

# DETAILED PROJECT REPORT

## ON

# PLASTIC FILM MANUFACTURING



### Prepared by:

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## **FOREWORD**

Additional Secretary & Development Commissioner (MSME), Govt. of India, Ministry of MSME, New Delhi has assigned to all Joint Director to prepare a detailed report on Imported items under the Reserved 358 items for MSEs. The Item no.115 "Film Polythene including wide width Film" was assigned to Joint Director, MSME Development Institute (Br.), Varanasi. This report has been prepared after consulting the Institute involved in the concerned field. COVID-19 second wave has made a lot of disturbance in consulting the related Office and Institute in preparation of the said report. Email and telephonic conversations were made to CIPET, Lucknow and Industries Associations, All India Plastic Manufacturer Association (AIPMA) and leading Entrepreneurs to collect the valuable input for the report.

Report contains overview of Plastic film manufacturing along with basic information of the product such as HSN and NIC Code, Clusters, Industries registered as MSME (manufacturing), Number of large scale industries, Imports & Export Data of the product, Scope for the new Enterprises & demand in local and international market. The Technical information on the product as well as project report has been incorporated for the new Entrepreneur to start their Enterprises. Existing Schemes of O/o DC(MSME) & M/o MSME, and Other important information for the concerned are also included in the report.

I am confident that the information available in this report will be quite useful for the growth of Polythene Film /Plastic sector.

I express my sincere gratitude to Shri Devendra Kumar Singh, IAS, Additional Secretary & Development Commissioner (MSME), Govt. of India, Ministry of MSME, for his overall guidance, support and motivation without which the completion of the report would have been impossible. I also express my sincere thanks to Shri D.P. Srivastava, DDG and all concern Officers of HQ for their guidance and support.

I would like to record my appreciation for the efforts made in bringing out this "Film Polythene including wide width Film" report by Shri S. K. Agnihotri, Asstt. Director, Shri Neeraj Kumar, Asstt. Director, Shri K.P Sheel Investigator of DI, Kanpur and Shri Rajesh Kumar Chaudhary, Asstt. Director, DI (Br) Varanasi. I also appreciate Ms Swikriti my daughter for typing of the report during 2<sup>nd</sup> Corona period.

**Lal Bahadur Singh Yadav**  
**Joint Director**

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## 1. INTRODUCTION

In today's competitive marketplace, manufacturers of products and packages are under increasing pressure to satisfy varied—and often conflicting—demands, such as lowering costs, improving performance and enhancing environmental attributes. Within this arena, the material that a manufacturer chooses to use in its products and packages can affect its ability to remain competitive. Plastic film, in many instances, has allowed manufacturers to meet varied marketplace demands by enabling them to do more with less. In addition, since there to be a huge consumption and growing demand day by day as a result still some imports are being made.

Plastic film is a thin continuous polymeric material. Thicker plastic material is often called a "sheet". These thin plastic membranes are used to separate areas or volumes, to hold items, to act as barriers, or as printable surfaces. It is used in a wide variety of applications such as packaging, plastic bags, labels, building construction, landscaping, electrical fabrication, photographic film, film stock for movies, video tape, etc.



Additionally, thermoplastics tend to be easier to mold than thermosetting plastics, which also take a longer time to produce (due to the time it takes to cure the heated material).

Plastic films which technically are defined as plastic sold in thicknesses of up to 10 mils (One mil is equal to 25.4  $\mu\text{m}$ ) - they treat them as one type of material, grouping all flexible plastic packaging into a single category. But, plastic films compose a broad category of materials that can be relatively simple or complex depending on the demands of a particular product or package. Like plastic bottles and containers, film can be made with different resins, each of which has a unique combination of properties that makes it ideal for certain applications. For example, low density polyethylene (LDPE) film acts as a gas barrier, which is necessary for packaging such things as chicken, which would quickly spoil if exposed to oxygen. Polyvinyl chloride (PVC) film, on the other hand, is gas

permeable and necessary for packaging such things as red meat, which require a small amount of oxygen inside the package in order to remain fresh.

### **Benefits of Polyethylene Films**

- PE films burn to carbon dioxide and water with no residue. There are no toxic fumes or gases and no cinders produced in this process.
- PE films contain no plasticizers and no heavy metals. They are physiologically Harmles.
- No odor pollution or wastewater are produced in the manufacture of PE films.

Shopping & Carrier bags have recently become an integral part of retail selling in India. The advantage of these bags is not only the ease with which product can be carried but also in avoiding unnecessary show of items packed. A colourfully printed shopping bag is used for quite a long time and is taken to variety of places.

Blend ratios vary from 10-90% LLDPE in both HD/LLD as well as LD/LLD blends, with thickness varying from 30 microns to 100 microns.

Bags produced are of various sizes, designs and colours depending on the buyers need. Standard sizes being used are:

9" \* 13", 10" \* 15", 12" \* 15", 12" \* 18", 13" \* 19", 14" \* 20", 17" \* 21"

The bags produced are of different sizes as well as shapes. Also various types of handles, such as "Rasi" handle, Suitcase handle, Suitcase with grip type handle, Half round lock type handle are used, 'D' punch handle.

From single colour upto twelve colour printing is possible. Depending on the quantity, rotogravure, flexo or screen printing process is used.

## **2. Types of Polythene Films**

**Standard melt 2 low density polythene (LDPE) film-** the most common film grade contains an anti blocking agent and a slip agent that helps strong bags with good clarity that are easy to handle and food-grade approved.

Used for: - general packaging application

**Low slip melt 1 LDPE-** this film grade has greater molecular strength and no slip or anti blocking agents, making it suitable for when bag will be stacked.

Used for:-shrink film and sack application

**High melt 4 LDPE film-** this soft film, suitable for light-duty application, is very flexible so we can use it to produce very thin films of 80 gauge(20 micron) or less, which can save significant quantities of film and reduce cost.

Used for:- light-duty application e.g garment covers).

**High tensile film-** this polymer blend maximise strength in this film. With a slight rough, crinkly feel, clarity and flexibility are inferior to others films but this is perfect for thin food-grade tint sheet and tinted coloured films.

Used for :- application maximising strength to thickness requirements.

**Metallocene blends-** film containing a metallocene catalyst are strong and provide high clarity, manufactured in a different way to regular film, metallocene blends are more expensive by the finished product justifies the cost.

Used for: - premium strength high clarity films

**Biodegradable film-** regular polythene film with an additive catalyst that accelerates the degradation process. This cost-effective ,strong and recyclable film, typically degrades in anything from a few weeks to two years, depending on the disposal environment. Used for: - Eco-friendly packing

**Poly Bio film-** polybags range of compostable packaging is the most-eco-friendly that we produce. made from renewable resources, our poly Bio film contains no polythene and is both biodegradable and compostable, according to EU standards.

Used for:- packaging for statics-sensitive equipment.

**Electro conductive film-** antistatic films blends designed for handling and packaging statics-sensitive components and electronic contains a carbon element that dissipates electrostatics across the face the polyethene. Used for :- packaging for statics-sensitive equipment.

**Reprocessed films-** recycled film is a low cost and eco friendly solution to virgin polythene, although product quality is inferior. Polybags always recycle plastic waste when it is more efficient than disposing of it. Used for:- low cost and low quality uses.

## A. Commercial details

1.

HSN Code	Polymer of Ethylene with various forms
39201012	Other plates, sheets, film, foil and strip, of plastics, non – cellular and not reinforced, laminated, supported or similarly combined with other materials – of polymers of ethylene: sheets of polyethylene: flexible, plain

### 2. **NIC Code of the Product** : 22201

Manufacture of semi-finished of plastic products (plastic plates, sheets, blocks, film, foil, strip etc.)

