

Plan: polyethylene master batch production

Introduction to product:

The main goal of this plan is to establish a polyethylene master batch production unit in order to supply a part of factories demands, prevention from currency outflow and employment in Lorestan Province. The ISIC code of this product is 2413512406 of chemical products and materials production group (24) and plastic materials production in primary form and artificial rubber production subgroup (2413).

Different types of master batch are exported and imported under the chapters of tariff 3204 and 3206 of Iran custom regulations. The main conditions on their importing is to take the permission from the department of commerce and ministry of industries and mines, paying 26% of the importing fees in 2016 (custom fee is 4% and commercial profit is 22%).

Due to increasing growth of the plastic products (polymer), today it is witnessed that there is an increasingly polymer industry development worldwide. Polymer itself doesn't give any particular color the products; so, in order to make products colorful and customers' satisfaction, one has to make use of ready-to-use material to make the polymer colorful and simultaneously, improve some of its applicable features. Master batch is a material playing important role in improvement of the products' applications. Master batch is a solid additive for dyeing and transferring the particular type of features to polymer in plastic industry used. In fact, master batch is a concentrated mixture of pigments and/or additives which are placed in a poly olefin chamber during a thermal process and is cut in granular forms after being cooled. Making use of master batch allows the plastic industries manufacturers producing their final product with uniform color and economic costs. As a consequence, master batch quality is in direct relation with the plastic products quality.

Introducing the product's application:

Master batches are divided to following classes based on their applications:

1. Smoothing master batches
2. Anti-block master batches
3. Smoothing anti-block master batches
4. Static master batches (anti stationary electricity)
5. Anti-UV ray master batches

6. Processing aid master batches
7. Antioxidant master batches
8. Anti-fog master batches (anti-steam)
9. Gray fireproof master batches
10. Mesh 2000-coated calcium carbonate master batches
11. Flame delaying master batches

Plan suggested sites

Based on the advantages of the establishment in industrial parks and zones, the Lorestan province industrial parks, due to being in way of polyethylene pipelines in west, are suggested for implementing the plan.

Raw, auxiliary materials and consumables

Raw materials for this unit are as follow.

#	Raw, auxiliary materials and packing	Measurement Unit	Amount/year	Unit Price	Annual Cost mRial
1	HDPE	1000kg	2,000	42,192,000	84,384
2	Low-density polyethylene	1000kg	1,000	43,720,000	43,720
3	Linear low-density polyethylene	1000kg	1,000	42,866,667	42,867
4	Glass fiber	1000kg	100	72,000,000	7,200
5	Poly amid	1000kg	50	90,000,000	4,500
6	Color pigments	1000kg	700	101,056,522	70,740
7	Powder Additives	1000kg	150	150,000,000	22,500
Total			5,000		275,910

Sales plan and target market

The products price as the factory price for sale is as follow. Based on the lack of sufficient supply and demand level, the target market will be local industries.

#	Description	practical capacity	nominal capacity	unit price(rial)	Annual Sale(mRial)
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1	Colored masterbatches and additive masterbatches	5,000	4,500	70,000,000	350,000
	Total	5,000	4,500	-	350,000

Annual nominal and practical capacity

Product's annual manufacturing capacity in 3 working shifts, each with 8 working hours daily and 300 days per year is approximately 5000 tones. Considering unpredicted and unexpected factors of process stop as well as maintaining and repairing processes, the plan practical capacity for this unit is 90% of the nominal one equivalent to 4500 tones.

Manufacturing procedure and technology

Master batch is produced by mixing the pigment and additives to the basic polymer in which the twine-coil extruder is used. This process includes: weighting, mixture introduction, transfer, melting, spreading and homogenizing, disturbing gasses extraction, filtering and granulating. The mixture includes 4 phases:

1. Moisturizing additive pigment and filler
2. Mixing and spreading pigments and additives in basic polymer
3. Pigment, additive and filler distribution in polymer melt
4. Stabilizing this mixture and prevention from conglomeration

Investment costs:

Investment costs

The fixed investment costs include 48.6 billion Rials and the working capital is 29.4 billion Rials.

