



Radiological Protection Institute of Ireland
An Institiúid Éireannach um Chosaint Raideolaíoch

GUIDANCE NOTE

Management of Waste Ionisation Chamber Smoke Detectors (ICSDs)

July 2010

This document is for guidance only. It does not purport to be and should not be considered a legal interpretation of the legislation referred to herein. Readers are advised to refer to the relevant legislation for comprehensive information on requirements.

1. Introduction

Many everyday consumer items are in fact electrical and electronic equipment (EEE). There are ten categories of EEE specified in the legislation¹, which includes equipment such as household appliances, mobile phones, electric lawnmowers drills, power tools, consumer electronics (e.g. TVs, DVD players), as well as industrial items such as medical devices, and laboratory equipment. When these items reach end-of-life they become waste electrical and electronic equipment (WEEE). Some WEEE contains hazardous substances that may be harmful to the environment, such as batteries, cathode ray tubes in televisions, heavy metals etc. Therefore, WEEE must not be disposed of in general refuse or mixed general waste streams. In addition, some electrical and electronic equipment may contain radioactive sources such as ionisation chamber smoke detectors (ICSDs), and must therefore be managed appropriately taking this into account, when they reach end-of-life. The management of WEEE is controlled by legislation which falls under the general principle of producer responsibility². Products containing radioactive sources, including ICSDs, are also controlled by legislation on ionising radiation³.

Waste batteries and accumulators⁴ are similarly controlled by producer responsibility legislation⁵. As batteries contain hazardous substances they must also be managed properly when they reach end-of-life. The purpose of these waste stream specific regulations is to provide for systems where such hazardous wastes are taken out of the municipal and commercial waste disposal streams and managed in an environmentally sound manner whilst maximising their recovery/recycling potential.

2. Purpose of this guidance

The objective of this guidance is to provide clarity to relevant persons involved in the recycling and environmentally sound management of ionisation chamber smoke detectors (ICSDs), which are classified

¹ Waste Management (Waste Electrical and Electronic Equipment) Regulations 2005 (S.I. No. 340 of 2005, as amended by S. I. No 375 of 2008); European Parliament and Council Directive 2002/96/EC on waste electrical and electronic equipment (as amended by Directive 2003/108/EC).

² The objective of producer responsibility lies in the Polluter Pays Principle, making sure that the producer is responsible for the environmentally sound management of these items at end-of-life.

³ Radiological Protection Act, 1991 (Ionising Radiation) Order, 2000 (S.I. No. 125 of 2000); Council Directive 96/29/Euratom laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionizing radiation; Council Directive 90/641/Euratom on the operational protection of outside workers exposed to the risk of ionising radiation during their activities in controlled areas.

⁴ “Battery” or “accumulator” means any source of electrical energy generated by direct conversion of chemical energy and consisting of one or more primary battery cells (non-rechargeable) or consisting of one or more secondary battery cells (rechargeable).

⁵ Waste Management (Batteries and Accumulators) Regulations 2008 (S.I. No. 268 of 2008); European Parliament and Council Directive 2006/66/EC on batteries and accumulators and waste batteries and accumulators.

as waste electrical and electronic equipment (WEEE) and in particular the radioactive sources and batteries used in these devices.

This guidance has been developed jointly by the Environmental Protection Agency (EPA) and the Radiological Protection Institute of Ireland (RPII). It aims to provide clarity and promote best practice in an area of common interest without prejudice to the respective statutory responsibilities and obligations of each organisation. The guidance is aimed at the following groups:

- Producers, importers, distributors and retailers of ICSDs. These are defined as appropriate in Section 4;
- End-users of ICSDs, i.e. private households and non-household end users;
- WEEE collective compliance schemes and their approved waste management contractors;
- Waste collection permit holders and waste licence/facility permit holders handling WEEE;
- Operators and managers of civic amenity sites; and,
- EPA, RPII and local authority enforcement inspectors.