### 3. **Clusters on the product, if any:**

#### 3.1 **Ongoing Clusters ( M/o MSME ) : 4nos.**

- Plastic Cluster Nipani, Aurangabad
- Plastic packaging cluster, Karnal, Haryana
- Plastic Industries cluster Aluva, Ernakulam, Kerala
- Plastic packaging cluster, Ujjain

#### 3.2 **Completed clusters: 1 no. ( Funded by M/o MSME)**

Plastic Woven Socks Kancheepuram, Kancheepuram

#### 3.3 **Clusters are identified by the Govt. organization**

Sl.no.	Name of the cluster
1	Plastic cluster(Plastic Product) Nagpur
2	Plastic Cluster GIDA Ind. Area Gorakhpur
3	Malwa Plastic Cluster Ujjain Ujjain
4	Plastic Cluster Jurdag, Jhura Khunti
5	Petro Chemicals/ Plastic Cluster Atchutapuram
6	Plastic Cluster NIDA, Kanjikode Palakkad Kerala
7	Plastic products Naraina (Punjab National Bank)
8	Uttar Pradesh Plastic products Noida (Punjab National Bank)
9	Maharashtra Plastic products Mumbai (Punjab National Bank)
10	West Bengal Plastic Processing Kolkata (State Bank of India)
11	Haryana Plastic Cluster Faridabad (SIDBI)
12	Gujarat Plastic processing Vadodara (Punjab National Bank)
Source: Sl no. 1 to 6 by MSME-DI & 7 to 12 by banks	

### 3.4 Plastic Parks – Existing & Proposed

Plastic Parks	Area (Acres)
Sanand, Gujarat	140
Dahej, Gujarat	100
Narasapura, Karnataka	100
Auraiya, Uttar Pradesh	225
Tamot, Madhya Pradesh	150
Siju village, Odisha	120
Barjora, West Bengal	496
Ibrahimpattanam, Telangana	500
Kannur, Kerala TBC Tinsukia, Assam	600
Chennai, Tamil Nadu	300
Panipat, Harayana	102

#### Status of the Tamil nadu Plastics Manufacturers' Association (TAPMA)

Sl.No.	Description	Estimates
1.	No. of Units	5000 (83%)
2.	Investments (approx.)	Rs.2500 crores
3.	Annual turnover (approx.)	Rs.2000 crores
4.	Contribution to ex chequer	Rs.125 crores
5.	Employment potential	8.0 Lakhs (Direct and Indirect)
6.	Annual Capacity installed	4.0 lakhs M.T
7.	Major Raw Materials used	Polyethylene, Polypropylene, PVC Resins, Polystyrene & other engineering plastics.
Source: The Tamilnadu Plastics Manufacturers' Association( TAPMA)		

From the above table it is evident that there is much scope for Plastic Products Manufacturing Enterprises at Chennai if UNIDO's Cluster Development Approach is adopted.

### **Vision is TAPMA's**

- (i) To promote and provide modern upgraded technology and professional management skill sets to the plastic industry.
- (ii) To constitute a standing council representing the association technical bodies and the Government agencies to promote, monitor and establish a multi plastic products clusters at all the Districts and Taluk Head Quarters exclusively for Small and Micro Enterprises under Public Private Partnership (PPP) Concept.
- (iii) To encourage plastic industries to adopt standards and various quality control parameters thereby competing with Global Standards.
- (iv) To have efficient and environment friendly process methods for recycling of all plastics at exclusive industrial areas.
- (v) To source power at affordable costs by means of wind energy farms.
- (vi) To have continuous supply of technical trained manpower.
- (vii) To have access to affordable products and process from development centres of excellence exclusively for small and micro enterprises with protection to intellectual property and rights.

### **4. Possibility to create establish clusters on the product:**

An Industrial Cluster is basically a local agglomeration of small, medium and large enterprises, which are producing and selling a range of related and complimentary products and services. The enterprises in a cluster have similar needs and support requirements; they are faced with common opportunities and threats. It is estimated that more than 750 modern SME Clusters and 6000 artisan based rural clusters exist in India.

According to MSME Development Institute, Government of India, Ministry of MSME there exists a Plastic Products Cluster at Chennai with 600 Micro and Small Enterprises, manufacturing various plastic products. According to The Tamil Nadu Plastics Manufacturers' Association (TAPMA) who has registered under Tamil Nadu Societies registration Act and put in more than 25 years of glorious service to various plastic industries.

## 5. Probable areas or districts where the product manufacturing or project can be established:

Western region comprise of Maharashtra, Gujarat, the union territories of Daman and Diu & Dadra and Nagar Haveli along with Madhya Pradesh and Chhattisgarh. The total consumption of plastics in India in 2012-13 was ~10 MnTPA. Out of this Northern India accounted for ~23%. Northern India comprises of J&K, Himachal Pradesh, Punjab, Haryana, Uttarakhand, Rajasthan, UP, Delhi and NCR region. Bulk of the consumption in Northern India is from end use industries of Auto, packaging (including bulk packaging), plasticulture applications, electronic appliances etc.

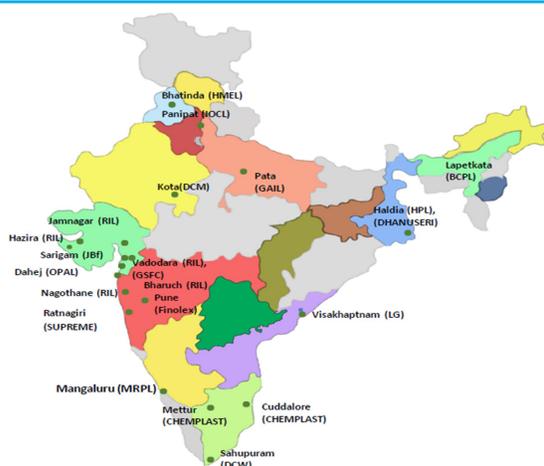
The consumption in Northern India is low in comparison to Western India primarily because of lack of availability of raw material. Reliance the largest petrochemical player in India had all its cracking units in West and this facilitated the growth of downstream plastic processing industry in Western region. However with IOCL Panipat cracker and HMEL Bhatinda PP plant, GAIL INDIA, Dibiyapur the availability of PE/ PP is not expected to be a constraint and hence facilitate downstream plastic processing units.

The upcoming petrochemical complex at Barmer can also spurt the sector in the region.

1.	Western Region	47%
2.	Northern Region	23%
3.	Southern Region	21%
4.	Eastern Region	9%

Source: IOCL, Industry reports, Research by Tata Strategic

## Plant locations of major players



Polymer	2016-17	2019-20
PS/EPS	599	599
LDPE	205	605
LLDPE	1700	2300
HDPE	2855	2855
PP	4970	5670
PET	2072	2072
PVC	1435	1435
Others	252	252
Total	14088	15788

(Figs in KTA)

## 6. Industries registered as MSME ( manufacturing)

S.No.	State Name	Mio	Small	Medium	Total
1	Andhra pradesh	125	115	1	241
2	Arunachal pradesh	0	2	0	2
3	Assam	12	14	5	31
4	Bihar	163	35	1	199
5	Chhattisgarh	22	26	0	48
6	Goa	13	4	0	17
7	Gujarat	1003	728	52	1783
8	Haryana	166	106	4	276
9	Himachal pradesh	18	13	0	31
10	Jharkhand	62	13	0	75
11	Karnataka	239	120	3	362
12	Kerala	77	33	2	112
13	Madhya pradesh	274	105	11	390
14	Maharashtra	1137	482	26	1645
15	Manipur	7	1	0	8
16	Meghalaya	1	0	1	2
17	Mizoram	0	0	0	0
18	Nagaland	0	0	0	0
19	Odisha	41	16	0	57
20	Punjab	136	32	1	169

21	Rajasthan	312	75	1	388
22	Sikkim	0	2	0	2
23	Tamil Nadu	820	187	9	1016
24	Telangana	187	149	8	344
25	Tripura	5	3	0	8
26	Uttar Pradesh	479	216	24	719
27	Uttarakhand	36	40	3	79
28	West Bengal	215	61	5	281
29	Andaman and Nicobar Islands	1	0	0	1
30	Chandigarh	8	1	0	9
31	Dadar and nagar haveli	39	43	5	87
32	Daman and diu	41	54	4	99
33	Delhi	505	205	2	712
34	Jammu and kashmir	3	6	1	10
35	Padakh	0	0	0	0
36	Pakshadweep	0	0	0	0
37	Puducherry	69	62	0	131
	Total	6216	2949	169	9334
Source: data division/ NIC division O/o DC(MSME)					

## 7. Number of Industries available in large scale industries:

There is a huge scope in the plastic industry in India. It is also contributing to the growth of the Indian economy due to innovative products and world-class technology. The list of top plastic manufacturers in India are as follows-

- Jain Irrigation Systems Ltd
- Kingfa Science & Technology India Ltd
- Mayur Uniquoters Ltd
- Nilkamal Ltd
- Plastiblends India Ltd
- Responsive Industries Ltd
- Safari Industries India Ltd
- Supreme Industries Ltd
- VIP Industries Ltd
- Wim Plast Ltd (Cello)

## 8. Imports of the products(past three years)

MSME-SI	Item Description	Value(Rs. Crores)		
		2017-18	2018-19	2019-20
115	Film Polythene - including wide width film	90.020461	124.19917	121.741044

Source: O/o DC(MSME) Website

## 9. Exports of the products(past two years)

MSME-SI	Item Description	Value(Rs. Crores)	
		2017-18	2018-19
115	Film Polythene - including wide width film	90.020461	124.19917

