

**UNDERSTANDING e-STEWARDS IMPORT,  
EXPORT, & TRANSIT REQUIREMENTS**

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# UNDERSTANDING E-STEWARDS IMPORT, EXPORT & TRANSIT REQUIREMENTS

A core principle of the e-Stewards Standard is the principle of environmental justice which is realized in the standard, in part, by the requirements to control export, transit, and imports of Electronic Equipment & components that contain toxic materials. This control is based on the application of existing international laws and agreements, regardless of the jurisdiction in which the e-Stewards recycler is located.



## WHICH LAWS & AGREEMENTS ARE WE TALKING ABOUT?

The e-Stewards Standard requires the implementation of:

1. OECD Decisions & Treaties (See Appendix A for details)
2. Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (“The Basel Convention”)
3. The Basel Ban Amendment (Decision III/1) , regardless of whether or not it is in legal force nationally or internationally
4. Other international laws regarding trade (export, transit, or import) in hazardous wastes, including regional treaties and accords
5. National legislation of any countries concerned (export, transit, and import), including laws pertaining to tested and Fully Functional used equipment, and restrictions on older equipment

## THE BASEL CONVENTION

The Basel Convention is a United Nations treaty that was adopted in 1989 in response to a global outcry following a series of exports of toxic wastes from developed to developing nations in the 1980’s.

Although the original intent of the Convention was to completely ban transboundary movement of hazardous waste from industrialized nations to developing countries, when it was finalized, the Convention allowed this movement if the Parties:

- ◆ Complete a “Prior Informed Consent” (PIC) procedure between exporting, transiting, and importing country governments for each hazardous waste shipment,
- ◆ Ensure that hazardous & other wastes are managed and disposed of in an environmentally sound manner in importing countries,
- ◆ Do not trade in hazardous waste with non-Parties (such as US), unless all countries involved have bi- or multi-lateral agreements, such as the OECD treaty, and
- ◆ Implement the Convention in national legislation which prevents and criminalizes illegal traffic in hazardous wastes.

In the Basel Convention, “disposal” is defined as both operations resulting in final disposal and operations which may lead to resource recovery, recycling, reclamation, direct re-use or alternative uses.

## THE PURPOSE OF THE BASEL CONVENTION

The stated aims of the Basel Convention are:

- ◆ Reduction of hazardous waste generation by each Party, and self-sufficiency in managing its own hazardous waste, if possible,
- ◆ Ensure that transboundary movements of hazardous wastes are reduced to a minimum consistent with the environmentally sound management of it, and
- ◆ A global regulatory system defining where and how transboundary movements of hazardous waste are permissible and not.

## HOW DOES BASEL DEFINE HAZARDOUS WASTE?

The Basel definition of hazardous waste is based on a list of characteristics, such as toxicity, flammability, and corrosivity, of material destined for recycling and/or disposal, regardless of size, shape, value, or condition of the materials (e.g. shredded, whole, parts, broken, or working).

Each Basel Party is responsible for interpreting and translating the Basel definitions into law for waste coming in & out of their country.

The Basel Convention is less clear about exports of hazardous materials for repair; however, most countries have deemed tested, fully functional used goods to be products, not waste. There are also many countries which consider equipment going for repair to be hazardous waste, and thus the Basel rules still apply.

The e-Stewards definitions (Appendix B) are derived from the Basel Convention, and are the foundation of the Standard. They do not always match any country’s definitions of hazardous waste, however their use is required when implementing the e-Stewards Standard.

## PROBLEMATIC COMPONENTS & MATERIALS (PCMs)

There are also trade restrictions on Problematic Components & Materials (see Appendix B). e-Stewards are required to ensure that trade of PCMs is legal and to implement the e-Stewards processing restrictions for materials recovery and final disposition to final disposition, as described below.

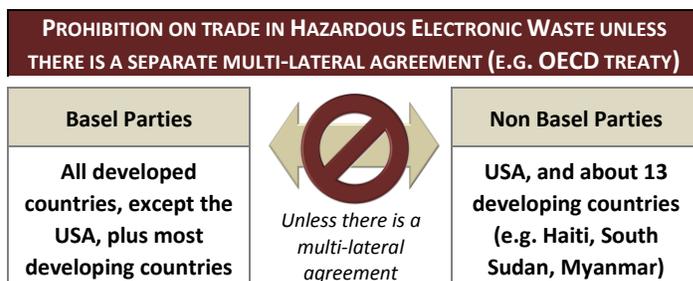
## WHO ARE THE ‘PARTIES’ TO THE BASEL CONVENTION?

