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Basel Plastic Waste and E-Waste Amendments Q&A

This guidance is intended to offer further explanation of how to implement the Basel Amendments within the requirements in the R2 Standard along with examples and audit recommendations.

This document was prepared in late 2024 and early 2025, and this document is not being constantly updated and maintained.

PLEASE NOTE: This document is not auditable and cannot be cited in relation to any nonconformances. The explanations are intended to prevent misinterpretation of the R2 Standard, not to add to, subtract from, or modify the R2 Standard. The examples cited may not be the only way to fulfill a requirement of the standard.

The application of specific legal requirements varies based on many considerations unique to each facility and the path of travel of international shipments. This guidance is not legal advice and should not be relied upon as legal advice. Please consult a legal professional to evaluate your specific situation.

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In this Q&A, we'll discuss how two Amendments to the Basel Convention, an international treaty that regulates the global trade of waste, impact R2 Facilities. The amendments are:

- The Plastic Waste Amendments (PWAs), which extend Basel Convention controls to non-hazardous plastic waste and went into effect on Jan. 1, 2021.
- The E-waste Amendments, which extend Basel Convention controls to non-hazardous e-waste and went into effect on Jan. 1, 2025.

The Amendments extend Basel controls to additional types of equipment, components, and materials that previously traded without Basel controls. The nature of the additional controls will vary, depending on the materials and countries involved.

In most situations, the new Basel controls will mean transboundary shipments must first receive governmental approval through the prior-informed consent (PIC) process. Information on PIC is available here. However, when a country involved is not a party to the Basel Convention, such as

the United States, the shipment may be outright prohibited, depending on which additional trade agreements that country has in place (information on separate trade agreements is available here).

Regardless of what Basel controls means for a particular shipment, all facilities engaged in the global trade of Basel-covered wastes must comply with these changes in the law, whether they're certified or not.

What do the Basel Amendments have to do with the R2 Standard?

While the Basel Amendments may be new, the R2 requirements that you maintain compliance with all applicable laws are not new. With regard to Basel, this legal compliance mandate means R2 Facilities that are part of a chain of custody that includes a transboundary shipment of a Basel-controlled waste must do all of the following:

- Comply with the Basel Convention and its amendments.
- Ensure their legal compliance plans are updated with any new applicable requirements such as the Plastic Waste Amendments, the E-waste Amendments, and the applicable import, export, and transit countries where downstream vendors (DSVs) are located.
- If there are issues of non-compliance, the R2 Facility must raise this through the corrective action process in accordance with Core 4(d)(4). Actions taken stemming from the corrective action may be switching DSVs, which would include possibly qualifying new DSVs, updating the FM Management Plan, and updating the legal compliance plan with the requirements for import, export, and transit that are consistent with the addition of a new DSVs.

This applies to transboundary shipments controlled by your facility or your DSVs, all the way to final disposition ***OR*** the first R2 Facility.

Which of my plastic and electronics streams are subject to new Basel controls and which aren't?

What is clear is that end-of-life electronics, components, and shredded/dismantled fractions are subject to Basel controls. For example, with the creation of Y49, cross-border shipments of non-

hazardous circuit boards are now controlled by Basel. Power supplies, hard drives, other non-working equipment and components destined for materials recovery also fall under Y49.

