



PROC TECH
MACHINERIES INDIA PVT LTD
"Define your Work with the Perfect Way"

WASTE TYRE RECYCLING PLANT

AS PER CPCB NORMS



Perfect Machinery Assembler



ABOUT US

PROC TECH MACHINERIES INDIA PVT LTD. was established in 2016 with the aim of manufacture of various types of Mixer & Blender machine, Dryers, Mixing vessels, Granulators and Material handling equipment. Our focus and development technique to build enduring relationships with various industries such as Pharmaceuticals Industry, Food Industries, Textile Industry, Chemical Industry, Dye Industries, Construction Chemical, Plastic manufacturing industry, Waste Tyre Pyrolysis Plant, Dairy Industry, Construction Machinery etc.

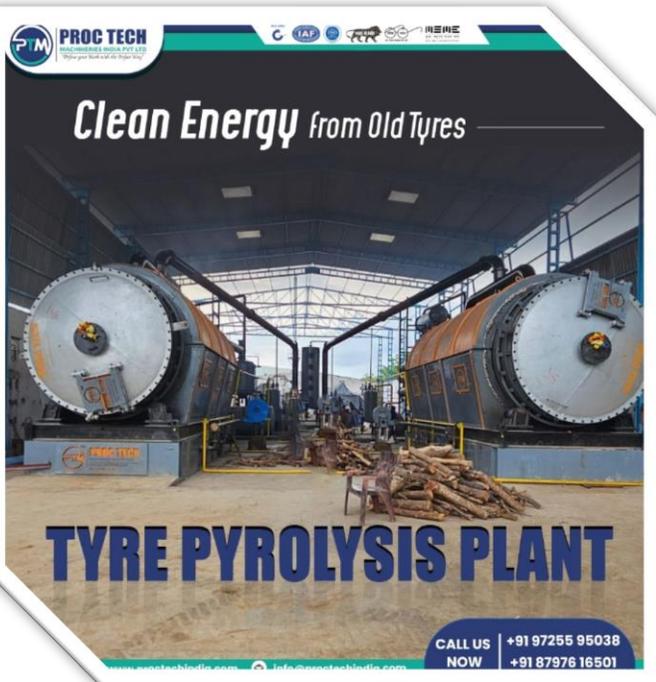
PROC TECH MACHINERIES INDIA PVT LTD. is a leading creator, developer and integrator of energy efficient machines with renewal solutions in support of economic and environmental sustainability. We are committed to helping our valuable clients find engineering solutions that deliver immediate and long term bottom line result.

We provide technical details in all department from inquiry to installation. Our individual department executive will visit your site prior for the site survey and for successful installation of machine. We also provide necessary training of your plant head and other work force.

Our staff includes mechanical designers, mechanical engineers, technicians and business administrators with facility assessment and asset sustainability. Our professionals are technically sound and experienced to bring the best solution to your challenge.

We also manufacture customized and tailor-made machines and plant as per client need. We have great ability to develop customized plant based on specification. All machine is manufactured at our production unit with ultramodern infrastructure facility under the strict supervision of experienced professionals who make use of optimum quality raw material. Moreover, in order to meet diverse need of patrons, we offer these machine in standard dimensions and specifications. Owing to the features like sturdy construction and resistance against rust and corrosion, these machines are widely in the market.

Our mission is to satisfy our clients with the best quality innovative machines that have functional values





WASTE TYRE RECYCLING PLANT

We introduces the world class design and technology for Crumb Rubber Plant of processing capacity of 5 tons to 20 tons per day. The main features include high level safety, environment attributes with international standards, easy and affordable maintenance, higher efficiency and commercial viability. The Tyre Recycling Plant is auto-controlled with PLC Panel. our crumb rubber line includes a broad range of customized shredders and granulators, which have higher efficiency, toughness and consistency.