Countries that have ratified the Basel Convention are called Parties, and they are required to transpose and enforce the Basel obligations into their domestic laws. Visit the Basel website for a list of Parties.

As of May 2015, 183 nations – both developed and developing -- have ratified Basel, i.e. most countries. The United States is the only developed country that has not ratified the Basel Convention (BC). The key thing to remember is that ‘Parties’ are not allowed to trade in Basel-regulated wastes with ‘non-Parties’, unless all countries involved have a multi-lateral agreement in place (e.g. the OECD treaty).

## PARTY TO NON-PARTY TRADE PROHIBITION IN BASEL

e-Stewards application of the Basel Convention means that recyclers must prohibit trade in Hazardous e-Waste, including exports or imports for repair, between Basel Parties and non-Parties (such as the US), unless all the countries involved in trade have a separate multi-lateral agreement, such as the OECD treaty described in Appendix A.



## WHAT IS THE BASEL BAN AMENDMENT?

In addition to the Basel Convention, e-Stewards are required to implement the Basel Ban Amendment. This Amendment to the Basel Convention was established in 1995 to achieve the original purpose of the Basel Convention: to ban the trade in hazardous wastes from developed to developing countries for any reason.

**COMPLETE BAN ON TRADE OF HAZARDOUS WASTE FROM DEVELOPED TO DEVELOPING COUNTRIES, FOR ANY REASON**



Even though the Ban Amendment is not yet in full legal force globally, ALL e-Stewards are required to implement it by preventing Hazardous e-Waste, as defined in the e-Stewards Standard, from going from developed countries to developing countries, throughout their downstream Recycling Chain. This applies regardless of the level of technology used in importing country.

## HOW DO THE BASEL BAN AMENDMENT & BASEL CONVENTION APPLY TO E-STEWARDS?

e-Stewards recyclers must implement both the Basel Convention and the Ban Amendment whenever international trade is involved to and from their facilities and any downstream facilities. This includes:

- ◆ Keeping Hazardous e-Waste (HEWs) in the developed countries through final disposition if it was generated there,
- ◆ Prohibiting Party to non-Party trade, outside the OECD countries,
- ◆ Obtaining the written consent from the importing government's 'competent authority' for any remaining trade that is legal under Basel, and
- ◆ Obtaining all applicable import/transit/export permits.

## HOW DO WE DETERMINE WHICH LAWS AND AGREEMENTS APPLY TO E-STEWARDS?

The e-Stewards Standard applies these laws and agreements in the order defined in the decision tree below. It is important to remember that all e-Stewards recyclers are required to implement the Basel Ban Amendment, whether or not their nation has ratified it. They are also required to ensure these laws and agreements are implemented throughout the Recycling Chain for HEWs and PCMs.

<b>1</b>	Basel Ban Amendment	IF 1 DOESN'T APPLY, (I.E. TRADE IS NOT BETWEEN DEVELOPED & DEVELOPING COUNTRIES), THEN CHECK 2.
<b>2</b>	Basel Convention trade ban	
<b>3</b>	International trade restrictions, regional agreements, & national laws	I.E. CHECK THAT TRADE IS BETWEEN PARTIES, OR IF NOT, THAT THERE IS A MULTI-LATERAL AGREEMENT)  CHECK WHICH OF 3 APPLY.

**IN EACH CASE, RELATED DOCUMENTATION IS REQUIRED TO BE ON FILE**



## APPLYING BASEL TO E-STEWARDS IMPORTS

e-Stewards are required to respect the Basel Convention and Ban Amendment when importing HEWs. Application of these restrictions depends on where the e-Stewards recycler is located, and which country is exporting the HEWs, as shown in the following table.