In terms of plastics –
• If you are bringing in or sending out plastics from electronics, you should presume the plastics are covered by the Basel Plastic Waste Amendments (2021). Those shipments are usually subject to Basel controls when they cross country boundaries in transit in the supply chain.
• The Basel Plastic Waste Amendments defined two categories of controlled plastic waste: Y48 for non-hazardous, mixed plastic waste and A3210 for hazardous plastic waste.
• The category not controlled by Basel is called B3011, which covers e-plastics that consist "almost exclusively" of one polymer or resin, are "almost free from contamination and other types of wastes," and are "destined for recycling in an environmentally sound manner." Since e-plastics are made up of a mixture of polymers and some contain flame retardants, e-plastics will not meet this B3011 category without further processing. More detailed definitions of those categories are available here.
• If your facility dismantles electronics and produces loose or baled plastics, or if your facility shreds electronics, those e-plastics will likely either fall into the A3210 or Y48 category of plastic waste. More information on the plastics composition of electronics and plastic waste sorting strategies can be found here.
	In terms of electronics –
	• You should presume that inbound and outbound electronics and components are covered by the Basel E-Waste Amendment (2025). The Amendment imposes Basel controls on non-hazardous electronics, the components removed from electronics, and the materials recovered from electronics. Basel defines them as Y49. (Hazardous e-waste was already controlled by Basel prior to passage of the E-waste Amendments.) More details on the e-waste categories can be found here.
	• You'll need to determine whether your materials fall under Basel controls, such as Y49 or A1181, or outside of Basel controls. The following three categories may trade without Basel controls:
	  ○ Functional electronics;
	  ○ Electronics going for legitimate repair and refurbishment, or for failure analysis; and
	  ○ Highly sorted commodities recovered from electronics.
	• Functional electronics and electronics going for legitimate repair and refurbishment are normally sold by unit count rather than by weight, and they will usually have detailed packing lists by serial number or other unique identifier. So, looking at sales orders can help identify the electronics that can move outside of Basel controls. Technical guidelines adopted on an interim basis by the Basel parties in 2023 can also help you decide.
	• Devices labeled and sold "for parts only" likely do not meet this exemption for repair and reuse. Even if devices are not labeled for parts, a very low per-unit

	price is indicative of a parts-only transaction, where parts will be harvested to repair other units, and the rest will be recycled or disposed. Devices fitting this description should be categorized as Y49 or A1181.

Basel Plastics Reference Guide

Common description	Picture	Basel category (example)	Basel and R2 controls notes
Mixed shredded plastics - for example, the product coming off a shredding line.		A3210	Because of the presence of brominated flame retardants (BFRs) in display devices and other electronics, you should presume plastic coming off of a shredding line is A3210, unless you can verify otherwise. A method to separate BFR plastics from non-BFR plastics is float/sink tanks. This is an R2 Controlled Stream.
Partially sorted shredded plastics – for example, these coming out of a float/sink system.		Y48	Float/sink tanks can remove metals, flame-retardant plastics, polymers with different densities, ceramics/glass, and other heavy objects. But even plastic outputs of these tanks contain different polymers with similar densities (such as ABS and HIPS). The Basel category for mixed plastics, "Y48," is not due to the mix of colors but the presence of multiple polymers and other residual contamination, such as metals. They remain a Basel-controlled stream without further sorting. This is an R2 Controlled Stream.

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Common description	Picture	Basel category (example)	Basel and R2 controls notes
Shredded plastics (also called "regrind") sorted by polymer type and almost completely free of contamination.		B3011	This plastic may not be fully sorted by color, but it may still trade without Basel controls because it has been sorted into one type of polymer with almost no contamination. This is not an R2 Controlled Stream and requires no downstream due diligence.
Recycled plastic pellets (also called "repro") produced by an extruder and accompanying equipment.		B3011	To make this, sorted shredded plastic was melted, blended, and filtered to remove tiny contaminants, and it was likely tested to ensure it met specifications for compounding or molding. The equipment and chemistry testing to create these pellets will likely be found only at a facility specializing in plastics recycling. This is not an R2 Controlled Stream and requires no downstream due diligence.
Bale of plastics from dismantled display devices (with flame retardants present).		A3210	It is a mix of ABS, high-impact polystyrene (HIPS), polycarbonate/ABS blend, and other plastics with flame retardants. Display devices like televisions and monitors usually contain BFRs or other additives to prevent the unit from overheating or catching on fire. If you're dismantling like devices, for example printers, then XRF sorting technology could be helpful to verify that there are no BFRs in the bale. If it's mixed electronic plastics, then a manual XRF analyzer would be cumbersome because you would have to scan each piece of plastic. Even without BFRs, this stream would be Y48, which is still subject to Basel controls. Because of the presence of BFRs in display devices and other electronics, you should presume it is A3210, unless you can verify otherwise. Although there may be technologies to remove flame retardants from the polymers themselves, usually plastics with flame

Common description	Picture	Basel category (example)	Basel and R2 controls notes
			retardants are removed from the supply chain by landfilling. This is an R2 Controlled Stream.

