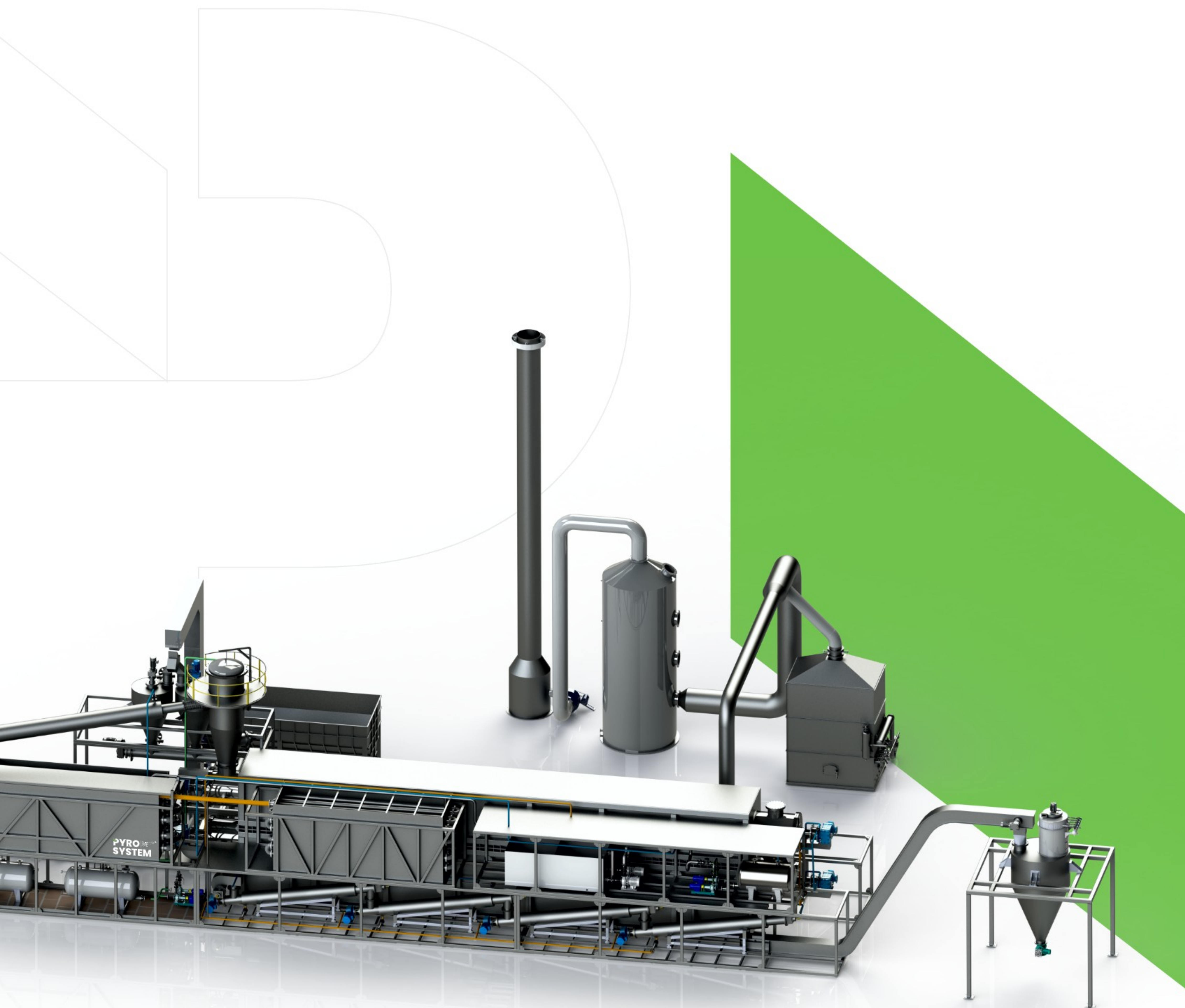


PYRO SYSTEM

TRANSFORMING™
WASTE INTO
ENERGY

A VENTURE OF PROSPER UNIVERSAL PVT. LTD.



www.pyro-system.in

About Us

History :

The journey of Prosper Group began with **agri product exports and imported machinery trading**, where we recognized a major gap in the market — limited technical support and customization options for industrial machines. This insight led us to establish dedicated **research and engineering teams**, enabling us to design and manufacture advanced automated machinery tailored to industry needs.