Source: O/o DC(MSME) Website

## 10. Scope of growth of Enterprises in number of year further

- Growth of machinery industry – Installed capacity CARG of 11.1% (2016/17 to 2019/20)
- Polymer consumption projected to reach 20MMT by 2020
- Global companies investing in India
- Low import duty on polymer raw materials
- Proposed Government Policies to help growth of plastic industry
- Technology Upgradation provides the more gain to the Entrepreneur
- Fund Scheme of State and Central Govt. for easy credit in flow for enterprise
- Plastic Parks in various parts in India favours the investors to establish enterprise
- MSME & Skill Development programme provide the over all knowledge

### Key Drivers :

- Expected GDP Projection: 8%
- Indigenization of components by Major OEMs from sectors like Automobile & Consumer Electronics – Increasing trust on development capability of domestic CTRs
- Make in India Initiative
- Availability of competent Skilled people, though in lesser numbers

### Growing trend towards shorter production runs and customized products

Segment	Current Industry size (USD billion)	Last 5 year CAGR	Next 5 year CAGR
Auto OEMs	73	6%	9%
Automotive Components	40	7%	11%
Plastics Processing	20	9%	12%
Electrical Equipment's	21	6%	8%
Consumer Durables & Electronics	15	10%	14%
Packaging	5	10%	11%

## 11. The demand in the domestic Market: Market Potential

There is good demand for shopping bags in view of opening of New Malls, Garments Shops, Grocery Shops, General Stores, Vegetable Shops, sweet Shops etc. Depending upon the end products shopping bags of small and big sizes are made with aesthetic appeal. Good quality printed bags are also made for the customers especially for jewellery, cosmetics etc. with bright and attractive works. Shopping bags / carry bags has huge demand for all purpose which has replaced paper bags.

## 12. The Demand of the Export Market : Market outlook

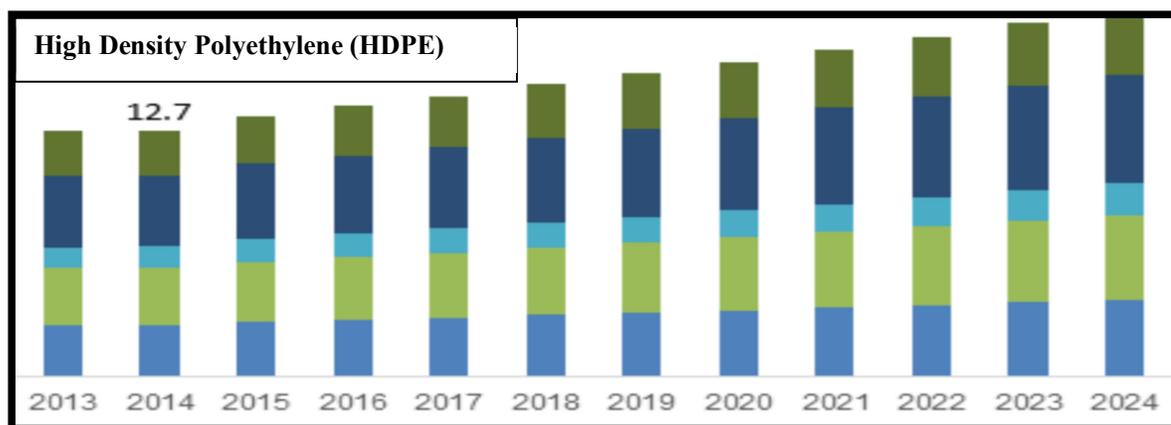
The global polyethylene film market is expected to reach \$ 167.83 billion by 2025, at a current CAGR compound annual rate of 4.2% between the years 2020 and 2025.

Rising demand for bi-axially oriented films and increased demand for bio plastic materials are the key drivers of the market.

The India plastic industry has grown by 13% annually in the last five years and a similar growth rate is expected to continue in 2016-17.

The size of industry is expected to reach Rs.1.7 lakh crore from Rs.1.20 lakh crore last year.

High Density Polyethylene (HDPE) Market size was valued at approximately USD 60 billion in 2015 with gains of over 4% CAGR between 2016 and 2024.



### Market Outlook Of Indian Plastic Industry

Year	GDP Growth	Polymer Consumption Growth	Import Duty
1990-1995	5.0%	12.9%	50%+
1995-2000	6.5%	14.6%	40%
2000-2004	5.9%	5.8%	45%-15%
2005-2012	8.7%	10.9%	12.5%-5%
2012-2017 12 <sup>th</sup> plan	7.2%	10.6%	7.5%-5%
2017-2022 13 <sup>th</sup> plan	8%	10.4%	5%-0%

## B. Technical Details

1. **Sector in which the product is falling:** It is under the Chemical –Polymer sector and as per the MSME Act falls under the manufacturing sector.

2. **End users of the products / sectors:**

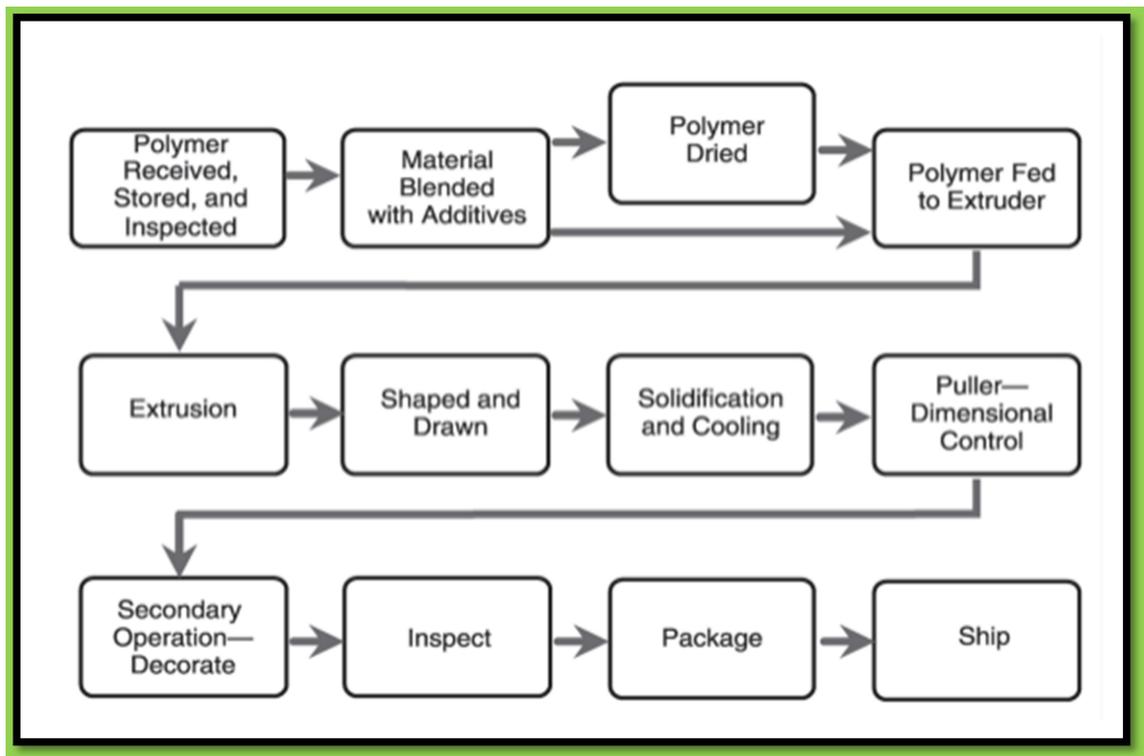
Agriculture, Auto OEMs, Automotive Components, Plastics Processing, Electrical Equipment's , Consumer Durables & Electronics, Packaging

3. **Governing Indian Specification**

IS 2508 : 1984	Low density polyethylene films and sheets
ISO6383-1:2015	
IS 10889 : 2004 (RA 2016)	High Density polyethylene films

4. **Process Flow Chart Film Polythene Manufacturing :**

The process for making polyethylene film and bags is called extrusion. This plastic film manufacturing process starts with melting down small plastic pellets, (called resin), until they become molten and pliable.



## 5. Qualitative Parameters of the products

Packaging Type	Roll
Color	All
Width	175 to 7 500 mm ( 350 to 15 000 mm slit open width in the case of tubular films ),
Material	Polyethylene
Thickness	12.5 to 250 $\mu$ m
Density	between 0,913 to 0'937 g/ml at 27°C (0'915 to 0.939 g/ml at 23°C )
Pattern	Plain

**Following Test are performed for quality evaluation of the product**

<b>Mechanical Quality Properties</b>	<b>Physical and Chemical Properties</b>	
Burst strength	Optical properties	Flammability
Impact strength	Light transmission	'See-Through' Clarity
Impact Fatigue	Dimensional stability	Haze
Tear strength	Water absorption	Gloss
Puncture penetration test	Effect of chemicals	Permeability
Stiffness	Effect of Light	Water vapour permeability
Flex resistance	Effect of Temperature	Gas Permeability
Coefficient of friction	High Temperature	Odour Permeability
Blocking	Low Temperature	Density
	Heat sealability	

## **6. Details of products licenses to obtain:**

Provision has been made by the M/o MSME, Govt. of India to register online for the Udyam Registration (MSME) on the given link at the site of [dcmsme.gov.in](http://dcmsme.gov.in). It can also be done through assistance of every District Industry Centre(DIC), MSME Development Institute and its Branches including Regional Testing Laboratory/ Testing Stations, Autonomous Body/Tool Rooms Technology Centre under M/o MSME.