Basel E-waste Reference Guide

Common description	Picture	Basel category (examples)	Basel and R2 controls notes
Power supplies for materials recovery		Y49	These are not hazardous but are now Basel controlled because they're neither functional equipment sold for reuse nor commodities that are pure and sorted by type of metal for materials recovery. Power supplies are an R2 Controlled Stream because they contain a Focus Material (circuit boards) and are subject to downstream due diligence and import/export legal compliance.
Whole or shredded hard drives for materials recovery		Y49	Like the power supplies above, these non-hazardous hard drives and their shredded fractions are neither destined for reuse nor processed into distinct types of metal, and are now controlled as a result of the Basel E-waste Amendments. This is an R2 Controlled Stream, and these materials are subject to import/export compliance.

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Common description	Picture	Basel category (examples)	Basel and R2 controls notes
			
Whole or shredded circuit boards		Y49	Non-hazardous circuit boards are controlled as a result of the Basel E-waste Amendments because they're not destined for reuse, and they still contain a mix of different metals and other materials. It doesn't matter if they have been sorted by grade. Circuit boards are an R2 Controlled Stream because they are a Focus Material and are subject to downstream due diligence and import/export legal compliance. Please note some older circuit boards have mercury relays and would be considered hazardous and classified as A1181, and in situations where the button battery is not removed from the board.
Laptops for recycling		A1181	These are presumed hazardous due to rechargeable batteries and button batteries on motherboards, as well as older laptops that contain CCFL lamps for the screens. Laptops are an R2 Controlled Stream because they contain Focus Materials and are subject to downstream due diligence and import/export legal compliance.
CRT display devices		A1181	Hazardous due to the CRT, which contains lead in the glass and other toxic metals in the phosphor coating. CRTs are an R2 Controlled Stream because they are a Focus Material and are subject to downstream due diligence and import/export legal compliance.

Common description	Picture	Basel category (examples)	Basel and R2 controls notes
			
Uninterrupted Power Supply (UPS)		A1181	These contain lead-acid batteries (or lithium, for newer models) and circuit boards, making them hazardous and controlled under Basel. If it could be demonstrated to not contain any of the hazardous constituents defined in A1181, then it could potentially be categorized as Y49, which is still controlled by Basel. UPS units are an R2 Controlled Stream because they contain Focus Materials (circuit boards and batteries) and are subject to downstream due diligence and import/export legal compliance.
Gaylord of mixed electronics		A1181	Equipment in this gaylord is presumed to contain hazardous materials like batteries, mercury lamps, or lead. This equipment is unlikely to be tested and repaired/refurbished to be sold as functional electronics because packing and shipping in a gaylord often results in breakage that would diminish the reuse potential. If it could be demonstrated to not contain any of the hazardous constituents defined in A1181, then it could potentially be categorized as Y49, which is still controlled by Basel. Mixed electronics are an R2 Controlled Stream because they contain Focus Materials (circuit boards, batteries, etc.) and are subject to downstream due diligence and import/export legal compliance.

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Common description	Picture	Basel category (examples)	Basel and R2 controls notes
Gaylord of flat-panel display devices.		A1181	Because these devices are not intended for reuse, and they are presumed to contain hazardous materials like mercury lamps, they would be categorized as A1181. If they could be demonstrated to not contain any of the hazardous constituents defined in A1181, then they could potentially be categorized as Y49, which is still controlled by Basel. Flat-panel display devices are an R2 Controlled Stream because they contain Focus Materials (circuit boards, mercury lamps, etc.) and are subject to downstream due diligence and import/export legal compliance.
Aluminum heat sinks.		B1010	These likely trade without Basel controls because they're nearly pure aluminum with little to no contamination. This is not an R2 Controlled Stream and requires no downstream due diligence.
Repairable laptops.		Not Applicable	These are not controlled by Basel because they can be legitimately repaired if they are of a recent age and not overly damaged. It is important to demonstrate the legitimacy of repair by showing the value of repaired devices in the destination market and the qualifications of the facility that will repair this equipment. Sending to R2 DSVs certified to Appendix C is a good way to demonstrate legitimate repair in the destination country. When ready for shipment, these laptops may be placed in slots in a box to prevent damage during transit. Repairable laptops are an R2 Controlled Stream because they are equipment and components for test and repair and haven't been tested for

