



CIRCULAR ECOTECH

ENGINEERING CIRCULARITY

ENGINEERING CIRCULARITY

CIRCULAR ECOTECH DEVELOPS ADVANCED THERMOCHEMICAL CONVERSION TECHNOLOGIES FOR WASTE-TO-VALUE APPLICATIONS. OUR EXPERTISE SPANS PYROLYSIS, CARBONIZATION, TORREFACTION, ACTIVATION, AND MICROWAVE-ASSISTED PROCESSING, SUPPORTED BY CAPABILITIES IN REACTOR DESIGN, PROCESS OPTIMIZATION, PILOT-SCALE VALIDATION, AND SCALE-UP ENGINEERING FOR BIOMASS, PLASTICS, RDF, SLUDGE, AND INDUSTRIAL WASTE STREAMS.

PYROLYSIS

The thermal decomposition of carbon-rich materials in the absence (or near absence) of oxygen to produce char, oil, and combustible gases.



ACTIVATION

The process of developing and enlarging pores within a carbon material using physical or chemical agents to increase its surface area and adsorption capacity.



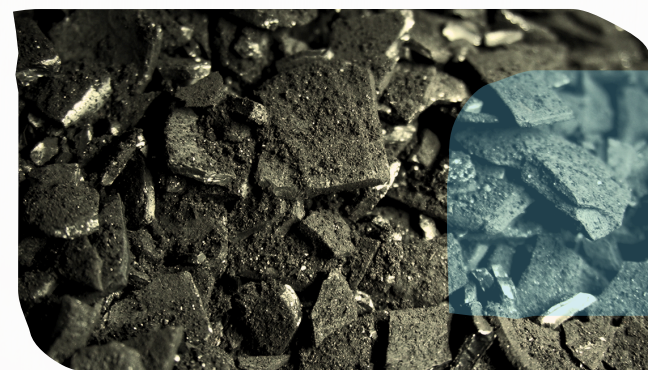
THERMOCHEMICAL PROCESS

a high-temperature process where the organic structure of carbon is changed



PATENTED MICROWAVE ASSISTED REACTOR FOR PYROLYSIS AND ACTIVATION OF CARBON

PYROLYSIS PLANT FOR MIXED WASTE WITH CATALYTIC CRACKING AND MULTISTAGE CONDENSATION



PROCESS OPTIMIZATION OF PYROLYSIS AND QUALITY IMPROVEMENT OF ACTIVATED CARBON AND CHAR

ENGINEERING THE FUTURE

Circular Ecotech specializes in pyrolysis, carbonization, torrefaction, and activation technologies for converting low-value biomass, industrial residues, sludge, RDF, and waste streams into high-value carbon products, fuels, and energy resources.

PYROLYSIS

In pyrolysis, we develop and optimize processes that convert feedstocks into high-quality carbon, liquid hydrocarbons, and combustible gases. Our expertise extends beyond conversion to product upgrading, including enhancement of carbon properties through chemical and steam treatments, and improvement of oil quality through catalytic upgrading and advanced multi-stage condensation systems. We provide technology development, process optimization, product quality enhancement, scale-up support, and turnkey project execution.

We offer professional service in pyrolysis process design, mechanical design as our core expertise; We also provide service for;

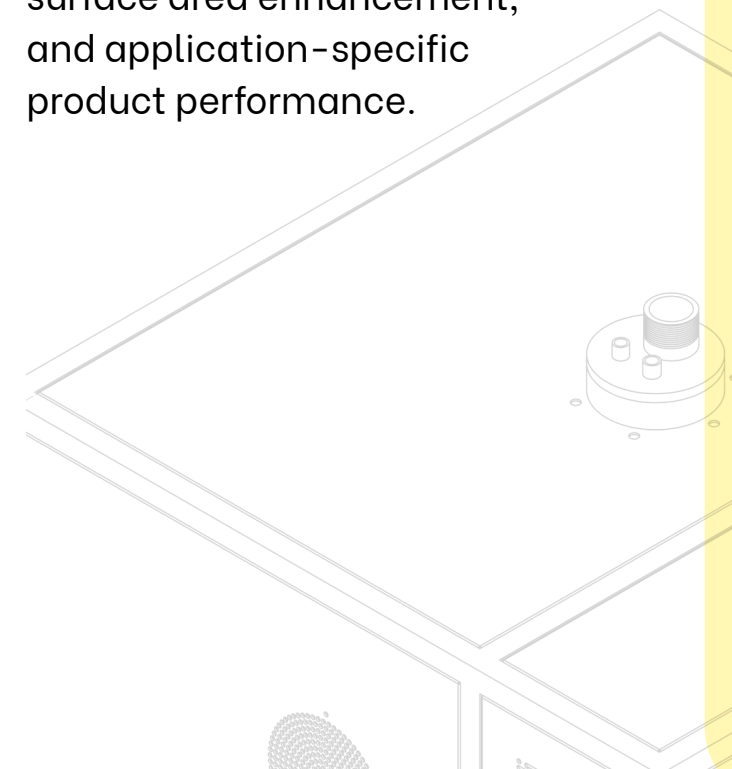
- **100/200/250/500 kgph turnkey system** for biomass, plastic, mixed waste raw materials.
- We have our patented microwave pyrolysis system for bench scale purposes, a **1/1.5/3/4.5/6/9 kW microwave power system**.
- Technical consultancy on **process optimization with energy and mass balance**.
- Design and development of an auxiliary system, like a **condensation unit, a rechargeable catalytic reactor, and pollution control units**.

ACTIVATION

In activated carbon production, we offer end-to-end support ranging from process consultancy and laboratory validation to complete plant and equipment design. Our expertise covers both chemical activation and steam activation, with a strong focus on pore structure development, surface area enhancement, and application-specific product performance.

For the Activation Process, we help people achieve the best surface area of activated carbon. We provide service for;

- **Process and unit design** for Chemical **activation with phosphoric acid/alkalis**.
- Process and system design for **steam activation systems**.
- **Quality parameter testing** of activated carbon IV/MB/CTC/BET, etc.
- **Microwave activation unit** for reactivation or decentralized small-scale application.



Developing Processes Delivering Performance

Technology may evolve,
but our commitment to
our partners remains
unchanged—we grow,
adapt, and overcome
challenges together

+91 9309837268
info@circularecotech.com
Nagpur, Maharashtra, India

Version: June/2026
All rights reserved by
Circular Ecotech pvt. ltd.



www.circularecotech.com