



MOC petroleum recycling is an EJSC company (Egyptian Joint Stock Company)

established by a group of national industrialists The company's activity includes –

but not limited to the following

- General supplies**
- General trading and distribution (Biodiesel and petrochemical)**
- Import, export and commercial Agencies**
- General, specialized, and integrated contracting**
- Land and sea freight-forwarding services, and stevedoring**
- Commercial brokerag**
- Manufactures for petroleum recycling of waste liquid and solid material through deferent type of Methods. Like**
(thermal desorption , water and oil separation mechanical system , Vacuum distillation , pyrolysis and itc ...)
- Soil Remediation with deferent Remediation Technologies (Ex-situ Remediation ,**
in – situ Remediation , Groundwater Remediation)
- Offsite Soil Treatment Facility**
- Water Treatment**

- Environmental Plant

- Petroleum services which are supplementary to drilling and exploration operations

Our current and future vision is to support the industry sector in all its forms, whether the heavy or the medium industries, in addition to the small industries as well.

This could be done by providing modern production lines, industrial equipment, consultancy, trainings, and economical feasibility studies for the current factory owners, and also for those who are willing to start working in the medium and small industries field.

This field is essentially important in line with the developmental state policies in enhancing and developing that vital industry sector in Egypt, as it assists in creating millions of new job opportunities for the youth, and also in pushing-forward the manufacture and export wheel, which form one of the Egyptian economy pillars.

With regards to our great experience in the industry field, and because of all the obstacles and difficulties we have faced and managed to solve over the previous years, we have dedicated ha huge part of our efforts to provide the suitable technical and technological solutions through modern applications.

These applications will be available for the first time in Egypt to support the national industry which is the pillar of the Egyptian economy, so that our products can be able to compete in the global markets with their high quality and reasonable price. Therefore, our beloved Egypt will rise to industrially and economically developed countries rank.

Our Services .

- Economic consulting

Economic consulting

We provide to our client access to a worldwide investment and distribution network



- actual and real service

Through our experienced staff of professionals,

we guarantee high quality service .

Each and every one of our employees represent the spirit

of our company: driven, committed, and acutely aware of how limitless

MOC Petroleum Recycling Energy Group's potential is to grow



- Inland shipping and shipping services

We cover the entire range of shipping services as

we handle all types of vessels such as container carriers,

break bulk carriers .

We offer a complete range of logistic solutions at competitive prices,



- Consulting

- Petroleum consulting services

Support for petroleum drilling and exploration process

Activation and Maintenance of Oil/Petroleum Wells

Drilling equipment and Oil Pumps Maintenance Services



Water Well Drilling and shallow wells necessary for the purposes of oil
Services related to dropping off wrapping pipes and tubes production
Construction / Civil works complementary to the drilling and maintenances
processes treatment of surfaces from deposits
Petroleum Exploration



- **Contaminated site Management**

- Environmental site assessment (ESA)
- Remedial investigation and Feasibility Study (R/FS)
- Remedial Design (RD)
- Remedial Action (RA)



- **Enviromental Consulting**

We provides various environmental consulting services like

Environmental risk assessment

Environmental due Diligence assessment

Environmental Health and safety Audit

1- Remediation Technologies

- **Ex. Situ Remediation**

- Soil Washing

Contaminants are separated from the soil in an aqueous –
based system with a basis

Leaching agent, surfactant pH adjustment,

or chelating agent that help removing organics and heavy metals.

Contaminants : SVOCs , Fuel , heavy metals , and selected VOCs and pesticides

- Thermal Desorption

Thermal treatment means the destruction or removal of contaminants through
exposure to high temperature in treatment cells or combustion Chamber

direct or indirect fire

contaminants : SVOCs, PAHs, and pesticides , nonhalogenated VOCs and fuel

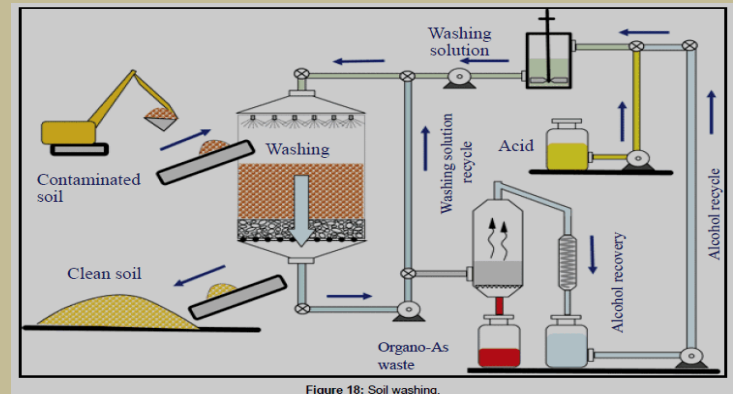
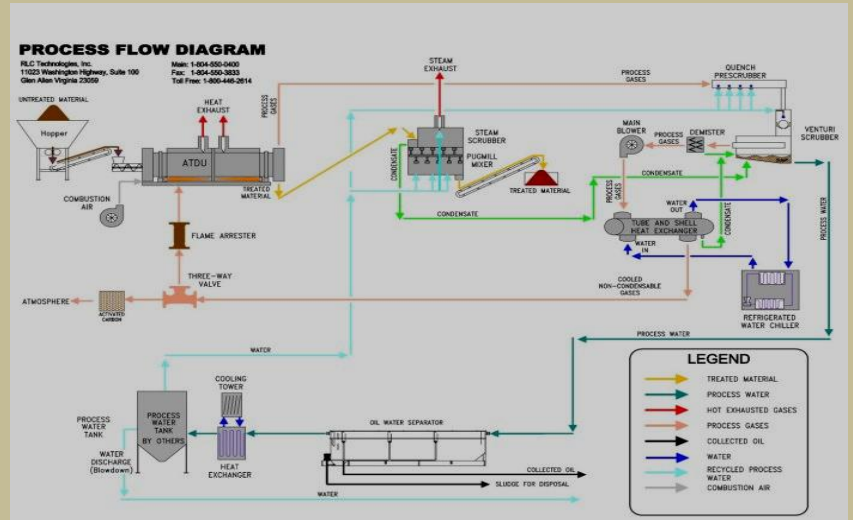
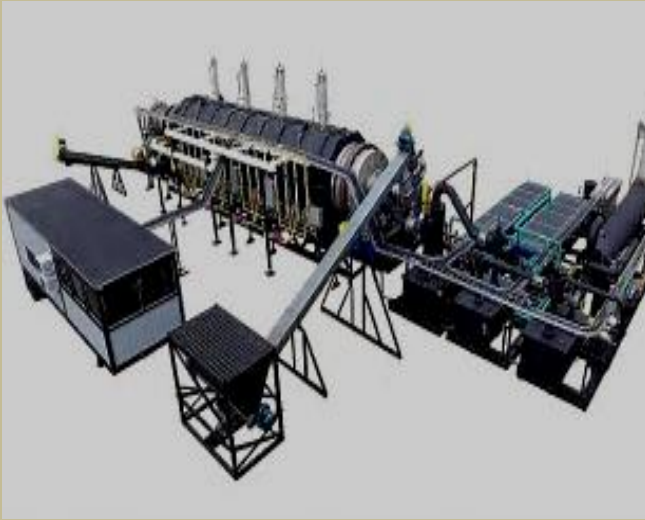


