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EU–MERCOSUR SECONDARY RAW MATERIALS EVIDENCE SERIES · EMS-01

The EU–Mercosur Secondary Feedstock Evidence Gap

Why Brazilian secondary raw materials need audit-grade provenance before they need European buyers

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ROLE	Series hub · EMS-01 of EMS-01–EMS-06
VERSION · DATE	v1.0 · 2026-10-27
DOI	https://doi.org/10.5281/zenodo.23689427
LICENCE	Creative Commons Attribution 4.0 International (CC BY 4.0)

Executive summary

How to read this document. Every substantive claim carries a tag. F Fact: verified against a primary source (official text, regulator, issuer). I Interpretation: the author's reading of verified facts. H Hypothesis: secondary-sourced, forward-looking or not yet verified in a primary source; not asserted as settled. Bracketed numbers refer to the source list.

Key findings

- F The EU has set 2030 benchmarks of 25% recycling and 40% processing of its annual consumption of strategic raw materials, and a 65% cap on dependence on any single third country at any relevant stage of processing. Rare earth elements for permanent magnets are on the strategic list [1].
- F Brazil generated 2,443 kt of e-waste in the Global E-waste Monitor 2024 reference year, with a documented formal collection rate of 3% [9]. Most of that flow is undocumented.
- F Since 1 January 2025 all e-waste, hazardous or not, moves across borders under Basel prior informed consent. Since 21 May 2026 imports into the EU are governed by Regulation (EU) 2024/1157, and consent-based shipments are processed through the DIWASS digital system [5] [6]; how DIWASS handles a non-EU authority of dispatch is not documented (see https://doi.org/10.5281/zenodo.23689430, §5).
- I European demand for secondary feedstock is real and policy-driven, but the binding constraint on Brazilian supply is neither volume nor price. It is evidence: recycled status, legal transfer, data destruction and a disclosure trail an EU buyer can defend.
- I The domestic Brazilian documentary chain (MTR to CDF) ends at the port for exports [8]. Whoever closes that gap with audit-grade documentation controls the value of the flow.

2,443 kt
e-waste generated in Brazil (GEM 2024) **[9]**

3%
documented formal collection rate, Brazil **[9]**

25%
EU recycling benchmark for strategic raw materials, 2030 **[1]**

~20%
share of today's EU permanent-magnet demand that EU recycling could supply (Commission estimate) **[3]**

1. Why this question is on the table now

F Three movements converged in 2025–2026, each documented in a primary source. I Their combination is the most plausible explanation for the inbound requests from European recyclers, traders and consultancies that Brazilian operators began to receive in 2026.

1.1 The EU policy pull

- F Regulation (EU) 2024/1252, the Critical Raw Materials Act (CRMA), entered into force on 23 May 2024. Art. 5(1) sets the 2030 benchmarks: at least 10% extraction, 40% processing and 25% recycling of annual EU consumption of strategic raw materials, and no more than 65% from a single third country at any relevant stage of processing [1].
- F Annex I lists "rare earth elements for permanent magnets (Nd, Pr, Tb, Dy, Gd, Sm, and Ce)" as strategic raw materials [1].
- F Art. 28 introduces labels and a data carrier for products containing permanent magnets, applicable two years after the Commission's implementing act on the label format, which is due by 24 November 2026. Art. 29 requires producers of listed products with more than 0.2 kg of NdFeB, SmCo or AlNiCo magnets to publish the share of rare earths and other elements recovered from post-consumer waste, by 24 May 2027 or two years after the related delegated act, whichever is later [1].
- H Whether the Art. 28 implementing act and the Art. 29 delegated act have been adopted could not be confirmed in a primary source on the document date; draft acts were reported in trade press in February 2026 [2].
- F The Commission's RESourceEU Action Plan (COM(2025) 945, 3 December 2025) states that EU recyclers could contribute to the production of about 3,800 t of rare-earth permanent magnets, "about 20% of today's demand". It announced restrictions on the export *from the EU* of permanent-magnet scrap and waste [3].
- F The accompanying proposal to amend the CRMA (COM(2025) 946) would extend recycled-content disclosure to pre-consumer and post-consumer waste and require disclosure of "the shares of such waste produced within the Union" [4]. H This is a proposal under negotiation; the European Parliament adopted its position on 20 October 2026, and trilogues are pending [4].