<b>E-STEWARDS LOCATED IN DEVELOPING COUNTRIES (NON-OECD/EU &amp; NOT LIECHTENSTEIN)</b>	<ul style="list-style-type: none"> <li>✓ They cannot import HEWs from OECD, Liechtenstein or EU, directly or indirectly</li> <li>✓ But may import HEWs from another developing country, with PIC</li> <li>✓ Tested, Fully Functional products may be unrestricted, if national laws do not otherwise forbid such import</li> </ul>
<b>E-STEWARDS LOCATED IN DEVELOPED COUNTRIES (OECD, EU, AND LIECHTENSTEIN)</b>	If e-Steward is located in a Basel country: <ul style="list-style-type: none"> <li>✓ May import HEWs from Basel countries, if they first obtain Prior Informed Consent</li> </ul> If they are NOT located in a Basel country (e.g. USA) <ul style="list-style-type: none"> <li>✓ May import HEWs/PCMs from any other OECD country only, if they first obtain government-to-government approval from the export and transit countries</li> <li>✓ Tested, Fully Functional products are unrestricted, if allowed by law</li> </ul>



## APPLYING BASEL TO E-STEWARDS EXPORTS

e-Stewards are required to respect the Basel Convention, Ban Amendment, and OECD treaties when exporting HEWs:

<b>E-STEWARDS LOCATED IN DEVELOPING COUNTRIES (NON-OECD/EU &amp; NOT LIECHTENSTEIN)</b>	If the country is a Basel Party <ul style="list-style-type: none"> <li>✓ May export HEWs to any other Basel Parties (developed or developing countries), if PIC obtained from all countries involved</li> </ul> If the country is a non-Basel Party (e.g. Fiji) <ul style="list-style-type: none"> <li>✓ May only export HEWs to other non-Parties if, prior to shipment, a PIC between governments in same group (non-OECD/EU/Liechtenstein), is obtained and on file</li> </ul>
<b>E-STEWARDS LOCATED IN OECD/EU/LIECHTENSTEIN COUNTRIES</b>	<ul style="list-style-type: none"> <li>✓ May export HEWs using OECD notification procedures to other OECD nations (see below)</li> <li>✓ None of their HEWs can be exported (directly or indirectly) to a non-OECD country, regardless of Basel status, for any reason (implementing the Amendment)</li> <li>✓ Tested, Fully Functional products may be unrestricted, but e-Steward must identify any import restrictions on this EE in national import laws of importing and transit countries (e.g. in Egypt, China)</li> </ul>

## ACCEPTABLE EXPORTS & IMPORTS, IF LEGAL

The following sections describe the circumstances in which e-Stewards are allowed to trade, if that trade is legal in all the countries involved, and they meet additional requirements described in this article:

- ◆ Equipment & components destined for reuse (but not repair)
- ◆ Materials destined for recycling:
  - ◆ Cleaned CRT cullet
  - ◆ Plastics containing Halogenated Materials



### TRANSBOUNDARY MOVEMENTS FOR REUSE

The e-Stewards Standard prohibits ‘export for repair’ from developed to developing countries, and restricts other such trade as a waste, unless it is for ‘Direct Reuse’ and is legal in all the countries involved. Direct Reuse is defined as equipment or components that are tested and Fully Functional.

In other words, if hazardous parts need to be replaced in exports or imports ‘for repair’, the Convention, Ban Amendment and OECD decisions still apply, as the e-Stewards Standard considers it Hazardous e-Waste, unless strict requirements are met for demonstrating testing, Full Functionality, proper packaging, etc.

#### CONDITIONS FOR EXPORTING OR IMPORTING, DIRECTLY OR INDIRECTLY, ANY EE FOR REUSE (INCLUDING COMPONENTS)

- ✓ Assume all Electronic Equipment exported or imported for Repair/Refurbishment are HEEs unless there is objective evidence accompanying each shipment that it contains no HEEs & PCMs
- ✓ Ensure each shipment exported or imported conforms to both:
  - ◆ Identification of any bans on trade in any type of EE destined for reuse, for example:
    - ◆ Egypt bans imports of tested working EE older than 5 years
    - ◆ Some African countries ban import of tested, working EE
  - ◆ Verification of conformity to reuse requirements, e.g. testing, functionality, labeling, packaging, proof of reuse market
- ✓ Each shipment exported for reuse is accompanied by a completed & signed declaration found in Appendix A.4.4.6.7 b), in addition to labeling requirements in reuse section

### TRANSBOUNDARY MOVEMENTS OF CLEANED CRT CULLET

CRTs contain high levels of lead, and some Phosphors contain cadmium and other toxic metals and so are restricted under the e-Stewards Standard, unless the conditions below are met.