Figure 18: Soil washing.



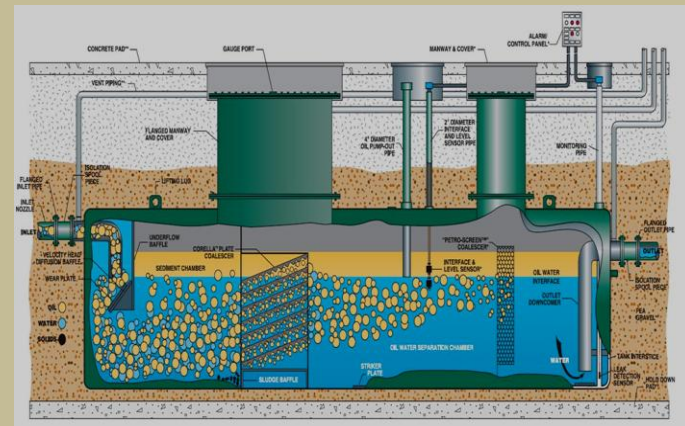
- Water ,Oil Mechanical separation

Oil water separators can efficiently aid in the removal of gasoline, diesel fuel, crude oil , Vegetableoil and almost any type of oil that is heavier than water.

The effluent from oil / water separators is typically discharged to either a sanitary sewer system or a storm sewer.

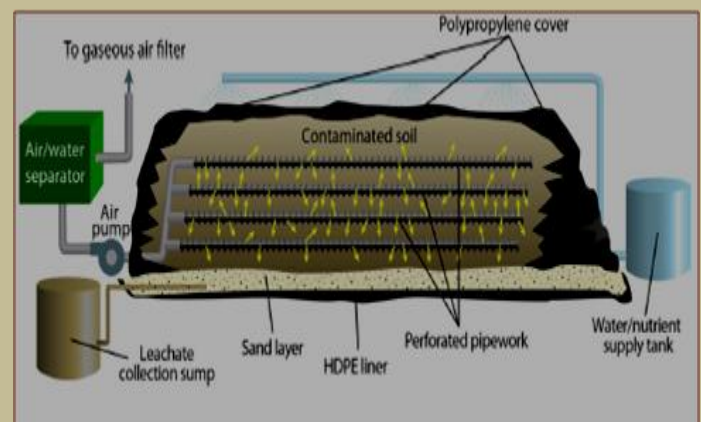
Properly designed, installed, and operated, oily water separators provide a treatment system for handling oily

waste water that prevents the entry of unacceptable levels of contamination to a storm sewer or sanitary sewer system.



- Landfarming

Land farming is a full-scale bioremediation technology that contaminated media is applied into lined beds and periodically turned over or tilled to aerate the waste .



Contaminates : diesel fuel , JP-5 , oily sludge, PCP, creosote and certain pesticides .

- In. Situ Remediation

- Electrokinetic Separation

The electrokinetic remediation process removes metals and organic contaminants from low permeability soil , mud , sludge , and marine dredging using electrochemical and electrokinetic

Contaminants : heavy metals , anions , and polar organics

- Soil Vapor extraction (SVE)

SVE is used to remediate unsaturated zone soil .

A vacuum is applied to the soil to induce the controlled flow of air and remove volatile and some semi volatile organic contaminants.

