

INFOGATE LIMITED

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TYRE TO OIL PLANT (5 TON) PROJECT REPORT

Infogate Limited with its unique renewable technology has come up with a concept of setting new standard in renewable energy that includes using of waste tyres as a raw material and producing green fuel oil, carbon black, steel and gas. With global warming and utilization of rubber, it has now become necessary to recycle the waste and convert it in fuel oil in such a way that it is environment friendly. This is a unique technology and can be change energy market scenario in a big way.

The company owns the famous brand “Infogate”, which has presence in 25+ countries, including Singapore, Sweden, Spain, Greece, Jamaica, India etc.

World Market Scenario:

Billions of tons of wastages are available in all over the world. We can't burn or land fills those tyres due to pollution problems. There is no any other use of these waste tyres. So, we at Infogate Limited have found a solution for this wastage tyre. We separate all content from wastage tyres and make it complete renewable process.

Features of the plant:

- 100% wastage tyre recycling is achieved (No churn left after the process)
- No chemical ingredients are used in process (environment friendly)
- During and after the process; no soil, water or air pollution is observed.
- Creates economically valuable products out of wastage tyres (These are industrial product that have a good market value and demand)
- The most cost-effective wastage tyre recycling technology in the world.
- Raw material (wastage tyre) is cheap and easy to provide. These are the by-products of tyre production.
- Each recycled ton of tyres preserves 10 tons of CO2 that is major green house gas.
- It is a 100 % pollution free process, thus making eco-friendly environment.
- The process can be applied to all rubber based materials.
- The system creates an alternate source of energy to replace petroleum products and natural gas.
- System gives the opportunity to governments and local administrations to deal with the wastage tyre problem to a great extent.
- The process of Pyrolysis has duration of 4 to 12 hours, depending on the quantity and size of tyre (car tyre, truck tyre, etc.). During the process different vacuum values are applied in pre-determined temperatures and in different phases. Different gases are obtained and the condensed gas is stored as a fuel-oil in tanks.

The Perfect Solution (Pyrolysis Process):

Pyrolysis is the decomposition of organic compounds under oxygen free (anaerobic) atmosphere that produces gas, oil, carbon black and steel. Efficient industrial Pyrolysis is a process to treat the rubber and industrial plastic wastage as well.

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As a result of pyrolysis of wastage tyres, one obtains,

FUEL OIL (40% to 45%)

The main oil product produced by our recycling application is the fuel oil that is wide used for industrial and commercial purposes. The oil has 40% to 45% of the amount of recycled scrap tyres, which will be carried with licensed tanker trucks.

CARBON BLACK (30% to 35%)

Carbon Black is the main product recycled by Pyrolysis technology. The amount of recycled carbon black is 30% to 35% (depending on the type of tyres) of the total amount of scrap tyres recycled in the system. Carbon black is used as raw material or main ingredient in many industries and the chemical structure of carbon black strengthens, lengthens the endurance, and improves the coloring features of the materials.

Carbon black produced by Pyrolysis process (CBp) is more economical compared to carbon black produced primarily from petroleum and is more price-efficient to be used as an ingredient in the industries listed;

- ✓ Electric cable jacketing
- ✓ Conveyor band
- ✓ Carrier Bands
- ✓ Hose and doormat
- ✓ Black nylon bag
- ✓ Rubber additive
- ✓ Automotive spare parts
- ✓ Heat isolation
- ✓ Black colorant in rubber materials
- ✓ Plastic pipes
- ✓ Industrial rubber products
- ✓ Fire fighting

STEEL WIRE (10% to 15%)

Tyres contain steel wires and the amount range of 10% to 15% of the total tyre wastage. All of the steel present in the tyre can be detached after pyrolysis recycling process is completed. Valuable steel wires are pressed and sold to steel and scrap dealers.

GAS (10% to 12%)

Non-Condensable gases arise during the pyrolysis process.

Some advantages such as.....

- It has higher calorific value as compared to Natural Gas.
- It can be replaced where Natural Gas and Propane are stored.
- The high energy gas may be utilized as a source of energy for the Pyrolysis process.
- The amount of gas generated in the system is 12% to 15% of the total amount of recycled tyres and considering the 10 ton scrap tyre/day recycling capacity, the facility generates 1200-1500 m³/day gas, which has an enormous energy potential when evaluated.

