



PLASTOIL – A TECHNOLOGY SOLUTION FOR ENVIRONMENT FRIENDLY USE OF PLASTIC WASTE



PLASTOIL IS CHANGING THE WAY WE MANAGE PLASTIC WASTE

PLASTICS TO OIL

In the heart of our business is our vision.
Vision of lands, waters and cities with
no or considerably less plastic waste.
Vision of greater respect for Earth.

How does it work?

THERMAL DEPOLYMERIZATION imitates natural geological processes similar to the ones forming the oil.
Long hydrocarbon polymers are cleaved into short chains by heat.

Plastoil Technology uses polyethylene and polypropylene plastics, but it is able to process polystyrene and motor and hydraulic oils as well. Plastoil technology produces almost no waste or fumes.

Some people dream of better life for themselves.... we make it happen for all of us.



THE PLASTOIL PROCESS – QUICK OVERVIEW

PlastOil Technology turns most common plastic waste into clear oil, usable as an ecological fuel. The technology produces a minimal amount of residual waste, i.e. only 1-3 % when using the recommended feedstock. This residual waste is harmless and can be further used. Exhaust gases are far below the observed standards and regulations.

Plastic To Oil diagram

Ground plastic waste undergoes a so-called thermal depolymerisation, during which, the long molecular chains of plastics decompose into short-chain petroleum hydrocarbons.

Unlike the current pyrolysis system, the Plastoil technology provides the optimal and stable conditions for the depolymerisation, thus producing no unwanted products (such as tar), only little residual and practically no emissions.

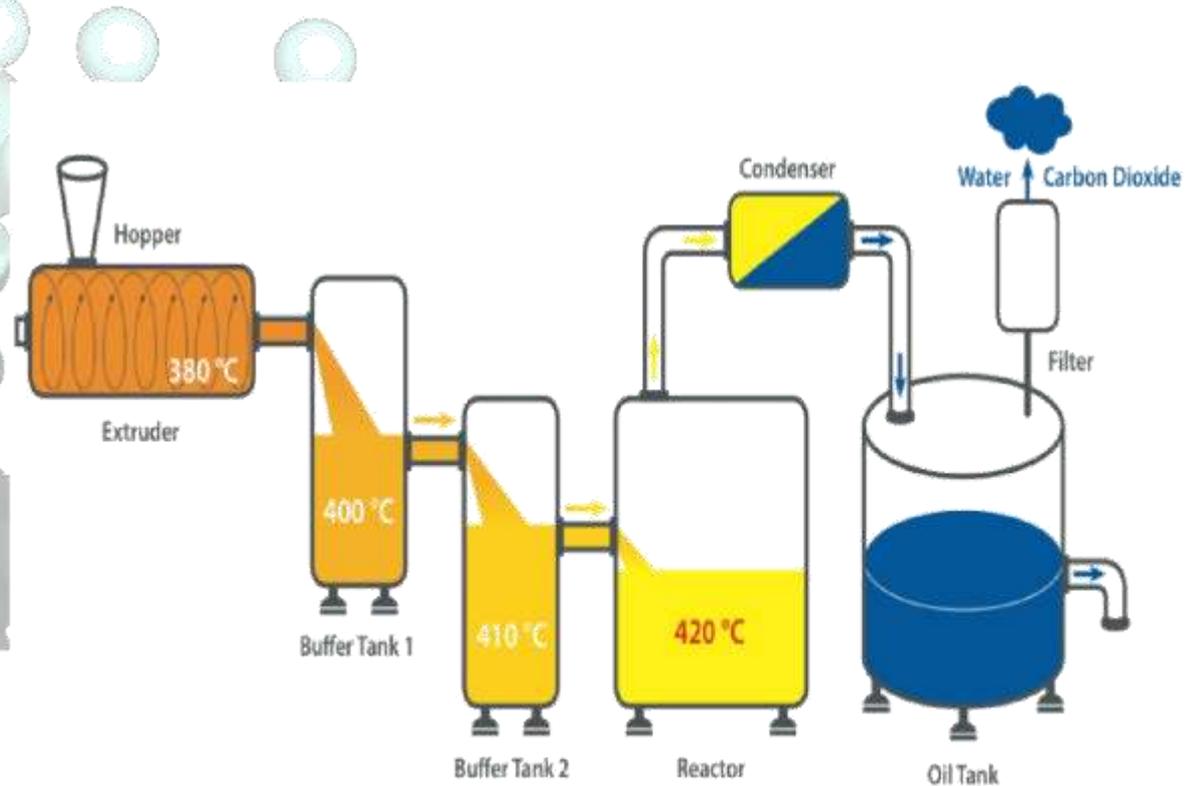
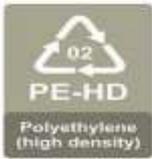