3. Respective roles of the EPA and the RPII

3.1 *Role of the EPA*

The Environmental Protection Agency (EPA) is an independent public body established in 1993 under the Environmental Protection Agency Act, 1992. The EPA has responsibilities for a wide range of licensing, enforcement, monitoring, assessment, guidance, reporting and research activities associated with environmental quality and protection. In the context of these responsibilities it should be noted that the Waste Management Act, as amended, does not apply to a radioactive substance within the meaning of the Radiological Protection Act, 1991. However, the WEEE Regulations referred to above explicitly require the removal of components containing radioactive substances from separately collected WEEE⁶.

⁶ Refer to the Seventh Schedule of the Waste Management (Waste Electrical and Electronic Equipment) Regulations, 2005 (S.I. No 340 of 2005, as amended by S.I. No. 375 of 2008).

3.2 *Role of the RPII*

The Radiological Protection Institute of Ireland (RPII) is the national organisation with regulatory, monitoring and advisory responsibilities in matters pertaining to ionising radiation. In particular the RPII is the competent authority for the protection of workers and members of the public from the harmful effects of exposure to ionising radiation. It was established in 1992 under the Radiological Protection Act, 1991. The RPII operates a licensing system for all users of sources of ionising radiation such as sealed radioactive source and X-ray equipment. Historically, it has exempted householders from the requirement to hold a licence for ICSDs as they pose no hazard through normal operation.

4. WEEE and Batteries Regulations

The Waste Management (Waste Electrical and Electronic Equipment) Regulations (S.I. No. 340 of 2005, as amended by S.I. No. 375 of 2008), hereafter referred to as the WEEE Regulations, came into force on 13 August 2005. The Waste Management (Batteries and Accumulators) Regulations (S.I. No 268 of 2008), hereafter referred to as the Batteries Regulations came into effect on 26 September 2008. The EPA is the lead enforcement authority for the WEEE and Batteries Regulations and enforcement responsibility is shared with the local authorities.

The WEEE and Batteries Regulations set up a framework whereby WEEE and waste batteries and accumulators can be managed in an environmentally sound manner. The regulations place significant obligations on Producers placing electrical and electronic equipment (EEE) or batteries (including portable, automotive and industrial batteries and batteries incorporated into appliances) on the market in the Republic of Ireland or Distributors of those products once they are in the country.

In general a **Producer**⁷ is defined under the regulations as any person manufacturing, importing, re-branding or re-selling EEE or batteries in Ireland, including by means of distance communication.

⁷ A **WEEE producer** means any person who irrespective of the selling technique used, including by means of distance communication – (i) manufactures and sells electrical and electronic equipment under his or her own brand, (ii) resells electrical and electronic equipment produced by other suppliers under his or her own brand, (iii) imports electrical and electronic equipment on a professional basis into the State, (iv) exports electrical and electronic equipment on a professional basis from the State to another Member State of the European Union, or (v) distributes electrical and electronic equipment from a producer who is deemed not to be registered under the provisions of article 12(2); a **battery producer** means any person in a Member State that, irrespective of the selling technique used, including by means of distance communication as defined in Directive 97/7/EC of the European Parliament and of the Council of 20 May 1997 on the protection of consumers in respect of distance contracts, places batteries or accumulators, including those incorporated into appliances or vehicles, on the market for the first time within the territory of that Member State on a professional basis.

Producers are responsible for financing the environmentally sound management of EEE and batteries that they place on the market in Ireland, when they reach end-of-life.

A **Distributor**⁸ is defined as any person providing EEE or batteries on a commercial basis to the party who is going to use it. A distributor also has responsibilities under the regulations, mainly relating to facilitating free take-back of WEEE and waste batteries. Some producers will also be a distributor / retailer and must therefore fulfil both sets of obligations.

5. Ionisation Chamber Smoke Detectors

Ionisation Chamber Smoke Detectors (ICSDs) use an ionisation chamber and a source of ionising radiation to detect smoke particles. ICSDs contain a low activity americium-241 source (typically less than 37 kBq) and can be battery-operated or mains operated with a battery backup. These products are included in the scope of the WEEE and Batteries Regulations and free take-back must be made available to householders and, in certain circumstances, commercial end-users at the end of their useful life. They must not be disposed of in general refuse or mixed waste streams.