1.2 European recycling capacity is ramping up ahead of feedstock

- F HyProMag's NdFeB recycling plant in Pforzheim (Germany) was officially opened on 28 April 2026, permitted for up to 750 t per year and starting at around 100 t per year. Its parent company lists the availability of scrap supplies as a risk factor and discloses no sourcing agreements [10].
- F Carester's Caremag project in Lacq (France) announced €216 million of funding in March 2025 for 2,000 t per year of magnet recycling, with production expected by late 2026 [11].
- F On 9 October 2026 the Commission selected 46 further CRMA Strategic Projects in the EU, including 19 recycling projects [12]. H HyProMag GmbH reports that its Pforzheim project is among them [12].
- I EU recycling capacity is being built and subsidised faster than documented feedstock contracts are being disclosed. Brussels is also moving to keep EU-origin scrap inside the EU. Documented non-EU feedstock fills a visible gap.

1.3 The EU–Mercosur and EU–Brazil track

- F The EU–Mercosur agreements were signed on 17 January 2026. The interim Trade Agreement has applied provisionally since 1 May 2026 with Brazil, Argentina, Paraguay and Uruguay [13]. Its critical raw materials provisions are analysed in https://doi.org/10.5281/zenodo.23689436.
- F RESourceEU states that the Commission launched, or will launch, negotiations on a critical raw materials partnership with Brazil; the text is internally inconsistent on timing, and Brazil is not among the existing strategic partnerships [3].

- [F] Commissioner Síkela's Global Gateway mission to Brazil (June 2026) included a visit to a rare-earth project described by the Commission as one of four priority projects under the EU–Brazil CRM Task Force. No raw materials memorandum was signed and no financing for a raw materials project was announced [14].
- [F] The only Brazilian project selected as a CRMA Strategic Project (third-country list, Decision (EU) 2025/1174) is a nickel and cobalt refinery restart in São Miguel Paulista, São Paulo [15].

> **Framing corrections this series applies**
>
> - [F] The RESourceEU magnet-scrap restrictions concern exports *from* the EU. They are not restrictions on imports from Brazil [3].
> - [I] The EU–Brazil rare-earth cooperation announced to date concerns *primary* material, not recycling. [H] For example, a reported non-binding letter of intent covers supply of rare-earth carbonate from a Brazilian mining project to a French separation plant [16].
> - [I] No signed EU–Brazil raw materials memorandum or strategic partnership was found in Commission sources as of the document date; the Commission describes it as under negotiation [3][14].
> - [I] "European buyers want Brazilian e-waste" is an observable signal in inbound requests, not yet a measured market trend. This series treats it as a hypothesis to be tested lot by lot.

2. The Brazilian supply reality

- [F] Global E-waste Monitor 2024 country data for Brazil (reference year 2022 per the dataset): 2,443 kt generated (11.4 kg per capita), 79 kt formally collected, a 3% collection rate [9].
- [F] Globally, 62 Mt of e-waste was generated in 2022 with 22.3% documented collection and recycling; about 3.3 Mt moved across borders in uncontrolled, undocumented shipments [17].
- [H] Brazil's sectoral reverse-logistics decree for electro-electronics (Decree 10.240/2020) covers domestic-use equipment only (per the official Chamber of Deputies compilation); corporate, industrial, commercial and government equipment fall under the generator's general duties under the National Solid Waste Policy (Law 12.305/2010) [7].
- [F] The manufacturers' scheme Green Eletron reports more than 12,500 t collected in 2025, its highest year [18]. [I] That is roughly half a percent of national generation, even allowing for different reference years.
- [F] The World Customs Organization's Operation DEMETER XI (reported January 2026) seized 15,509 t of waste across 120 customs administrations; 63% of e-waste seizures were reported by exporting countries [19].

[I] For a European buyer, the Brazilian market therefore has two very different layers: a small documented layer, and a large undocumented one whose provenance cannot be established after the fact. The commercial value of a Brazilian supplier lies in proving that a given lot belongs to the first layer.

