Waste Plastic to Fuel

Zero Pollution Conversion Technology





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Plastic Advanced Recycling Corporation (PARC) is an Illinois Corporation formed in June, 1996 with a focus on a green technology of converting waste plastic into gasoline and diesel fuel through a highly effective, low-cost pyrolysis process.

We obtained patent protection for our unique process through the Patent Cooperation Treaty ("PCT", the international 85-country organization) on February 12, 1996.

In addition, our patent applications filed with the United States Patent and Trademark Office (USPATO) on March 10, 1996, were granted on December 23, 1997 and September 22, 1998.

Utilizing patented systems, our proprietary recycling facility can profitably process all types of waste plastic into high-quality gasoline and diesel fuel.

PROCESS WASTE PLASTIC TO FUEL

Plastic Advanced Recycling Corporation (PARC) converts plastic waste into diesel and gasoline and develops, designs and manufactures the equipment used in the pyrolysis conversion process. We observe the highest standards of safety, quality, reliability and environmental sustain ability in all of our manufacturing and conversion operations.





Our plastic-to-fuel process converts, or "reverses," petroleummade plastic solids into liquid-form petroleum products, namely high quality diesel and unleaded gasoline fuels.

We retained the services of SGS Control Services Inc., Redwood Petroleum and Petrochemical division, East Alton, Illinois, to test and validate the quality of these products made by our plants in China.













The process takes place in a stainless steel cylindrical reactor with an opening at each end of its upper section: one opening for raw material feeding and the other for waste removal. It is operated in ambient pressure at temperatures lower than 500 degrees Celsius.

A hydraulic auto-feeder delivers a continuous supply of raw materials and catalyst to the feeding end of the reactor. A vacuum discharging system removes and separates waste from the opposite end. A by-product of chlorine gas is separated from mixed gas by a separation system.

The crystalline solids that constitute 10 to 15 percent of the process waste are environmental contaminants from plastics that will never reach a landfill. Moreover, as much as 10 to 15 percent of C1-C5 waste gas, a secondary pollutant, will be returned to the reactor to heat naturally.

Raw materials are heated and gradually converted from solid to liquid and then to gas. The gas flows through a settler to remove fine condensates and condenses into a hydrocarbon liquid. The liquid hydrocarbon mixture is then pumped into an oil mixture storage tank to separate water and other impurities from the product.



After the purified liquid is heated in a tank to 400 degrees Celsius, it is allowed to vaporize at an ambient pressure. The vaporized product then passes through a stripping system, and into fractional distillation where it is condensed and separated into its gasoline and diesel components.

After further treatment to remove water and impurities, the gasoline and diesel flow to a "semi-product tank," for more complete distillation. The gasoline is heated again and sent to a "rectification tower" to produce high quality gasoline. The completely distilled gasoline and diesel are then treated with an equilibrium medium to stabilize the distillates.

Water is used as the cooling medium in a circulating system consisting of a pump, pipeline, cooling tower and heat exchangers.

The entire process is protected by personnel safeguards and fail-safe pressure relievers.







Patents:

We independently own two U.S. patents and PCT certification.

Patent Title:

Process and Equipment for **Treatment of Waste Plastics** Patent Number: 5,811,606

Patent Title:

Catalyst for Treatment of Waste Plastics and Method of Manufacturing the Same Patent Number: 5,700,751





Waste Plastic Membrane Dryer

Fully Automatic Hydraulic Feeder

Technology Breakthroughs:

- Multi-functional Sorting Machine
- Waste Plastic Membrane Dryer
- Automatic Hydraulic Feeder
- New-style Pyrolysis Reactor
- Technology of Ventilation from Remaining Heat
- Automatic Discharging System
- Special Catalyst
- Interface Technology in Modularization

Facts & Numbers:

- The equipment processes all types of plastic, from code 1 to code 7.
- One single unit of equipment processes 30 tons of waste plastic daily, totalling 10,000 tons annually.
- 50%-70% of output is fuel oil, which can be further refined into diesel and gasoline.
- 15%-25% of output is solid residue, which can be used as raw materials for regenerative carbon black and bricks.
- 15%-25% is combustible gas which is recycled back to the furnace as heat.



Pyrolysis Reactor

Competitors Comparison:

	PARC	Australian competitor	Japanese Competitor	Chinese competitor
Feedstock	All types of Plastic (Code 1-7)	Plastic code 2&4	Polyethylene, Polypropylene, Polystyrene	Plastic Code 1-7 except Code 3
Feeding method	Continuous	Intermittent	Continuous	Interimittent
Daily capacity of single unit	30 tons	24 tons	1.2 tons	2 tons
Annual capacity of single unit	A single unit of system can reach 10,000 tons	6,000 tons	400 tons	625 tons
Patent protected	Yes	Yes	Yes	Yes
Continuous production	Yes	No	Yes	No
Control method	Industrial computer and PLC control	Industrial computer and PLC control	Simple computer and PLC control	Simple computer and PLC control
Product output	50%-70% diesel & gasoline 15%-25% solid residues 15%-25% gas	Auto diesel	70%-90% light oil (must be mixed with heavy oil to be used as fuel) 2%-10% residue; 8%-20% gas	Industrial diesel
Environmental standard	Meet national standards	Meet national standards	N/A	N/A
Oil conversion rate	50%-70%	50%-60%	70%-80%	50%

Note: All the above information is from and based on public resources:







Plastic Advanced Recycling Corporation Add: 7884 S Quincy St. Willowbrook, IL 60527, U.S. Tel: 1- 630-655-6976 Fax: 1- 630-654-0530 Email: info@plastic2x.com www.plastic2x.com