Over the years, Prosper Group has successfully developed several **patented and fully automated machines**, including:

- **Paper Cutlery Machines**
- **Pulp Moulding Machines**
- **Automatic Hygiene Packing Machines**



100+
Professionals



20+
Industrial Projects
Supported



35+
Countries Presence

Engineering the Future of Waste Recycling

Pyro System, a venture of Prosper Universal Pvt. Ltd., delivers advanced continuous pyrolysis recycling solutions backed by over 18 years of engineering expertise.

Its Automated plants converts used Tyres, Plastic Waste, MSW, Oil Sludge, Biomass, Municipal Sludge & Scrap cables into valuable resources like Pyrolysis Oil (TPO), Char (Carbon Black) and Syn Gas through efficient and environmentally responsible processing.

Supported by a 90,000+ sq. ft. manufacturing facility and dedicated R&D team, Prosper Group is committed to transforming waste into valuable resources and advancing the global circular economy.

Vision

To be a global leader in sustainable recycling technologies, enabling industries and governments worldwide to transform waste into valuable resources through innovative and environmentally responsible continuous pyrolysis solutions.

Mission

- Develop advanced continuous pyrolysis plants for maximum efficiency and resource recovery.
- Provide sustainable waste management solutions that help industries address environmental challenges.
- Leverage engineering expertise, research, and innovation to deliver reliable and scalable technologies.
- Promote a circular economy by converting waste into reusable energy and industrial resources.
- Build long-term partnerships through quality, performance, and continuous technological innovation.

Our Philosophy

At Pyro System, we believe industrial progress and environmental responsibility must go hand in hand. Our approach focuses on transforming global waste challenges into sustainable opportunities through advanced engineering and innovative recycling technologies. By combining scientific research, precision manufacturing, and responsible resource utilization, we develop solutions that deliver long-term economic and environmental value, reflecting our commitment to efficiency, reliability, and sustainable industrial development.



Global Challenge

With rapid economic development and rising living standards, India has become a major consumer of rubber resources. The country's average rubber consumption accounts for nearly 30% of global consumption, making it one of the largest markets worldwide.

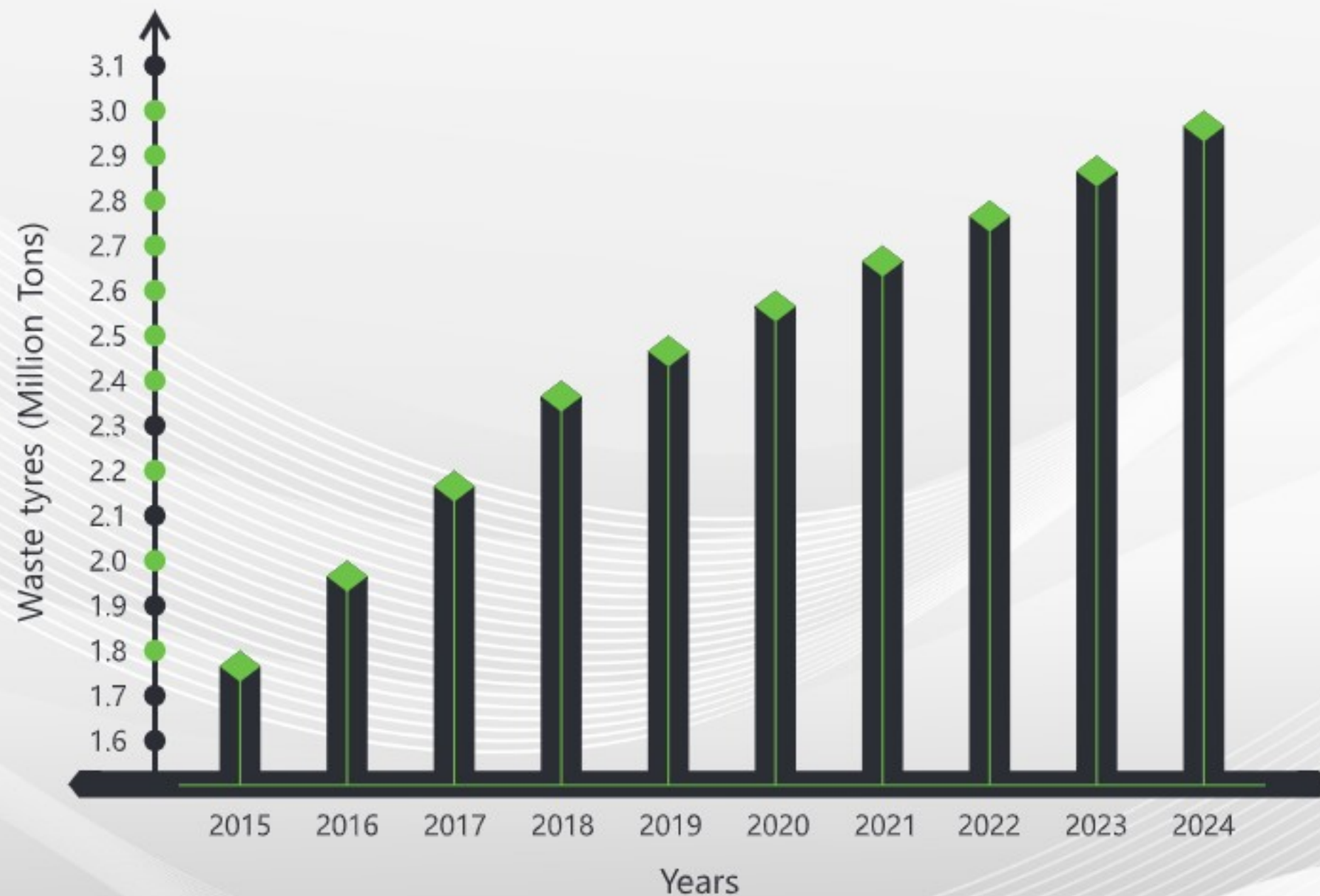
As the automotive industry expands and vehicle ownership continues to grow, the demand for tyres and rubber-based products is increasing steadily. This rising demand naturally leads to a higher number of end-of-life tyres being generated every year.

