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RWANDA
STANDARD

**RS 276-1**

First edition
2016-04-01

# Electrical and electronic waste — Handling, collection , transportation and storage — Code of practice

Reference number
RS 276-1: 2016

Rwanda Standards Board

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# Foreword

Rwanda Standards are prepared by Technical Committees and approved by Rwanda Standards Board (RSB) Board of Directors in accordance with the procedures of RSB, in compliance with Annex 3 of the WTO/TBT agreement on the preparation, adoption and application of standards.

The main task of technical committees is to prepare national standards. Final Draft Rwanda Standards adopted by Technical committees are ratified by members of RSB Board of Directors for publication and gazettment as Rwanda Standards.

RS 276-1 was prepared by Technical Committee RSB/TC 013, *Environment, health and safety*.

In the preparation of this standard, reference was made to the following standards:

1) RS 181:2013, *Solid waste — Handling, collection, transportation and disposal — Code of practice*

2) RS 180:2013, *Solid waste — Safe management for disposal sites — Guidelines*

3) RS 183:2013, *Occupational health and safety — Management systems — Requirements*

4) ISO14001:2015, *Environmental management systems — Requirements with guidance for use*

The assistance derived from the above source is hereby acknowledged with thanks.

RS 276 consists of the following parts, under the general title *Electrical and electronic waste — Code of practice*:

— *Part 1: Handling, collection, transportation and storage*

— *Part 2: Treatment and disposal.*

## Committee membership

The following organizations were represented on the Technical Committee on Environment, health and safety (RSB/TC 013) in the preparation of this standard.

Compagnie pour l'Environnement et le Développement (COPED LTD)

Ministry of Natural Resources (MINIRENA)

Ministry of Trade and Industry (MINICOM)

Ministry of Youth and ICT (MYICT)

Resources Efficient and Cleaner Production Centre (RECP)

Rwanda Education Board (REB)

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Rwanda Environment Management Company (RWEMACO LTD)

Rwanda Environmental Management Authority (REMA)

Rwanda Utilities Regulatory Authority (RURA)

Standards for Sustainability (SfS)

University of Rwanda – College of Science and Technology (UR-CST)

Rwanda Standards Board (RSB) – Secretariat

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# Electrical and electronic waste — Handling, collection, transportation and storage — Code of practice

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## 1 Scope

This Rwanda Standard prescribes handling, collection, transportation and storage of various categories of Electrical and Electronic waste (e-waste) to ensure the environment and human health is protected against the potential adverse impacts of e-waste.

Consumer and industrial electrical and electronic waste are part of this Rwanda Standard and the various categories covered by this Rwanda Standard are found in annex A.

Items referred to in the annex B are excluded in the application of this Rwanda Standard.

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

RS 181, *Solid waste — Handling, collection, transportation and disposal — Code of practice*

RS 180, *Solid waste — Safe management for disposal sites — Guidelines*

RS 183, *Occupational health and safety — Management systems — Requirements*

ISO14001, *Environmental management systems — Requirements with guidance for use.*

## 3 Terms and definitions

For the purposes of this standard, the following terms and definitions apply.

**3.1**

**consumer**

user of electrical and electronic equipment and potential generator of e-waste

**3.2**

**chlorofluorocarbon (CFC)**

compound consisting of chlorine, fluorine, and carbon. CFCs are commonly used as refrigerants, solvents, and foam blowing agents

**3.3**

**collector**

person who receives e-waste directly from the generator for recycling or processing for reuse. "Collector" includes, but is not limited to, manufacturers, recyclers, and refurbishers who receive e-waste directly from the public


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**3.4**

**electrical equipment**

includes any machine powered by electricity. They usually consist of an enclosure, a variety of electrical components, and often a power switch. Examples of these include: major appliance, microcontroller, power tool and small appliances. It also often refers only to the components part of the electrical distribution system such as: electric switchboards, distribution boards, circuit breakers and disconnects, electricity meter and transformers

**3.5**

**electronic equipment**

equipment that involves the controlled conduction of electrons (especially in a gas or vacuum or semiconductor) e.g. amplifier, audio and sound system, cassette player, CD player, Cathode Ray Oscilloscope, detector, equalizer, mixer, modem, telephone among others

**3.6**

**Electrical and Electronic Equipment (EEE)**

equipment which is dependent on electric currents or electromagnetic fields in order to work properly and equipment for the generation, transfer and measurement of such currents and fields

