

POLYPETRON™ *GEN. 5*

TURNKEY WASTE PLASTIC TO FUEL PRODUCTION SYSTEM

by



sepco
INDUSTRIES



THE POLYPETRON™ GEN. 5 COMPLETE WASTE PLASTIC TO FUEL PRODUCTION SYSTEM

BY SEPSCO INDUSTRIES COMPANY LIMITED

Sepco Industries Company Limited, a company based in Thailand, has developed and perfected an efficient and ultra-clean process for converting waste plastics to high quality, low-carbon fuel. Under research and development for over 15 years, this machine, called the Polypetron™, is on currently on its 5th generation. The standard model Polypetron™ Gen. 5 PPT20 has a plastic waste management capacity of 20 metric tons per day, and production capacity of 15,000 liters of pyrolysis crude oil equivalent (with 24 hours a day operation). The system produces virtually no waste. Solid (char) and gas byproducts from the process are fed back into the system to heat the reactor. This saves on fuel costs.

With the Refinery Addition to the System, our pyrolysis crude oil equivalent fuel can be refined to 60% European Standard EN590 diesel, and 20% gasoline.

In addition, we have a Mobile Polypetron™ unit which can be placed on a flatbed trailer truck or transported in a standard 40-foot shipping container. This unit can manage 3 metric tons of waste plastic per day and is ideal for demonstration of the system and raising awareness regarding the project.

Complete information regarding the technical specifications, setup and operation of our system can be found in the Polypetron™ Gen. 5 Technical Specifications and Operational Requirements document, and more information about Sepco Industries and our business concept is available in our Company Profile document.

A Comprehensive Plastic to Fuel Production System

Our Complete Turnkey Solution features components for the total process of converting waste plastics to fuel, including shredding the plastic feedstock, converting it into pyrolysis crude oil equivalent, and refining a portion of the fuel into diesel and gasoline.

The primary product of the system is pyrolysis crude oil which is sold as is to oil refineries for diesel/petrol production. With the Refinery Addition to the system, a portion of the fuel is refined as diesel and gasoline which can be used for all of the internal diesel needs of the operation; sold to corporate customers such as logistics companies, transport companies, shipping yards, marinas etc.; directly sold at the production facility to the local market for additional income; and provide a proof of concept of the closed cycle solution we provide.

The Polypetron™ Gen. 5, as a standalone production module for converting waste plastics into pyrolysis crude oil equivalent, may suffice in many usage scenarios. But for a more complete system, adding the Refinery Addition is recommended.

The Mobile Unit is also very beneficial in its versatility for the purpose of accessing hard to reach areas, and even more significantly, as a marketing tool in raising awareness for the system and this innovative way of dealing with the current plastic waste crisis. Any number of configurations are possible with our modular system. Some entry level packages are presented here:

Package A

1 Polypetron™ Gen. 5 PPT20 Pyrolysis Unit with a waste plastic management capacity of 20 metric tons and production of 15,000 liters of pyrolysis crude oil equivalent per day.

1 Refinery System Addition Unit with a minimum refinery capacity of 20,000 liters of pyrolysis crude oil equivalent per day. (This unit is not sold separately)

Package B

3 Polypetron™ Gen. 5 PPT20 Pyrolysis Units with a waste plastic management capacity of 60 metric tons and production of 45,000 liters of pyrolysis crude oil equivalent per day.

1 Refinery System Addition Unit with a minimum refinery capacity of 60,000 liters of pyrolysis crude oil equivalent per day. (Large capacity unit. Not sold separately)

Packages include:

- Manufacture of all machinery components.
- Oversight of all aspects of construction, setting up, and commissioning of the Polypetron™.
- Comprehensive onsite and offsite training of all operators of the system to ensure extensive smooth operation.
- Comprehensive After Service and Complete Conditional Warranty of all components of the System including labor and spare parts for a period of 1 year from the date of commissioning.

Packages do not include:

- Transportation costs of machinery components.
- Import/Export duties/fees.
- Local labor costs.
- Cost of land for production facility site.
- Cost of required building/housing construction.
- Local administrative/management costs/fees.
- Registration, permissions, licenses, etc.

Fuel Product

The Primary Product of our system is pyrolysis crude oil equivalent. It has the same basic chemical composition as light sweet crude and is easily refined as diesel and gasoline. It has additional benefits of:

- With waste plastic being a recycled source of energy, it is environmentally friendly while providing a sustainable solution to the excessive plastic waste crisis.
- It qualifies as “Advanced Biofuel” which is in high demand due to European Parliament Regulations requiring its use (see more information in attached documents).
- It is a purer/cleaner fuel due to being produced from plastic which has already been refined/processed.
- It has low sulfur content.