CAPACITY WE MAKE

5 TONS PER DAY

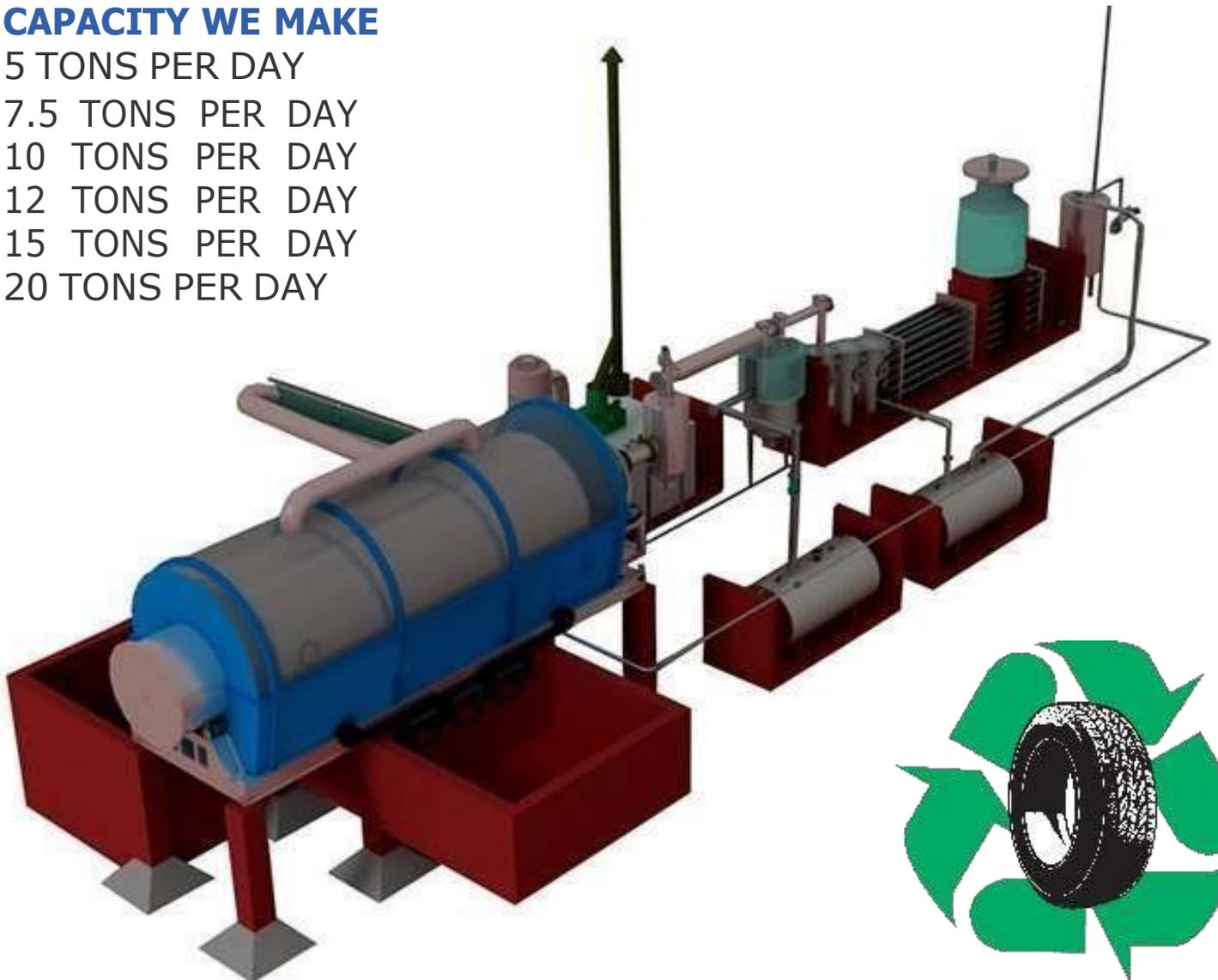
7.5 TONS PER DAY

10 TONS PER DAY

12 TONS PER DAY

15 TONS PER DAY

20 TONS PER DAY



our crumb rubber line generates pure crumb rubber for various applications.

