



## Plastic to Petrol

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### Introduction

Perinjanam is a coastal village in Thrissur district in the state of Kerala, India. It is one of the smallest villages in Kerala. Perinjanam Panchayath has been recognized as the first Panchayath in India with 'ISO 9001 2015' certification. National Accreditation Board of Certification Body (NABCB) has conducted valuation in two steps and was found that the Panchayath has fulfilled the criteria suggested by Quality Council of India.

The Science Centre was established in 2006 under the Charitable Society Act with an aim to undertake scientific experiments. Several Teachers and students are undertaking science related activities in 5 buildings spread over 70 cents of land of Kodungalloor Municipality.

Mr. V. S. Sreejith, is the Director of Science Centre, has designed a plant and the perinjanam Panchayath has developed the prototype of a pyrolysis plant in which plastic waste is burnt and distilled to make petrol and other by products. This is a part of its endeavour to find a low-cost and pollution free technology for processing non biodegradable waste.

### How was it done?

Mr. V. S. Sreejith, who has worked for several years in solid waste management on solid waste processing and recycling, promotes scientific experiments among students.

As a part of developing Technical know-how in completely removing plastic wastes, success has been made in experiments for converting plastics to different forms like grease, diesel petrol etc. Polypropylene is converted to oil similar to diesel and polystyrene to oil similar to petrol. The volunteers are collecting plastic wastes from the land and aquatic systems in each ward of the Kodungalloor municipality and then these wastes are transported to Science centre where it is processed. These activities helped to create awareness among the public about the plastic pollution and its harmful effects on the environment. The activities of the Science centre has been attracting B.Tech, M.Tech

and MSc. students from various colleges and Universities for visiting and successfully completing their projects.

**Process-** Plastic is converted to petroleum by heating it at a particular temperature. In the pyrolysis plant, a reversal of polymerisation takes place. The plant is at present burnt using LPG for display, but the biogas from organic waste will be used for the purpose when the civic body puts the technology to use for processing plastic. It was found that out of 1 kg of plastics; 960 ml of petroleum can be extracted using this technology.

The plastic burnt in the plant generates gas and the long-chain hydrocarbons in it are condensed using water and converted into petroleum in liquid form. The small chain hydrocarbons remain as gas which, in turn can be used as a substitute for LPG or bio-gas.

The demonstration of the plant was held successfully at the community hall of Perinjanam. The sample of petrol which has been distilled will be handed over to well known petrochemical companies for quality test.

## Economic Aspects

The technology is cost effective to produce one litre of petrol for Rs 35/-. Perinjanam panchayath would soon obtain an NOC from Pollution Control Board and start such plants in different areas in the Panchayath, the first of its kind, a petrol revolution in India.

## Adoption by others

There are queries for using this technology in Pondicherry to convert plastic wastes into oil and discussions are in progress.