Product doesn't come under compulsory BIS licensing but for the quality product production, applicable BIS license may be obtained for the benefit of enterprise in long run. However, licence/ permissions required from inspector of factories, pollution control board, municipality/ panchayat, power supply etc. Most of the state industries departments have single window system for filing all the applications at one place.

## **7. Equipment required for the manufacturing of the products:**

Various forms of Polyethylene can be used in processes like injection molding, blow molding, extrusion and various film creation processes such as calendaring or blown film extrusion.

High density polyethylene can be easily processed by injection molding, extrusion (tubes, blow and cast films, cables, etc.), blow molding and rotomolding. Being an ideal material for injection molding process, it is majorly used for batch and continuous production.

The most common processing technique used for Low Density Polyethylene is extrusion (tubes, blow and cast films, cables...). Low Density Polyethylene can be processed by injection molding or rotomolding also.

**(A) LDPE Extrusion Machine**

1	<b>Model</b>	SDT -1000
2	<b>Machine Name</b>	Electric LDPE Extrusion Machine
3	<b>Machine Type</b>	Automatic
4	<b>Voltage</b>	380V 50Hz
5	<b>Plastic Processed</b>	PE
6	<b>Cost</b>	Rs.10.00 Lakhs(approx)
7	<b>Supplier Name &amp; Address</b>	Sant Engineering Industries New Delhi, Delhi



Figur-1 Extrusion Machine

## (B) Carry Bag Making Machine

1	<b>Model</b>	SDT -1000
2	<b>Machine Name</b>	bag making machine
3	<b>Capacity</b>	120CUT/MIN*4 LINES
4	<b>Bag Width (Max)</b>	900MM
5	<b>Bag Length</b>	100-1200MM
6	<b>Converting Thickness</b>	0.01-0.10mm
7	<b>Accuracy Length</b>	±1
8	<b>Motor</b>	1.1kw/1.5HP
9	<b>Heater</b>	3.5w
10	<b>Power Required</b>	5.5KW
11	<b>Dimension (L×W×H)</b>	2900×1580×1900MM
12	<b>Gross Weight</b>	1000kg
13	<b>Colours</b>	White and RED
14	<b>Cost</b>	Rs.13.50 Lakhs(apprx)
15	<b>Supplier Name &amp; Address</b>	Sri Durgalakshmi Impex Sakkimangalam Road, Andarkottaram, Madurai, Tamil Nadu – 625020.



Figur-2 Carry Bag Making Machine

### (C) Plastic Printing Machine

1	<b>Model</b>	F1520UV
2	<b>Machine Name</b>	Poly bag printing machine
3	<b>Frequency</b>	50 Hz
4	<b>Voltage</b>	440 V
5	<b>Floor Space</b>	1100 x 3125 mm
6	<b>Height (Approx.)</b>	1375 mm
7	<b>Weight (Approx.)</b>	1150 Kg
8	<b>Speed (Max.)</b>	2500 I.P.H
9	<b>No. of Ink Rollers</b>	14
10	<b>No. of Ink Form rollers</b>	2
11	<b>No. of Dampening Rollers</b>	4
12	<b>Cost</b>	Rs.7.25 Lakhs (approx.)
13	<b>Supplier Name &amp; Address</b>	Fair Deal Engineers Faridabad, Haryana.



Figure-3 Film Printing Machine

## **8. Test facilities required for the products:**

Following testing facilities may be developed as per requirement for raw material & product quality control:

- ◆ Melt Flow Indexer ( M.F.I)
- ◆ Universal Tensile Testing Machine
- ◆ Free Falling Dart Impact Tester
- ◆ Density Test Apparatus
- ◆ Muffle Furnace
- ◆ Tear Tester
- ◆ Melting Point Apparatus
- ◆ Film Shrinkage Tests
- ◆ Burst Tester For Film And Corrugated Box
- ◆ Air Circulating Oven / Hot Air Oven

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## **9. Existing technology for manufacturing of products**

- Extrusion of Film
- Slit Die Extrusion (Flat Film Extrusion)
- Comparison of Blow and Cast Film Processes
- Water Cooled Polypropylene Film
- Calendering
- Solvent Casting
- Casting of regenerated cellulose film
- Orientation of film
- Expanded films
- Plastics Net From Film

## **10. Modern technology available for Implementation in market**

- Multi Layer Extrusion Machine
- Single/ Two/ Multi Layer Blown Film Machine
- Multi (12 ) colour Rotogravure Printing & Lamination Machine
- Punching Machine

## **11. Raw materials required and availability**

The raw material for the polyethylene film is obtained from resins based on petroleum, like polyethylene and polypropylene, among others, or from bio-based materials, including cellophane and cellulosic.

There are different kinds of resins such as HDPE, LDPE and LLDPE etc. present in market suiting the countless number of applications owing to their properties.

Resin prices are the most important costing inputs made by the plastic manufacturing, compounders & recycler or processors, prices of these materials are very crucial information to be tracked off regularly. There is sufficient raw materials source available in the country. ONGC, Reliance, IOCL and Gail India are the prominent source of Raw materials suppliers.

## **12. Indian / International standards for Raw materials**

IS 3395 : 1997	Low Density Polythene (LDPE) and Linear Low Density Polythene (LLDPE) Materials
IS 7328	High Density Polythene (HDPE) Materials

## C. Project Report of Polythene Film

### Basis & Presumptions

The output capacity is taken as 350 Kgs/hr. The unit will work at 20 hrs. per day for 25 working days in a month and 300 days in a year. The output capacity may vary from machinery to machinery and the cost of machinery may also vary from supplier to supplier.

- (i) The time period for achieving the full envisaged capacity utilisation is six months.
- (ii) The labour wages are as per the prevailing rates in the market.
- (iii) The rate of interest for fixed and working capital is taken as 12 per cent.
- (iv) The margin money requirement for this project is 30 per cent.
- (v) The payback period of this project is 5 years.
- (vi) The rate of land is taken @ Rs.500/-per sq. mtr. and construction charges are taken @ Rs.3500 per sq. mtr. This may also vary from place to place.
- (vii) The present profile has to be updated taking into prevailing cost of land, building, machinery etc. at the time of implementation of the project.

### Implementation Schedule

The Time requirement for preparation of Project report	Two months
Time requirement for selection of Site	One month
Time required for Udyam registration	One Week
Time required for acquiring the loan Machinery procurement, erection and commissioning	Three months
Recruitment of labourer etc.	One month
Trial runs	One month

## Manufacturing Process

The process for making polyethylene film and bags is called extrusion. This plastic film manufacturing process starts with melting down small plastic pellets, (called resin), until they become molten and pliable.

The molten plastic resin (LLDPE) is pushed, (extruded), through a circular die to form a continuous tube of plastic called the bubble. The bubble is inflated with air to the desired diameter and drawn vertically up a tower giving it time to cool before it is flattened to its lay-flat width. The thickness of the film is controlled by the speed at which it is pulled from the die. The width of the film is controlled by the amount of air inserted in the bubble.