Contaminants : VOCs and some Fuels

- Bioventing

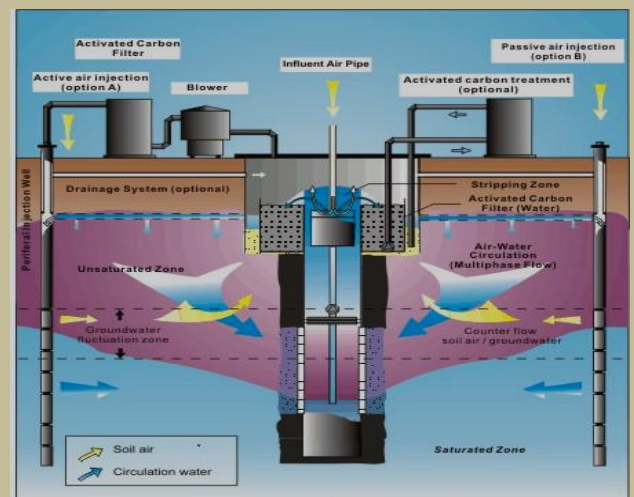
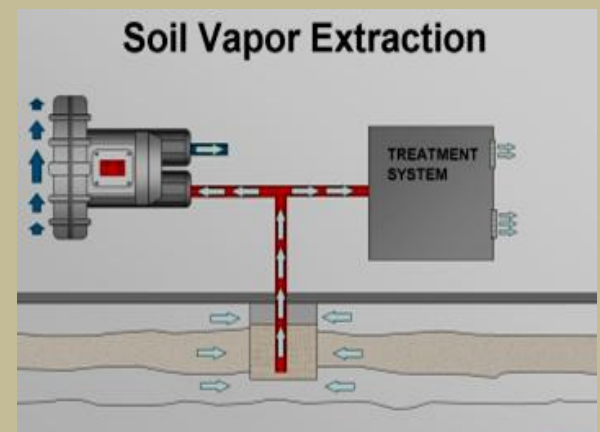
Bioventing is a technology that stimulates the natural in situ biodegradation of any aerobically degradable compounds

In soil by providing oxygen to existing soil microorganism

Contaminants : petroleum hydrocarbons , non chlorinated solvents , some pesticides , wood preservatives , and other organic chemicals

- soil Flushing

Water , at times supplemented with surfactants cosolvents , or treatment compounds , are applied to the soil or injected in to the groundwater



And that are isolated within the underlying aquifer
and recovered together with flushed contaminants.

Contaminants : inorganics , VOCs , SVOCs, fuel and pesticides

- Chemical Oxidation

Chemical oxidation uses oxidants and
typically involves reduction/oxidation reactions
that chemically convert hazardous compounds

To nonhazardous or less toxic compounds

Contaminants : fuel , solvents , pesticides

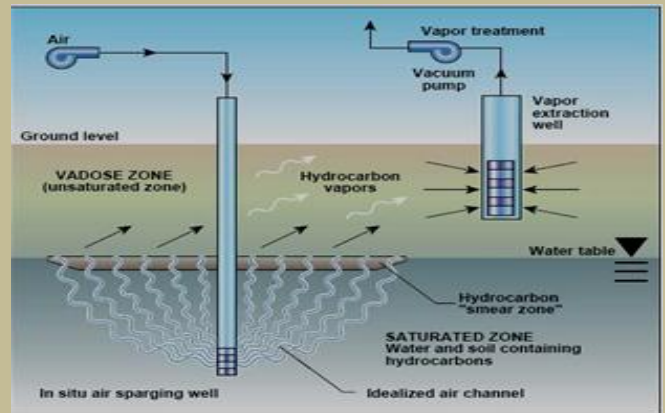


• Groundwater Remediation

- Pump and Treat

Contaminated groundwater extracted from the subsurface
by pumping is treated before it is discharged

Contaminants : fuel , solvents , and pesticides



- Air sparging

Air sparging is an in situ technology in which air is injected through a contaminated aquifer .

Injected air traverses horizontally and vertically in channels through the soil column ,

Creating an underground stripper that removes contaminants by volatilization .

Contaminants : VOCs , and fuels .

Permeable Reactive Barrier (PRB)

PRB is a wall created below ground to clean up contaminated groundwater . The reactive materials that make up

The wall either trap harmful contaminants or make them less harmful.

Contaminants : chlorinated solvent , other organics , metals , inorganics , and radio nuclides .

2- Recycling the waste solid and liquid petroleum products

for waste (plastic, tyre , rubber , sludge , engine oil)

First tyer

Steel-drawer XY-C800

XY-C1200

It could be applied to cut all kinds of rubber blocks and strips. It is good for cutting rubber tyre, rail tyre, rubber strips etc.(650-1200 Tyres)



Shredder

Crusher

XY-SH800

XY-SH1200

At the room temperature, put the tyre or large plastics of rubber into the press directly, which can then be crushed to 1-8 cm pieces