The options available for householders and commercial end-users for the management of waste ICSDs are outlined in section 5.2 below.

5.1 *Licensing by RPII*

At present, companies in Ireland who supply ICSDs and / or hold more than 500 in stock are required to be licensed by the RPII. Distribution of ICSD units is restricted to those activities not exceeding 37 kBq of americium-241 per unit. Such companies may be considered producers (e.g. importers) or distributors (e.g. retailers), or both, under the WEEE Regulations and must therefore fulfil the relevant obligations outlined above in relation to producers and distributors. The licensing requirement also applies where any stockpile of more than 500 waste ICSDs are held. This can include an authorised waste treatment facility, civic amenity site, waste recovery operator or producers and distributors accepting back waste ICSDs in accordance with the WEEE Regulations. Included in the conditions of the RPII licence, is the requirement to provide take-back for the ICSDs at the end of their useful life, to facilitate their environmentally sound

⁸ A **WEEE distributor** means any person who provides electrical and electronic equipment on a commercial basis to the party who is going to use it; a **battery distributor** means any person that provides batteries or, as appropriate, accumulators on a professional basis to an end-user.

management. The practical approach to managing waste ICSDs, in compliance with RPII licensing and the requirements of the WEEE Regulations is outlined below.

Companies licensed by the RPII returning ICSDs directly to suppliers in other EU Member States must ensure that the relevant 1493/93⁹ shipment documents are completed and stamped as appropriate by the Competent Authority for radiation protection within that country. The same applies for any ICSDs imported into Ireland. Companies acquiring/returning ICSDs from/to countries outside the European Union must seek authorisation from the RPII by means of an import/export licence. For the purpose of this guidance the RPII, by Statutory Order¹⁰, regulates, restricts or prohibits, save under licence issued by the RPII, the custody, handling, holding, storage, use, manufacture, importation, distribution, transportation, exportation or other disposal of ionisation chamber smoke detectors.

5.2 *Management of waste ICSDs*

Due to the radioactive source contained in ICSDs, they should remain intact at all times and no attempt should be made to dismantle waste ICSDs or remove any components from them.

Householders can bring back waste ICSDs free of charge to the retailer (i.e. distributor as defined above) from which they are purchasing a new one, on a one-for-one basis, or alternatively to the local civic amenity site. Retailers can deposit waste ICSDs, accepted back from customers as WEEE, at the local civic amenity site, or can arrange collection through the WEEE compliance schemes.

For *non-household (commercial end-users)*, when having ICSDs replaced, the waste ICSDs should be returned to the original supplier, according to the branding indicated on the units. This can be done either by the commercial end-user or the contractor carrying out the refit. The producer of the new replacement units, in the case of a refit, is responsible for financing the environmentally sound management of the waste ICSDs. The contractor will usually be the producer in accordance with the WEEE Regulations, and as such must fulfil the take back obligations, irrespective of brands. Where old ICSDs are branded with a supplier that is no longer in operation or present in the country, the contractor carrying out the refit is advised to take custody of the units, and arrange for a transfer to a suitable facility. Such transfer should be documented and relevant records retained. In the case of removal of waste ICSDs where there is no replacement, the

⁹ Council Regulation (Euratom) No 1493/93 of 8 June 1993 on shipments of radioactive substances between Member States or European Communities (Supervision and Control of Certain Shipments of Radioactive Waste and Spent Fuel) Order, 2009 (S.I. No. 86 of 2009) as appropriate.

¹⁰ Radiological Protection Act, 1991 (Ionising Radiation), Order, S.I. No 125 of 2000.

commercial end-user remains responsible for financing their environmentally sound management at end-of-life.

Civic Amenity Sites (Recycling Centres)

All civic amenity sites accept WEEE and waste batteries and the facilities are available to householders as well as distributors (e.g. retailers) that have taken back WEEE and waste batteries from householders. Segregated storage¹¹ for waste ICSDs should be provided at civic amenity sites and other relevant authorised waste management facilities. Appropriate segregated storage for ICSDs is considered to be a covered drum (preferably steel), or other appropriate covered receptacle, accurately labelled, and stored under suitable, secure roofing/cover¹².