**LLDP**

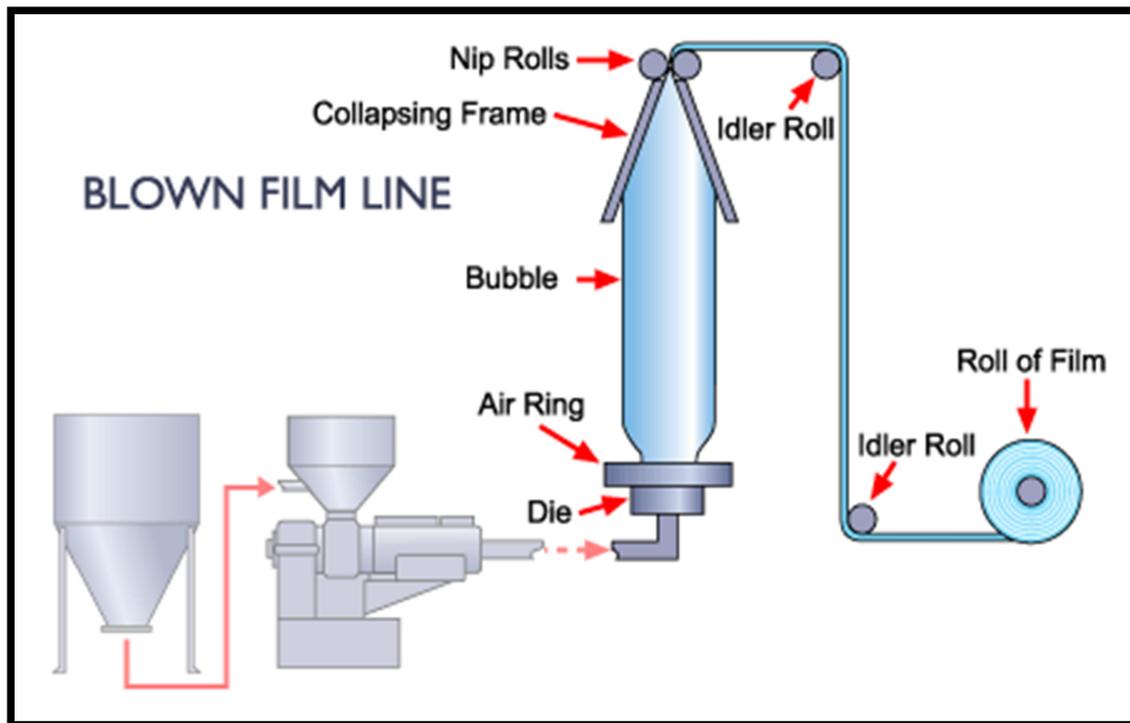


**THE BUBBLE**

Film color can be changed in the molten process by adding resin pellets that contain colored pigment. Many things can be done during this "inline" process. A printing press may be printing images, instructions, warnings, company logos, etc. on the film. A bag making machine can seal and perforate the film to form varying lengths of bags on rolls. The film can be cut and separated for individually cut bags. You can also add vent holes, which are punched through the film in a variety of patterns and sizes.

The inline plastic film manufacturing process has some further processing limitations. If the film requires more technical alterations then rolled film will be taken off the extrusion line to be further modified in what is known as out of line converting.

At this stage, Process printing and laminating, in addition to the plastic bag manufacturing process of making side weld bags, reclosable bags, and wicketed bags is done out of line.



## STEP 01: The Blown-Film Extrusion Process

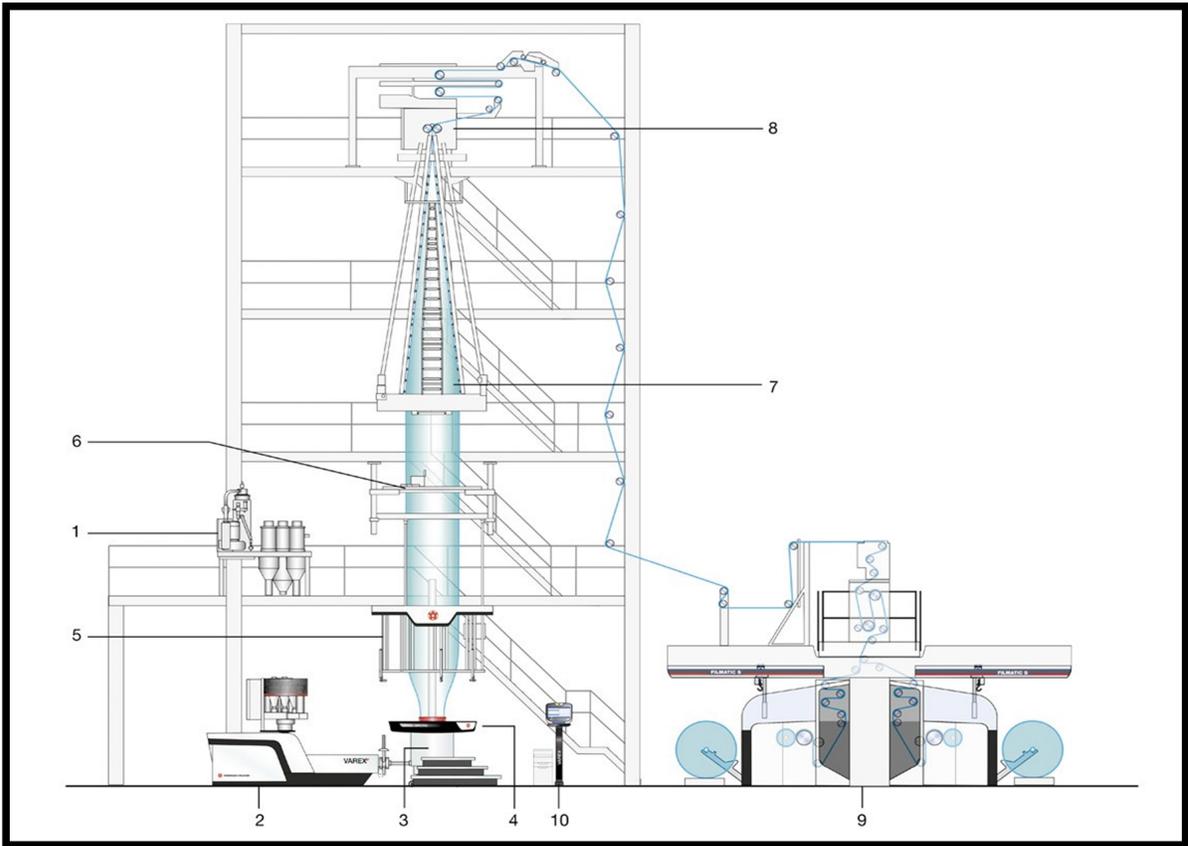
The first step of making poly bags is the blown-film extrusion process. The following occurs when using this process:

Small plastic pellets (called resin) are first melted down under controlled conditions, until they become molten and pliable.

Once resin pellets reach the desired level of pliability, they are then pressed (extruded) through a circular die gap to form a continuous tube of plastic. In this molten state, the tube of plastic is pinched off at one end, and then inflated and stretched to the size and thickness of the desired finished product.

The inflated bubble of plastic is drawn vertically up a tower so that it has a chance to cool before it is flattened out and wound onto a roll.

Once the plastic is on a roll, it can be cut to form tubing, single-wound sheeting, or center fold sheeting. Most often, we transform the plastic into poly bags.



**Diagram of the extrusion process**



**Plastic pellets (resin)**

## **STEP 02: Making Poly Bags from Plastic Rolls**

After the blown-film extrusion process is complete, we take those rolls of plastic and transform them into poly bags by doing the following:

- Rolls of plastic tubing or sheeting are first fed through a machine that draws the material out to the proper length.
- The machine then places a seal on the material at the correct length and cuts it off to make an individual bag.
- This process is then repeated until we have the number of poly bags we need for an order.

## **STEP 03: Printing on Plastic Bags**

Most single-use plastic bags consist almost entirely of pure polyethylene molecules. However, the plastic bags you get at most shopping malls and supermarkets usually have some sort of color print on them.

The process of printing on super sensitive/light material such as plastic bags is called flexographic printing. Depending on the dyes that are used, color printing on plastic bags can be toxic.

This in itself poses health risks to marine animals once the plastic bag lands up in the ocean, which they eventually always do.



**Printing Machine**

## STEP 04 – Completing the Manufacturing Process



Finally, the two printed sheets are then pressed together at the edges, effectively sealing the bag.

The sealed plastic bag can then be cut to desired sizes, depending on the commercial intent for the bag.

At this stage in the process, manufacturers can implement custom designs on the bag. For example, they can add a section for easy tearing (like the plastic bags you find at the fruit and vegetable section of the grocery store).

## **DETAILS ABOUT RAW MATERIALS & MACHINERY USED**

### **White Natural LDPE Plastic Granules**



1	Usage	Plastic
2	Colour	White
3	Packaging Type	Bags
4	Packaging Size	25 Kg
5	Origin	Made In India
6	Form	Granual
7	Cost	Approx.. Rs.115/ Kg
8	Supplier Name & Address	Mahamantra Plastics 8, GF, Sugarwala Market, Sakar Bazar, Kalupur, Ahmedabad, Gujarat - 380002

## **PRODUCTION CAPACITY (Per Annum)**

(a) Quantity (M.T.) : 2,100

(b) Value (Rs.) : Rs.18, 90, 00,000.00

## **TOTAL POWER REQUIREMENT**

Total connected load (KW): 215

## **POLLUTION CONTROL MEASURES**

The unit does not create any pollution. However, a proper ventilation should be made in the processing area for the better circulation of the fresh air.

## **ENERGY CONSERVATION**

Entrepreneurs may select energy efficient machinery and proper planning has also to be made for saving energy in the unit.