Please refer to the comparison table below to see how pyrolysis crude oil compares with the main crude varieties available on the market. (Global crude oil prices quoted are as of October 23rd, 2018). Please note that the price listed for our fuel is an entry level price. “Advanced Biofuels” such as ours typically draw a higher price due to the demand for such oil to be added to fuels sold in the market.

Type of Crude	Brent Light Sweet Crude	Arab Medium Sour Crude	Maya Heavy Sour Crude	Pyrolysis Crude Oil Equivalent
Price Point	Most Expensive	Less Expensive	Least Expensive	
Market Price – USD/BBL	76.44	72.34	70.93	76.75
Market Price – Euro/BBL	68.00	64.38	63.13	68.31
Market Price – Euro/liter	0.43	0.41	0.40	0.43
Sulfur Content	≤ 0.07	≥ 0.7	≥ 0.7	0.06
API 15.6 DegC Gravity	34	24-34	24	47.1
PRODUCT				
Diesel	30%	26%	21%	60%
Gasoline	32%	24%	15%	20%
Refinery Gas	3%	2%	1%	10%
Heavy Fuel Oil	35%	48%	63%	10%

You will note that our diesel yield is twice that of the most expensive crude oil on the market, and sulfur content is lower. Independent test results by Intertek brought a result of only 0.0122 %wt sulfur content.

Output product from the system is outlined in the Technical Specifications Document. In brief, under standard operation, The Polypetron Gen. 5 PPT20 Model is able to produce 14.15 tons or 16,940.10 liters of pyrolysis crude oil per day, per module. Refined product is 11,858.08 liters of diesel and 1,711.43 liters of gasoline. Uncleaned plastic can also be fed into the system, with the result simply being reduced oil yield.

Revenue and Profit – Thailand Case Study

Potential profit gained from our system varies greatly from country to country and must be established through local feasibility studies. Given current trends in the energy market and the global outcry against plastic pollution, the business model of Sepco is highly attractive, however, with substantial profit in all cases studied. Many countries offer special incentives and tax benefits to such renewable energy enterprises which further improves profit margins.

Extensive feasibility studies have been done in Thailand where the machinery was developed. These can provide a benchmark from which to calculate local financial models.

As of January, 2017, the Energy Regulatory Commission of Thailand set the compensation rate at which oil refineries must purchase pyrolysis oil/fuel oil produced from waste plastic, at the fixed minimum price of 14.55 Baht (0.39 Euros at the rate of 37.68 Baht to the Euro) per liter. The price floats up in accordance with global oil prices, will not fall below this minimum. Thai refineries typically purchase pyrolysis fuel at between 16-18 Baht (0.42-0.48 Euros) per liter.

REVENUE WITH PRODUCTION OF 15,000 LITERS PER DAY								
Sales Price Per Liter	THB	14.55	THB	15.37	THB	18.00	THB	20.00
Daily Fuel Production - Liters		15,000		15,000		15,000		15,000
Daily Sales	THB	218,250.00	THB	230,550.00	THB	270,000.00	THB	300,000.00
Daily Costs								
Plastic Feedstock (20T x 3,000THB)	THB	60,000.00	THB	60,000.00	THB	60,000.00	THB	60,000.00
Labor Costs (12PAX x 500THB/Day)	THB	6,000.00	THB	6,000.00	THB	6,000.00	THB	6,000.00
Fuel Costs - Firewood (3,000THB/Day)	THB	3,000.00	THB	3,000.00	THB	3,000.00	THB	3,000.00
Utility Costs (5,000THB/Day)	THB	5,000.00	THB	5,000.00	THB	5,000.00	THB	5,000.00
Miscellaneous Costs (5,500THB/Day)	THB	5,500.00	THB	5,500.00	THB	5,500.00	THB	5,500.00
TOTAL DAILY COSTS	THB	79,500.00	THB	79,500.00	THB	79,500.00	THB	79,500.00
PROFIT PER DAY (EBITDA)	THB	138,750.00	THB	151,050.00	THB	190,500.00	THB	220,500.00
PROFIT PER YEAR (EBITDA) - 330 Days Production	THB	45,787,500.00	THB	49,846,500.00	THB	62,865,000.00	THB	72,765,000.00

