL12 8ES

Tel: **0800 1381988**
Fax: **01453 521330**
E-mail: **info@rabbitrecycling.co.uk**
Web: **www.rabbitrecycling.co.uk**



Bakersfield Environmental Services

The Buckman Building, 43 Southampton Road
Ringwood, Hampshire, BH24 1HE

Phone: **01425 462 522**
Email: **sales@bakersfield.co.uk**
Web: **www.bakersfield.co.uk/**

Willow Environmental

Wenta Centre, Colne Way
Watford WD24 7ND

Phone: **01923 255545**
Email: **info@recycle.co.uk**
Web: **www.we-recycle.co.uk/batteries.html**

Automotive Batteries:

E.L.V Salvage (car breaker - car batteries)

West View Works, Brighton Road

Lower Kingswood, Tadworth

Tel: **07850 610468**

F.L Beadle and Son (scrap yard - car batteries)

Wilfred Works, 2-4 Huntingdon Gardens

Worcester Park, KT4 8TF

Tel: **020 8330 4733**



Battery Collection Schemes:

A number of retailers have created collection services for domestic rechargeable and non-rechargeable batteries in the UK, with Sainsbury's leading the way. Sainsbury's launched a freepost battery recycling service in November 2006 allowing customers to send old batteries, as well as mobile phones and inkjet printer cartridges, for recycling. In addition selected stores of Argos Retail Group plc (including Argos and Homebase stores), B&Q plc, DSG International plc (including Currys, Currys digital and PC World stores) and Tesco plc are taking part in a trial take back scheme organised by the Waste Resource Action Programme (WRAP).

WRAP is also conducting trials with 13 local authorities for the kerbside collection of domestic rechargeable and non-rechargeable batteries. Eastleigh Borough Council, in Hampshire represents the South East in the trial and supplies local residents with a dedicated battery recycling container that is put out for a recycling collection along with other materials. WRAP advises other householders who are not currently covered by a battery collection scheme to contact their local authority to establish where their nearest battery collection point is.

To find out more information about these schemes please contact:

Waste Resource Action Programme (WRAP)

Tel: **0808 100 2040**

Email: **by visiting www.wrap.org.uk/contact_wrap.html**

Web: **www.wrap.org.uk**

Batteries web address: **www.wrap.org.uk/local_authorities/batteries/index.html**

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Compliance Scheme

Valpak has launched a compliance scheme to help producers of waste batteries prepare for the implementation of the European Battery Directive. Valpak is an organisation that provides recycling solutions to businesses, local authorities and individuals in the UK that have a responsibility to comply with environmental legislation. Businesses that will be affected by the Directive can join a pre-compliance scheme and gain access to the latest information and support.

To find out more please contact:

Valpak

Tel: **08450 682 572**
Email: **info@valpak.co.uk**
Web: **www.valpak.co.uk/batteries**



Further Information:

For further information about battery recycling in the South East, or if you would like to add your recycling company to the list of battery recycling collectors please contact:

Andrew Kent

Project Officer

Remade South East

Tel: **01732 876619**
Fax: **01732 876611**
Email: **a.kent@remade-southeast.co.uk**