The graph illustrates the estimate waste tyre growth, showing a consistent upward trend over the years. This growth highlights the increasing volume of discarded tyres and emphasizes the importance of developing sustainable recycling technologies and efficient waste management solutions.



Annual Waste Tyres Generation (Million Tons)

Rising waste = Growing Opportunity for Recycling and Pyrolysis



Industry estimates

4.



Environmental Impact

Discarded tyres are often piled up or abandoned, leading to:



1. Land resource wastage



2. Fire hazards



3. Severe environmental sanitation issues

The phenomenon is widely referred to as "black pollution", symbolizing the scale and seriousness of the crisis.

The Call for Action

Environmental thought leaders in India are urging for sustainable economic development models that address tyre pollution effectively and convert waste tyres into renewable, usable resources. The recycling and disposal of waste tyres in India holds vast untapped potential.

A Sunrise Industry

Extended applications and advanced processing of waste tyres can form a flourishing industry. This sector is poised to become a new economic growth point, while simultaneously supporting India's transition toward a circular economy.

5.

Introduction Of Continuous Pyrolysis Machine

The PU500 Continuous Tyre Pyrolysis Machine is an advanced industrial recycling system designed to convert waste tyres into valuable resources through a continuous thermal decomposition process. Developed under the Pyro System technology platform, this plant is engineered for large-scale waste tyre recycling while ensuring operational efficiency, safety, and environmental compliance.

Continuous pyrolysis is an advanced thermal decomposition process that transforms waste tyre’s 20mm rubber chips into valuable resources “Pyrolysis oil (TPO), Char (Carbon Black), and Syn Gas” without combustion. Continuous pyrolysis operates non-stop, with automated feeding offering consistency, efficiency, safety, and scalability.



Machine Specification

Machine Specification	Continuous Tyre Pyrolysis Machine (Model PU500)
Capacity	55-65 Tons/ Day
Feedstock	20 mm rubber chips with wire (max. 2%)
Voltage	440V / 50Hz (Customized)
Weight	Approx. 200 Tons
Electric Power Consumption	250 kW Installed (60–65 % Running Power) – machine only
Alternative Fuel for Startup	Heavy Fuel Oil, Diesel
Minimum Machine Area Required	50 m (L) × 20 m (W) × 12 m (H) (Additional environmental protection space required)
Heating System	Hot Air Circulation (Gas / FO)
Operating Cycle	25 days / month (3 to 5 days maintenance depending on operating efficiency)
Electronic Control System	Supervisory Control and Data Acquisition (SCADA – Siemens)
Fuel Oil Consumption	100 – 150 kg/hour (during startup)
Reactor Shell Diameter	1240 mm
Reactor Shell Length	20 m × 2
Cooling Medium & Inlet Temperature	Water Cooling (Temperature not exceeding 40°C)

Key Features



Advantages of Internal Rotation Structure

1. Revolutionary Internal Auger Type Screw inside the Reactor

Material is continuously moved and mixed by an internal spiral, preventing sticking and coke buildup, ensuring clean surfaces and efficient production.