REVENUE WITH PRODUCTION OF 18,000 LITERS PER DAY								
Sales Price Per Liter	THB	14.55	THB	15.37	THB	18.00	THB	20.00
Daily Fuel Production - Liters		18,000		18,000		18,000		18,000
Daily Sales	THB	261,900.00	THB	276,660.00	THB	324,000.00	THB	360,000.00
Daily Costs								
Plastic Feedstock (20T x 3,000THB)	THB	60,000.00	THB	60,000.00	THB	60,000.00	THB	60,000.00
Labor Costs (12PAX x 500THB/Day)	THB	6,000.00	THB	6,000.00	THB	6,000.00	THB	6,000.00
Fuel Costs - Firewood (3,000THB/Day)	THB	3,000.00	THB	3,000.00	THB	3,000.00	THB	3,000.00
Utility Costs (5,000THB/Day)	THB	5,000.00	THB	5,000.00	THB	5,000.00	THB	5,000.00
Miscellaneous Costs (5,500THB/Day)	THB	5,500.00	THB	5,500.00	THB	5,500.00	THB	5,500.00
TOTAL DAILY COSTS	THB	79,500.00	THB	79,500.00	THB	79,500.00	THB	79,500.00
PROFIT PER DAY (EBITDA)	THB	182,400.00	THB	197,160.00	THB	244,500.00	THB	280,500.00
PROFIT PER YEAR (EBITDA) - 330 Days Production	THB	60,192,000.00	THB	65,062,800.00	THB	80,685,000.00	THB	92,565,000.00

In an anticipated minimum performance scenario, based on real figures, the yearly profit from just one production module is over 1 million Euros. In a best-case scenario, it is more than double that.

It should be noted that in Thailand, we have to buy the waste plastic feedstock. We already know of several countries where we will be paid for each ton of waste plastic disposed of.

International Business Partnership

For international expansion of Sepco's business, we are eager to work together with Local Operational Partners who are well positioned to set up and operate the business. Local partners would be given first preference for business expansion within their country/region. To earn this privilege, we ask prospective partners to secure equity investment of 70% of the Official Listed Price of our industrial machinery. Sepco Industries' share of the investment would be represented by a 30% discount on the Official Listed Price of the machinery, and Sepco Industries Co., Ltd. will act as Technical Partner in the business. Sepco together with the Local Operational Partner would register a company with a 70/30 shareholding structure under the Franchise Agreement and as outlined above. Under this arrangement the Local Operational Partner would be responsible for conducting feasibility studies and securing necessary permissions, real estate, raw materials, and markets, along with handling the management and administration of the business. Sepco's role would be to ensure the smooth operation of the machinery and handle all technical aspects of the business. The Local Operational Partner would have the first preference for expanding the business within prior agreed upon territories.

Franchise Earnout Offer

Sepco Industries offers an earnout option for Local Operational Partners to acquire Sepco's stake in the Local Partnership Company within a timeframe of seven years, allowing the Operational Partner to gain full ownership of the business.

Lead Time

Upon confirmation of partnership agreement and payment of relevant investment installments, lead time includes 180 days for manufacture and testing of all machinery components, and an additional 90 days for transportation, assembly, testing and commissioning onsite. This is with the understanding that the Local Operational Partner is able to facilitate expeditious import into destination country, secure the production plant location, construct facility buildings according to required specifications, process all necessary permissions, and secure needed raw materials.

Sepco Industries' professionally trained technicians will be onsite throughout the setup process to oversee all aspects and help ensure a smooth initiation of operations.

Investment Schedule

Investment Schedule is as follows:

- 5% Booking Deposit (Upon signing of Partnership Agreement)
- 40% Upon commencement of machinery manufacture
- 25% Upon completion of steel structures, furnace, condensation, exhaust, and feed systems
- 25% Upon completion of reactor brick structure, refraction work, condensing system control cabinets, and installation of all equipment, piping and electrical systems, and cooling tower meter system (prior to machinery shipping to production plant site)
- 5% Upon Commissioning

Investment Opportunity with Polypetron™ Production Plants in Thailand

Sepco Industries is offering an open opportunity to invest into Polypetron™ Waste Plastic to Fuel Production Plants in Thailand. Those joining as partners of operations in Thailand get to benefit from an extensive range of feasibility studies that have been conducted here through semi-commercialized operations that have been ongoing for a number of years. Such investors can enjoy trouble-free, fast-tracked profitability.

Sepco Industries is inviting equity investment towards a 30% stake in companies owning individual production plants. In this case investors are not troubled with any aspects of business or technical operations, and can simply profit from this lucrative business.

In this investment model each Polypetron™ Production Plant as well as the property upon which it is situated would be owned by these individual companies structured according to the 30/70 shareholding model.

All management, administrative, technical, and marketing operations would be handled by Sepco Industries, allowing these companies to simply profit from the production and sale of fuel.

Expansion Plan and Exclusive Offer

We have a rollout plan of expanding from one to three modules within two to four years. Upon financing and setting up of the first module and full operation for 6 months, financing for an additional two plants is very easy to secure.

As an exclusive offer for the first three investors into Thailand-based Polypetron™ Production Plants, we are offering the opportunity to enjoy an extended expansion benefit of holding equity in a company owning as many as seven production modules leveraged from the single module invested in.

This rollout is expected to be secured within five to seven years. At the point when these seven production modules are operational, projected profits come to between 7 – 14 million Euros per year – a business of which the equity investor holds a 30% stake.

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