TECHNOLOGY

PROC TECH MACHINERIES INDIA PVT LTD. is having a cutting edge technology and high- quality service. For Controlling of Plant **PROC TECH** only uses genuine parts which are internationally standardized. Using telephonic and internet, we can control and monitor any installed plant all around the world from our company location in Gujarat, India. In this way, our engineers can observe, make modifications and if necessary, correct malfunctions, even over distances of several thousand kilometers.



WASTE TYRE RECYCLING PLANT REQUIRED RAW MATERIAL



Waste tyre and Rubber products

- Nylon Tyre(70%)
- Radial Tyre(30%)
- Belt conveyor etc.

Plastic material like

- Waste plastic
- Electronic scrap
- Mixed Plastic (LDPE, LLDPE, HDPE, PP, Nylon, Teflon, PS, ABS, FRP)
- Multilayered Plastic can be used in limited quantity.

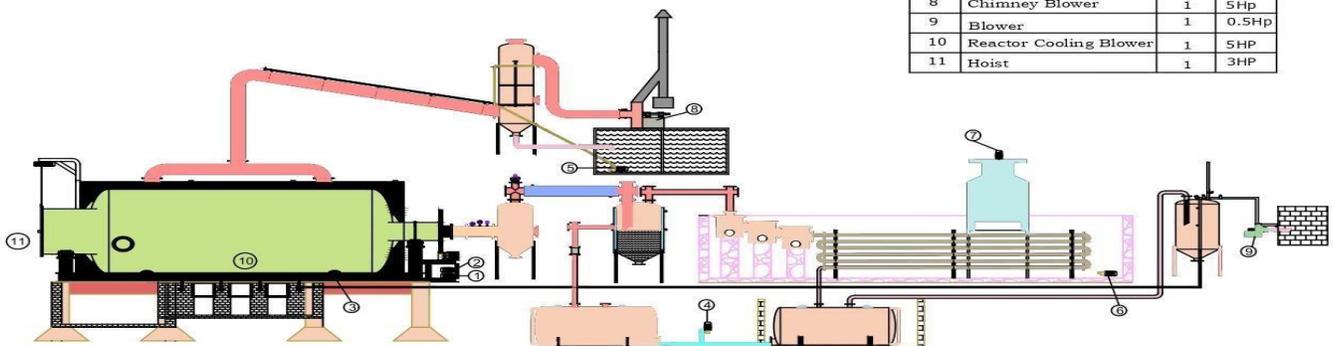


Advantages of pyrolysis plants

- Purest quality of Pyrolysis Oil as finished product.
- Use of green technology to achieve environment friendly process.
- Automatic safety valve (pressure and temperature valve) used to improve safety, profitability & ease of operation.
- It is energy self-sufficient.
- No external fuel required for heating.
- It recovers energy and generates value from waste, in form of fuel, steel wire and charcoal.
- Reduces land pollution.
- Eco-friendly recycling of tires.
- Commercially viable process.
- A good substitution to LDO / Furnace oil.



Sr no	Name	No.	HP.
1	Reactor	1	10HP
2	Reactor	1	7.5HP
3	Fire Blower	1	3Hp
4	Oil Pump	1	3Hp
5	Mud Pump	1	3Hp
6	Submersible Pump	1	5Hp
7	Coling Tower	1	3Hp
8	Chimney Blower	1	5Hp
9	Blower	1	0.5Hp
10	Reactor Cooling Blower	1	5HP
11	Hoist	1	3HP



WASTE TYRE RECYCLING PLANT PRODUCTS & ITS APPLICATION AREAS



Pyrolysis oil

- Total yield obtained: Fuel oil – 40 to 45%
- Flash Point: 60 to 93.3 C.
- Selling price comparable to industrial diesel LDO (light diesel oil)

Application Areas of Pyrolysis oil

- Furnace Industries
- Rolling Industries
- Casting Industries
- Road construction industries
- Crude oil distillation plant



Carbon Black

- Total yield obtained: 30 to 35%
- The vital product of pyrolysis plant is carbon black referred as "charcoal"

Application Areas of Carbon Black

- Cement Industries
- Ink Industries
- Rubber Industries
- Carbon briquetting Plant
- New tyre manufacturing
- Rubber runway
- shoe sole.



