

"Waste to wealth"



CONTINUOUS WASTE TYRE PYROLYSIS PLANT

Reduce... Reuse... Recycle...

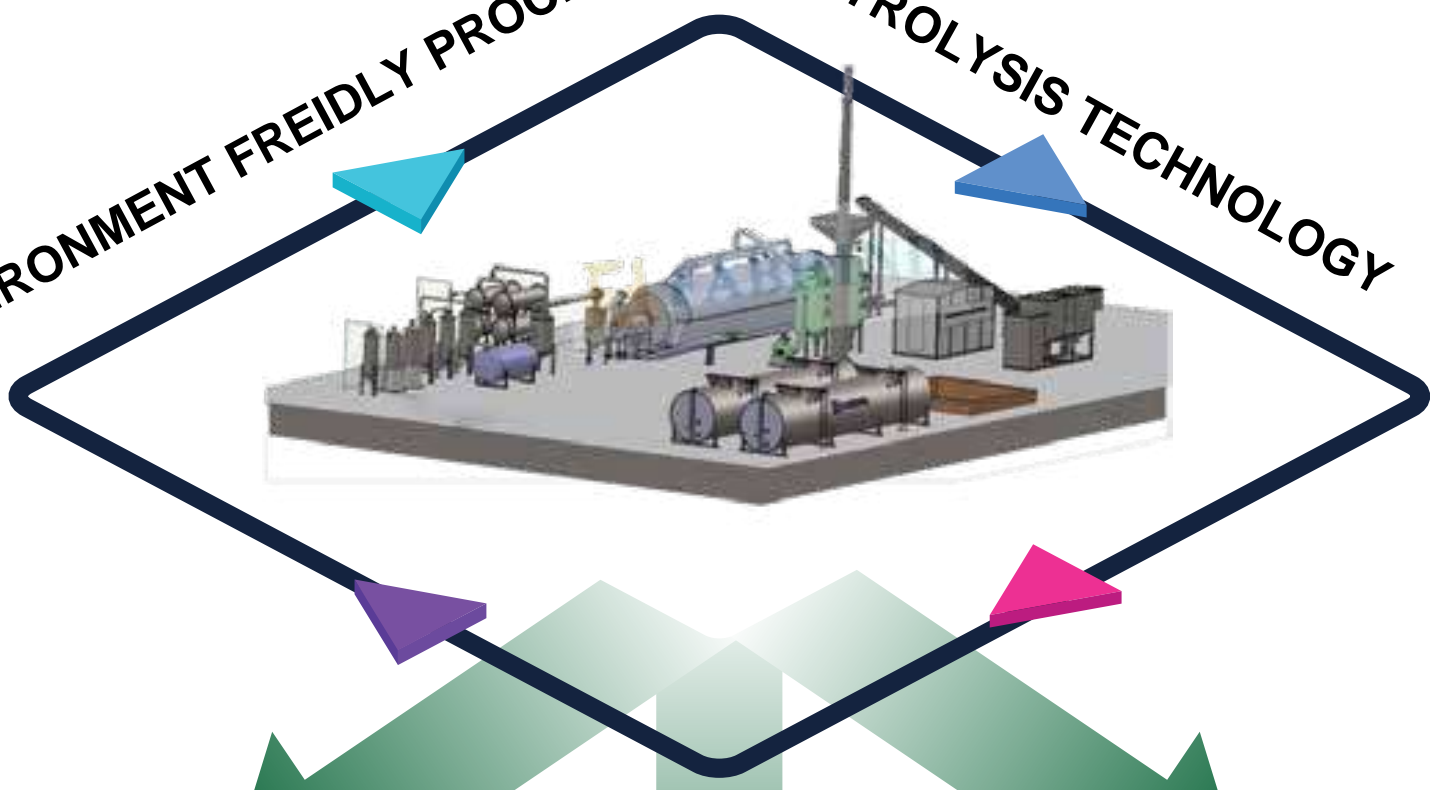


WASTE



ENVIRONMENT FRIENDLY PROCESS

PYROLYSIS TECHNOLOGY



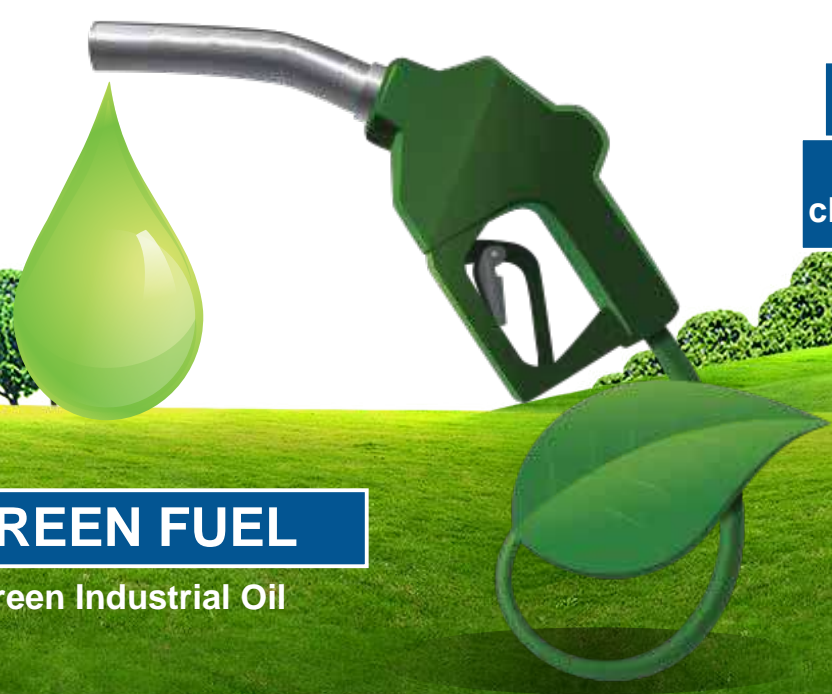
STEEL WIRES

Ready Raw Material for Steel Mills



CARBON BLACK

Ready Raw Material for various chemical and pigment industries



GREEN FUEL

Green Industrial Oil

WASTE TYRE CHIPS CONTINUOUS PYROLYSIS PLANT –FAB-30

The whole project is composed of 30 TPD continuous waste tyre pyrolysis Plant:

Raw Material

Waste tyre chips (5 to 25 MM steel free tyre chips)

Final Product

- Tyre Pyrolysis Oil, Carbon Black Powder, Unprocessed Steel Wire,

Physical Parameters

- Raw Material : Waste Tyre Chips 5 to 25 MM (Steel Free Tyre) Not Suitable for Shredded Tyres,
- Capacity : 30 Ton Per day,
- Status of Slag : Carbon and Flash,,
- Area : Minimum 3000 Square meter,

Production

- Tyre Pyrolysis Oil : 40 % to 42 %,
- Carbon Black Powder : 30 % to 33 %,

Consuming Data

- Fuel : Tyre Pyrolysis Oil , Uncondensed Gas
- Daily Input Capacity : 30 Ton Per Day,
- Cooling Water (Evaporating Loss) : 1000 Liter Day,
- De-dusting Water (Consumption Loss) : 2000 Liter per day,

Overview

Pyro = heat. Lysis = break down. Pyrolysis is chemical reaction. This reaction involves molecular breakdown of larger molecules into smaller molecules in presence of heat. Pyrolysis is also known as thermal cracking,, thermolysis, depolymerization, etc. At any given temperature the molecule is in vibrating stage. This is called molecular vibration. During pyrolysis the object's molecules are subjected to very high temperatures leading to very high molecular vibrations. At these high molecular vibrations, every molecule in the object is stretched and shaken to such an extent that molecules starts breaking down into smaller molecules. This is pyrolysis. Simplest example of pyrolysis is food cooking. When you cook food the temperature of food increases leading to higher molecular vibrations and breakdown of larger complex molecules into smaller and simple molecules. After cooking larger food molecules are pyrolyzed into smaller in simpler molecules which are easy to digest. This technology is a well-proven, well-demonstrated commercially viable technology, which is currently utilized in industrial plants worldwide.