3. Efficiency and Durability Enhanced

Optimized heat exchange ensures uniform temperature, reduces energy use, boosts production, and extends equipment life with less maintenance.

5. Internal Rotating seals

The internal spiral reactor uses a tungsten carbide seal for high pressure and wear resistance, ensuring zero leakage and reliable, maintenance-free operation for 3–5 years.

7. Worry-free- Safe and Reliable Gas Management

The fixed internal spiral design supports multiple gas outlets and backup condensation, ensuring stable pressure and safe operation even during blockages.

2. Thermal Heating Distribution Technology

An internal spiral ensures uniform heating and high heat efficiency, overcoming external system limitations while delivering stable performance and reduced maintenance.

4. Stable Operation, Reliable Output

Uniform reactor temperature ensures complete cracking, high product quality, and stable long-term continuous production.

6. Long-term Operation - Extended Operating Cycles, Reduced Costs (Efficiency That Lasts)

By preventing coking, the reactor runs for months instead of weeks, improving utilization and reducing production costs for more efficient, reliable operation.

8. Large-scale advantages- High Capacity, Thorough Cracking (Scalable Design for Large Scale Production)

The long-stroke, multi-layer design maximizes throughput, ensures complete cracking, and enhances efficiency for industrial-scale production.

40% – 45% Yield Pyrolysis Oil

These oils have broad economic value and applications across multiple industries:

- As industrial fuel;
- As chemical feedstock for further processing;
- Be refined into commercial gasoline and diesel with proper upgrading.

Feed Stock 20mm Rubber Chips



30% – 35% Yield Char (Carbon Black)

Carbon black derived from tyre pyrolysis can be utilized in several profitable ways:

- Applied in the production of rubber, plastic filler, inks, and coatings.