Suitable arrangements should also be in place to prevent the loss or theft of, or unauthorised access to, or unauthorised removal of the ICSDs from their assigned location. Clear signage should also be displayed at the area in which the ICSD storage receptacle is located indicating “Ionisation Chamber Smoke Detectors (ICSDs)”. Adherence to the above demonstrates compliance with the Sixth and Seventh Schedule of the WEEE Regulations and is also considered good practice from a radiological protection perspective. Waste ICSDs collected at civic amenity sites should be returned to the original supplier, according to the branding indicated on the units or transferred to a suitable facility. Such transfer should be documented and relevant records retained.

Final recovery or disposal of ICSDs

Due to the radioactive source contained in ICSDs, waste ICSDs should be managed differently to other WEEE. At present there is no national central storage facility for radioactive waste. A study is underway at present to explore the technical and economic aspects of developing a National Difficult Waste Management Facility (NaDWaF), which would include the consideration of disused and orphan sources of radioactive waste, where the original manufacturer is no longer in existence. Other waste ICSDs, which are branded with an existing manufacturer, may be transported in the RPII-licensee’s own vehicles or by an RPII-licensed carrier or transport service provider. Transport must be undertaken in compliance with the

¹¹ The Seventh Schedule of the Waste Management (Waste Electrical and Electronic Equipment) Regulations, 2005 (S.I. No 340 of 2005, as amended by S.I. No. 375 of 2008) sets out requirements for separate collection of specified components that have been removed from WEEE. Segregated storage of waste ICSDs is considered best practice.

¹² The Sixth Schedule of the Waste Management (Waste Electrical and Electronic Equipment) Regulations, 2005 (S.I. No 340 of 2005, as amended by S.I. No. 375 of 2008) sets out the requirement for storage of WEEE on impermeable surfaces and under weatherproof covering.

current editions of the ADR¹³ for road transport and the IMO IMDG Code¹⁴ for transport by sea. For ICSDs being shipped out of Ireland by sea, pre-authorisation for the carriage of these units is also required by the sea carrier and the relevant port's Harbour Master's office.

6. WEEE waste management facilities

Any waste facility must be appropriately authorised either by holding a waste licence issued by the EPA or a waste facility permit or certificate of registration issued by the relevant local authority. EPA-licensed waste management facilities are listed on the EPA website (www.epa.ie). Waste facilities accepting ICSDs may also have to be licensed by the RPII, depending on the numbers of ICSDs managed.

7. Contact Information

Regulators	Environmental Protection Agency Office of Climate, Licensing and Resource Use PO Box 3000, Johnstown Castle Estate, Wexford Tel: 053 9160600 Fax: 053 9160699 Email: weee@epa.ie ; batteries@epa.ie Web: www.epa.ie www.weee-enforcement.ie www.batteries-enforcement.ie	Radiological Protection Institute of Ireland Regulatory Services Division 3 Clonskeagh Square Clonskeagh Road Dublin 14 Tel: 01 2697766 Fax: 01 2605797 Email: rpii@rpii.ie Web: www.rpii.ie
Collective WEEE /Battery compliance schemes	WEEE Ireland Suite 18 The Mall, Beacon Court, Sandyford, Dublin 18 Tel: 01 2999320 Fax: 01 2959410 Email: info@weeeireland.ie Web: www.weeeireland.ie	ERP Ireland Unit 9D Nutgrove Office Park, Nutgrove Avenue, Dublin 14 Tel: 01 299 56542 Fax: 01 299 5644 Email: info@erp-recycling.org Web: www.erp-recycling.org

¹³European Agreement Concerning the International Carriage of Dangerous Goods by Road, UNECE – refer to the Health and Safety Authority for more information www.hsa.ie.

¹⁴International Maritime Dangerous Goods (IMDG) Code – refer to the International Maritime Organisation for more information www.imo.org.