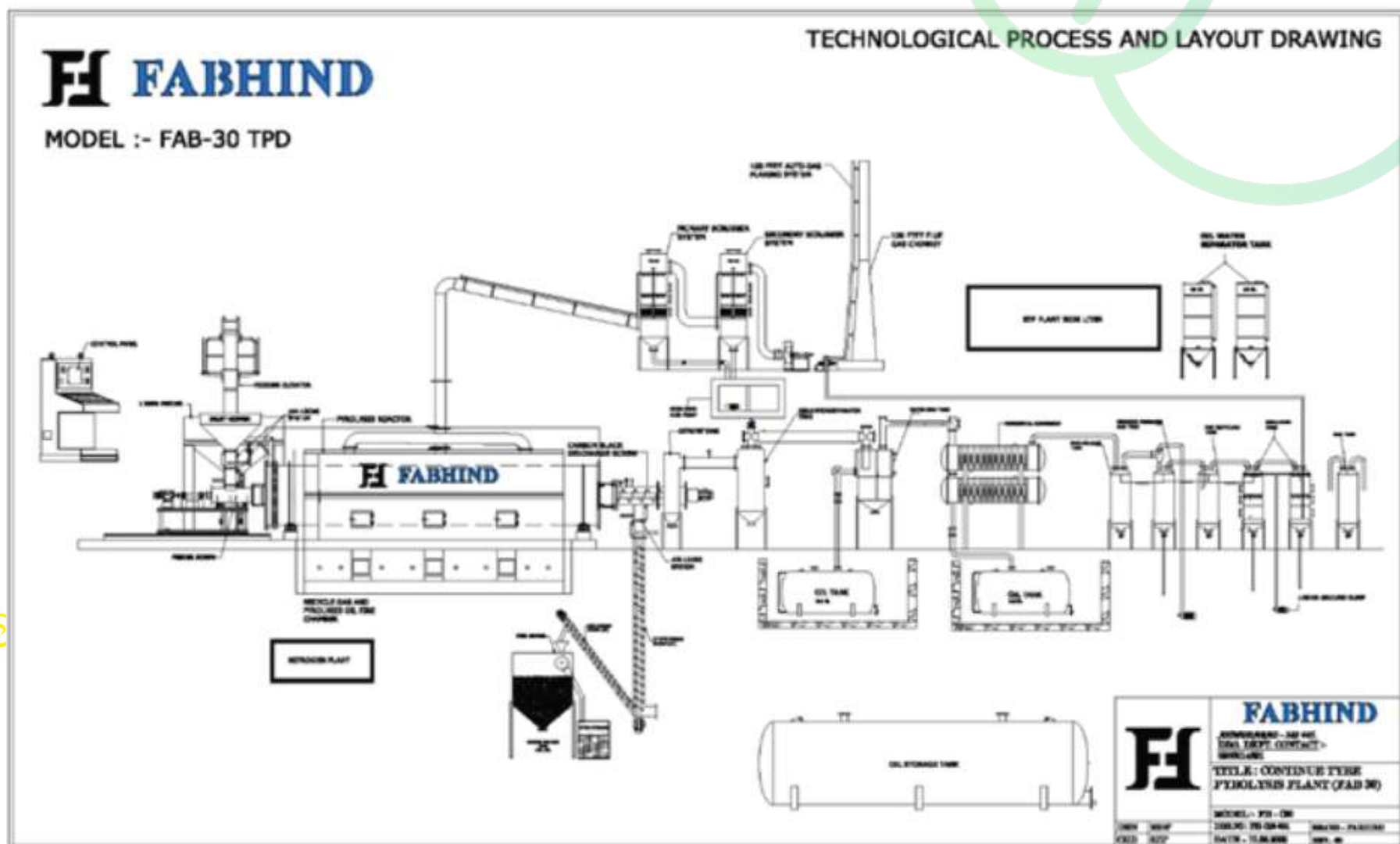


We, **FABHIND** manufacture the Continuous waste tyre recycling project, Semi Continuous Plant and Batch Type Tyre Pyrolysis plant equipment that can process the waste tyres and get the crude oil. At the same time it also can get the carbon black, ammable gas and so on. It can not only solve the problem of the environmental pollution, but also the question of the shortage of the energy. Then it can help us create the big economic pro t.

Continuous Pyrolysis Machine Introduction

According to the continuous pyrolysis technology, the equipment we recommend in this proposal is the FAB Continuous Plant updated equipment of our company. It's the new developed process, including continuous feeding system, continuous rotating pyrolysis system, continuous slagging system, continuous cooling system, smell removal system, continuous tail gas recycling system, continuous smoke cleaning system as well as PLC automatic control system, etc. The whole pyrolysis process is running under a completely sealed environment and on very high automatic control level, no need manual operation for feeding & slagging. The fully automatic and mechanical process makes sure the working environment is totally safe and clean.

Technological Process and Lay out



The Advantages of the FAB Continuous pyrolysis machine

Our Reactor has 360 Degree outside rotating system which allows it to heat proper way so it has long life.

Spiral Flats are designed in to the reactor which helps running the material by its inner wall. The raw material direct contacted with the heat transfer surface and received immediate heat and evenly distributed.

The reactor and feeder system adopts frequency drive (VFD) to adjust the retention time of raw material in the reactor according to the pyrolysis. It can decompose in minimum time to increase high oil yield.

Reactor can be loaded by steel wire free tyre chips and It can also separate the carbon black from hair steel wires at the time of carbon discharge. It has hair steel in wires it can be collected by hair steel magnet separator machine. Hence it will be collected directly to the carbon bags if it doesn't have hair steel in it.

