

ABSTRACT

To Design and Layout a Plant for the Purpose of Recycling High Density Polyethylene in Trinidad and Tobago

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To design and layout a plant for recycling High Density Polyethylene in Trinidad and Tobago, requires several steps. The daily availability of raw material to the plant must be sufficient to maintain production capacity.

Several tools such as a route sheet, a machine requirements spreadsheet, a process chart, a string diagram and an operations process chart are used to obtain data necessary for the design of the layout.

The number of machines required for each stage of the process is derived as well as floor space of each piece. These results are coordinated in a space requirements spreadsheet to determine total floor space needed.

Additionally, several mathematical models are used to determine the best site or location for the plant in Trinidad. This was determined to be the Beetham Estate.

Layout alternatives are derived for the location and evaluated to determine the most efficient and best design. The final layout included ergonomic considerations pertaining to a plant in a tropical country such as ventilation and lighting requirements.

Sustainability of the plant means ensuring that a market exists for its end products. Several end products of HDPE were identified and a ready market in Trinidad was proven to exist. Some of these end products included: trash receptacles, benches, picnic tables, plastic lumber and car stops to name a few.

Successful management of this plant could result in a regional or international market expansion, resulting in profits and foreign exchange.

Keywords: Kirsten Hosein; High Density Polyethylene; Plastic