Steel Wire

- Total yield obtained: 15 to 20%
- After completion of Pyrolysis Process "steel Wire" Remains as by Product which can be removed by wire puller machine after cooling down the Reactor
- Steel wire can also be removed before adding the Radial tyre inside the Reactor by Hydraulic Steel Wire Removing Machine.

Application Areas of Steel Wire

- Sell to Steel scrap Industries
- Rolling mill



Hydrocarbon Gas

- Total yield obtained: 5 to 8%

Application Areas of Steel Wire

- generally used as a fuel in the same plant for heating purpose.
- store in Rubber Gas Balloon and can be used by next day process
- Used in waste water evaporating system to evaporate the waste water formed during process



WASTE TYRE RECYCLING PLANT COMPONENTS

REACTOR

- Made from BQ plate.
- Reactor is consider as the heart of this plant
- Raw material feed inside will start converting to gas at 300-350 C
- Anaerobic heating process takes place.

There are three types Models Available

- Flat model
- Capsule model
- Flat and capsule combination.

CONDENSING SYSTEM

WATER COOLANT PIPE (HORIZONTAL)

- It is also called Jacketed pipe.
- Here the water gets circulated inside the pipe that lowers the temperature of vapors converting it into oil.
- Thus oil and uncondensed vapors gets separated here leaving oil at the bottom of the tank and gas moving further.



COOLING TOWER

- It has 75 TR capacity.
- It is very useful for cooling of hot vapors
- It generally has a very long life.

CONDENSING PIPE

- This pipe is very useful to increase Yield Percentage.
- It is usually designed in zigzag pattern, so it creates huge condensing area.
- Very easy to maintain.
- Condenser is coil type. 24 coils are used in this pipe.
- The more the coils faster the cooling process. Hence more yield percentages obtained.
- Continuous water supply converts condensed vapor into oil, which is transferred into oil receiving tank and the uncondensed gas travels to the next level



WASTE TYRE RECYCLING PLANT COMPONENTS

TANKS

INSULATION TANK

- It is also called gas separator tank because gas obtained by heating raw material from reactor will get separate here.
- Hence oil produce will store in the bottom of tank and gas will move further to water coolant pipe.



WATER SEAL TANK

- It is also called the vertical tank which is jacketed from all sides and coolant pipe is connected to this tank.
- Gas and oil will come from the water coolant pipe to water seal tank and oil will store to



CARBON HOLDING TANK (2 NOS)

- Carbon holding tank which is in water seal tank in this tank oil and carbon will mix well and will move to pipe condenser and carbon particles will set down



OIL TANK

- Should Be 40% Oil Store In This Tank.
- Light Gas Transfer To Gas Tank From This Under Ground Oil Tank

GAS TANK

Gas tank is made from 5 mm MS plate. This excess hydrocarbon gas which is in gas tank is very dry and does not contain any oil particles . Hence we can either burn it through auto spark at the end of the chimney to release in the air or can be stored in gas balloon in order to reuse it as fire agent in the fire chamber for heating reactor in next recycling process.





WASTE TYRE RECYCLING PLANT COMPONENTS

WET SCRUBBER SYSTEM

- It consists of water sprinklers inside the pipe. Polluted smoke coming from the process is continuously sprinkled by water.
- Hence carbon gets settled down at the bottom of the tank & white smoke will be released through chimney.



CHIMNEY & BLOWER

BLOWER

- It helps in reducing the processing time of the whole process to maintain the number of batches throughout the month.
- It is used to decrease the temperature of the reactor quickly, which helps increase the number of batches.
- This in total helps in increasing the productivity & profit. With the help of a cooling blower, at least 24 batches can be achieved in a month.
- It has a 5HP motor which is sufficient to take the hot smoke out of the plant.