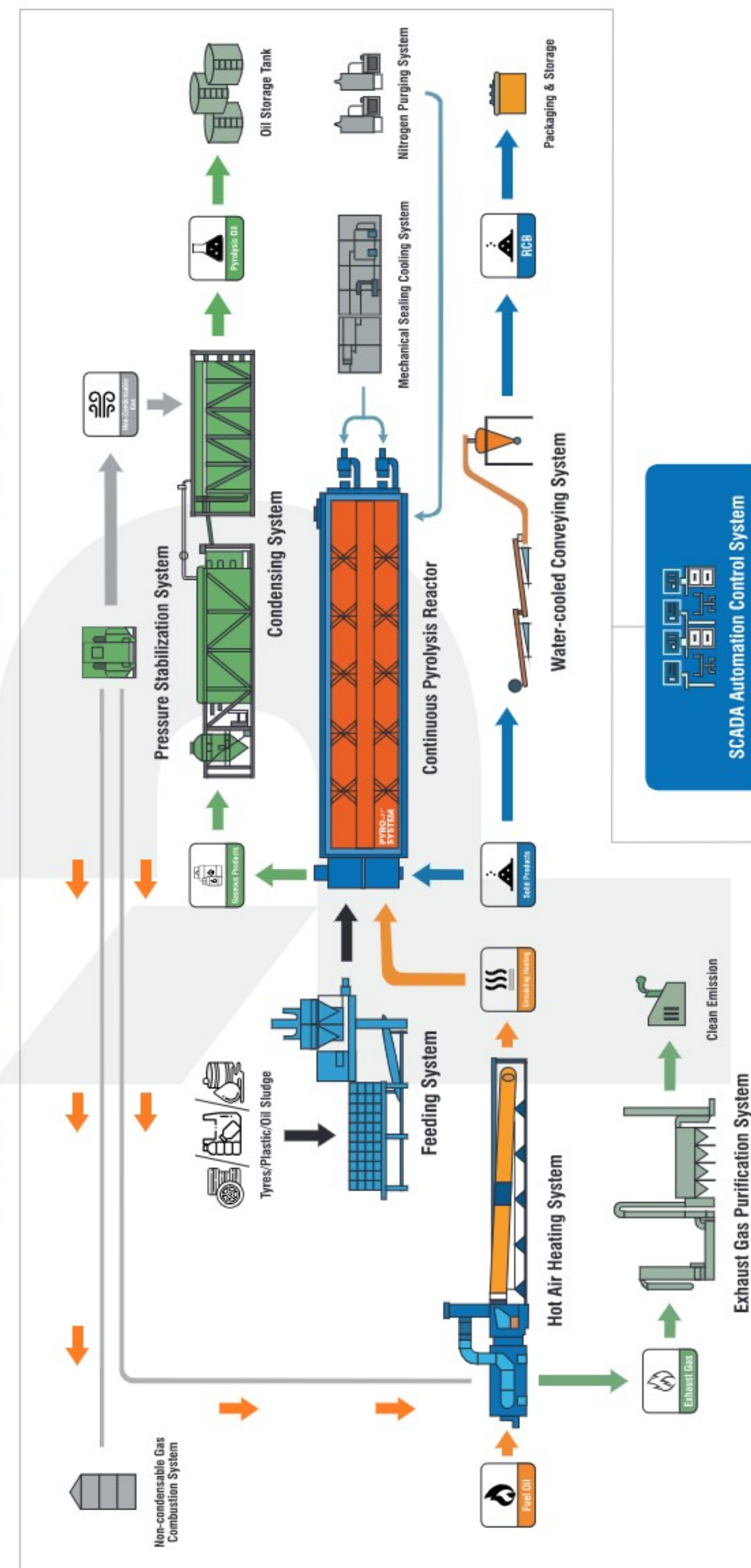
10% – 15% Syn Gas

Used to heat the reactor, saving fuel costs.



10.

Continuous Pyrolysis Machine Process Flow Chart



11.



Recycling Today For a Cleaner Tomorrow

Why Choose Pyro System ?

Engineering the Future of Waste-to-Resource Technology

Choosing the right technology partner is essential for the success of any industrial recycling project. Pyro System, a venture of Prosper Universal Pvt. Ltd., provides advanced engineering and reliable continuous pyrolysis plants designed for efficiency, safety, and long-term profitability.

Our technology transforms waste into valuable industrial resources while maintaining environmental compliance, operational reliability, and strong commercial returns.

Our Strength in Numbers

At Pyro System, our technology and engineering expertise are reflected not only in innovation but also in measurable results. Our operational experience, research capabilities, and project execution track record demonstrate our commitment to delivering reliable and high-performance recycling solutions for the global market.

99% Resource Recovery Efficiency

Our continuous pyrolysis technology converts waste tyres into Pyrolysis Oil (TPO), Char (carbon black), and Syn Gas while minimizing environmental impact.

20+ Industrial Projects Supported

We have supported 20+ industrial projects, delivering dependable large-scale recycling solutions.

12+ Years of Research & Development

Over 12 years of R&D drives continuous improvements in efficiency, safety, and environmental performance.

Driving Sustainable Industrial Transformation

Pyro System helps industries convert waste into valuable resources and supports the global circular economy.

Core Values

- 01 **Innovation** — Advancing recycling technologies through continuous R&D.
- 02 **Sustainability** — Reducing environmental impact through circular solutions.
- 03 **Quality & Reliability** — Ensuring consistent performance and long-term safety.
- 04 **Customer Partnership** — Delivering tailored solutions with dedicated support.
- 05 **Integrity** — Operating with transparency and ethical practices.
- 06 **Continuous Improvement** — Evolving technology for better efficiency and results.

Services We Provide



Design & Layout

Optimized plant layout based on capacity, compliance, and future expansion.



Service & Support

24x7 support ensuring smooth and uninterrupted operations.



Sustainability

Eco-friendly solutions converting waste into valuable resources.



Certification Support

Complete support for Pollution Control Board certification and government approvals for project clearance.



Installation & Commissioning

End-to-end setup with testing and performance validation.