**3.7**

**environmentally sound management**

taking all steps required to ensure that e-waste is handled, collected, transported and stored in a way which shall protect health and environment against any adverse effects, which may result from hazardous substance contained in such waste

**3.8**

**e-waste**

"e-waste" is a term used to cover all items of electrical and electronic equipment (EEE) and its parts that have been discarded by its owner as waste without the intent of reuse

**3.9**

**regulatory authority**

competent authority with the responsibilities to regulate e-waste management

**3.10**

**cooperative**

corporate body with perpetual succession and legal personality, power to sue and be sued, power to enter into contracts, capacity to hold movable and immovable, properties of every description, ability to do all things necessary for the purpose of and in accordance with its bylaws

**3.11**

**licence**

document issued by the authorized competent authority to carry out the activity of collecting and transporting e-waste

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**3.12**

**household**

family of one or more persons, residing together in the same house

**3.13**

**collection centre**

centre established individually or a registered association or cooperative, designated agency or a company to undertake collection operations of e-waste

**3.14**

**generator**

any person or institution that produces e-waste

**3.15**

**manufacturer**

entity involved in the making or production of electrical and electronic equipment either locally or internationally

**3.16**

**producer**

any person or entity who introduces or causes to be introduced new and used electrical and electronic equipment into the market by sale, donation, gifts, inheritance or by any such related methods and can either be a manufacturer, importer, distributor or assembler

**3.17**

**take-back**

process of returning or repossessing used products from the market to the producer or their representative

**3.18**

**transporter**

person or entity that is in the conduct of carrying or conveying e-waste from one point to another

**3.19**

**industrial e-waste**

all e-waste generated at the level of the industries.

## 4 Requirements

### 4.1 E-waste handling

**4.1.1** E-waste shall be segregated at source with other types of solid waste and handled separately in accordance with Annex D.

**4.1.2** Different categories of e-waste shall be handled separately depending on the contained hazardous components.

**4.1.3** The handler of e-waste shall wear complete protective garments that shall include boots, water resistant overalls, respirator masks and hand gloves.

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**4.1.4** Appropriate containers shall be used in accordance with Annex D.and other Best Available Technology (BAT)

**4.1.5** Written procedures shall be readily available for all workers for e-waste handling.

## 4.2 E-waste collection

During e-waste collection the following shall be taken into consideration:

a) e-waste collection shall be done separately from other types of waste in order to provide adequate treatment, thus preventing pollution and loss of resources;

b) e-waste containers shall not be overfilled and shall be appropriately covered and labelled; and

c) the containers shall be immediately replaced once they are worn out.

### 4.2.1 E-waste collectors/transporters

Collectors/transporters shall:

a) be trained on e-waste management;

b) be licensed by the authorised entity;

c) ensure e-waste is appropriately packed while transporting;

d) ensure e-waste is appropriately stored;

e) ensure the transporting means is appropriately and completely closed; and

### 4.2.2 Establishment of collection and storage systems

Collection infrastructure requires establishment of e-waste collection points and storage areas. The following are requirements for establishing collection points and storage areas:

a) collection points and storage areas shall provide sorting infrastructure to effectively separate e-waste from other municipal waste in case sorting was not done at the source;

b) collection facilities shall be available and accessible taking into account the e-waste generation potential of the area;

c) sites for storage of e-waste prior to their treatment shall have impermeable surface for appropriate areas with the provision of spillage collection facilities and where appropriate, decanters and cleanser-degreasers;

d) sites for storage of e-waste prior to their treatment shall have weatherproof covering and allow appropriate ventilation;

e) records of e-waste collected as well as occupational health and safety concerns according to RS 183 shall be submitted to the competent authority; and

f) awareness creation on delivery mechanisms of e-waste to the collection centres shall be the responsibility of the producers, competent authorities, retailers and importers.

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#### 4.2.3 E-waste collection modalities

The collection modalities are described in terms of the collection channels and infrastructure required to make the channels operational.

##### 4.2.3.1 Consumer take back and storage

Consumer take back and storage shall take the following into consideration:

a) consumers take back e-waste to retail stores of authorized distributors of similar products;

b) consumers take back the product at the retail store depending upon purchase of a new product, or without any purchase required;

c) distributors also shall provide take back schemes to ensure availability and accessibility of designated collection points.

##### 4.2.3.2 Producer/retailer take back and storage

Producer/retailer take back and storage shall go as follows:

a) e-waste is taken back by producers/retailer either directly at their facilities or designated collection centres that feed into the e-waste system;

b) the collected e-waste by the producer is stored on site to be transported for treatment elsewhere or on the site;

c) the individual producers can have direct contact with dismantlers or recyclers which allows them to take back the re-usable components from their obsolete equipment.