Gas & oil burner can be used for extra use uncondensed gas for secondary heating process of the pyrolysis reactor, which will reduce production cost and customer revenue. The use gas after combustion is treated by dual wash scrubber system as per environment standards. It is using evaporated use gas for heating process of reactor, where we recycle extra heat for the process.

Innovative Safety Measures for FAB Continuous Plant

The invention of "special" sealing methods and structures. Full continuous pyrolysis process is the continuous supply of raw materials to the reactor during the pyrolysis process of the reactor, and the slugging and prevention of pyrolysed oil and gas from leaking through the feed inlet and slag outlet. It has sealing box at the feeding and the interlocking sealing device of discharging with gas kit and Gland rope to prevent oil and gas from leaking during production and ensuring safe production..

It has Dual AIR Lock Valve System to control the pressure of gas during the process, where It will help to input raw material continuously.

Carbon black powder will be unloaded by its Carbon unloading screw with help of Dual AIR lock System, where It will connected to Output conveying system to the cooling ribbon blender. By using of Ribbon blender it can reduce the total process time.

It has dual tail gas treatment system. The non-condensable inflammable gas produced in the process of generation can be deodorized to remove the harmful gas with irritating odor. After the initial purification, the non-condensable inflammable gas heat the reactor as a supplementary heat source. The generated dusty use gas passes through the ventury system eliminate the harmful gas components and fumes in the use gas auto ignition aring at 30 meter height to reach the environmental protection standard.

The condensing equipment line has pipe condenser type of design. The uncondensed oil and gas are taken in the pipe where the water is taken away from the pipe to exchange heat. It has 45 Square meter of coolant area of water pool connected to cooling tower for reducing temperature of recycled water. It has Zero discharge of water.

FAB Continuous plant has micro-negative pressure process. The main advantage is that it can ensure that the pyrolysis oil and gas continue to move to the rear of the production system, preventing the condensed gas from flowing back to the reactor, causing secondary heating and re-cracking to achieve energy conservation and improve oil quality.

Pyrolysis Technology Safety Evaluation :

Leakage prevention

The equipment adopts a fully enclosed structure, and all the hazardous media is operated in the closed system. The welds of the whole equipment including the reactor are 100% non-destructive testing qualified. Besides, the equipment is qualified for airtight testing before delivery to ensure there is no leakage in all the flange connections, threaded connections and welds. The pipelines and other joints installed on-site shall also be airtight tested before being put into use.

Real-time monitoring of pressure and temperature

Reactor has Pressure control and temperature control sensors to indicate accurate pressure and temperature of reactor. FAB Continuous plant has installed PLC system to prevent unnecessary pressure & temperature; It also monitors operating pressure and temperature. When it limits the pressure and temperature PLC will anomaly observed and promptly sound and light the alarm.

Detection of inflammable Gas

The device area should be well ventilated to prevent the explosive limit when the accidental leakage of combustible gas in the device area is too high. If conditions are met, we install inflammable gas/vapor detector in the device area so that the inflammable gas around the device area can be monitored in real time to see if the gas concentration is too high.

Fire Fighting Systems

The user shall be equipped with fire extinguishers, fire hoses, and other fire protection facilities in the installation area according to the provisions of the fire-related regulations (This part requires the user to equip them on site).

Workers must use explosion-proof tools and wear qualified labor protection products when working. During the maintenance process reactor pipelines, the internal pressure must be released first, and the medium should be replaced, then it could be opened after qualified testing. If you need to carry out hot or fire work on the equipment, you must implement safety and technical measures such as cutting off, isolation, replacement, cleaning and ventilation, and follow the procedures to complete the worksheet.

Operating Training & Maintenance

Suppliers provide theoretical operating training by qualified engineers at our facility. FAB Continuous plant also provides practical training to owner and their qualified employees at their running site location. All personnel should be trained and qualifiedly tested before starting job.

Supplier provides Standard Operating Procedures along with its plant.

The parts must be kept away from the equipment by 50 meters with the fire or welding work. If it is impossible to remove the work piece or equipment, then the entire equipment must be cleaned and free from any oil and flammable materials first, and with sufficient fire protection measures and labor protection conditions can it be performed.

Backup Power & Water Supply

During the operation, the device may have abnormal temperature and pressure rise with power failure or water stoppage. It is recommended that users have power backup (100 Kva) and water sources.

Continuous pyrolysis process

Shredded tyres (5 MM to 25 MM) go into the continuous waste tyre pyrolysis plant, will firstly go through a multiple pyrolysis reactor system to be pyrolyzed into oil gas. And oil gas will be cooling down to liquid oil through the cooling system. The residues (carbon black) will be pushed by continuous feeding tyres to the carbon black discharge system for discharge.

