

## ANMD-MRS35-344 · Waste-to-Energy Technologies

# Pyrolysis Units

*A Global Sustainability Due Diligence & Market Research Study*

History 2020–2024 · Base Year 2025 · Forecast 2025–2032 · Outlooks 2035 / 2040 / 2050 · Currency US\$

## WHY THIS REPORT

Pyrolysis units thermally decompose plastics, tyres and biomass in the absence of oxygen, turning hard-to-recycle waste into oil, syngas, char and recovered chemicals. Purpose-built systems — plastic, tyre, biomass and mixed-waste pyrolysis and continuous reactors — are engineered so that waste streams become feedstock for fuels, chemicals and biochar. The pay-off is measurable: chemical recycling of plastics, tyre-derived oil, biochar carbon removal and diversion of non-recyclable waste. This report is a comprehensive, decision-grade study of that market across system type, feedstock, component, application, end user and business model, spanning history 2020–2024, a 2025 base year, a 2025–2032 forecast and long-term outlooks to 2035, 2040 and 2050.

## SUSTAINABILITY & SDG IMPACT — THE ANMD LENS

The sustainability case is the report's backbone. Beyond diversion, pyrolysis delivers measurable plastic chemical recycling, biochar carbon removal, and non-recyclable-waste valorisation, while recovered feedstock strengthens the circular-economy story.

### Mapped Sustainable Development Goals:

<b>SDG 2</b> Zero Hunger	<b>SDG 6</b> Clean Water	<b>SDG 7</b> Affordable Energy	<b>SDG 13</b> Climate Action	<b>SDG 15</b> Life on Land
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### Measurable sustainability outcomes assessed:

- Plastic and mixed-waste diversion from landfill and incineration
- Recovered fuel and feedstock output displacing virgin material
- Lifecycle carbon versus disposal baselines
- Char, emissions and feedstock-contamination handling as material risks

**Framework alignment:** Double materiality mapped to GRI, SASB, ISSB, TCFD, TNFD, CSRD and the EU Taxonomy, with greenwashing and SDG-washing screens applied throughout.

## WHAT'S INSIDE AT A GLANCE

<b>53</b> Chapters	<b>9</b> Report Parts	<b>7</b> Regions Covered	<b>40+</b> Country Markets
<b>2025–32</b> Forecast Horizon	<b>4</b> Forward Scenarios	<b>25+</b> Companies Profiled	<b>5</b> SDGs Mapped

## REPORT COVERAGE

Geographic scope: North America, Europe, Asia Pacific, Latin America, Africa, Middle East and Rest of World — with named country intelligence. Across the seven reporting regions, the report separates early commercialisation leaders from high-growth and emerging markets, profiling named country sub-markets, policy regimes and project pipelines in each. Europe and Asia Pacific anchor near-term volume; North America scales on RNG and diversion incentives; while Latin America, Africa and the Middle East are assessed on their own merits — for waste infrastructure, energy access and emissions mitigation — rather than aggregated away.

## MARKET OVERVIEW

### From waste plastic to recovered fuel — where pyrolysis turns hard-to-recycle streams into feedstock and energy.

Pyrolysis is moving from demonstration plants to first-wave commercial chemical recycling. Demand is driven by the convergence of plastic-circularity targets, recycled-content mandates and biochar carbon markets, supported by maturing technology across Europe, North America and Asia Pacific. The market is read three ways — value, units shipped and processing capacity (tpa) — and forecast under conservative, base, accelerated and disruption scenarios, with every projection resolved to the 2025 base year and each region reported separately rather than folded into Rest of World.

- Europe leads on plastic circularity, anchored by Germany, the United Kingdom and the Nordics, where recycled-content mandates and chemical-recycling investment are most advanced.
- North America is the growth engine, with the United States and Canada combining advanced-recycling projects and brand-owner offtake commitments.
- Asia Pacific is accelerating, supported by Japan, China and India, where plastic-waste pressure and tyre-pyrolysis activity are strongest.
- System type and feedstock segment the value, across plastic, tyre and biomass pyrolysis, and across plastics, tyres and biomass feedstocks, each with distinct economics.

## REGIONAL OUTLOOK

Across seven reporting regions, the report separates early commercialisation leaders from high-growth and emerging markets — each profiled in full rather than aggregated into Rest of World.