Description	Total Cost(m.Rial)	%
Land purchase	2,660	3%
Site preparation and development	1,161	1%
Civil works, structures and buildings	14,964	19%
Machinery and equipment	22,785	29%
Branches And Installation	671	1%
Vehicles	400	1%
Service equipment	87.00	0%
official equipment	387	0%
Other and unpredicted costs	2,156	3%
Total FIXED ASSETS	45,271.00	58%
pre-production expenditures	3,347.00	4%

TOTAL FIXED INVESTMENT COSTS	48,618.00	62%
Working capital in 100% of capacity	29,403.00	38%
Other assets	0	0%
TOTAL INVESTMENT COSTS	78,021.00	100%

Production costs:

Annual costs of the manufacturing process include 1300 billion Rials estimated.

#	Description	Total Cost(m.Rial)
1	Raw and packing material	275,910
2	Personnel's salary	8,069
3	Energy	824
4	Building and livestock insurance	84
5	Repair, maintenance and spare parts	1,428
6	Marketing and Advertising	3,500
7	Unpredicted	14,491
8	Depreciation	3,488
Total operational and non-operational production costs		307,794

Economic indices

Description	Amount-measurement scale
NPV	61582 m Rial
IRR	38.60%
PBP	2.64 years

PROJECT PROFILE – SUMMARY SHEET

Project Introduction

1. Project title: **polyethylene master batch production**

2. Sector: **chemical products and materials production**

Sub sector: **plastic materials production in primary form and artificial rubber production**

3. Products/Services: **polyethylene master batch**

4. Location: ... Free zone Economic special zone Industrial Estate Main Land

5. Project description:

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6. Annual capacity: 5000 t/year

Project Status

7. Local / internal raw material access 100 %

8. Sale: 100% locally

- Anticipated export market 0 %

Project Status

9. Construction Period 24 month

Beginning of activity

In-site beginning of activity:

End of project:

Commercial activity beginning:

10. Project Status:

- Feasibility study available? Yes No
- Required land provided? Yes No
- Legal permissions (establishment license, foreign currency quota, environment, etc) taken? Yes No
- Partnership agreement concluded with local/foreign investor? Yes No
- Financing agreement concluded? Yes No
- Agreement with local / foreign contractor(s) concluded? Yes No
- Infrastructural utilities (electricity, water supply, telecommunication, fuel, road, etc) procured? Yes No
- List of know-how, machinery, equipment, as well as seller / builder companies defined? Yes No
- Purchase agreement for machinery, equipments and know- how concluded? Yes No

Financial Structure

11. Financial Table

Description	Local Currency Required			Foreign Currency Required Million Dollar	Total Million Dollar
	Million Rials	Rate	Equivalent in Million Dollar		
Fix Capital	25833	31000	0.83	0.735	0.57
Working Capital	29402.96	R for	0.95	0	0.95
Total Investment	55.236	each Dollar	1.78	0.735	2.52

- Value of foreign equipment/machinery 0.735 million dollar
- Value of local equipment/machinery million dollar
- Value of foreign technical know- how million dollar
- Value of local technical knows- how million dollar
- Net Present Value (NPV): 61582 Million Rial for 10 Year, discount rate: 20%
- Internal Rate of Return (IRR) 38.6%
- Payback Period (PP) 37.87%

General Information

12. Project Type : Establishment Expansion and completion

13. Company Profile:

-Name (legal /natural persons):

-Company Name:

-Address:

-Tel:

Fax:

-E-mail:

Web site:

-Local entrepreneur : private sector public sector other

Please attach follow documents if available

- Pre-feasibility study
- Feasibility study
- Legal permissions (establishment license, foreign currency quota, environment, etc)

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(OIETAI)

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