Main features of fully continuous waste tyre pyrolysis plant



- 1. Environmental-friendly**
- 2. Security**
- 3. High Profit**
- 4. High Oil Output**

Fully Automatic with low labor cost

Our continuous waste tyre pyrolysis plant is controlled by PLC system with automatic feeding and discharge system, which only need 1-2 worker for operating the PLC or computer is ok.

Fully pyrolysis for high oil output

Our continuous waste tyre pyrolysis plant adopts multiple reactor design which can make fully pyrolysis of waste tyres, thus to get high oil output.

Big capacity

Also due to continuous feeding and discharge system, and unique mutiple reactor design, our fully automatic continuous waste tyre pyrolysis plant can process at least 10 tons waste tyres per day, up to 100T/D.

Internal rotating for continuous operation

For external rotating system, you have to change the sealing material every three days, this cannot achieve the real sense of continuous process. But our continuous waste tyre pyrolysis reactor adopts internal rotating method, which no need to worry about the sealing of the external rotating system.

Continuous working save time and energy

Long working life

During the continuous pyrolysis process, reactor heating is by indirect hot air heating, which will not damage reactor so much, thus to keep long usage life of the reactors. And since the hard steel wire already removed from waste tyres before pyrolysis processs, thus no damage for the reactor.



Technical data of fully continuous waste tyre pyrolysis plant

No.	Item	Specifications		
1	Model	Tyre Chips Continuous Plant	FAB-15	FAB-30
2	Capacity	Tons Per day	15T/D	30T/D
3	Power	Horse Power	60 HP	90 HP
4	Working	Continuous		
5	Reactor	Continuous Reactor		
6	Rotating	Internal rotating		
7	Cooling	Recycled water cooling		
8	Reactor material	BQ 516-70 Grade		
9	Heating method	Direct Hot Air Heating		
10	Heating fuel	Fuel oil/gas		
11	Feedstock	Waste tyre chip 5 to 25 MM		
12	Output	Fuel oil, carbon black		



Application of fully continuous waste tyre pyrolysis plant

For our continuous waste tyre pyrolysis plant, the applicable raw materials can be any kinds of waste tyres, such as bicycle tyres, motorcycle tyres, car tyres, truck tyres, OTR tyres, etc.

Except the steel wire extracted out from waste tyres in the first stage pretreatment process, the final products from waste tyre pyrolysis process will be fuel oil and carbon black. Application of fully continuous waste tyre pyrolysis plant

Use of Tyre Oil

Heavy oil Burner

- Road Construction Machinery
- Cement Manufacturing Plant
- Brick Factory
- Chemicals Factory



Fuel oil application

When the whole process is over, we can get end-products that have a wide range of applications. For example, the pyrolysis oil can be widely used as fuel oil in industries such as steel and iron and boiler factories, ceramics, power or chemical industries or hotels, restaurants etc. or used for generators to get electricity. The carbon black can be used for making construction bricks with clay, or used as fuel. The steel wire can be sold directly or recycled to produce new steel products.

Use Of Carbon Block

- Tyre Industries
- Rubber Industries
- Printing Ink
- Pigment Industries
- Chemicals Factory
- Active Carbon



Fully pyrolysis for high oil output

The accurate calculation system is adopted to make fully pyrolysis of waste plastics, and three-stage tubular condensing system can ensure the cooling effect highest, thus to get high oil output.

Fully automatic with low labor cost

It is controlled by PLC system with automatic feeding and discharge system, which only need 1-2 worker for operating the PLC or computer is ok, saving labor cost.

Continuous operation for saving time and fuel

For external rotating system, you have to change the sealing material every three days, thus cannot achieve the real seal of continuous process. But our continuous waste plastics pyrolysis reactor adapts internal rotating method, which no need to worry about the sealing of the external rotating system. In this way, the fully continuous waste plastic pyrolysis plant can run for 24 hours a day without a stop and needn't to be cooled before the second batch, which not only saves time, but also saves fuels.

Long working life

During the continuous pyrolysis process, reactor is heated by indirect hot air heating, which will not damage reactor so much, thus to keep long usage life of the reactors

Safe and environmental-friendly

Technical Specifications (Equipment Part List)


Sr No	Item List	Qty
1	Pyrolysis Reactor <ul style="list-style-type: none">• Reactor Rotating System 1200 Kg per hour,• Inside Reactor Material Moving,• Reactor Size : 1.8 x 12 Miter• Direct heating System,• Sealing : Hard and Soft Sealing,• BQ Plate of 516- 70 Grade• Reactor Insulated Cover by Cera wool	1 set



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