#### CONDITIONS UNDER WHICH CLEANED CRT CULLET CAN BE TRADED TO ANY COUNTRY

- ✓ Cullet is thoroughly cleaned of Phosphors, coatings & other dispersible particulates, using best available technologies
- ✓ Objective evidence that cleaned cullet will be used as a direct feedstock in manufacturing new products without further processing or preparation, other than quality control screening
- ✓ Cleaned CRT glass is allowed for import and not considered a waste by importing government, as determined in writing by Competent Authority of importing country
- ✓ Any conditions placed on such legal trade by Competent Authority in written determinations of any country concerned (export, transit, and import) are implemented

## TRANSBOUNDARY MOVEMENTS OF PLASTICS WITH HALOGENATED MATERIALS

In practice, plastics arising from electronic equipment are assumed to contain halogenated materials. This is because:

- ✓ Plastics with Halogenated Materials, such as brominated flame retardants or polyvinyl chloride (PVC), are often not labeled or identified as containing halogens, and
- ✓ Most recyclers mix plastics together (e.g. crushed in bales), which means the entire shipment must be considered contaminated with halogens.

#### PLASTICS WITH HALOGENATED MATERIALS ARE ALLOWED FOR EXPORT/IMPORT TO ANY COUNTRY IF:

- ✓ The trade is considered legal by all countries involved
- ✓ Prior to export, the e-Steward obtains & maintains:
  - ◆ Copies of current import / permits from all facilities in other countries which receive Organization’s Plastics with Halogenated Materials
  - ◆ Evidence that final disposition of plastic meets the following:
    - ◆ Not be melted or burned in open fires,
    - ◆ Preferably be recycled in plastics recovery facilities which separate and recover reusable plastics as long as, prior to shipment, the e-Steward obtains current valid operating and environmental licenses & permits to process the specific plastics/resins. Unrecyclable plastics, waste materials, and residues are treated as waste,
    - ◆ Be processed in a smelter which continuously monitors, captures, and restricts emissions, including dioxins, from flue gas stacks,
    - ◆ As a last resort, be disposed of in a leachate-controlled solid or hazardous waste landfill,
    - ◆ Records verify the Recycling Chain for those plastics, and can demonstrate they are not being brokered on the open market
- ✓ Trade does not involve countries (e.g. Australia) that interpret the Basel definitions to include plastics with halogens, so clients in those countries may have more restrictions on exports



## INTERNATIONAL LAWS FOR TRADE (EXPORT, TRANSIT, OR IMPORT) IN HAZARDOUS WASTES

e-Stewards recyclers are also required to identify and conform to regional treaties and accords. Examples of legally-binding agreements to restrict or prevent trade in hazardous waste, include:

- ◆ **Waigani Treaty:** Bans the exporting of hazardous or radioactive waste to and from Pacific Islands Forum countries
- ◆ **Bamako Convention:** Treaty of African nations prohibiting the import of any hazardous wastes (including non-working electronics and radioactive wastes)
- ◆ **Izmir Protocol:** Protocol on the Prevention of Pollution of the Mediterranean Sea by Transboundary Movements of Hazardous Wastes and their Disposal
- ◆ **Central American Accord:** Regional agreement to control the transboundary movement of hazardous wastes and prevent the illegal traffic and disposal of such wastes in Central America
- ◆ **EU Waste Shipment Regulation:** Implements the European Union’s obligations under treaties, including the Basel Convention and the Basel Ban Amendment



## INTERNATIONAL IMPORT/EXPORT LAWS

e-Stewards are required to identify and ensure conformance with the laws of importing, transit & exporting countries for their HEWs and PCMs throughout the Recycling Chain for each HEW and PCM. There are numerous examples of laws established by nations to restrict imports, exports, and transits of electronic (and other) wastes. Examples of countries that have specific laws regarding import and export of used electronics include Nigeria, Egypt, and Australia.