3. The evidence gap, defined

I The gap is not a missing law. Each of the four layers below is regulated. The gap is the absence of a single, verifiable evidence trail that connects them for a specific lot.

Layer	What the EU side must be able to show	Primary basis	Detailed in
1. Recycled status and provenance	That the material is genuinely post-consumer or pre-consumer waste from identified generators, not mislabelled primary material or laundered stock	OECD recycled-metals definition; EU Reg. 2017/821 Art. 2(s) (3TG analogue) [20]; CRMA Art. 29 [1]	https://doi.org/10.5281/zenodo.23689434
2. Lawful transboundary movement	Basel PIC consent from Brazil (Ibama) and the EU authority of destination; correct waste code; contract; guarantee; movement document; certificate of recovery	Basel Convention and BC-15/18 [5]; Reg. (EU) 2024/1157 [6]; Ibama procedure [21]	https://doi.org/10.5281/zenodo.23689430
3. Data and liability control	That data-bearing devices were sanitised or destroyed before leaving the generator's control, with per-serial records	LGPD, Law 13.709/2018, Arts. 16, 46, 48 [22]	https://doi.org/10.5281/zenodo.23689434, https://doi.org/10.5281/zenodo.23689438
4. Buyer-side disclosure fit	Data that supports the buyer's own obligations: recycled-content shares, origin of waste, due diligence records requested by in-scope customers	CRMA Arts. 28–29 [1]; CSDDD as amended by Directive (EU) 2026/470 [23]	https://doi.org/10.5281/zenodo.23689434, https://doi.org/10.5281/zenodo.23689440

F One structural point anchors the series: under Portaria MMA 280/2020, Art. 9, an "MTR Exportação" covers transport from the generator to the point of embarkation and "will not be closed and will not issue a CDF" [8]. I The Brazilian certificate of final destination, which domestic clients rely on, does not exist for exported lots. Proof of final destination then depends on the completed Basel movement document and the EU facility's certificate of recovery. Buyers who do not plan for this receive a lot with no Brazilian closure document.

4. Where the risk sits, and what it costs

Party	Main exposure	Tag
EU recycler or importer	Shipment treated as illegal if code, consent or documents fail; take-back costs; facility objection grounds linked to prior illegal shipments (Reg. 2024/1157 Arts. 11–12) [6]	F

Trader or broker	Liability as notifier or arranger; reputational exposure in enforcement operations such as DEMETER [19]	I
Brazilian corporate generator	Shared responsibility for the product life cycle under PNRS; data incidents under LGPD; no CDF for exported lots [7][8][22]	F
In-scope EU customer of the recycler	Due diligence information requests pushed down the chain; recycled-content claims that must withstand verification [1][23]	I

4.1 Evidence exposure per lot

I A buyer can price the evidence gap before contracting. The following structure is proposed; every input requires the buyer's internal data.

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Expected evidence cost per lot (EEC)
  = V × p_r                    (value lost if the lot is rejected or held)
  + C_tb × p_il                (take-back and disposal if deemed illegal)
  + D × c_d                    (delay days × daily carrying and capital cost)
  + C_dd                       (cost of due diligence actually performed)

V    = contracted lot value          p_r  = probability of rejection or hold
C_tb = take-back / return cost       p_il = probability of illegal-shipment finding
D    = expected delay (days)         c_d  = daily cost of capital, storage, penalties

Decision rule: proceed only if (expected margin − EEC) > 0 and p_il is reduced,
through documented controls, to a level the buyer's risk policy accepts
(BSF-ERI score, https://doi.org/10.5281/zenodo.23689440).
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I In practice, documented provenance mostly reduces p_il and D. Those two terms dominate small first lots, where volume is too low to absorb a take-back.