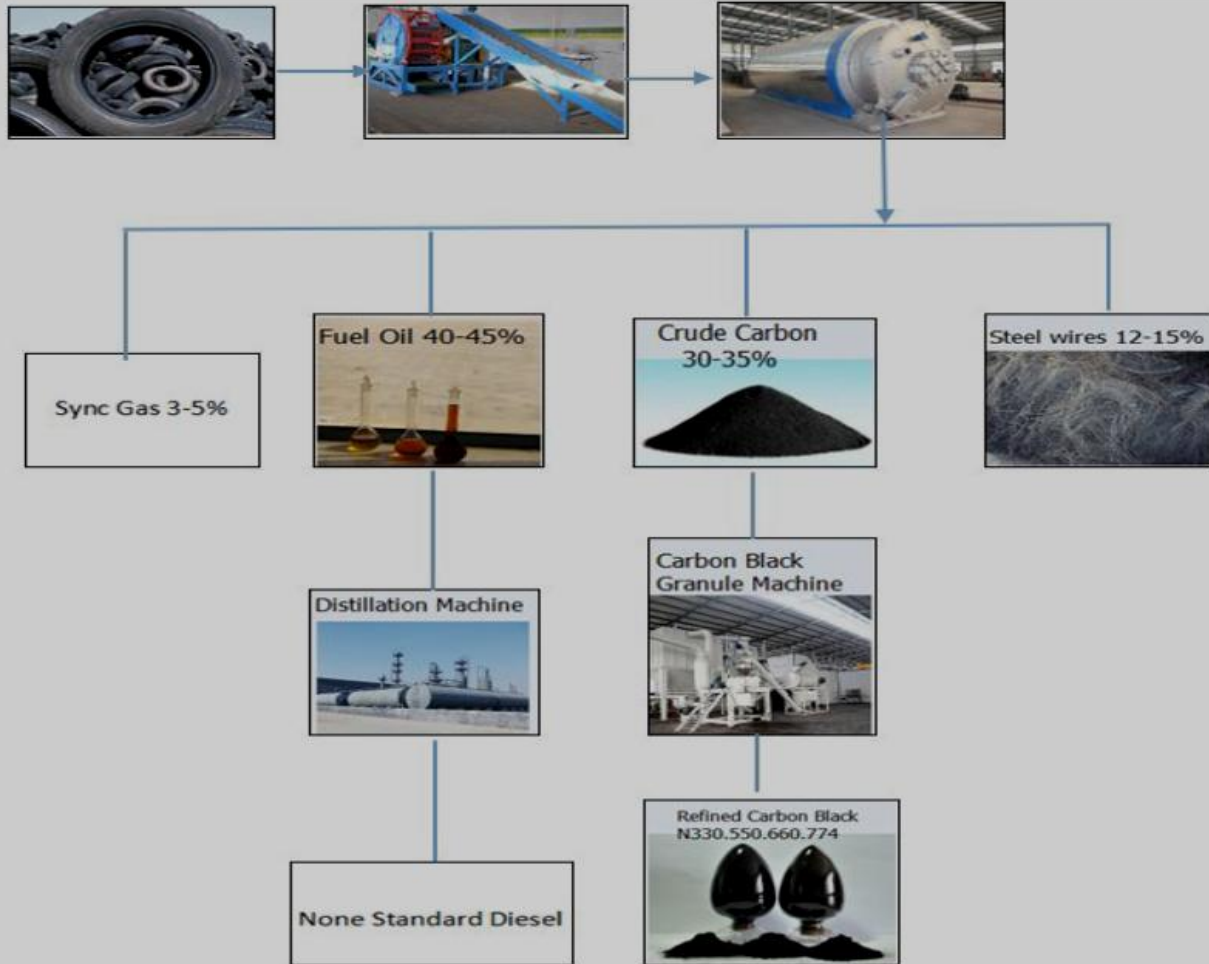


**Whole Tyre
Crusher and screening**

XY-SH800

XY-SH1200

At the room temperature, put the tyre or large plastics of rubber into the press directly, which can then be crushed to 1-8 cm pieces.



Pyrolysis Machines Introduction and Proposal



We are professional institute in the recycling and utilization of waste resources (waste plastics, waste rubber, tyres and waste engine oil).

Now, our company have agency holds several items which are China national patents related with the involved our technology and equipments.

According to the actual situation in every country and district, we developed series of machine for waste tyres, rubber and plastic which includes about 5 tons and 10 tons capacity daily on batch systems, and the fully continuous pyrolysis systems with daily capacity from 10~30Mt. also 5 – 10 MT/H . Here introduced only on the batch systems.

2. Oil Output:

with waste dry and pure steel tyres as example, the output is:

Tyre oil: 40-50%

Steel wires: 12-15%

Carbon Black: 30~35%

Sync gas: $\approx 3\sim 5\%$

Inner water: $\approx 3\%$

If the raw materials are plastic or others, please refer to the following of the oil output:

Item	Picture	Raw Materials	Output	Item	Picture	Raw Materials	Output
轮胎 Tyres		钢丝（汽车）胎 Steel Tyres	40%—45%	生活垃圾 Life Garbage		纯净（塑料袋） Pure (Plastic bags)	≈ 50%
		尼龙（汽车）胎 Nylon Tyres	≈ 40%			编织袋、手提袋 Weaves & Handbags	≈ 60%
		自行车胎等 Tyres of Bikes etc.	≈ 35%			含水杂料 (Wet Mixture)	≈ 15%
塑料 Plastics		HDPE	≥ 70%	鞋底 Soles		运动鞋底 Sports Shoes Soles	27%—33%
		LDPE	30—50%			黑橡胶 Black Rubber Soles	≈ 35%
		PVC	20—30%			牛筋底 Gum-rubber outsoles	≈ 45%
		ABS 工程塑料	≈ 40%	其他 Others		普通橡胶管 Usual Rubber Tubes	≈ 30%
纸浆料 Paper Mixture (Plastic from the Mixture)		粗料 Rough Material	≈ 15%			地毯料 Carpets	≈ 35%
		水洗料 Washing Material	23%—26%			铝箔纸 Aluminum Foil	≈ 30%
		机头料 PE Material	≈ 70%			车玻璃压条 Car glass bead	≈ 50%
电缆皮 Cable Skin		PE 交联电缆皮 PE Cable Skin	≈ 85%			饮料瓶盖 PP) Beverage Bottle	≈ 50%
		PVC 电缆皮 PVC Cable Skin	≈ 25%				
		纯橡胶电缆皮 Rubber Cable Skin	≈ 35%				
		电话线 Telephone Cable Line	≈ 50%				

* Pulling steel wires out of tires

* Plastic Dryer

* Optional according to real requirements.

