

WASTE FOAM POLYSTYRENE TREATMENT AND RECYCLING

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WASTE IS A RESOURCE!



IMPORTANT REASON TO CONSIDER THE PROJECT

- ❑ ITS LOW COST.
- ❑ ITS LOW TECH. NOT MUCH TRAINING IS REQUIRED.
- ❑ IT WORKS AND CONVENIENT FOR LOCAL GOVERNMENT UNITS.
- ❑ IT IS AN ALTERNATIVE WAY OF SOLVING SOLID WASTE FOR CERTAIN TYPES OF RESIDUAL WASTE.

Introduction

Foamed Polystyrene (FPS) or “styropor” is:

- Inert, lightweight, versatile and cheap.
- Most common preferred plastic material used for disposable food packaging by almost all fast food chains
- Increased demand for foamed PS resulted to the increased volume of waste disposed in dumpsites, remain visible in waste streams and alleged clogging drainage canals .

Introduction

- It is non-biodegradable but being a thermo plastic, it is 100% recyclable.
- PPCP sets up its styropor recycling plant in Sta. Maria, Bulacan but unsuccessful because of:
 - high transport costs
 - lightweight and bulky waste foamed PS
 - no junk shops would buy and stock waste FPS

Introduction

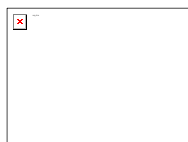
- About 200 tons of waste styropor is generated per month in the country
- 70% of which, amounting to 140 tons per month, is generated in Metro Manila





Objective

To develop a recycling technology for waste styropor and used cooking oil producing dense recycled and functional products like synthetic lumber/tiles.



Raw Materials



Melting Unit – First and second generation melter



- Steel vessel, metal lined, with cover
- LPG Fired
- 50 kgs capacity
- With downspout for pouring molten products
- With hood and chimney as smoke exhaust

Melting Process



Densification Process



Products



Products



Board



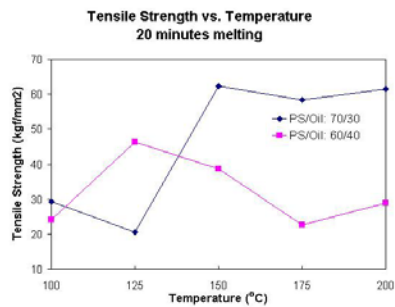
Catwalk



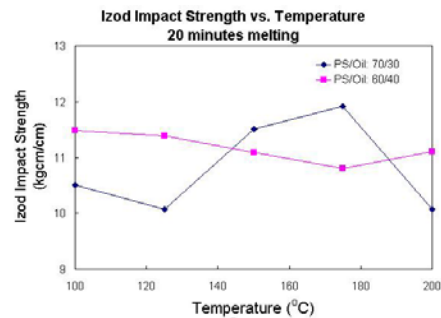
Synthetic
timber plank

Physical Properties

Tensile Test

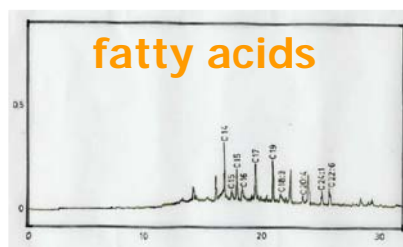


Impact Test

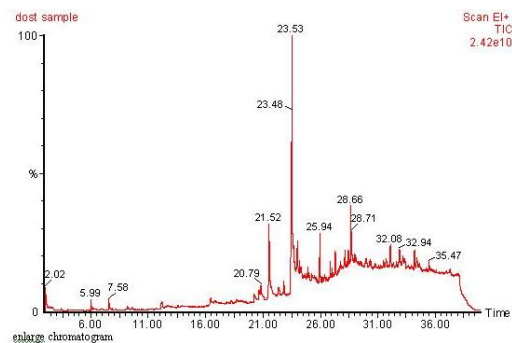


Gas Emission Tests Conducted

Gas Chromatography (ITDI)




GC-MS Spectra (Ateneo)




Socio Economic Impact

- Employment generation
- Low investment

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- good profitability
 - Cleaner environment
 - Part Solution to solid wastes problem
 - Functional products and lumber substitute

Basic Needs to start the business

- Melting unit and fuel (LPG or wood)
- Metal molds and accessories

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- raw materials: waste styropor and used oil
 - small space with shade.

Business Highlights

Capacity per month:	4,875 kgs
Project Cost:	P107,086
Cost of Production:	P9.57/kg
Proposed selling price:	P15.00/kg
Return on Investment:	226.81%
Payback Period:	0.43 years