5. What the series covers

ID	Question answered	Primary audience
https://doi.org/10.5281/zenodo.23689430	Which documents, consents and codes make a Brazil-to-EU shipment of e-waste or magnet-bearing components lawful after 21 May 2026, and where classification is uncertain	EU recyclers, importers, compliance
https://doi.org/10.5281/zenodo.23689434	What a European recycler, trader or buyer must ask a Brazilian supplier before the first lot	Procurement, compliance, traders
https://doi.org/10.5281/zenodo.23689436	What the EU–Mercosur interim agreement changes for critical raw materials, and what it does not change	CFOs, trade and legal teams
https://doi.org/10.5281/zenodo.23689438	How a Brazilian operator documents chain of custody today, and which parts a European buyer can verify (in Portuguese, with an English summary)	Brazilian generators, EU buyers

https://doi.org/10.5281/zenodo.23689440	How to score a Brazilian supplier and lot for evidence readiness before contracting	EU buyers, boards, lenders

6. Implications

For European buyers and recyclers

- [I] Treat Brazilian secondary feedstock as an evidence-qualified input, not a commodity. Score the supplier and the lot before price discussions (https://doi.org/10.5281/zenodo.23689440).
- [I] Budget for the absence of a Brazilian CDF on exported lots and plan the certificate of recovery and movement-document closure as contractual deliverables.
- [H] If the CRMA amendment requires separate disclosure of EU-origin waste shares, documented non-EU feedstock will need origin data at lot level. The final text is not yet adopted [4].

For Brazilian corporate generators and operators

- [I] The commercial asset is not the material; it is the verifiable record around it: generator identity, serial-level inventory, data destruction evidence, licensed handling and a document set a foreign authority can read.
- [I] Requests to "sell material" that skip consent, classification and data questions transfer risk to the generator, which remains responsible under PNRS and LGPD.

For policy dialogue

- [H] An EU–Brazil raw materials partnership, if concluded, is likely to emphasise mining and processing. Secondary feedstock would benefit from explicit provisions on documentation interoperability between SINIR (MTR/CDF) and DIWASS. This is the author's proposal, not a policy under discussion that the author could verify.

7. What this series does not claim

- It does not claim that any shipment, operator or lot is compliant, certified or approved by any authority.
- It does not state prices for magnet-bearing components in the EU. No credible public EU price was found; Chinese domestic quotes per kilogram of contained element exist but are not transferable [24].
- It does not assert that any EU–Brazil raw materials agreement exists or that any project mentioned has secured financing.
- It does not describe any export by Ecobraz. https://doi.org/10.5281/zenodo.23689438 describes domestic chain-of-custody practice only.

Series map

ID	Title	Relation to this document	DOI

EMS-01	The EU–Mercosur Secondary Feedstock Evidence Gap Why Brazilian secondary raw materials need audit-grade provenance before they need European buyers	this document	https://doi.org/10.5281/zenodo.23689427
EMS-02	Shipping E-waste and Magnet-Bearing Components from Brazil to the EU The Basel–Ibama–Waste Shipment Regulation evidence chain after 21 May 2026	spoke (isSupplementedBy)	https://doi.org/10.5281/zenodo.23689430
EMS-03	Origination Due Diligence for Brazilian Secondary Feedstock A question protocol for European recyclers, traders and buyers	spoke (isSupplementedBy)	https://doi.org/10.5281/zenodo.23689434
EMS-04	The EU–Mercosur Interim Trade Agreement and Critical Raw Materials What provisional application since 1 May 2026 changes, and what it leaves to supplier evidence	spoke (isSupplementedBy)	https://doi.org/10.5281/zenodo.23689436
EMS-05	Cadeia de custódia documental na destinação de eletroeletrônicos corporativos O modelo operacional da Ecobraz e o que um comprador europeu consegue verificar	spoke (isSupplementedBy)	https://doi.org/10.5281/zenodo.23689438
EMS-06	Brazil Secondary Feedstock Evidence Readiness Instrument (BSF-ERI v1.0) A scoring method for European buyers assessing Brazilian suppliers and lots	spoke (isSupplementedBy)	https://doi.org/10.5281/zenodo.23689440
Prior hub	EU-Brazil Supplier Evidence Gap (EN line)	isSupplementTo	https://doi.org/10.5281/zenodo.20317248

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Scope and limitations

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Suggested citation

Villanova, M. (2026). *The EU–Mercosur Secondary Feedstock Evidence Gap: Why Brazilian secondary raw materials need audit-grade provenance before they need European buyers* (EU–Mercosur Secondary Raw

Materials Evidence Series, EMS-01, v1.0). Villanova ESG. https://doi.org/10.5281/zenodo.23689427

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