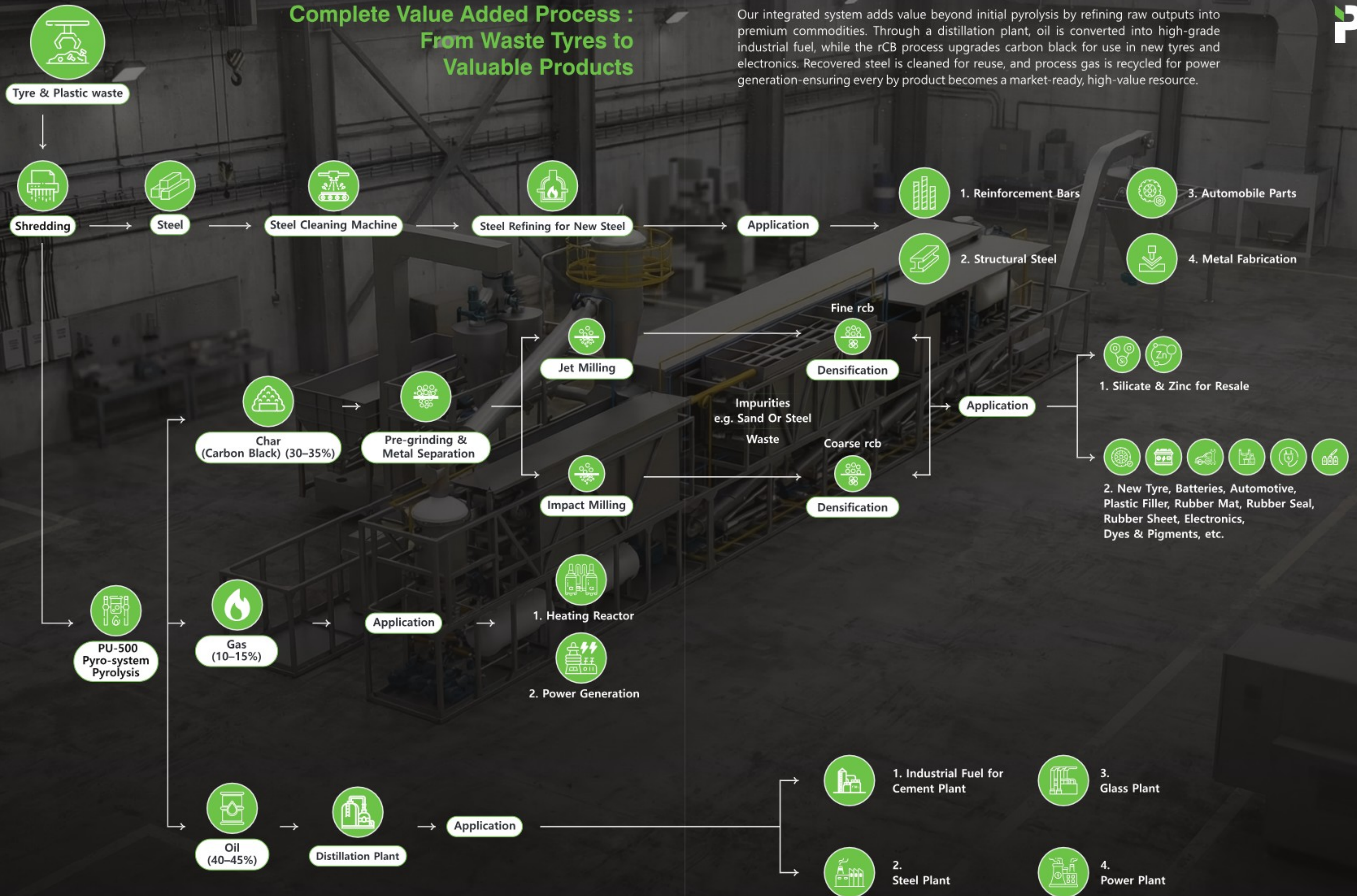
EPR Registration Support

Dedicated support for regulatory compliance and documentation



Complete Value Added Process : From Waste Tyres to Valuable Products

Our integrated system adds value beyond initial pyrolysis by refining raw outputs into premium commodities. Through a distillation plant, oil is converted into high-grade industrial fuel, while the rCB process upgrades carbon black for use in new tyres and electronics. Recovered steel is cleaned for reuse, and process gas is recycled for power generation-ensuring every by product becomes a market-ready, high-value resource.



The General Arrangement (GA) Drawing shall be prepared by our design team based on the customer's available land area, applicable statutory regulations, desired production capacity, and provision for future expansion. The proposed layout will be strategically developed to ensure optimum space utilization, streamlined workflow, operational efficiency, and full compliance with safety and regulatory standards.



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