

Appendix 7a: Electronics Recycling Standard

Ontario Electronic Stewardship

Revised Electronics Recycling Standard



Last updated June, 2009

PREAMBLE

The OES Electronics Recycling Standard (ERS) defines the minimum requirements to become an OES-Approved end-of-life (EOL) electronics processor. In order to be fully implemented, the ERS must be read in conjunction with the Recycling Standard Guidance Document (Appendix 7b) and the Ontario-Specific Compliance Requirements (Appendix 12).

The ERS does not absolve processors from any federal, provincial and/or municipal legislation and regulations applicable to their business operation, and it is the responsibility of the processor to be aware of and abide by all such legislation and regulations. The ERS shall guide processors by ensuring EOL electronics are managed in an environmentally sound manner that safeguards worker health and safety and the environment from the point of primary processing to the point of final disposition.

Approved recycling programs shall reserve the right to engage a qualified auditor to verify EOL recycler conformance to this Standard. For further details on the application of the Standard, please refer to the Electronics Recycling Standard Guidance Document.

The ERS and accompanying documents shall be reviewed in 2012, and every three years thereafter.

CONFIDENTIALITY

All information provided to the Program Manager as part of the qualification process is considered confidential and shall not be released to any other party without the written consent of the processor.

PART I – REQUIREMENTS

1. General Requirements

All processors shall:

- 1.1. Possess Comprehensive or Commercial General Liability Insurance including coverage for bodily injury, property damage, complete operations and contractual liability with combined single limits of not less than \$2,000,000 per occurrence, \$2,000,000 general aggregate.
- 1.2. Possess workers compensation coverage through either a provincial program or through a private insurance policy.
- 1.3. Ensure that whole units and separated components of EOL electronics goods are stored and/or processed at minimum in a fully covered area that conforms to all current applicable legislation and where:
 - 1.3.1. Unauthorized access to the premises and storage areas is controlled or otherwise prohibited through security measures;
 - 1.3.2. Any electronic scrap, as outlined in Table 1, that are stored outside must be covered to prevent exposure to environmental elements, and;
 - 1.3.3. Any Substances of Concern, as outlined in Table 1, are protected from exposure to weather and leaching into the surrounding natural environment through indoor storage.

- 1.4. Maintain a documented and operational environmental, health and safety (EHS) management system consistent with the ISO 14001 framework to ensure adequate control over the environmental impacts associated with the facility's operations, with the following minimum features:
 - 1.4.1. A written policy approved by senior management outlining corporate commitment to EHS management and continuous improvement;
 - 1.4.2. A documented process for identifying and addressing corrective actions, and;
 - 1.4.3. A documented annual review of the EHS management system.
- 1.5. Maintain a documented process to identify, assess and ensure compliance with this standard and all applicable regulatory requirements, including but not limited to:
 - 1.5.1. Environmental regulations, including permits or certifications for operating, air emissions, or other discharges;
 - 1.5.2. Occupational health and safety regulations;
 - 1.5.3. Transportation regulations, and;
 - 1.5.4. Hazardous waste management regulations (storage, handling, and shipping).
- 1.6. Maintain evidence of applicable transportation service provider's regulatory permits if transporting materials regulated as hazardous.
- 1.7. Implement and maintain an emergency response plan to prepare for and respond to emergencies including fires, spills, and medical.
- 1.8. Document the downstream flow and handling of EOL electronics from receipt at the processor's facility to each Point of Final Disposition, including details on how the goods are processed at each point, and the percentage of processed materials sent to each downstream processor.
- 1.9. Maintain a documented process to evaluate and select downstream processors through to the Point of Final Disposition that assesses the environmental, health and safety impacts of their operation
- 1.10. Maintain all records for a minimum of three years, including manifests, bills of lading, waste records, and chain of custody of all EOL electronics processed.
- 1.11. Maintain a process to provide certificates of recycling for all program material processed.
- 1.12. Maintain a process to provide written notice to the Program Manager of any fines; regulatory orders; environmental incidents such as spills; and loss of data storage products that has occurred at The Primary or downstream processor within 5 business days of such incident.
- 1.13. Not make use of prison labour.
- 1.14. Maintain a documented closure plan that identifies at a minimum the financial requirements upon closure and the financial mechanism for ensuring the availability of such funds, such a security/performance bond or other similar financial instrument.