##### 4.2.3.3 Door to door

The door to door modalities shall:

a) involve direct pick up of e-waste at the household or institutional level, this process is highly dependent on the stakeholders doing the pick-up especially those who generate significant volumes of e-waste;

b) involve generators making a request for pick-up of e-waste by the use of online systems or social media to the authorized collectors or recyclers.

#### 4.2.4 Collection centres

A collection centre shall comply with the following requirements:

a) enable household e-waste to be collected from streams of household appliances covered by the scope of this Rwanda Standard;

b) be accessible to the public;

c) have signs to direct the public to deposit e-waste to the relevant container or area, and prevent mixing of e-waste with other waste;

d) state the maximum quantity that can be deposited on the site;

e) have impermeable surface with a sealed drainage and impermeable drains which do not leak to ensure that all liquids are in a sealed sump except where they may be lawfully discharged;

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f) have a weatherproof cover and appropriate ventilation;

g) have a Collection Point and Storage Facility adequate to serve the geographical area and the volume of separated e-waste tonnage captured;

h) be located where it complies with environmental regulations;

i) collection centres shall store the e-waste after sorting it into various categories for easier access by downstream users as well as to facilitate record keeping on the quantities of e-waste;

j) collection centres shall be located in areas that comply with environmental laws and regulations applicable in Rwanda;

k) collection centres shall be licensed by the Regulatory Authority in consultation with other relevant key government stakeholders;

### 4.3 Transportation of e-waste

**4.3.1** Transportation of e-waste from generators collection and treatment facilities shall be done in such a manner that prevents scattering of e-waste on the way.

**4.3.2** Transporters of e-waste shall be responsible for clearing any waste off the road such waste has been accidently deposited along the road.

**4.3.3** For the safety and health of the e-waste-handlers, they shall be provided with Personal Protective Equipments.

**4.3.4** Transportation of e-waste outside the boarders of Rwanda shall be done in accordance with the trans-boundary movement of hazardous waste.

**4.3.5** E-waste transportation shall entail stringent procedure as they may contain toxic chemicals and other substrates hazardous to human health, the environment and wildlife.

**4.3.6** In the event of the dispersal of e-waste within the haul distance, the generator shall immediately clean-up the area.

**4.3.7** A licence for transportation of e-waste shall be obtained from the regulatory authority.

### 4.4 E-waste storage

E-waste storage shall respect the following:

a) the e-waste storage can be within the treatment facility (on site) or outside the facility (off site);

b) it shall be well covered to store e-waste until it is recycled or treated;

c) the covering shall be weatherproof to minimise the contamination of clean surface and rain waters. It shall also facilitate the reuse of whole appliances and components intended for recycling and to assist in the containment of hazardous materials and fluids;

d) the type of weatherproof covering required shall depend on the types and quantities of waste and the storage and treatment activities undertaken;

e) e-waste items shall be separated and stored in appropriate well marked containers;

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f) the storage area shall have impermeable surfaces and a sealed drainage system. This will ensure that no liquid will run off the pavement and all liquids entering the system are collected in a sealed sump;

g) spillage collection facilities shall be provided. They shall include the impermeable pavement and sealed drainage system as the primary means of containment; and

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# Annex A
(normative)

## Categories of electrical and electronic products covered under the scope of this Rwanda Standard

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**A.1** List of products which shall be taken into account for the purpose of this standard includes, but are not limited to:

| S/N | Categories of Electrical and Electronic Equipments |
|---|---|
| **A** | **Information Technology and Telecommunication Equipment:** |
| 01 | Centralized data processing |
| 02 | Mainframes, Minicomputers |
| 03 | Personal computing |
| 04 | Personal computers (Central processing unit with input and output devices) |
| 05 | Laptop computers (Central processing unit with input and output devices) |
| 06 | Notebook computers |
| 07 | Notepad computers |
| 08 | Printers including cartridges |
| 09 | Copying equipment |
| 10 | Electrical and electronic typewriters |
| 11 | User terminals and systems |
| 12 | Facsimile |
| 13 | Telex |
| 14 | Telephones |
| 15 | Pay telephones |
| 16 | Cordless telephones |
| 17 | Cellular telephones |
| 18 | Answering systems |
| **B** | **Consumer electrical and electronics** |
| 01 | Television sets (including sets based on (Liquid Crystal Display and Light |
| 02 | Emitting Diode technology), Refrigerator, Washing Machine |
| 03 | Air- Conditioners excluding centralized air conditioning plants |