* Cutting into pieces or package

* Package into bundles

** Loading by autoloader or hand

** Optional according to your labors' price.

Heating during operation

Pyrolysis

Exhaust Smoke

Gas Separator

*** Carbon black Discharging

Smoke Scrubbers to remove color and bad smell

Diversion Tower

*** Carbon black Deep Process

Chimney

Condensers

Oil Tank

***** Sync Gas Purification & Vacuum System

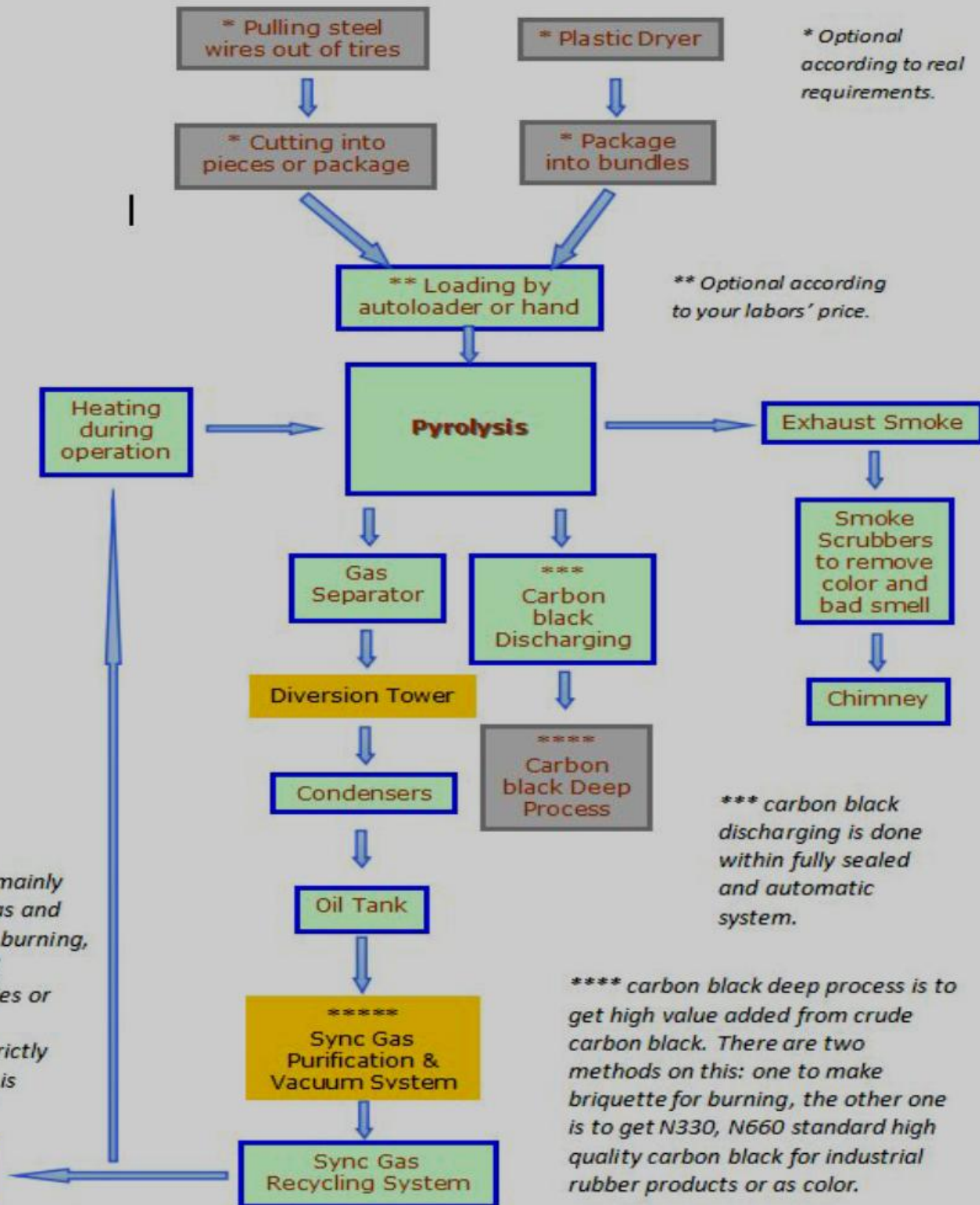
Sync Gas Recycling System

*** carbon black discharging is done within fully sealed and automatic system.

**** carbon black deep process is to get high value added from crude carbon black. There are two methods on this: one to make briquette for burning, the other one is to get N330, N660 standard high quality carbon black for industrial rubber products or as color.

***** **Function:** mainly to remove acid gas and bad smell before burning, for European and American Countries or the environmental-strictly zone, this system is

Extra Gas burning



- Process

A. Open the reactor door, load the materials (tires, plastics, rubber, etc.) into the reactor automatically or by hand, and close the reactor door, tighten strongly.

B. Turn on the motors, begin firing with fuel (wood, coal, char, carbon black, oil or gas), the temperature of the reactor increases gradually, and when temperature increases up to about 200°C, gas separator temperature about 120°C, vapor comes out first, and then sync gas generated gradually.

C. Most of the Sync gas will liquefied into oil when flowing through the condensers which is cooled by the circling water and stored in the oil tanks.

D. There still small quantity of sync gas cannot be liquefied due to its characteristics, this part of gas will be recycled back to the (Sync gas purification system, in which most part of the Acid content then flow into) burning room, and burned as fuel to support the operation. If the sync gas too much to be burned, the extra gas will be burned in the extra gas burning room.

E. The smoke after burning (of sync gas and all other fuels) will be purified in the smoke scrubbers, the acid contents and the ash will be removed and then into atmosphere finally.

F. When the heating finished, after about 5 hours natural cooling, the carbon black (some people call it as char) will be automatically discharged into the carbon black storage tanks. (And then steel wires pulled out of reactor if steel wires exists).