SMOKE CHIMNEY (100 FEET)

- Smoke chimney is connected to the wet scrubber system.
- Black smoke is converted to white smoke via the scrubber system, which will be released through the chimney into the air.
- It is 100 FT high so that pollution is prevented from entering the air.



WASTE TYRE RECYCLING PLANT AUXILIARY EQUIPMENTS

NITROGEN PLANT

- Using Nitrogen Gas in the reactor increase safety before opening reactor door. Decreases cooling period of pyrolysis process.
- It helps to cool down carbon black & steel wire in the reactor
- It maintains efficiency of the process
- Nitrogen plant purity is very steady.



PYRO WATER BURNER

- Pyro – Water word is used for the material which is removed as a waste product from Tyre Pyrolysis Oil.
- This Pyro – Water is a mixture of water, oil and carbon particles and is very harmful for all living organisms and highly pollutes the environment as well.

- In every process approx. 400 liters of Pyro – Water is produced along with pyrolysis oil.
- since it contains a certain percentage of oil and carbon in it, it has a very high calorific value. This can be used in the initial firing purpose hence eliminating the use of wood/briquettes up to 90%.

COOLING BLOWER

- It aids in reducing the processing time of the reactor to maintain number of batches throughout the month.
- It is mainly used for the purpose of decreasing the temperature of reactor faster after the batch taken in order to increase the number of batches.
- It has 5HP motor which is sufficient to take the hot smoke out of the plant.
- This in turn helps in increasing the productivity of the product and hence the profit. With the help of cooling blower at least 24 batches can be taken in a month.



100 FEET CHIMNEY

- Releases filter gas & wood smoke at 100 ft hence decreases air pollution
- Fulfills pollution norms

WASTE TYRE RECYCLING PLANT AUXILARY EQUIPMENTS

GAS BALLOON

- This balloon has 550 fabric tensile strength, so it can survive for a long period without maintenance.
- No leakage or break for a longer period of time
- It is twin lobe hard chrome nickel plated on every internal part which comes in contact with gas, which helps to stop corrosion of internal parts.
- It comes with a blower of 5HP motor, helps to give 50m³/ hour flow rate
- Motor used in it is flameproof, for extra safety. 0% chances of any fire.
- Buffer storage system is provided to stabilize gas pressure and provide Gas to pyrolysis reactor at a constant rate.



BABY STEAM BOILER

- Improves the safety factor by injecting the pressurized steam (100C) in the reactor.
- Helps reducing process time.
- With the help of baby steam boiler, process time of 12 TPD (Tons per Day) completes within 23.5 Hours & 10 TPD process completes within 22 Hours.
- Also helps cooling process of carbon black.
- Assured 22 batches of 12 TPD.

TYRE SIDE WALL CUTTER

- Cuts the truck tire in three pieces Increases amount of raw material for reactor Reduces purchase cost. As tires can be bought whole in auction.
- Increases profit by reducing production cost. Easy to install. Low maintenance.
- Requires 2 to 3 manpower
- Capacity of 9-10 ton of truck tire (1020mm or 1040mm) in a single shift i.e. 10 hours.



AUTO IGNITION SYSTEM

- Auto release and burning extra gas at 100 feet
- Fulfills pollution control norms
- It solves the problem of bad gas odor by burning it



PLC SYSTEM

Reactor temperature and a pressure can be controlled & indicate by PLC panel
By help of PLC panel will get the accurate result of reactor door opening and cooling period & increase the safety in plant
Safety valve 0.5 kg/bar, 1 kg/bar, 4 kg/bar fitted in the pyrolysis plant for release of excess pressure and make the plant safe
In case of a running gas pressure is high during the process alarm system fitted in the pyrolysis plant will ringing the hooter & automatically control the temperature & gas pressure by the help of PLC panel.



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-  **PLOT NO. 515/5, NR. RAMOL POLICE CHOWKI, VATVAGIDCRD, PHASEVI, AHMEDABAD, GUJARAT 382445**
-  **+91 9725595038, +91 87976 16501**
-  proctechmachineries@gmail.com
-  www.proctechindia.com