### THE NIGERIAN EXAMPLE

#### NIGERIA'S IMPORT LAWS ON USED ELECTRICAL/ELECTRONIC EQUIPMENT (UEEE)

- ◆ Nigeria allows importation of new Waste Electrical and Electronic Equipment (WEEE) & functional UEEE; however, every importer of UEEE must register with NESREA (environmental agency)
- ◆ Total ban on importation of Waste WEEE & near-end-of-life electrical/electronic equipment
- ◆ Any WEEE imported shall be sent back to Port of Origin with an administrative punitive fee imposed on carrier
- ◆ Every carrier of UEEE shall be accompanied by:
  - ◆ Copy of permit to import
  - ◆ Cargo Movement Requirement (CMR) document
  - ◆ Proof of evaluation/testing & certificate containing testing information on each item
  - ◆ Declaration of liability by importer (Letter of Indemnity)

## E-STEWARDS PROCESSING RESTRICTION

In addition to restricting transboundary movement of HEWs and PCMs, the e-Stewards Standard also specifies acceptable and unacceptable options for materials recovery and final disposition.

### RESTRICTIONS ON FINAL DISPOSITION OF ALL ELECTRONIC EQUIPMENT

There are some restrictions that apply to all electronic equipment; for example, e-Stewards recyclers are required to:

- ◆ Ensure that downstream facilities are licensed and permitted, as required by applicable jurisdictions, to receive and process or utilize the specific materials received,
- ◆ Ensure that such facilities use best available techniques and processes/applications designed to safely recover and reuse maximum materials (except as limited in the last bullet point below) & responsibly dispose of non-recyclable fractions, including:
  - ◆ Prevent contamination of air, land, and water, including emissions and releases of hazardous chemicals, elements, and compounds, in any form,
  - ◆ Manage residuals, by-products, and breakdown products of HEWs as hazardous waste, unless the facility regularly demonstrates that a specific type of residual:
    - ◆ Falls below the thresholds found in the definition of Hazardous e-Waste, e.g. by using a toxicity characteristic leaching procedure, and
    - ◆ Is not considered a hazardous waste by applicable regulation, and
- ◆ Permanently retire<sup>i</sup> asbestos, polychlorinated biphenyls, and radioactive materials in hazardous waste facilities licensed and permitted to manage the specific material for long term storage or destruction.

### RESTRICTIONS ON HEW AND PCMS

e-Stewards are also required to ensure that, unless otherwise required by law, no downstream operations receive their HEWs or PCMs, directly or indirectly, if they:

- ◆ Melt or burn Electronic Equipment in open fires,
- ◆ Incinerate (including waste-to-energy) materials which contain mercury, Halogenated Materials, and/or beryllium (unless required by law),
- ◆ Smelt Electronic Equipment without effective controls to capture emissions, including mercury, beryllium, and halogenated compounds such as dioxins, furans, and brominated flame retardant compounds, consistent with local and national regulations, or
- ◆ Allow HEWs or PCMs to be used in hydraulic fracturing/ injection wells, or
- ◆ Dispose of HEWs in solid waste disposal operations, other than exceptions found in Rows 6 & 8 in Table 3 (treated leaded display glass & treated processing residuals).

### MATERIAL SPECIFIC RESTRICTIONS

Although not described here, the e-Stewards Standard includes detailed restrictions on processing options for different types of HEWs and PCMs. Readers are referred to the Standard for the restrictions, but should note that these apply to:

- ◆ Arsenic-containing equipment or components if defined as HEE (See Appendix B)
- ◆ Batteries – Sorted alkaline & non-hazardous batteries<sup>ii</sup>
- ◆ Batteries – if defined as HEE (See Appendix B)
- ◆ Beryllium-containing components defined as HEE (See Appendix B)
- ◆ Cathode ray tubes (CRTs) (with or without vacuum) & CRT glass that is uncleaned
- ◆ Cleaned display glass containing lead, including CRT glass, and dome flat panel display glass, e.g. leaded plasma glass
- ◆ CRT glass that is non-leaded & thoroughly cleaned<sup>iii</sup> of Phosphors, coatings, frits, and fines
- ◆ CRT Processing residues and CRT residues, including :
  - ◆ CRT Phosphors,
  - ◆ Coatings, frits, and fines,
  - ◆ Waste streams contaminated with them
- ◆ Glycol-based coolants
- ◆ Inks and toners, including liquid, pasty, and powder forms
- ◆ Mercury and mercury-containing devices
- ◆ Plastics & resins with Halogenated Materials, including:
  - ◆ Plastics that are baled, shredded, or whole, with or without metal contamination,
  - ◆ Cleaned ink and toner cartridges with such plastics
- ◆ Polychlorinated biphenyl-containing components with PCB concentrations above 50 ppm or quantity unknown
- ◆ Printed circuit boards, components, or materials (e.g. shredded fractions) which contain lead solders, Halogenated Materials, or fail threshold levels in definition of HEE
- ◆ Radioactive wastes
- ◆ Residuals from processing, pollution controls, and housekeeping, such as bag-house dusts, filter residues, slags, and sweeps
- ◆ Selenium-containing components<sup>iv</sup>





