

Brominated Flame Retardants and the Circular Economy of WEEE Plastics

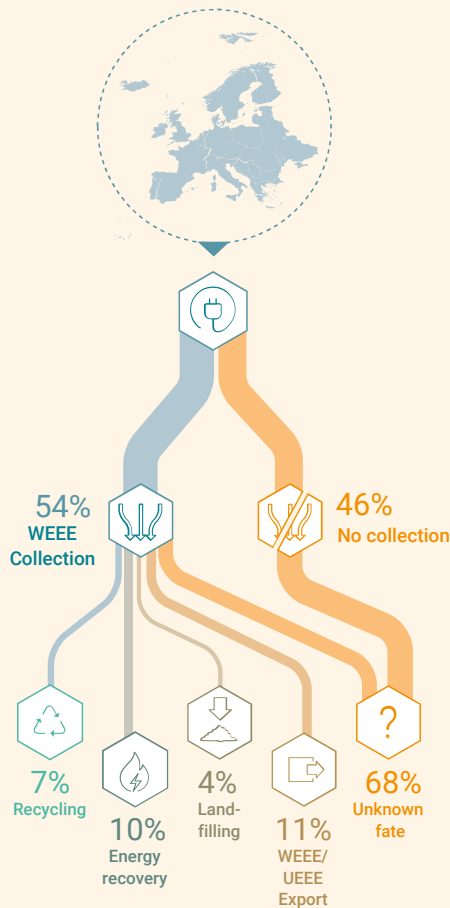


The Regulatory Framework

Current EU and international regulations can obstruct the effective handling of plastics from Waste Electrical and Electronic Equipment (WEEE). These regulations often lead to higher expenses and administrative burdens making the recycling of WEEE plastics and cross-border waste trade more difficult.

Fate of WEEE Plastic in Europe

2.6 Mt WEEE plastics arising in EU

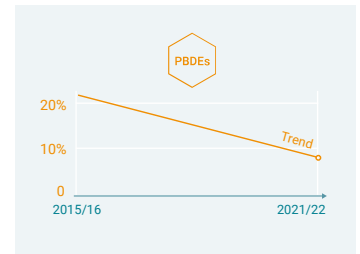
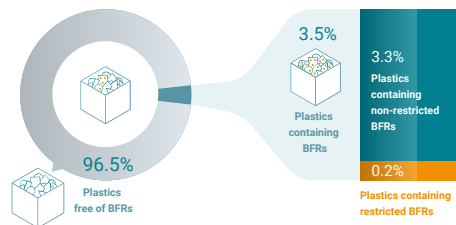


Europe produces ≈ 2.6 Mt of WEEE plastics every year, but only 54% is collected through official channels, and only 15% is sent to specialized recyclers. Most WEEE plastics escape through undocumented, unregulated channels.

A Downward Trend

Polybrominated diphenyl ethers (PBDEs), which are legacy Brominated Flame Retardants (BFRs) and no longer produced, are steadily **declining**. As a result, nowadays, only 0.2% are plastics containing restricted BFRs.

Average composition of unsorted WEEE plastics



The Path to Circular Economy

To fully integrate BFRs into the circular economy, we need to address several key areas:

- Strengthen Waste Collection**
Boost waste collection efficiency through targeted campaigns, accessible collection points, and enforced collection targets.
- Harmonize Regulations**
Establish uniform international regulations to streamline recycling and reuse of BFRs.
- Promote Technological Innovation**
Encourage R&D in solvent-based and other emerging recycling technologies to enhance BFR recycling.
- Improve Data Collection**
Create a unified, central database for WEEE plastics data to support informed decision-making.
- Encourage Circular Economy Practices**
Advocate for the use of recycled WEEE plastics in new EEE manufacturing to stimulate the recycled plastics market.

Conventional and emerging technologies

WEEE plastic recyclers confirm that BFR plastics are effectively managed and sorted in standard recycling. Specialized firms can eliminate >95% of BFRs in these plastics.

Techniques such as solvent-based recycling, thermolysis, and gasification show potential in converting plastics to fundamental elements and fresh materials.



Learn More

About us & Our members

BSEF, The International Bromine Council, represents the bromine technology industry globally. Bromine is used as a constituent element for BFRs, efficient substances which prevent or slow down ignition, protecting lives and property from the risk of fire.