Common description	Picture	Basel category (examples)	Basel and R2 controls notes
			functionality or repaired. They are subject to downstream due diligence and import/export legal compliance.
Tested RAM for reuse		Not Applicable	These are not controlled by Basel and are not an R2 Controlled Stream because they are tested and functional products shipped for reuse.
Untested RAM for recycling		Y49	RAM sticks intended for materials recovery are controlled by Basel. They are also an R2 Controlled Stream because they are a Focus Material (circuit boards) and are subject to downstream due diligence and import/export legal compliance.

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Common description	Picture	Basel category (examples)	Basel and R2 controls notes
Low-grade mobile phones		A1181	Mobile phones shipped for parts harvesting or materials recovery, also known as beyond economic repair (BER) phones should be classified as A1181, which is controlled by Basel. A low grade, bulk packaging that fails to protect phones, shipment to DSVs without test and repair expertise, and a lack of tracking by unique serial number can all be indications the phones are being shipped for parts harvesting and/or materials recovery, rather than legitimate test and repair for reuse of the entire mobile phone. These phones are also an R2 Controlled Stream because they contain Focus Materials (circuit boards and a battery) and are subject to downstream due diligence and import/export legal compliance.
Other functional electronics and components.	 	Not Applicable	Functional electronics for resale are not controlled by Basel. Likewise, electronics that have been tested under Appendix C and demonstrated to be functional are no longer subject to downstream R2 control. Core 4(c)(1) still requires that you verify the legality of the shipment of equipment, however. It is important to have the records of testing for each device, packing lists by device, and sales receipts by device. This is not an R2 Controlled Stream and requires no downstream due diligence.

What do I need to do to affirm the legality of transboundary shipments of these Basel-controlled wastes?

Facilities must identify and document applicable import/export laws and demonstrate the legality of international shipments of R2 Controlled Streams to final disposition ***OR*** the first R2 Facility.

In terms of plastics - The R2 Technical Advisory Committee (TAC) in 2024 decided to add Y48 and A3210 plastic wastes to the R2 Equipment Categorization (REC) as an R2 Controlled Stream. The addition was made with a transition plan, under which the R2 Facility was expected to affirm their compliance under Core 4 for international movements of Y48 and A3210 made by the R2 Facility and its DSVs by January 1, 2025. R2 Facilities must then implement the applicable Appendix A(7) and A(8) downstream due diligence requirements by Jan. 1, 2028.	**In terms of electronics -** A1181 and Y49 cover what was already an R2 Controlled Stream. As such, R2 Facilities were already required to verify compliance with import/export requirements down the recycling chain and perform DSV qualification prior to sending these shipments. However, because the underlying global framework in Basel is changing, facilities need to examine whether any transboundary recycling chains need to be eliminated or modified to remain in legal compliance post-Jan. 1, 2025. Past shipments that were legal may no longer be legal due to the Basel party to non-party ban.

What do I need to do to demonstrate compliance for plastics and electronics?

Your facility has a number of records, which are required by R2 to be updated, that can help provide evidence.