2. Occupational Health and Safety

All processors shall implement and maintain an Occupational Health and Safety (OHS) program to ensure compliance with applicable OHS legislation. Notwithstanding any legislated requirements, this program shall entail the following minimum features:

- 2.1. Maintain a worker committee that monitors and evaluates the effectiveness of the OHS programs and makes recommendations to management for improvements. The committee must conduct documented meetings at least on a monthly basis.
- 2.2. Conduct a documented annual risk assessment of hazards and worker exposure to lead and other toxic substances through air, absorption, ingestion, or other means.
- 2.3. Safeguard hazardous mechanical processes to prevent worker injury.

- 2.4. Provide Personal Protective Equipment (PPE) to reduce injury or exposure to dusts and metals that may contact the skin and/or lungs either through airborne dusts or handling materials, and enforce the use of this equipment.
- 2.5. Maintain a process to identify health and safety training needs and provide regular documented OHS training, including at minimum new hire and refresher training, information from the risk assessment required, safe material handling, spill prevention, engineering controls, equipment safety, use and care of PPE.
- 2.6. Conduct air sampling and analysis for airborne contaminants such as metal content and dusts, and ensure compliance with applicable exposure requirements at a frequency determined through the risk assessment.
- 2.7. Conduct annual facility sampling to detect worker exposure to lead and other toxic substances through medical examinations, air sampling, and sampling of surfaces in communal areas.
- 2.8. Implement policies and procedures for hygiene, eating and drinking to reduce worker exposure to lead and other toxic substances.
- 2.9. Conduct an analysis of noise levels and post results in processing areas, and ensure adequate hearing protection is provided when those levels exceed applicable regulated requirements.
- 2.10. Perform regular fit-test and provide user training when personal respiratory protection equipment is used.
- 2.11. A thorough housekeeping program, which includes regular planned and documented OHS inspections.

3. EOL Electronics Processing and Handling

- 3.1. Data storage products and components, such as hard drives, shall be stored and the recycling process managed in such a manner to ensure the security of the products/components and to prevent any unauthorized access and use of the information stored on these components/products. At a minimum, the processor shall:
 - 3.1.1. Maintain a documented process to destroy information contained on data storage products through either physical means or use of industry recognized software.
 - 3.1.2. Maintain security measures to prevent the unauthorized access and removal of data storage products from the facility.
 - 3.1.3. Provide employee training on the data storage product destruction process.
 - 3.1.4. Data destruction processes by primary processors shall be reviewed and validated by an independent third party on an annual basis.
- 3.2. EOL electronics may be separated using manual, mechanical, chemical or heat treatment processes provided the operation is in compliance with this Standard and all applicable regulatory requirements, including permits.
- 3.3. Facilities employing mechanical material processing and separation activities shall be equipped with:
 - 3.3.1. A dust collection system/apparatus engineered to reduce a) environmental emission of; and, b) worker exposure to; toxic substances and particulate matter.
 - 3.3.2. An emergency shut-off system.
 - 3.3.3. Fire suppression equipment.
- 3.4. If mechanical processing of any component that is deemed through the risk assessment to pose a health and safety risk, they shall be removed prior to mechanical processing of intact EOL ELECTRONICS, including but not limited to mercury bearing lamps, ink and toner cartridges, and batteries contained within EOL ELECTRONICS.

3.5. Separated materials shall be managed according to Table 1.

Table 1: Separated materials and unacceptable Point of Final Disposition

	Materials	Minimal Acceptable Process	Unacceptable Point of Final Disposition
Non-Hazardous	Ferrous metal	Metal recovery	Landfill, export to non-OECD/ non-EU countries*
	Non-ferrous metal	Metal recovery	Landfill, export to non-OECD/ non-EU countries*
	Other metals (brass, bronze, metal fines)	Metal recovery	Landfill, export to non-OECD/ non-EU countries*
	Separated plastics	Pelletizing, plastic product feedstock	Use as raw material for food containers or toys, export to non-OECD/ non-EU countries*
	Mixed plastics	Pelletizing, plastic product feedstock, energy recovery	Use as raw material for food containers or toys, export to non-OECD/ non-EU countries*
	Wood	Energy recovery	Export to non-OECD/non-EU countries*
	Glass (non-lead)	Glass product feedstock	Export to non-OECD/non-EU countries*
Electronic Scrap	Cables and wires	Metal recovery	Landfill, incineration, export to non-OECD/non-EU countries*
	Printed circuit boards and analog boards	Metal recovery	Landfill, incineration, export to non-OECD/non-EU countries*
	Metal and plastic laminates	Metal recovery	Landfill, incineration, export to non-OECD/ non-EU countries*
	Components, including hard drives, optical drives. LCD/PDP panels, processors and chips, and other electronic components;	Metal recovery	Landfill, incineration, export to non-OECD/ non-EU countries*
Substances of Concern	Cathode Ray Tubes (CRT), CRT frit, leaded plasma display or other leaded glass	Metal recovery	Landfill, incineration, export to non-OECD/ non-EU countries*
	Leaded glass cullet	CRT manufacturing, metal recovery	Landfill, incineration, export to non-OECD/ non-EU countries* for use as glass cullet in CRT manufacturing IF NOT washed in an OECD country prior to export and destination country has not provided written determination that the material is not waste
	CRT Phosphor powder	Hazardous waste disposal	Landfill, incineration, export to non-OECD/ non-EU countries*
	Ethylene glycol in CRT projection tubes	Hazardous waste disposal	Landfill, incineration, export to non-OECD/ non-EU countries*
	Mercury-bearing lamps in LCD displays, projection units, and scanning equipment	Mercury recovery	Landfill, Landfill of stabilized mercury, incineration, export to non-OECD/ non-EU countries*
	Non-rechargeable batteries	Metal recovery	Landfill, incineration, export to non-OECD/EU countries*
	Rechargeable batteries	Metal recovery	Landfill, incineration, export to non-OECD/ non-EU countries*
	Battery processing effluent	Permitted recovery or disposal	Unpermitted discharge
Ink and toner cartridges	Materials recovery, energy recovery	Landfill, incineration, export to non-OECD/ non-EU countries*	