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### A.2 Toys, leisure and sports equipment:

| S/N | Equipment |
|---|---|
| 01 | Electric trains or car racing sets |
| 02 | Hand-held video game consoles |
| 03 | Video games |
| 04 | Computers for biking, diving, running, rowing, and other similar gadgets |
| 05 | Sports equipment with electric or electronic components |
| 06 | Coin slot machines |

### A.3 Monitoring and control instruments:

| S/N | Instrument |
|---|---|
| 01 | Smoke detector |
| 02 | Heating regulators |
| 03 | Thermostats |
| 04 | Measuring, weighing or adjusting appliances for household or as laboratory equipment |
| 05 | Other monitoring and control instruments used in industrial installations |

### A.4 Automatic dispensers:

| S/N | Dispenser |
|---|---|
| 01 | Automatic dispensers for hot drinks |
| 02 | Automatic dispensers for hot or cold bottles or cans |
| 03 | Automatic dispensers for solid products |
| 04 | Automatic dispensers for money |

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# Annex B
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## Categories of products excluded from the scope of this standard

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The following equipment shall not be taken into account:

| S/N | Equipment |
|---|---|
| **A** | **Medical devices (with the exception of all implanted and infected products)** |
| 01 | Radiotherapy equipment |
| 02 | Cardiology |
| 03 | Dialysis |
| 04 | Pulmonary ventilators |
| 05 | Nuclear medicine |
| 06 | Laboratory equipment for in-vitro diagnosis |
| 07 | Analysers |
| 08 | Freezers |
| 18 | Other appliances for detecting, preventing, monitoring, treating, alleviating illness, injury or disability |
| **B** | **Security and military equipment** |
| **C** | **Transformers and capacitors** |

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# Annex C
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## Hazardous substances that can occur in the e-waste

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| Hazardous Substance | Use | Risk | Regulatory requirements with threshold quantities |
|---|---|---|---|
| Short Chain Chloro Paraffins, Alkanes, C10-13 | Amounts less than 1 % by weight of SCCP are present in mid chain chlorinated paraffin's (MCCP). Used as secondary plasticizer and flame retardant for PVC and chlorinated rubber in cable insulation. | Very toxic to aquatic organisms. It may cause long term effects in the aquatic environment. | Halogenated Aliphatic Compounds >=0.5% |
| Antimony trioxide | The major use is as a flame retardant synergistin plastics etc. It increases the flame retardant effectiveness of halogenated flame retardant compounds thereby minimising their level. | Limited evidence of acarcinogenic effect | Antimony andantimony compounds >=0.005 % |
| Beryllium metal | Chassis, rotating mirrors in laser printers; windows for X-ray generators and detectors for research and medical purposes. | Very toxic on inhalation and may cause cancer by inhalation | Beryllium and cadmium compounds >=0.005% |
| Beryllium oxide | Used in heat sink electrical insulators for electrical and electronic systems and devices. It has very high thermal conductivity; very high electrical resistivity; low dielectric constant; low loss factor; high breakdown voltage; and chemically inert. | Very toxic by inhalation. It may cause cancer by inhalation | Beryllium and cadmium compounds>=0.005 % |
| Cadmium | Part of the negative electrode material in nickel-cadmium (NiCd) batteries, as an electrodeposited, vacuum deposited or mechanically deposited coating on iron, steel, aluminium-base materials, titanium-base alloys or other nonferrous alloys, and as an alloying element in low-melting brazing, soldering and other specialty alloys. | Very toxic by inhalation. It may cause cancer. | |
| Cadmium oxide | Part of the negative cadmium electrode in nickel cadmium and some silver-cadmium military Batteries. Also part of silver cadmium oxide (Ag-CdO) electrical contact alloys. | May cause cancer by inhalation. Toxic by inhalation. Toxic if swallowed. Danger of serious damage to health by prolonged exposure Harmful if swallowed | |
| Cadmium sulphide | Serves as the basis compound for a series of pigments and semi conducting compounds. Used in red, orange and yellow pigments for plastics, glasses, ceramics, enamels and artists colours, cadmium sulphide. Also used for phosphors in x-ray fluorescent screens, cathode ray tubes and electronic devices. | Limited evidence of acarcinogenic effect. Toxic by inhalation and if swallowed. Danger of serious damage to health by prolonged exposure. It may cause long term effects in the aquatic environment. | >=0.005 % |
| Chromium VI | Used as pigments (e.g.lead chromate) and as corrosion inhibitor (sodium dichromate) In circulating water systems e.g. absorption heat pumps and (industrial) heat exchangers in freezers and refrigerators. Electrical shielding material for certain sheet metals | Toxic if swallowed by inhalation. It may cause heritable genetic damage and cancer by inhalation. Very toxic to aquatic organisms and may cause long term effects in the aquatic environment. | >=0.005 % |
| Copper beryllium alloys | Used in electrical connector terminations; switch components; relay springs; electromagnetic radiation seals. | Toxic by inhalation | >=0.005 % |
| Decabromo-diphenyl-ether (DBDE) | Used as a flame retardant in electrical and electronic plastics. | Potential for forming brominated dibenzodioxins or furans (PBDD/F) in uncontrolled thermal processes, and possibility that higher PBDEs could debrominate to form the tetra and penta BDEs found in | >=0.005 % |