In terms of plastics – Your facility's summary report of transactions and associated commercial shipping records (R2 Core(5)(c)) should identify movements of plastics to the first DSV tier. • If the recipients are domestic R2 Certified Facilities, your R2 obligations have been satisfied if you have registered your downstream recycling chain per Appendix A(4)(b). • If your DSVs are domestic but non-R2 Facilities, additional investigation will be required to determine whether there are any subsequent international movements to final disposition or the first R2 Facility. This will likely mean you need to contact DSVs, who may include non-R2 plastics brokers, to document the export, transit, and import legal requirements to demonstrate the legality of international movement of	**In terms of electronics –** Because A1181 and Y49 e-wastes are R2 Controlled Streams, your facility already has a number of documents describing downstream movement of these materials. Those include your DSV flowchart and DSV qualification records obtained under Appendix A requirements, as well as your FM Management Plan, which describes both the processing of the equipment and components at your facility as well as the downstream processing steps for electronic equipment, components, and materials sent to DSVs. Your legal compliance plan should also identify the laws and regulations that make it legal for any international shipments of R2 Controlled Streams according to R2 Appendix A(3) and Core 4(c)(2).

the plastics through the downstream chain per Core 4(c). • If your DSVs are international facilities, the legality of these cross-border plastics shipments should already be documented in your legal compliance plan in conformance with R2 Core 4(c)(1).	

Where can I find information that will help me understand the import/export requirements for countries where my downstream vendors are located?

Understanding the import/export requirements for the countries that your shipments leave, transit through, and arrive at will allow you to determine whether your shipments are legal or whether additional steps, such as the PIC procedure, may be needed to comply with requirements. More information on the Basel controls associated with Basel-controlled wastes can be found here.

IMPORTANT TO NOTE: If your R2 Facility is located in the U.S., there is a lengthy list of countries that your shipment cannot legally go to. That's because Basel-party countries are prohibited from trading with non-party countries absent a valid Article 11 agreement (information on Article 11 agreements can be found here). The list of Basel party states can be found here.

The U.S. does have Article 11 trade agreements in place, including one with the Organization for Economic Cooperation and Development (OECD). The OECD's Article 11 agreement is found in the OECD Council Decision here. This agreement defines the controls necessary for shipments of waste between OECD countries, and should be referred to determine what controls, such as prior informed consent, are necessary for a legal shipment between countries. OECD countries and their transboundary trade requirements for plastic waste and e-waste can be found here: Transboundary movements of waste | OECD.

How will we be audited for legal compliance?

R2 requires facilities to periodically audit their compliance with legal requirements. We recommend you conduct your legal compliance audit shortly after updating the legal compliance plan, so that you will have the information to know whether effective identification and documentation of the legal requirements and any necessary operational changes have been made.

A lack of this information can lead to illegal imports or exports. If you do not resolve these through discovering them in your compliance audit and resolving the non-compliance promptly through a corrective action, the CB auditor could discover the illegal import or export. Under Section 16.1.1 of the R2 Code of Practices v2.4, the discovery of illegal imports or exports is grounds for suspension of your R2 certification.

This is why it is imperative to conduct a legal compliance audit after updating your legal compliance plan with these large changes due to the Basel Amendments. Remember that the legal compliance audit is a formal audit, and it must be conducted by a competent auditor who is knowledgeable in the facility's operations and the applicable legal requirements, in this instance the Basel Convention and its amendments. It does not have to be an outside consultant, but you may need the knowledge of a dedicated expert when you do not have a competent auditor in-house who has education and experience in the import and export legal requirements of the Basel Convention and each country. Because of the complexity of legal requirements, you may also choose to rely on multiple legal compliance auditors who specialize in areas like waste, stormwater, transportation, data security, worker health and safety, etc.

A Certification Body (CB) auditor will be assessing the effectiveness of the R2 Facility's process for identifying requirements within the legal compliance plan, implementing controls to operate in legal compliance, and for conducting its legal compliance audit and correcting any non-compliances identified. The CB auditor may use records, observations, or interviews as evidence. Please pay attention to the severity of the consequences should a CB auditor discover the R2 Facility is making illegal imports or exports. More information on conducting an effective legal compliance audit can be found on the R2 Knowledge Base at this link: Building An Internal Audit Program - SERI

What other resources are available?

SERI has posted other informational resources on the R2 Knowledge Base.