## APPENDIX A – THE OECD DECISIONS

### WHAT ARE THE OECD DECISIONS & WHY IMPORTANT?

The OECD Decisions include:

- ◆ “Decision of the Council concerning the Control of Transboundary Movements of Wastes Destined for Recovery Operations” (2001)
- ◆ “Decision of the Council on Transfrontier Movements of Hazardous Wastes” (1994)

They are important because they are legally-binding ‘bilateral agreements’ for recycling hazardous waste amongst the most developed countries, enabling some trade of hazardous waste under the Basel Convention, including with non-Basel Parties such as the US. For additional reading see the OECD Guidance<sup>v</sup>.

### WHAT IS THE OECD?

The OECD is the Organization for Economic Cooperation & Development, established in 1960. It began with 18 European countries plus the United States and Canada, and has now expanded to include 34 member countries from North and South America, Europe, and the Asia-Pacific region.

To obtain a list of OECD Countries, go to [www.oecd.org](http://www.oecd.org) – but be careful to find the actual list of OECD member countries, as there is also a listing of all countries on this website.



### PURPOSE OF OECD COUNCIL DECISIONS

One purpose of the OECD is to reduce barriers to trade in hazardous waste, assuming that OECD (developed) countries have laws and enforcement protective of human health & the environment. For additional information, including extensive guidelines, go to: [www.oecd.org](http://www.oecd.org).

### WHICH COUNTRIES DO THE OECD DECISIONS APPLY TO?

They apply only to the OECD member countries and a few non-OECD European Union countries that are required to meet OECD obligations in order to be part of the European Union. These Decisions DO NOT apply to non-OECD (developing) countries.



### WHAT IS THE SCOPE OF THE OECD DECISIONS?

The scope of the OECD decisions includes hazardous wastes going for recovery – but not for disposal. Disposal between OECD countries is regulated by other legal controls specific to the Basel Convention and any applicable national law.

### WASTE COVERED BY THE OECD DECISIONS

OECD-regulated wastes fall into two categories: ‘green’ and ‘amber’ wastes. These definitions are linked to Basel definitions; however, from an e-Waste perspective, they can be considered to be:

#### ‘GREEN LISTED’ WASTES

- ✓ Wastes that do not typically exhibit hazardous characteristics & are deemed to pose negligible risks for human health & the environment during transboundary movement for recovery within the OECD area
- ✓ ‘Green’ wastes do not include wastes that are contaminated to the extent that there is increased risks or the contamination prevents the recovery of the wastes in an environmentally sound manner

#### ‘GREEN’ WASTES IN THE E-STEWARDS CONTEXT

- ✓ Non-hazardous e-Waste – e.g. clean aluminum, copper, steel, non-BFR plastics
- ✓ Circuit boards (but boards are likely hazardous under Basel)

#### REQUIRED CONTROLS FOR ‘GREEN’ LISTED WASTE

- ✓ Must be proven to be destined for recovery operations within a recovery facility which will recover them in an environmentally sound manner according to national laws, regulations and practices, within OECD countries
- ✓ No government-to-government notifications required for ‘green listed’ wastes

#### ‘AMBER LISTED’ WASTES

- ✓ Wastes which usually exhibit a hazardous characteristic(s), such as toxic, flammable, corrosive, etc., and may pose a risk for human health and the environment during their transboundary movement for recovery within the OECD

#### ‘AMBER’ WASTES IN THE E-STEWARDS CONTEXT

- ✓ Hazardous electronic wastes, such as CRTs, mercury-containing devices, PCBs, most batteries
- ✓ Includes those defined as Hazardous e-Waste by the e-Stewards Standard (see Appendix A)