**Unless the primary processor can demonstrate that any/all downstream processors meet or exceed environmental, health and safety standards equal to Ontario requirements.*

PART II – DEFINITIONS

“Downstream Processor” means an entity that receives material from a primary recycler or other downstream processors for additional processing and/or disposition.

This includes entities that:

- Bulk and blend materials that are sent to other vendors for additional processing;
- Shred and separate materials that are sent to other vendors for additional processing;
- Process materials into new products;
- Process materials to recover metals, energy, and/or other resources;
- Disposal by landfill and/or incineration with or without energy from waste (EFW) recovery;
- Any other contracted party that handles, processes or disposes of materials on behalf of the primary recycler.

“EIHWRMR” refers to the Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulation under the Canadian Environmental Protection Act. Information is available at the following website: www.ec.gc.ca/drgd-wrmd

“Energy Recovery” or Energy from Waste (EFW) means the heat treatment of material in which the heat produced is used to produce electricity or steam or reduce the energy already required in a process.

- This includes the use of plastics as a fuel substitute.
- This does not include direct incineration.

“Environmental Management System” is a system used to identify and control the impact of the organization’s activities, products, and services on the natural environment. The system typically includes an environmental policy to provide guidance to the organization on controlling environmental matters as well as procedures outlining how environmentally significant tasks are to be conducted to ensure compliance with applicable environmental legislation.

“EOL” means end-of-life (electronics)

“Hazardous Material” means a material that is classified as a hazardous waste or hazardous recyclable material under the local governing authority. Components of EOL electronics that could fall under the definition of hazardous material include batteries, mercury-bearing products, leaded glass, and other materials defined as hazardous by applicable regulatory authorities.

“Incineration” means disposal that involves the combustion of organic materials and/or substances.

“Non-EFW incineration” means incineration without the capture of heat generated to produce electricity.

“Point of Final Disposition” means a point in the downstream flow of materials where the separated materials generated from the processing of EOL electronics become commodities used to produce new products, or they are disposed.

This includes:

- Use as a raw material in the production process of new products
- Recovery of metal, energy and/or other resources;
- Pelletization of plastics;
- Landfill and incineration disposal.

This does not include:

- Bulk and blend materials that are sent to other vendors for additional processing;
- Processing to prepare materials for use as a raw material, such as size reduction for feedstock in mills to be processed

“Processor” means an entity where EOL electronics are dismantled to separate materials for further processing by downstream processors. This does not include consolidation, cross-docking, or brokering of received material without processing.

“Program Manager” means the entity utilizing this Standard

“Substances of Concern” mean substances or components making up EOL electronics that in their normal state and under normal conditions of handling by a consumer pose little or no risk to human health or the environment but when handled, processed or transformed in large volumes at a recycling facility may merit special environmental and safety controls, and may be subject to specific regulatory requirements such as hazardous designation. These materials could include mercury-containing devices, PCB capacitors, leaded glass, batteries, ink and toner cartridges, etc.

“OECD Member Country” means a country that is a recognized member of the Organisation for Economic Co-operation and Development and is listed on the website www.oecd.org.

“Qualified Auditor” means an individual or agency trained and certified through an authoritative body to be an environmental auditor, who possesses a strong understanding of the ISO 19 011 Standard, the regulatory requirements in the jurisdiction of the processor, the Electronics Recycling Standard, and the Electronics Recycling Standard Guidance Document.