4. The Parameter of the fuel oil after pyrolysis

Parameter of the fuel oil after pyrolysis:

No. Project Tire oil Plastic Oil

1 Water content 3% - 5%

2 Sulfur content $\leq 0.3\%$ $\leq 0.5\%$

3 Density 0.86-0.94 0.84-0.94

4 Cetane number 30 30

5 Combustion value 9500 9000

6 Asphalt 0.5% 0.5%

7 Ash 1%

8 Impurity 1%- 3% /

9 Solidifying point 10°C 10°C

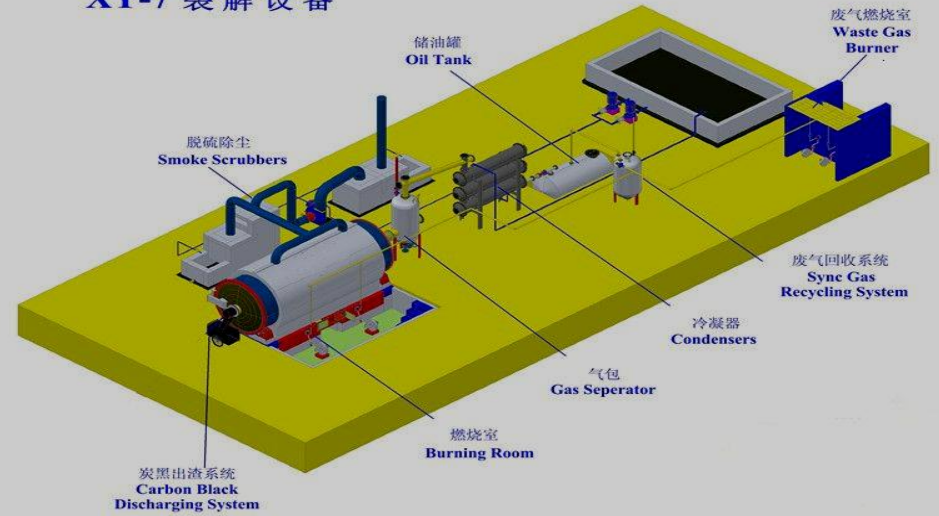
10 Flash point 30~40°C 20~35°C



- **XY-7 / XY-8 Common design**

It is applied to extract fuel oil from kinds of scrap rubber, tyre, plastic through pyrolysis, separating the crude carbon black and steel wires.

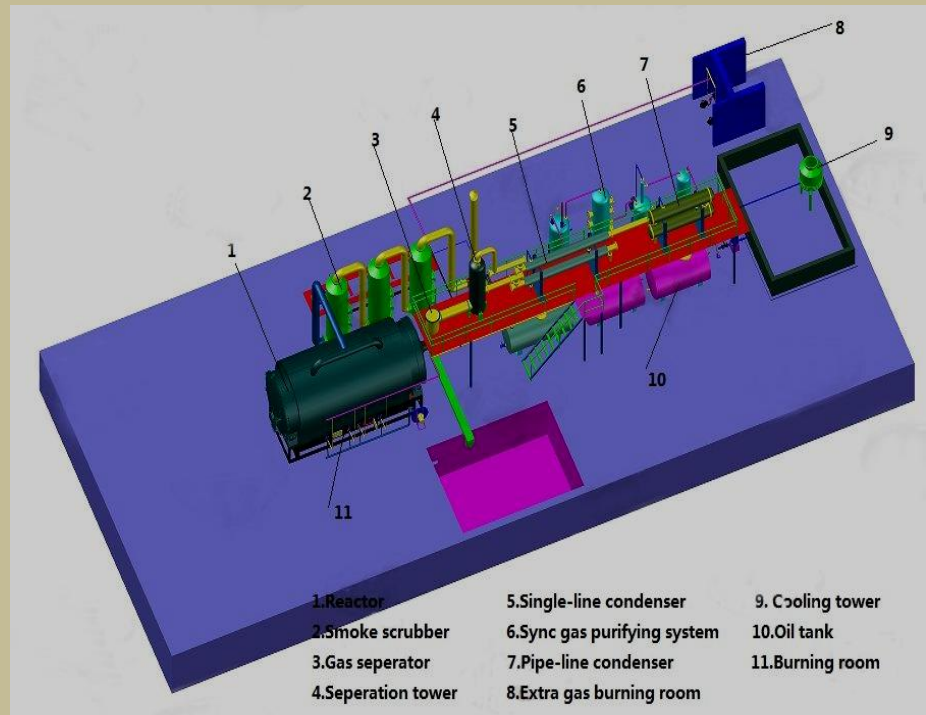
XY-7 Pyrolysis Plant XY-7 裂解设备



- **XY-8 Integrated design**

As the developed countries from Europe or USA have more strict environmental requirements than the developing countries we have made greater improvements on our exhausting emission system based on our condensation of XY-7 that we have developed our XY-8 pyrolysis plant to Europe and other developed countries.

Matched base, no foundation, more convenient installation, with new designed sync gas purification system, making the whole production cleaner and more environmental friendly.