#### REQUIRED CONTROLS FOR ‘AMBER’ LISTED WASTE

- ✓ Trade between OECD countries for recycling requires a streamlined form of ‘prior informed consent’ prior to export
- ✓ Requires the exporting OECD government to notify the Competent Authority in importing and transit OECD countries, but if no response within 30 days, the shipment can proceed (considered ‘tacit consent’)
- ✓ Notification allows import & transit countries to have opportunity to refuse shipment, seek more information, or monitor it more closely
- ✓ e-Stewards are required to have this notification on file



## APPENDIX B – KEY E-STEWARDS DEFINITIONS

### ELECTRONIC EQUIPMENT (THINK TYPE OF EQUIPMENT)

Electrical and electronic equipment and/or components, in any form, e.g. whole, disassembled, shredded, or granulated, including:

- ✓ Those dependent on electric currents or electromagnetic fields in order to work properly and have never contained ozone depleting substances, combustible fuels or gasses, including equipment for the generation, storage, transfer, and measurement of such currents and fields, and
- ✓ Associated consumables, e.g. ink and toner and their cartridges, compact and other discs, and accessories, such as batteries, chargers, and adapters.

### E-WASTE (THINK PURPOSE & DESTINATION – REGARDLESS OF TOXICITY)

Used or new Electronic Equipment (including components and derived materials) which are:

- ✓ Destined, or are intended to be destined, all or in part (e.g. components removed during Repair/Refurbishment) for Materials Recovery, Recycling, energy recovery, or Final Disposal,
- ✓ Destined, or are intended to be destined, for Repair/Refurbishment or reuse but either are untested for Full Functionality or, if tested, found not to be Fully Functional,
- ✓ Tested and Fully Functional, but for which a legal and legitimate reuse market has not been affirmed, and/or
- ✓ Considered waste by the country of import, transit, or export.

### HAZARDOUS ELECTRONIC EQUIPMENT (BASED ON BASEL DEFINITION - THINK TOXICITY)

Electronic Equipment, components, and materials (processed, unprocessed, and residuals) for which the constituents or hazardous characteristics are unknown, or that consist of, contain, or are derived from:

- ✓ Asbestos, except unintentional inputs,
- ✓ Batteries:
  - ◆ Of any kind containing intentional inputs of lead, mercury, and/or cadmium,
  - ◆ Unsorted batteries or batteries of which the contents are unknown,
- ✓ Batteries containing flammable organic solvents, e.g. lithium ion batteries & battery packs,
  - ◆ Batteries containing any other hazardous materials listed in the Basel Convention Annex I and possessing an Annex III hazardous characteristic,
- ✓ Cathode ray tubes (CRTs); CRT glass (including mixed glass); CRT cullet; CRT fines, Phosphors, coatings, and frit from CRT glass; and any materials contaminated with these<sup>vi</sup>,
- ✓ Circuit boards<sup>vii</sup>, lamps, switches, or any other parts, materials<sup>viii</sup>, assemblies, housings, cables, and wires which contain any of the substances listed below in levels exceeding the indicated thresholds. In the absence of knowledge or information regarding the toxicity of Electronic Equipment, in any form, it shall be presumed to be Hazardous Electronic Equipment, unless it can be demonstrated via the US EPA's TCLP Method 1311<sup>ix</sup> that the material does not exceed threshold limits shown in Appendix C.
- ✓ Mercury: Circuit boards, lamps, switches, LCD displays, and other parts, components or assemblies containing intentional inputs of mercury,
- ✓ Polychlorinated biphenyls (PCBs) with levels that exceed actual concentrations >50 mg/kg,
- ✓ Radioactive waste:
  - ◆ All components/materials containing or contaminated by radio-nuclides, the concentrations or properties of which result from human activity,
- ✓ Selenium & arsenic: Components and/or devices containing intentional inputs of selenium and/or arsenic and their compounds, including printer or copy drums, and LEDs with gallium arsenide, and
- ✓ Any other materials deemed hazardous waste by the e-Steward's national government or other countries involved in transboundary trade.