Fig. 1 The plastic pellet bin with attached vacuum hose

TYPES OF PLASTIC WASTE UTILISED IN THE PLASTOIL PROCESS

The line is capable of processing all plastic materials that are based on polyethylene (PE, HDPE, LDPE), polypropylene (PP), polystyrene (PS), used motor oils and hydraulic fluid.



High Density Polyethylene (HDPE)

Examples: Milk Jugs, water, juice, cosmetic, shampoo, dish and laundry detergent bottles; margarine and yogurt tubs; cereal box liners; grocery, trash and retail bags

Low Density Polyethylene (LDPE)

Examples: Dry cleaning, bread and frozen food bags, squeezable bottles (like mustard and honey bottles)



Polypropylene (PP)

Examples: Ketchup bottles, mayonnaise containers, medicine bottles, straws, bottle caps

Polystyrene (PS)

Examples: Packaging and protective materials, compact disc jackets, food service applications, grocery store meat trays, egg cartons, aspirin bottles, cups, plates, cutlery.

OUTPUTS OF THE OIL RECOVERED IN THE PLASTOIL PROCESS



PLASTOIL AS HEATING OIL

PlastOil technology turns most of the plastic waste into clear oil called PlastOil that can be used as, for example, heating oil in boilers.



OIL FOR GENERATORS

Moreover, favourable features make oil fully comparable to diesel oil. For instance, our recent tests showed that oil can be combusted in diesel engines employed in generators without either engine life span nor it's performance being compromised.



FUEL FOR HEAVY MACHINERY

The oil can be also used in heavy machinery as fuel, as it substitutes normal diesel oil.

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THE PLASTOIL LT COMPACT 1000 – HOW IT WORKS

Concept of the Technology

The depolymerisation line uses a considerate, nature-friendly method of processing and adding value to plastic material, in two stages.

While standard pyrolysis is based on heating by flame, the depolymerisation line uses electric arc as the source of heat. This provides the best and stable conditions for depolymerisation, offering higher efficiency to the process, production of zero volume of undesired products (e.g. tar), only a minimum quantity of residual dirt and nearly no air pollutants.

Stage 1 - includes mechanical crushing or the use of lossless pelletisation technology that delivers no strain on the environment (Fig. 2), but clean raw materials that are suitable for further processing and use in the low-temperature depolymerisation process.

The ground plastic subsequently continues to the thermal depolymerisation process (Fig. 3) in which the long molecular chains of the plastic are broken down into short chains of oil carbohydrates.



Fig. 2 The plastic pellet bin with attached vacuum hose



Fig. 3 The plastic enters the depolymeriser via an auger

THE PLASTOIL LT COMPACT 1000 – HOW IT WORKS

Stage 2 - the low-temperature depolymerisation system uses the principle of breaking down molecules of the raw material in temperatures ranging from 270° C to 450° C into simpler polymer chains that can be used in applications in the industry, transportation, power engineering, and other fields. This is unique technology that brings a new approach to use of polymers.

The process is not thermal incineration, but low-temperature decomposition of material.



Fig. 5 Distillation Process

Once the plastic has been converted into its component states, the distillation process removes any by-products such as methane, water and CO₂.

The resultant liquid is then filtered and available for use in a variety of applications.



Fig. 4 Stage 2 where the depolymerisation process takes place



Fig. 6 Collection of Oil

THE PLASTOIL LT COMPACT 1000 – CONTROL & SAFETY SYSTEMS

To ensure that the plant is operating to its maximum efficiency, there are two systems that are essential.

Firstly, the control system that ensures the plant is operating at prescribed thresholds – this ensures that any

Secondly, the safety system that monitors temperatures and in the unlikely event of an issue will deploy fire retardants and shut the system down.