• XY-9-P Continuous Pyrolysis Plant

Fully automatic and continuous process

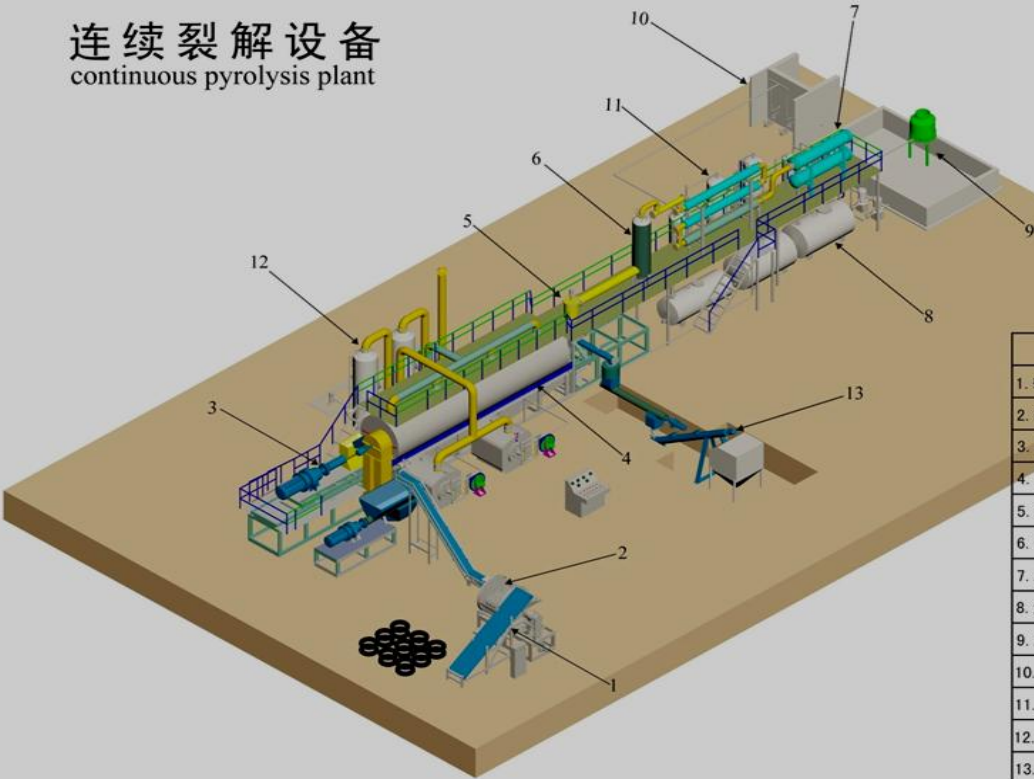
with advanced technology and large

capacity, no need fuel during the process

to convert waste into wealth, with high

quality end products

连续裂解设备
continuous pyrolysis plant



名称	NAME
1. 输送带	Conveyor
2. 轮胎破碎	Tyre Shredder
3. 自动进料机	Auto-feeder
4. 主炉	Reactor
5. 缓冲气包	Gas buffer
6. 分流塔	Diversion tower
7. 冷凝器	Condensers
8. 油罐	Oil tank
9. 冷却塔	Cooling tower
10. 废气燃烧室	Waste gas burner
11. 废气净化系统	Sync gas purifying system
12. 烟气净化系统	Smoke scrubber system
13. 炭黑出渣	Carbon black discharging

PROPOSAL

Continuous Vacuum Distillation Plant XY-9

1. Company Introduction:

We are a professional institute in the recycling and utilization of waste resource (waste plastics, waste rubber, tyres and waste engine oil).

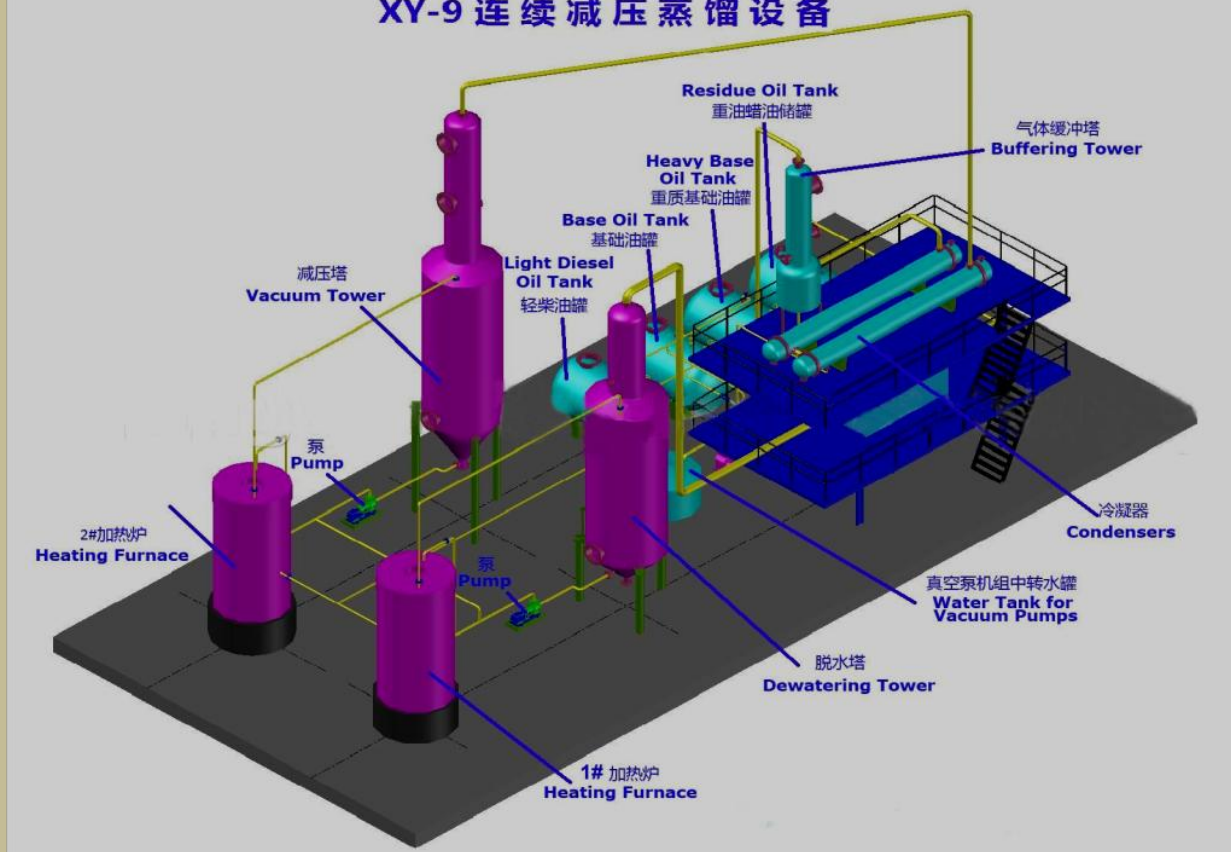
On Waste plastics, city garbage, scrap tyres, we developed series of machine for disposing scrap tyre and plastic that includes 5~10MT daily capacity on batch systems, 10~15MT systems of semi-continuous systems, 10~30mT daily capacity fully continuous, automatic systems accordingly.