## **FINANCIAL ASPECTS**

### **A. FIXED CAPITAL**

#### **i) Land & Building**

	<b>Area Sq. Mtrs</b>	<b>Rate Rs. Per Sq. Mtr.</b>	<b>Rs.</b>
Land	500	500	2,50,000.00
Building	300	3500	10,50,000.00
<b>TOTAL</b>			<b>13,00,000.00</b>

#### **ii) Machinery & Equipment**

<b>Sl. no.</b>	<b>Description of Machines</b>	<b>Qty (no.s)</b>	<b>Rs.</b>
(a)	Production Unit		
	- Extrusion Blow Film Plant	01	1,95,00,000.00
	- Printing machine	03	75,00,000.00
	- Bag making machine	01	25,00,000.00
	- Scrap Grinder	01	1,00,000.00
	- Cooling Tower	01	1,00,000.00
	- Compressor	01	2,50,000.00
(b)	Testing Equipment & Other Accessories		50,000.00
(c)	Electrification & Installation @ 10% of cost & machinery		30,00,000.00
(d)	Pre-operative expenses		1,00,000.00
<b>Total cost of machinery &amp; equipment (a to d)</b>			<b>3,31,00,000.00</b>
(e)	Cost of Moulds & Dies & Mini Expenses		1,00,000.00
(f)	Cost of Office Equipment / Furniture / Computers, etc.		3,00,000.00
<b>Total</b>			<b>3,35,00,000.00</b>

**Fixed Capital (i) +(ii) =13,00,000 +3, 35,00,000 = 3,48,00,000.00**

## A. WORKING CAPITAL

### i) Staff & Labour (Per Month)

Designation	no.	Salary (Rs.)	Total salary(Rs.)
Production Engineer/Manager	01	25,000.00	25,000.00
Sales Executive	02	15,000.00	30,000.00
Accountant-cum-Store Keeper	01	15,000.00	15,000.00
Watchman	02	10,000.00	20,000.00
Skilled Workers	08	15,000.00	1,20,000.00
Helpers	08	10,000.00	80,000.00
			<b>2,95,000.00</b>
Add: perquisite @ 10% of the Salary			29,500.00
<b>Total</b>			<b>3,24,500.00</b>
<b>Or Say Total</b>			<b>3,25,000.00</b>

### ii) Raw Materials

Parameter	Qty (M.T.)	Rate (Rs./MT)	Rs.
LLDPE Granules	175	75000	1,31,25,000.00

### iii) Utility

(a)	Power (60% utilization x 215 KW x 500 hrs. x Rs.5 per unit)	3,22,500.00
(b)	Water	2,500.00
<b>Total</b>		<b>3,25,000.00</b>

iv) **Other Contingent Expenses**

Sl. no.	Expenses Per Month	Rs.
1.	Repairs and Maintenance	5,000.00
2.	Transportation Charges	15,000.00
3.	Postage and stationery	3,000.00
4.	Telephone / Fax / Computer	5,000.00
5.	Consumable Stores	5,000.00
6.	Advertisement & Publicity	10,000.00
7.	Insurance	27,000.00
8.	Miscellaneous Expenses	10,000.00
<b>Total</b>		<b>80,000.00</b>

**Total Working Capital**

Sl. no.	Particulars	Rs.(Per Month)
1.	Staff and Labour	3,25,000.00
2.	Raw Material	1,31,25,000.00
3.	Utilities	3,25,000.00
4.	Other Contingent Exp.	80,000.00
<b>Total</b>		<b>1,38,55,000.00</b>
<b>Working Capital for 3 months</b>		<b>4,15,65,000.00</b>

**Total Capital Investment**

Sl. No.	Particulars	Rs.
A.	Fixed Capital	3,48,00,000.00
B.	Working Capital for 3 months	<b>4,15,65,000.00</b>
<b>Total</b>		<b>7,63,65,000.00</b>

## **FINANCIAL ANALYSIS**

### **A. COST OF PRODUCTION (per year) (300 days)**

<b>Sl. no.</b>	<b>Particulars</b>	<b>Rs.</b>
(a)	Total Recurring Cost	16,62,60,000.00
(b)	Depreciation on building @ 5%	52,500.00
(c)	Depreciation on machinery& equipment @ 15%	33,10,000.00
(d)	Depreciation on Dies, Moulds, office equipment @ 15%	80,000.00
(e)	Interest on total Capital Investment @ 12%	91,63,800.00
	<b>Total</b>	<b>17,88,66,300.00</b>

### **B. SALES / TURNOVER (per year)**

<b>Item</b>	<b>Qty (M.T.)</b>	<b>Rate(M.T.)</b>	<b>Value (Rs.)</b>
LLDPE Printed Carry Bags	2100	95000	19,95,00,000.00

### **C. Net Profit (Per Year)**

#### **Turn Over-Cost of Production**

$$\begin{aligned} & \text{Rs.19,95,00,000.00} - \text{Rs.17,88,66,300.00} \\ & = \text{Rs. 2,06,33,700} \end{aligned}$$

### **D. Net Profit Ratio**

$$\text{Net profit Ratio} = \frac{\text{Net Profit} \times 100}{\text{Sales}} = \frac{2,06,33,700 \times 100}{19,95,00,000} = 10.34\%$$

### **E. RATE OF RETURN**

$$\text{Rate Of return} = \frac{\text{Net Profit} \times 100}{\text{Capital Investment}} = \frac{2,06,33,700 \times 100}{7,63,65,000} = 27.02\%$$

## F. BREAK-EVEN POINT

Sl. no.	Fixed Cost (Per Year)	Rs.
(a)	Depreciation on Building @ 5%	52,500.00
(b)	Depreciation on Machinery & Equipment @ 10%	33,10,000.00
(c)	Depreciation on Moulds/Dies & Office Equipment @ 20%	80,000.00
(d)	Insurance	3,24,000.00
(e)	Interest on total capital investment	91,63,800.00
(f)	40% of salary and wages	15,60,000
(g)	40% of other contingent expenses	3,84,000
	<b>TOTAL</b>	<b>1,48,74,300.00</b>

$$\begin{aligned}
 \text{B.E.P. \%} &= \frac{\text{Fixed Cost} \times 100}{\text{Fixed Cost} + \text{Net Profit}} \\
 &= \frac{1,48,74,300 \times 100}{1,48,74,300 + 2,06,33,700} \\
 &= \frac{1,48,74,300 \times 100}{3,55,08,000} \\
 &= \mathbf{41.89\%}
 \end{aligned}$$

## 2. Testing Facilities available in India

CIPET, spread all over India, equipped with the advanced appliances for Plastics Testing has focussed on a wide range of testing which are accredited with ISO/IEC - 17025 Guidelines by National Accreditation Board for Testing and Calibration Laboratories (NABL). CIPET also gives the complete scope of investigation of polymers, plastics and composites and gives best administrations to the Plastic and unified ventures by embracing assignments of plastics materials/items/composites testing according to reputed National and Global models.

CIPET's Plastics Testing Center (PTC) is a standout amongst other plastics testing organizations in Asia. CIPET's testing labs are accredited with ISO/IEC-17025 standards by National Accreditation Board for Testing and Calibration Laboratories (NABL) and furthermore approved by Bureau of Indian Standards (BIS) for third party certification of plastic products as per various Indian standards.

Other than CIPET, MSME- Testing Centre Mumbai and MSME- Testing Centre, Kolkata, under M/o MSME, Govt. of India are also carrying out the testing on plastics products. Indian Institute Roorkee and Indian Institute of Plastic, Mumbai have also facilities to performed the test. Some Leading Industry Association also assist in guiding all the testing requirement of the industry.

### 3. Raw materials source:

There are more than a dozen manufacturing plant of the resin and hence no shortage of raw materials.

The following table depict that plenty of raw materials available in the country.