Region	Stage	Lead Markets & Drivers
Europe	Commercial leader	Germany, France, Netherlands, Nordics — landfill bans, circular-economy targets, district heating
Asia Pacific	Scale engine	China, Japan, India, South Korea — urban waste growth, new-build programmes, industrial demand
North America	Accelerating	United States, Canada — RNG incentives, landfill diversion, plant modernisation
Latin America	Emerging	Brazil, Mexico — waste-management investment, methane-mitigation projects
Africa	Frontier	South Africa, Morocco, Egypt — waste infrastructure build-out, blended finance
Middle East	Frontier	Saudi Arabia, UAE, Israel — waste-management investment, circular-economy strategies

## KEY MARKET DRIVERS & RESTRAINTS

Drivers	Restraints
<ul style="list-style-type: none"> <li>• Plastic-circularity &amp; recycled-content mandates</li> <li>• Chemical-recycling &amp; brand-owner offtake</li> <li>• Biochar carbon-removal markets</li> <li>• Tyre &amp; non-recyclable-waste diversion</li> <li>• Continuous-reactor &amp; catalysis advances</li> </ul>	<ul style="list-style-type: none"> <li>• Feedstock contamination &amp; pre-treatment cost</li> <li>• Output-yield, quality &amp; upgrading needs</li> <li>• Capital intensity &amp; scale-up risk</li> <li>• Mass-balance &amp; regulatory-classification uncertainty</li> <li>• Energy intensity &amp; process-emissions concerns</li> </ul>

## SEGMENTATION SNAPSHOT

<b>By System Type</b>	Plastic pyrolysis · tyre pyrolysis · biomass pyrolysis · mixed-waste pyrolysis · continuous reactors
<b>By Component</b>	Reactors · condensers · feed systems · char handling · gas cleaning
<b>By Application</b>	Recyclers · chemical / fuel producers · waste operators · agriculture (biochar)
<b>By End User</b>	Recyclers · chemical / fuel producers · waste operators · agriculture (biochar)
<b>By Business Model</b>	Equipment sale · EPC / turnkey · BOT / concession · O&M; contract
<b>By Scale</b>	Modular · small · mid · industrial

## TABLE OF CONTENTS — PARTS & CHAPTERS

*The full report is organised into nine parts across 53 chapters, listed below. Detailed sub-headings, country tables and directories are provided in the full report.*

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## COMPETITIVE & INVESTMENT SNAPSHOT

The competitive field spans chemical-recycling pioneers, established licensors, and biochar innovators.

### Representative players profiled in the full report:

Plastic Energy Limited · Quantafuel ASA · Brightmark LLC · Enerkem Inc. · BASF SE / BASF SE (ChemCycling) · and further profiled players across the value chain.

**Investment intelligence:** venture, infrastructure, development, climate and blended finance, green bonds and sustainability-linked loans — culminating in a bankability assessment and a structured investment recommendation.

## KEY QUESTIONS THIS REPORT ANSWERS

- ? How large is the global Pyrolysis Units market, and how fast will it grow to 2032?
- ? Which regions, countries and segments offer the strongest risk-adjusted opportunity?
- ? How do the category economics change returns versus incumbent approaches?
- ? Who leads, and where is the competitive and patent white space?
- ? Is the investment case bankable — and under what conditions?
- ? How does the technology align with the SDGs and emerging disclosure regulation?

## WHY ANMD — THE DIFFERENCE

*Most market studies stop at units and revenue. This report is built as a sustainability due diligence instrument — fusing market sizing with ESG, SDG, climate, water and natural-capital intelligence and a decision-ready bankability verdict in a single architecture.*

- › **Triangulated sizing** — every market read multiple ways so value, volume and physical-unit views reconcile rather than conflict.
- › **Region-honest forecasting** — Latin America, Africa and the Middle East reported in full, never hidden inside Rest of World, every forecast resolved to the 2025 base year.
- › **Integrated evidence base** — company, patent and project databases linked to the analysis, with published-filing patents and FTO treated as an indicator, not a legal conclusion.
- › **No-fabrication discipline** — every estimate carries a data-confidence rating and disclosed sources; gaps are flagged for further diligence, never filled with invented numbers.
- › **Anti-greenwashing rigour** — SDG-washing and greenwashing screens plus claim-substantiation checks built into the ESG and project analysis.
- › **Decision-first structure** — 9 Parts and 53 Chapters culminating in stakeholder playbooks and a clear, structured investment recommendation.

## WHO SHOULD BUY THIS REPORT

Investors and infrastructure / PE funds, EPC contractors, technology licensors, waste and utility operators, municipalities, policymakers, lenders, and corporate strategy and ESG teams.

### Access the Full Report

The complete report delivers all 53 chapters in full, with every sub-heading, country table, company and patent directory, forecast model and due diligence checklist.

Purchase at [www.anewmarketdynamics.com](http://www.anewmarketdynamics.com) · Standard & Premium licences · Single-Site (SSL) and Global-Site (GSL) options at checkout.

### Want the Complete Detailed Table of Contents?

This prospectus lists the nine parts and 53 chapters. The complete detailed table of contents — every sub-heading, country table, exhibit, company and patent directory and annex — is available on request to registered users. To receive it, register with your official company email at [www.anewmarketdynamics.com](http://www.anewmarketdynamics.com). The full detailed table of contents will be sent directly to your registered company email address.