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| | | | |
|---|---|---|---|
| | | marine environment food chain | |
| Lead | Used in batteries, solders, alloying element for machining metals, printed circuit boards, components, in candescent light bulbs, and weighting | Lead compounds, are all classified as dangerous substances. | >=0.5 % |
| Lead oxide | Occurs in leaded glass in cathode ray tubes, light bulbs and photocopier pastes. Lead oxide is also used in batteries. | May cause harm to the unborn child Harmful by inhalation/harmful if swallowed | >=0.5 % |
| Liquid Crystals | Commercially available liquid crystals (LC) are mixtures of 10 to 20 substances, which belong to the group of substituted phenycyclohexanes, alkylbenzenes and cyclohexylbenzens. Liquid crystal mixtures are used as electroactive layer in liquid crystal display (LCD). | No indications of carcinogenic potential and acute oral toxicity have been found | |
| Mercury | It is used in thermostats, sensors, relays and switches, discharge lamps, among others. | Very toxic to aquatic organisms and may cause long term effects in the aquatic environment and the central nervous system (CNS) the kidney in humans Toxic by inhalation | >=0.005 % |
| Mineral Wool | Man-made vitreous (silicate) fibres with random orientation with alkaline oxide and alkali earth oxide (Na2O+K2O+CaO+MgO+BaO) content greater than 18 % by weight | Limited evidence of carcinogenic effect Irritating to the skin | |
| Octabromodiphenylether (OBDE) | Flame retardant in plastics used for electrical and electronic equipment | Possible risk of harm to the unborn child | >=0.005 % |
| Polychlorobiphenyls | Extensively used in capacitors and transformers. Found in refrigerators, cookers, washing machines, air-conditioners, dishwashers. | Very toxic to aquatic organisms and may cause long term effects in the aquatic environment | 50mg/kg (0.005%) |
| Refractory Ceramic Fibers: | Man-made vitreous (silicate) fibers with random orientation with alkaline oxide and alkali earth oxide | May cause cancer by inhalation. Irritating to the skin | |
| Tetrabromobisphenol-A(TBBPA) | It is used as are active (primary use) or additive flame retardant in polymers.and printed writing boards. | Potential to form brominated dioxins/furans in thermal processes. Potential for endrocrine modulating effects (hormone disrupter).substances” | >=.005 % |

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# Annex D
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## BAT-based storage and protective equipments for staff

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| S/N | Name of tool | Description | Picture example |
|---|---|---|---|
| 1 | Dismantlers tool kit | Contains tools for assembling and tools for disassembling which are used simply. Operation is reliable and safe |  |
| 2 | Semi-automatic dismantling tools | Used as equipment that protects the user against health or safety risks at work |  |
| 3 | High end dust protection masks | - Protect workers from toxic dust and fumes<br>- Protect the wearer from inhaling harmful dusts, fumes, vapors, or gases |  |
| 4 | High end ear muffs | Protect workers from noise, example, CRT cutter, shredder, etc. |  |
| 5 | | Protect workers from cutting themselves while handling CRT tubes |  |

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| | | | |
|---|---|---|---|
| 6 | Overcoats, helms, goggles and safety shoes | Protect workers from injury and offer protection against dust | <br> |

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# Bibliography

[1] AS/NZS 5377:2013, *Collection, storage, transport and treatment of end-of-life electrical and electronic equipment*

[2] *Guidelines for environmentally sound management of e-waste, March*

[3] *R2 Code of Practices/Version 1, July 1, 2013*

[4] *e-waste technical guidelines, April 15, 2015*

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**ICS 13.30.30**

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