Company	LDPE	LLDPE	HDPE	PP	PVC	PS/EPS	PET	Others	2016-17	% share	2019-20	% share
Reliance Industries	205	445	500	2700	725		970		5545	39.36	6545	41.46
Indian Oil Corp		225	475	600					1300	9.23	2000	12.67
Haldia Petrochemicals		210	500	390					1100	7.81	1100	6.97
GAIL (India)		350	570						920	6.53	920	5.83
HPCL Mittal Energy				400					440	3.12	440	2.79
IVL Dhunseri Petrochem							480		480	3.41	480	3.04
Supreme Petrochem						340			340	2.41	340	2.15
Finolex Industries					270	00			270	1.92	270	1.71
Chemplast Sanmar					290	00			290	2.06	290	1.84
LG Polymers India						130			130	0.92	130	0.82
Ineos Styrolution						105		80	185	1.31	185	1.17
ONGC Petro Additions Ltd		360	700	340					1400	9.94	1400	8.87
Mangalore Refinery & Petrochemicals Ltd				440					440	00.00	00	00.00
Bhramaputra Cracker & Polymer Ltd		110	110	60					280	3.12	440	2.79
DCW					90				90	1.99	290	1.77
DCM Shriram					60				60	0.64	9060	0.57
Gujarat State Fertilizers Ltd								12	12	0.43	60	0.38
Bhansali Engineering Polymers								60	60	0.09	12	0.08
Others								100	746	0.43	60	0.38
Total	205	1700	2855	4930	1435	575	480	252	14088		24022	
Source: Plast India foundation												

#### **4. Details of Machinery suppliers**

i. M/s Vmosa Extrutech,

Plot No. 388, Gopal Charan Industrial Hub, Indore highway,  
Ahmedabad, Gujarat 382433

ii. M/s Mahindra Plastics Industries ,

Ganesh Nagar, Street No. 2, Link Rd, opposite Transport Nagar,  
Industrial Area- A, Ludhiana, Punjab 141003

iii. **M/s** Heaven Extrusion,

Plot No.4, Krishna Industrial Park, Shree Uma Weighbridge  
Compound, Bakrol-Dhamatvan Road, At-Bakrol,  
Ahmedabad-382433, Gujarat, INDIA.

iv. M/s Fair Deal Engineers ,

Plot No. 686, Sector-69, IMT, Haryana 121004

v. **M/s** Sri Durgalakshmi Impex,

Sakkimangalam Road, Andarkottaram,  
Madurai, Tamil Nadu – 625020

vi. M/s Sant Engineering Industries,

580, Faiz Rd, Block A, Karol Bagh,  
New Delhi, Delhi 110005

## 5. Existing Schemes

Govt. run various schemes for credit / marketing / quality support are given below:

### Credit Support Scheme:

#### A. Credit Guarantee Scheme for Micro & Small Enterprises (CGTMSE)

**Objective:** Credit support

**Key Benefits:**

Credit guarantee for loans upto Rs. 2 crore, without collateral and third-party guarantee.

- Guarantee coverage ranges from 85% (Micro Enterprise up to Rs 5 lakh) to 75% (others).
- 50% coverage is for retail activity.
- Scheme applicable for Existing & Aspiring Entrepreneurs

#### Detailed Information

- Any collateral/third party guarantee free credit facility (both fund as well as non-fund based) extended by eligible institutions, to new as well as existing Micro and Small Enterprises, including Service Enterprises, with a maximum credit cap of 200 lakh (Rupees Two Hundred lakh only) are eligible to be covered. Recently, guarantee coverage made eligible to select NBFCs and Small Finance banks.
- The guarantee cover available under the scheme is to the extent of 50%/ 75% / 80% & 85% of the sanctioned amount of the credit facility. The extent of guarantee cover is 85% for micro enterprises for credit up to 5 lakhs. The extent of guarantee cover is 50% of the sanctioned amount of the credit facility for credit from 10 lakh to 100 lakhs per MSE borrower for retail trade activity.
- The extent of guarantee cover is 80% for (i) Micro and Small Enterprises operated and/or owned by women; and (ii) all credits/loans in the North East Region (NER) for credit facilities upto 50 lakh. In case of default, Trust settles the claim up to 75% of the amount in default of the credit facility extended by the lending institution for credit facilities upto 200 lakh.

## Credit Support Scheme:

### B. Prime Minister's Employment Generation Programme (PMEGP) (First Loan)

#### Objective

Encourage new entrepreneurs to set up micro-enterprises through credit-linked subsidy support

#### Key Benefits

- Bank financed subsidy program for setting up new micro-enterprises in non-farm sector.
- Margin Money subsidy on Bank Loan ranges from 15% to 35% for projects up to Rs. 25 lakhs in manufacturing and Rs. 10 lakhs in service sector
- For beneficiaries belonging to special categories such as SC/ST/Women/PH/Minorities/Ex-Servicemen/NER, the margin money subsidy is 35% in rural areas and 25% in urban areas. The maximum cost of projects is Rs.25.00 lakh in the manufacturing sector and Rs.10.00 lakh in the service sector.

#### Scheme applicable for

- Any individual above 18 years of age, SHGs, Charitable trusts, Registered Societies etc.

#### Detailed Information

- The own contribution of the beneficiary is 10% of the project cost in case of general category and 5% of the project cost in case of reserved category (SC/ST/OBC/PH/Women/Ex Servicemen/ NER) beneficiaries.
- If the application for loan is approved, Banks sanction and release the balance amount of 90 to 95 percent of the total project cost suitably for setting up of the units by the beneficiaries.
- In order to have sustainability of the projects/units set up under the scheme, support services are also provided in the form of Backward & Forward Linkages by organizing events like awareness camps, workshops, EDP training to the beneficiaries, exhibitions, etc.
- Government of India has introduced online process flow of application and disbursement of Margin Money directly to financing branches.
- Corporation Bank was engaged as a single National Level Agency for operating the online fund flow system of PMEGP.

- One-page online application form is mandatory for individuals and institutional beneficiaries on the e-portal. The application form/PMEGP MIS portal is mobile friendly. SMS/e-mail alerts sent to the applicant automatically by the system or by the concerned officials at the process of each stage.
- Model Projects of different KVI activities have been put up on PMEGP e-portal for the benefit of potential beneficiaries.
- Model Village Industries projects prepared by NSIC have also been linked to the website.
- To increase the registration of MSMEs in the country, the Government has undertaken measures that the PMEGP units can adopt the Udyog Aadhar Memorandum (UAM) to register online.

## Credit Support Scheme:

### Up-gradation of the existing PMEGP/MUDRA units (**Second Loan**)

#### Objective

Technology up-gradation and expansion of existing units through credit support

#### Key Benefits

- To fulfil the need of additional financial assistance for upgradation and expansion of successful/well performing existing units
- Maximum subsidy would be 15% of the project cost (20% for NER and Hill States). The balance amount of the total project cost is provided by Banks as term loan.

**Scheme applicable for** : Existing well performing PMEGP/MUDRA units

#### Detailed Information

- Further financial assistance scheme for expansion/upgrade the existing PMEGP/MUDRA units for manufacturing and Service/Trading units from the year 2018-19
- The maximum cost of the project under manufacturing sector for up-gradation is Rs.1.00 Crore and Rs.25.00 lakh under Service/Trading sector.
- Maximum subsidy would be 15% of the project cost (20% for NER and Hill States i.e. Rs. 15.00 lakh in Non-NER and Rs. 20.00 Lakh for NER and Hill States). The balance amount of the total project cost is provided by Banks as term loan.
- All existing units financed under PMEGP/MUDRA schemes running successfully whose Margin Money claim has been adjusted and the First loan (only CE) availed should have been repaid in stipulated time and WC may be exempted.
- The units should have been making profit for the last three years.

- Beneficiary may apply to the same financing bank, which sanctioned the loan for their unit, or to any other financing bank, which is willing to extend credit facility for second loan.
- The beneficiary can choose any implementing agency and that may be different from the agency chosen for 1st loan.
- Registration of Udyog Aadhar Memorandum (UAM) is mandatory.
- The 2nd loan should lead to additional employment generation.
- On PMEGP e-Portal, a separate application link provided to submit the application under 2nd loan for up-gradation.

## Marketing Support Scheme:

### Public Procurement Policy for MSEs Order, 2012

#### Objective

Providing Marketing support to the MSEs

#### Key Benefits

- Tender set free of cost
- Exemption from the payment of Earnest Money
- In tender, participating MSEs quoting price within price band of L1+15% shall also be allowed to supply a portion of requirement by bringing down their price to L1 price in a situation where price is from someone other than an MSE and such MSE shall be allowed to supply upto 25% of the total tendered value.
- 358 items reserved for exclusive procurement from MSEs.
- The MSEs may also be given exemption in prior experience and turnover clauses.

#### Scheme applicable for

The Public Procurement Policy mandates 25% annual procurement from MSEs by Central Ministries /Departments/Public Sector Enterprises (CPSEs).

- Public Procurement Policy is meant for procurement of only goods produced and services rendered by MSEs and works contract is not covered under the purview of Public Procurement Policy.
- MSEs registered with District Industries Centre (DIC) or Khadi & Village Industries Commission (KVIC) or Khadi & Industries Board (KVIB) or Coir Board or national Small Industries Commission (NSIC) or Directorate of Handicrafts and Handlooms or any other body specified by Ministry of MSME or having Udyog Aadhaar Memorandum (UAM) are eligible to avail the benefits of the policy.

#### Detailed Information

- Ministry of MSME has notified the Public Procurement Policy for MSEs Order, 2012 under Section 11 of MSMED- Act 2006 to provide marketing support to the MSEs which is effective from April 2012 and has become mandatory w.e.f 1st April 2015.
- It was again reviewed in 2018 and amended vide SO 5670 (E) dated 9 November 2018. The amended policy mandates 25% of annual procurement from MSEs by the Central Ministries/ Departments and CPSEs including 4% from MSEs owned by SC/ST and 3% from MSEs owned by Women

- Any registered MSE can register themselves at GeM Portal and avail the benefits of the Public Procurement Policy.