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Technical Detail:

- This is a batch process system.
- The wastage tyres are fed into the reactor vessel and heated under controlled conditions of temperature and pressure.
- The process will bring about molecular restructuring of the rubber under the pyrolysis process as the result; furnace oil in gaseous form is produced along with other gases.
- These vaporized gases are passed through heat exchanges, where in the furnace oil is condensed into liquid form.
- During the process, carbon black and steel are also generated.
- The heat exchanger uses coolant water, as a condensing medium and this water is re-circulated through process.
- These systems can be operated 24/365.

Project Planning & Implementation (For the 5 ton/day capacity):

Land Requirement:

1500 sq. meters

Construction Shade :

40Ft * 80 Ft = 3200 Sq. Ft.

Water Required:

100 liter per day

Power Requirement:

Without Autofeeder : 15 hp

Manpower Planning:

Managers - 2

Technical - 1

Workers - 4

Other Arrangements to be made by Client

Storage tank of oil (Available locally), Civil Work, Local Worker & labor, etc.

Capital investment:

Price of the Plant : Please Contact for price.

Plant with Auto-Feeder : Please Contact for price.

Delivery Terms & Conditions:

Delivery Time : 70-90 days from your order confirmation

Installation Period : 20 days

Particular Investment

Building and land (1500 sq. meter with 600 sq. meter shade), depending on the area.

This does not include the rate of interest on capital investment.

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Technical Parameters:

Project (Dimension : 6.2 *2.4m)		
Sr. No.	Equipment	Specification
1.	Equipment Model	ITTOAZ-1150 (Full open door)
2.	Material	Plastic rubber (tyres) life garbage
3.	Structure	Horizontal tyre revolves
4.	Capacity	For One Batch About 5-6 tons wastage tyres
5.	Oil Yield	40%-45%
6.	Carbon Black	30%-35%
7.	Steel Wire	10%-15%
8.	Gas	12%-15%
9.	Work Pressure	Normal
10.	Main Engine Rotation Speed	0.4 RPM
11.	Fuels Choice	Coal, Wood, Gas, Oil
12.	Power	About 15 HP
13.	Cooling Method	Water
14.	Cooling Water Consumption (T/H)	Cyclic
15.	Type Of Drive	External Annual Gear Drive
16.	Heating Method	Direct
17.	Type Of Installation	With Foundation
18.	Operating Mode	Intermittent Operation
19.	Reactor Dimension (MM) (Length*Diameter)	6000*2200
20.	Reactor Weight	About 8000 Kg.
21.	Total Weight	About 22 MT

Important:

Please note that all amounts/estimates on next page are as per market rates, and are used for symbolic representation/estimation purpose only. The actual figure depends on lots of issues including quality of raw material, power conditions, and others.

These amounts/figures should be considered as example only, and under whatever circumstances, Infogate Limited and/or its associates does not take any guarantee, or cannot be held responsible about these estimates as your actual return on investment.

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Estimated Operational Cost and Return on Investment:

The analysis is based on the conjecture of 5 tons/day capacity unit operating for 300 days a year;

Raw material waste Tyre: 4 ton per day*300 days = 1200 ton/ year.

Total output:

- Carbon black (35%) - 420 Ton (Rs 4,000 per Ton in India)
- Furnace oil (40%) - 480 Ton (Rs 28,000 per Ton in India)
- Steel (12%) - 144 Ton (Rs 12,000 per Ton in India)
- Gas (13%) - 156 Ton (We are not considering its price)

Total Earning: (Yearly)

(Unit: Tons)

SI.No	Product	Output (%)	Output (Ton)	Price / ton	Total Income
1.	Carbon Black	35%	420	4,000	16,80,000
2.	Furnace oil	40%	480	28,000	1,34,40,000
3.	Steel	12%	144	12,000	17,28,000
4.	Gas	13%	156	--	0
				Total (A)	1,68,48,000

Total Expense: (Yearly)

(Unit: Tons)

SI.No	Particular	Quantity	Price	Total Cost
1.	Waste Tyres	1200	7000	84,00,000
2.	Salary & Wages	7*12 Month	10000	8,40,000
3.	Fuel (For Initial Use)	225	5000	11,25,000
4.	Electricity + Water			3,60,000
5.	Misc. Expense (Bag Packing, Repairing, Renovation)			5,00,000
		Total (B)		1,12,25,000
	Profit (Earning – Expense)	(A - B)		56,23,000

Local contact in India:

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