

SAVE

Saline Area Vitalisation Enterprise Private Limited

is a technical service organisation working on innovative environmental and resource management solutions.

Through initiatives such as BAKASUR, SAVE aims to develop scalable technologies that address pressing environmental challenges while promoting sustainable infrastructure and responsible resource use.



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Bakasur

A Plastic Waste Digester



Innovative pyrolysis-based
Decentralised
Plastic Waste Management System

BAKASUR

Decentralized Plastic Waste Management System

The Plastic Waste Challenge

Plastic waste generation has increased rapidly over the past two decades. Global plastic production has grown from 234 million tonnes in 2000 to 460 million tonnes in 2019, yet only 9% of plastic waste is recycled.



Need for alternative Solution

The current system is characterised by

- High capital and operational costs
- Complex logistics for collection and transportation
- Increasing landfill pressure
- Plastic leakage of up to 22 million tonnes annually

These gaps highlight the need for decentralized, scalable, and environmentally responsible waste management solutions.

The Bakasur Innovation

BAKASUR is an innovative pyrolysis-based decentralized plastic waste management system developed to process mixed plastic waste streams in a controlled and resource-efficient manner.

The system uses thermo-catalytic depolymerisation with a proprietary catalyst to convert plastic waste into usable energy outputs while significantly reducing waste volume.

This approach allows localized waste processing, reducing the need for long-distance transport and landfill disposal.

Plastic Waste Streams Processed

BAKASUR is designed to process multiple types of plastic waste:

- PET
- PP
- HDPE
- LDPE
- MLP (Multi-Layer Plastics)

These materials typically represent a large share of urban, semi-urban and rural plastic waste streams.

Process Overview

Step 1 — Waste Input

- Mixed plastic waste is collected and fed into the system.

Step 2 — Controlled Pyrolysis

- Plastic undergoes thermo-catalytic depolymerisation at optimized temperatures.

Step 3 — Energy Generation

- The process generates high-calorific-value gas, which is used internally to sustain the system's energy requirements.

Step 4 — Residual Output

- The process produces bio-solid residue suitable for fuel applications while significantly reducing plastic mass and volume.

Key Features of Bakasur

- Decentralized System - Allows localized plastic waste processing.
- Energy Self-Sufficient - Internally generated gas supports operational energy needs.
- Net Reduction in Plastic Waste
- Reduces plastic mass and landfill dependency.
- Reduced Transportation Burden - processed closer to its source.
- Supports Circular Waste Management
- Encourages resource recovery & sustainable practices.

Validation & Compliance

BAKASUR has reached an important stage of technical readiness:

- Successful preliminary trials conducted on multiple plastic types
- Independent testing of gas (SCG, Pune) and solid outputs (ATIRA, Ahmedabad) for safety and compliance
- Intellectual Property secured for catalyst combinations
- The system is ready for structured pilot deployment and operational validation.

Enabling Scalable Environmental Impact

- Reduction in unmanaged plastic waste
- Lower landfill dependency
- Reduced transportation burden of municipal corporations/nagarpalikas and village panchayats
- Environmentally responsible plastic processing
- Strengthening decentralized waste management infrastructure