Fig. 7 Fire control monitor and alarm system



Fig. 9 Nitrogen tank , emergency generator and fire control



Fig. 8 Control screen showing component process monitoring

DESIGN AND INSTALLATION OF THE PLASTOIL TECHNOLOGY

PLASTOIL LT 1 (Continuous system)

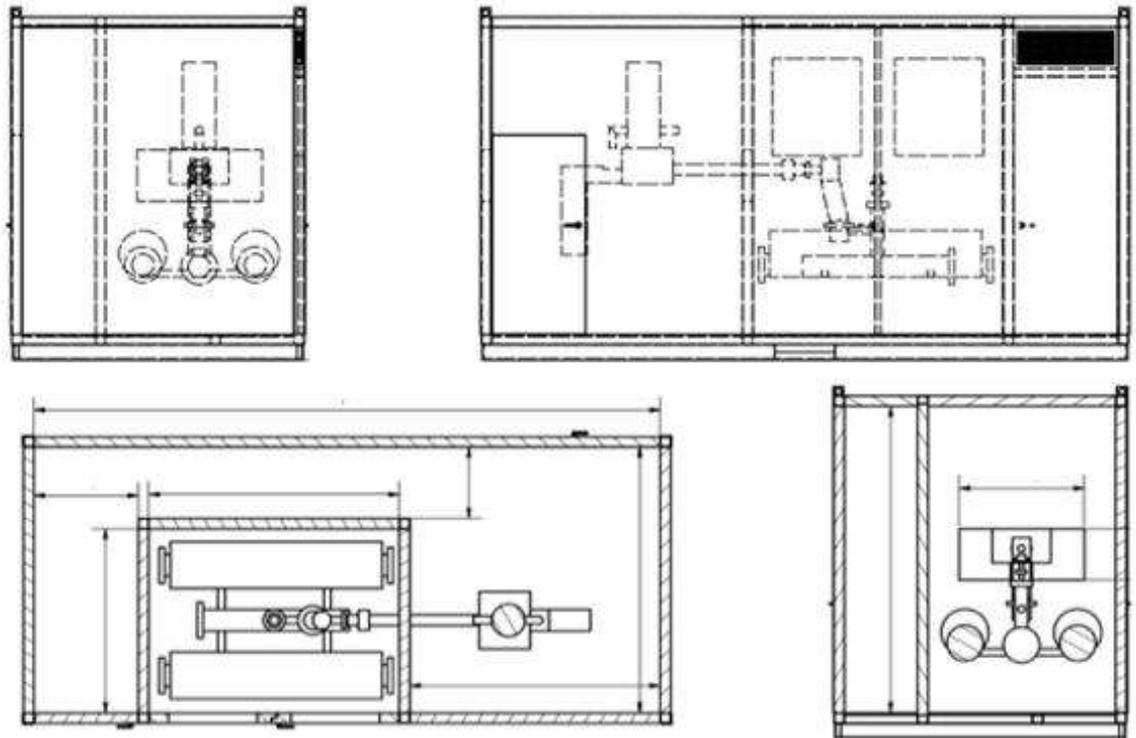
Single unit or modular serial systems for larger projects

The basic machine PLASTOIL LT 1 is the most reliable and precise plastic to oil recycling machine in the world today. It produces 0.854kg of oil from 1kg of plastic waste. The only additional waste products are Methane, water and Carbon Dioxide.

This compares favourably against traditional Pyrolytic-based systems that leave a residue of carbon black and typically yields between 0.6150kg and 0.7100kg of oil per 1kg.

- The total production in a 24 hour cycle is 1000kg.
- The machine weight 2.500 kg and is delivered in the ISO container of 9m(L) x 3m(H) x 3m(W).
- To produce 1 litre of oil it uses 1KWh.
- Technology is CE certified.

The manufacturing plant is ISO 9001, ISO 14001 and OHSAS certified.



PLASTOIL TECHNOLOGY SOLUTIONS ARE FLEXIBLE AND ECONOMIC

To take the full advantage of the technology, PlastOil solution comprises the following:

- Designing the optimal disposition and selection of PlastOil Technology, based on the specific needs of the customer and characteristics of the location
- Delivery of PlastOil Technology in the form of a modular movable container set
- Installation of PlastOil Technology and setting up of the production process
- Staff training in our production centre
- Monitoring and service
- Consultancy

The depolymerisation process is friendly to the environment as well as cost effective. It represents an unlimited method for disposal of polymer materials, offering long-term success of the process.

The line is designed as a simple set of devices integrated into a container, which is a guarantee of long operating life, easy operation, high mobility and easy installation.

If you are interested in what benefits Plastoil Solution can bring to you, please do not hesitate to contact us.



Fig. 6 The containerised solution installed – small footprint.