### PROBLEMATIC COMPONENTS & MATERIALS (OUTSIDE BASEL DEFINITION, THINK TOXICITY)

e-Wastes which may not be defined as Basel Convention hazardous wastes or e-Stewards Hazardous Electronic Wastes, but which may be hazardous or require special controls or attention in this Standard due to desired recyclability or potential environmental or occupational health and safety risks that may arise from Recycling such components or materials. These include:

- ✓ Sorted alkaline and other non-hazardous batteries, which contain no lead, mercury, cadmium, lithium, flammable organic solvents, or unknown contents,
- ✓ Glycolant coolants,
- ✓ Inks and toners, and their uncleaned cartridges and containers,
- ✓ Plastics with Halogenated Materials, such as polyvinyl chloride (PVC) and those containing brominated flame retardants, and
- ✓ Other components and materials identified by the Organization as problematic.

### HAZARDOUS ELECTRONIC WASTE (THINK PURPOSE & DESTINATION)

Includes new or used:

- ✓ Hazardous Electronic Equipment (HEE) that is destined, or is intended to be destined for:
  - ◆ Recycling, energy recovery, or Final Disposal, all or in part, including shredded material, components, residues, and parts removed during Repair/Refurbishment, and/or
  - ◆ Repair/Refurbishment or reuse, but not Direct Reuse, and
- ✓ Electronic Equipment (including components) that is:
  - ◆ Tested and Fully Functional but for which a Direct Reuse market has not been affirmed according to requirements in 4.4.6.2 (Reuse), and/or
  - ◆ Deemed hazardous waste or banned for importation by the country of import or transit, regardless of type of destination or condition of equipment

**APPENDIX C - TCLP LIMITS FOR PART OF THE DEFINITION OF HAZARDOUS ELECTRONIC EQUIPMENT**

The following limits are for concentrations of one or more elements (present elementally or found in a compound form):			
Arsenic (unintentional inputs)	5.0 mg/L	Chromium	5.0 mg/L
Barium	100 mg/L	Lead	5.0 mg/L
Beryllium	0.007 mg/L	Mercury (unintentional inputs)	0.2 mg/L
Cadmium	1.0 mg/L	Selenium (unintentional inputs)	1.0 mg/L
NOTE: The above levels are to apply to separated components, such as separated circuit boards, separated lamps, switches, plastics, structural metal, or to separated Processing residuals (e.g. shredded circuit boards, or CRT fines), and not to the whole device/equipment they are found in. For example, when testing for beryllium, one should test the circuitry/ component where copper beryllium alloy is expected to be found and not the entire computer.			

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**END NOTES**

- <sup>i</sup> i.e. do not allow back into the marketplace for further use in products or processes.
- <sup>ii</sup> May not contain lead, mercury, cadmium, lithium, flammable organic solvents, or unknown contents.
- <sup>iii</sup> As determined by a TCLP or equivalent method via regular sampling.
- <sup>iv</sup> e.g. xerographic photocopier drums, older printer drums or analog copiers, some solar panels & other photovoltaic cells.
- <sup>v</sup> Guidance Manual for the Implementation of Council Decision C(2001)107/Final, As Amended, On the Control Of Transboundary Movements of Wastes Destined For Recovery Operations, OECD (2009).
- <sup>vi</sup> Exempt from the definition of HEE is CRT glass that is non-lead & is thoroughly cleaned of Phosphors, coatings, frit, and fines (e.g. some, but not all, cleaned front panel CRT glass), as determined by a toxics characteristic leaching procedure (TCLP) or equivalent method, and the metal band around the CRT front panel, &/or the shadow mask, unless they are contaminated with Phosphors or materials listed in Appendix C.
- <sup>vii</sup> For the purposes of practicality, it can be presumed that all circuit boards will fail these levels and should be presumed to be Hazardous Electronic Equipment due to common constituents such as lead and beryllium, unless they are tested and demonstrated to fall below limits in the TCLP table in Appendix C.
- <sup>viii</sup> This may include shredded plastics contaminated with lead and other toxics, to the extent they fail the cited TCLP.
- <sup>ix</sup> <http://www.epa.gov/epawaste/hazard/testmethods/sw846/pdfs/1311.pdf> This is a sample extraction method for chemical analysis employed as an analytical method to simulate leaching through a landfill, defined in US law in 40 CFR Part 261, Appendix II, EPA Method 1311. This is a defined procedure that can be followed by any qualified laboratory, and will serve as a standard procedure until there is a universally accepted TCLP incorporated into this Standard. The TCLP levels are drawn from US Federal Register (40CFR 266 Appendix VII).