AWARDS

**1st Prize, ITDI Poster Contest
2005**



**2nd Prize, National
Invention Contest 2005**



Improvements Conducted

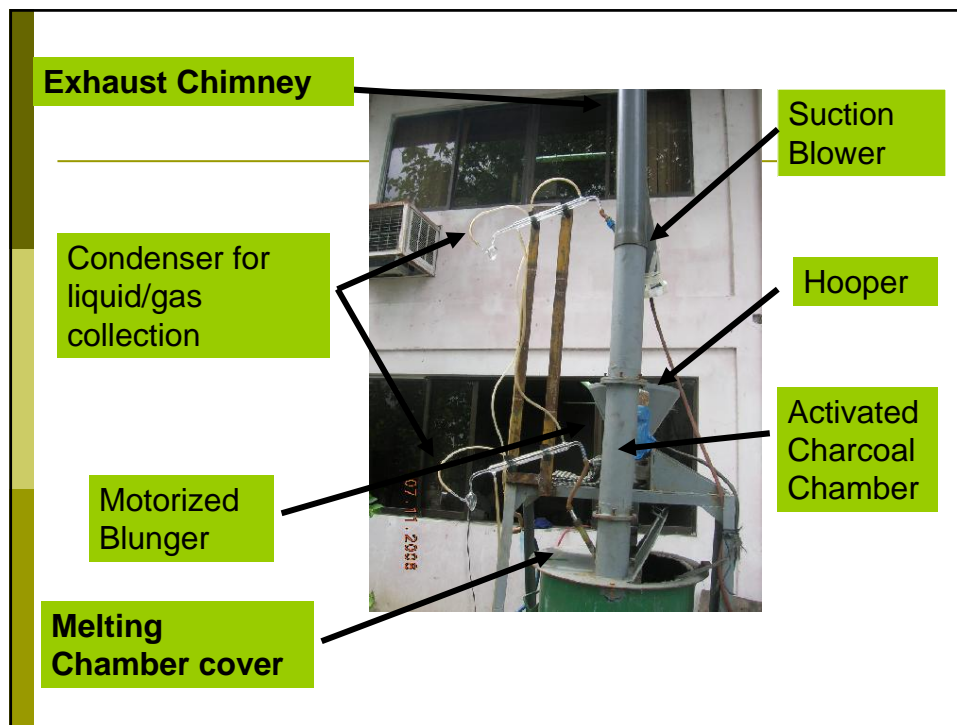
The Old and Improved Ovens



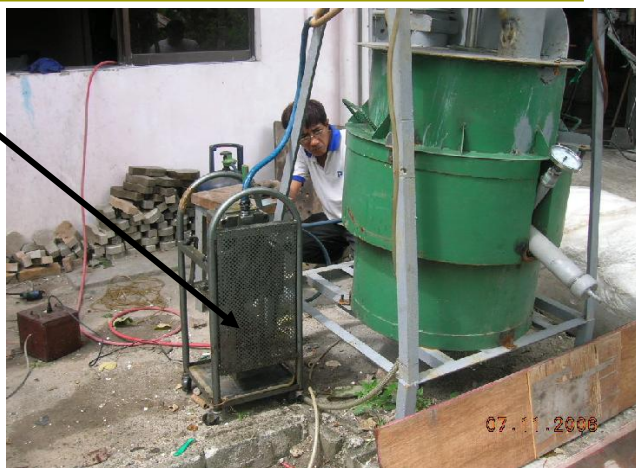
Old Oven



Improved Oven



Vacuum pump for gas collection

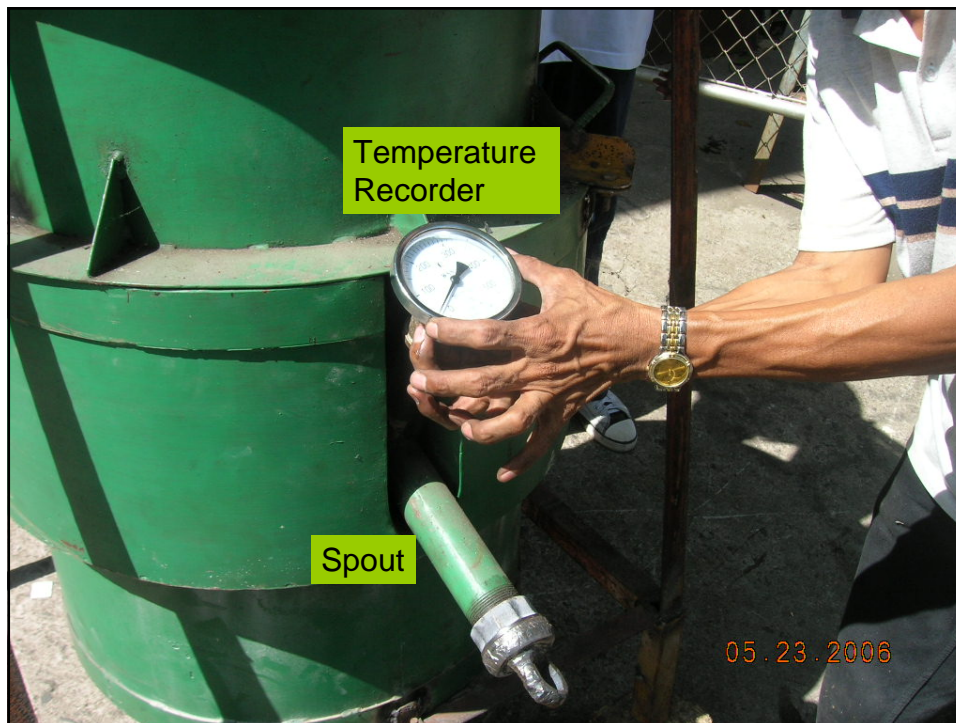


Improved Paddle for Mixing



Weighing and Charging





Cleaner Gas Emission



Newer Products Produced



Plastic Planters



Recycling of Plastic Shopping bags



Other Innovations

- ❑ Recycling of other waste plastics especially sandbags in the oven
- ❑ Use of used motor oil instead of used cooking oils
- ❑ Development of Other functional products



Information campaign and technology transfer to LGU's, NGO's and organizations working to protect the environment



ESWM Seminar in Davao City



Bayan Productions for TV Channel 7



Visit of Quezon LGU ESWM Officers

PICTURE OF PAVEMENT MADE FROM PS WASTE.





Let us help preserve our
environment....

Thank you very much!!!