For the crude oil, used engine oil, pyrolysis fuel oil, we developed 3~6Mt batch systems and 20~300Mt continuous systems for the distillation and refining.

Besides, we developed related tires/plastics shredding machines, carbon black deep-process machines to help customers complete solution on the waste in a clean, dust/pollution free ways.

XY-9 Continuous Vacuum Distillation Plant

XY-9 连续减压蒸馏设备



Company agency products

1- Machinery

- Bricks Machine

Supply, installation and maintenance of all types of machinery industry of clay bricks and cement with different sizes and capacities



Cranes



Forklift



Loader



Marble Cutter



Shredders



Stirrup bender



Water well Rig

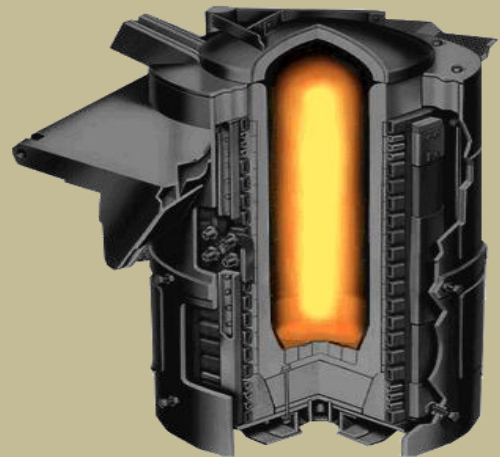


Sandwich panel Machine

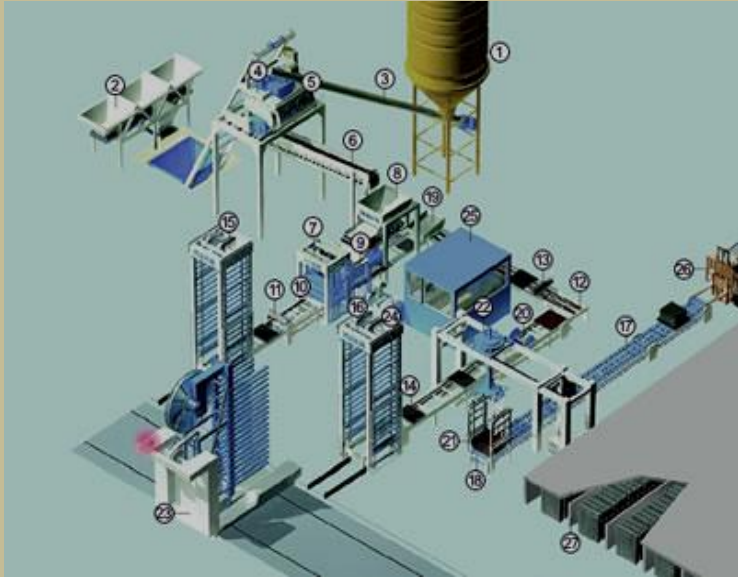
2- production line



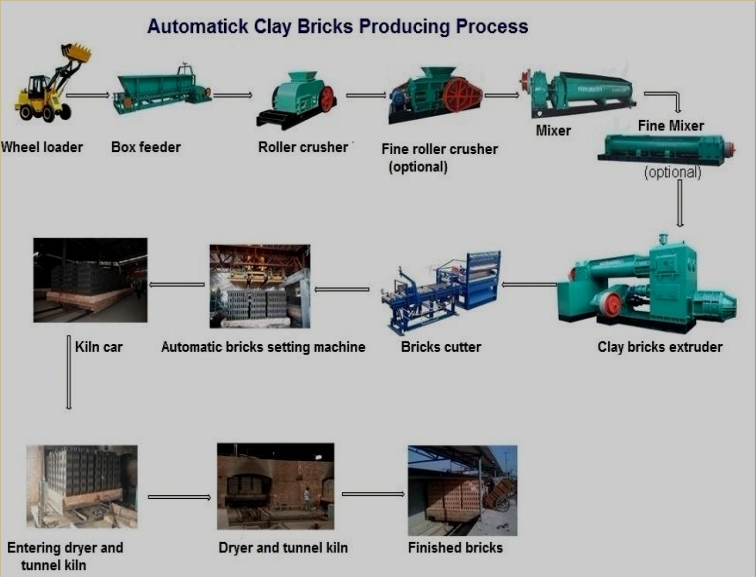
Cement bag machine



iron recycling



Cement bricks production Line



clay bricks producing process

3- Electrical

Energy Station

Electrical Products



4- storage silos

Wheat Storage Silos



5- drilling sector



6- Biodiesel (sunflower oil – soybean oil – Rapeseed oil)

7- Chemical Products (Ammonium Nitrate - Butyl Rubber – Methanol – NPK – Paraffin - UAN Solution – UREA)

8- Mineral Resources

(Alumina Ball - Alumina Powder – Aluminum - Cadimium - Coal - Copper Cathode - Copper Powder -Copper Sulfate - Ferro Titanium -

Lead Ingot - Nickel Ingot – Sodium Hydroxide Flakes – Sulphur – Super Pure Copper – Tin Ingot – Titanium



Steel billet



steel coil



all type of steel shape



all type and size of Seamless Pipes

We can provide our clients all steel type (carbon steel – Alloy steel – stainless steel – Tool Steel) with all sizes

Cement Clinker – Steam Coal – Pet Coal as our clients specifications

9- Petroleum Products

(Crude oil - Base Oil SN 150/300/500 – Diesel fuel D6/D2 – Gas oil – Bitumen – Bituminous –

Gasoline octane 87 – LNG – LPG – Mazut M100 - NPK)

Drilling strings

Import and supply all the equipment and spare parts for drilling machines, the highest quality specifications and

lowest prices - guarantee - safety - quality – providing



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