## Marketing Support Scheme: National SC-ST Hub

### Objective

Marketing Support

### Key Benefits

To achieve 4% Public Procurement target from SC-ST entrepreneurs

- Facilitating SC/ST Entrepreneurs to be part of vendor development programs and mentoring support
- Collection, collation and dissemination of information regarding SC/ST enterprises and entrepreneurs
- Distribution of trade specific tool kits to trained candidates

**Scheme applicable for** : Existing and Aspiring SC/ST Entrepreneurs

### Detailed Information

The National SC-ST Hub (NSSH) has been set up to provide professional support to Scheduled Caste and Scheduled Tribe Entrepreneurs to fulfil the obligations under the Central Government Public Procurement Policy for Micro and Small Enterprises Order 2012, adopt applicable business practices and leverage the Stand-Up India initiative. The key action areas of NSSH include vendor development, participation in public procurement, building reliable database, mentoring and handholding support, policy advocacy with states, credit facilitation, capacity building, private affirmative action, technology upgradation, marketing support, and special subsidies under various schemes. The NSSH works on the mentioned priority areas through various sub-schemes which are as follows:

- Special Credit Linked Capital Subsidy Scheme
- Special Marketing Assistance Scheme
- Single Point Registration Scheme
- Bank Loan Processing Reimbursement Scheme
- Bank Guarantee Charges Reimbursement Scheme
- Testing Fee Reimbursement Scheme
- Export Promotion Council Membership Reimbursement Scheme
- Top 50 NIRF Rated Management Institution's Short-Term Training Program Fee Reimbursement Scheme

## Marketing Support Scheme: Export Market Promotion

### **Objective**

Export Marketing support.

### **Key Benefits**

Participation in international exhibitions & Buyer Seller Meets.

External Market Development Assistance.

**Scheme applicable for:** Existing and Aspiring entrepreneurs.

### **Detailed Information**

Individual entrepreneurs can avail of EMDA scheme for participating in International exhibitions as per approved calendar ( please visit site of [dcmsme.gov.in](http://dcmsme.gov.in)).

## Quality Improvement Scheme: ZED Certification Scheme

### Objective

Technology support

### Key Benefits

- Promote adaptation of Quality tools/systems and Energy Efficient manufacturing.
- Financial assistance will be provided to the MSMEs in obtaining a ZED certification.
- Reimbursement of Certification fees/Consultancy charges on successful certification, subject to an upper ceiling as per the scheme guideline. This can be claimed only once each for National and International Standards.
- For MSMEs supplying for Defence, reimbursement shall be admissible additionally on Defence related certificates/Standards only once.

**Scheme applicable for :** Existing Entrepreneurs

### Detailed Information

- The scheme envisages promotion of Zero Defect and Zero Effect (ZED) manufacturing amongst MSMEs and ZED Assessment for their certification so as to:
  - a. Encourage and Enable MSMEs for manufacturing of quality products using latest technology tools & to constantly upgrade their processes for achievement of high productivity and high quality with the least effect on the environment.
  - b. Develop an Ecosystem for Zero Defect Zero Effect Manufacturing in MSMEs, for enhancing competitiveness and enabling exports.
  - c. Promote adoption of Quality and recognizing the efforts of successful MSMEs.
  - d. Increase public awareness on demanding Zero Defect and Zero Effect Products through the ZED Rating and Grievance Redressal Portal.

## Quality Improvement Scheme: Lean Manufacturing Competitiveness for MSMEs

### **Objective**

Technology support

### **Key Benefits**

Financial assistance is provided for implementation of lean manufacturing techniques, primarily the cost of lean manufacturing consultant (80% by GoI and 20% by beneficiaries).

**Scheme applicable for:** Existing Entrepreneurs

### **Detailed Information**

The objectives of the Scheme are to enhance the manufacturing competitiveness of MSMEs through the application of various Lean Manufacturing (LM) techniques by;

- a. Reducing waste;
- b. Increasing productivity;
- c. Introducing innovative practices for improving overall competitiveness;
- d. Inculcating good management systems; and
- e. Imbibing a culture of continuous improvement.

## Quality Improvement Scheme : Awareness on Intellectual Property Rights (IPR)

### Objective

Technology support

### Key Benefits

Reimbursement of Patent/Trademark/GI:

- Patent:
  - A. Indian Patent upto Rs.1.00 Lakh
  - B. Foreign Patent upto Rs. 5.00 Lakh
- Trademark upto Rs. 0.10 Lakh
- GI Registration Rs. 2.00 Lakh
- Assistance for setting up IP Facilitation Centre upto Rs. 1.00 cr. for period of 5 years

**Scheme applicable for :** Existing Entrepreneurs

### Detailed Information

To enhance the awareness of Intellectual Property Rights (IPRs) amongst the MSMEs to encourage creative intellectual endeavor in Indian economy;

- To take suitable measures for the protection of ideas, technological innovation and knowledge-driven business strategies developed by the MSMEs for;
- To provide appropriate facilities and support for protection and commercialization of Intellectual Property (IP) for the benefit of MSME sector;
- To assist SMEs in effective Utilization of IPR Tools for technology up-gradation, market and business promotion and competitiveness. enhancement.

## Credit Linked Capital Subsidy Component (CLCS & TU Scheme)

### Key Benefits

- Applicable for New & Existing Units for Induction of established and improved technologies.
- 15% Subsidy on institutional credit upto Rs 1.00 crore with a subsidy cap of Rs.15.00 lakh.

**Scheme applicable for :** Existing Entrepreneurs & New Aspiring Entrepreneurs

### Detailed Information

- Upfront subsidy of 15% on institutional credit up to Rs. 1.0 crore (i.e. a subsidy cap of Rs. 15.00 lakh) for identified sectors/subsectors/ technologies.
- Presently scheme is being implemented through 11 nodal banks/agencies, however, almost all Commercial Banks, Pvt. Banks & RRBs are acting as PLI through these 11 nodal banks/agencies {SIDBI, NABARD, SBI, Andhra Bank, PNB, BoB, Canara Bank, Corporation Bank, Indian Bank, Bank of India, & TIICL}.

### Proposed schemes:

There is no scheme for financial support to Unit having project cost more than 25 Lakh. This scheme may be extend financial support to Unit having project cost more than 25 Lakh up to 1 cr on Term Loan for plant & Machinery and MSME-DIs may be implementing agency jointly with SIDBI / lending Bank.

## Quality Improvement Scheme: ZED Certification Scheme

### Objective

Technology support

### Key Benefits

- Promote adaptation of Quality tools/systems and Energy Efficient manufacturing.
- Financial assistance will be provided to the MSMEs in obtaining a ZED certification.
- Reimbursement of Certification fees/Consultancy charges on successful certification, subject to an upper ceiling as per the scheme guideline. This can be claimed only once each for National and International Standards.
- For MSMEs supplying for Defence, reimbursement shall be admissible additionally on Defence related certificates/Standards only once.

**Scheme applicable for :** Existing Entrepreneurs

### **Detailed Information**

- The scheme envisages promotion of Zero Defect and Zero Effect (ZED) manufacturing amongst MSMEs and ZED Assessment for their certification so as to:
  - a. Encourage and Enable MSMEs for manufacturing of quality products using latest technology tools & to constantly upgrade their processes for achievement of high productivity and high quality with the least effect on the environment.
  - b. Develop an Ecosystem for Zero Defect Zero Effect Manufacturing in MSMEs, for enhancing competitiveness and enabling exports.
  - c. Promote adoption of Quality and recognizing the efforts of successful MSMEs.
  - d. Increase public awareness on demanding Zero Defect and Zero Effect Products through the ZED Rating and Grievance Redressal Portal.

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## **7. Institute for Guidance /agencies for guidance**

1. MSME Development Institute( in every state)
2. NIMSME, Hyderabad
3. MSME-TC /Tool Rooms/PPDC/ Technology Centre Khadi Village Industry Commission (KVIC),National Small Industries Corporation(NSIC) under M/o MSME
4. Central Institute of Plastics Engineering and Technology(CIPET)
5. Indian Institute of Plastic Mumbai
6. Indian Institute of Technology(IIT), Roorki (U.K)
7. Indian Oil Corporation Ltd.(IOCL)
8. District Industry Centre(DIC)
9. Small Industry Development Bank(SIDBI)
10. Indian Institute of Chemical Technology (IICT), Hyderabad, Telangana ,
11. Laboratory of Advanced Research in Polymeric Materials, Bhubaneswar, Orissa
12. National Physical Laboratory, New Delhi
13. Indian Institute of Toxicological Research (IITR), Lucknow, Uttar Pradesh
14. National Chemical Laboratory (NCL), Pune, Maharashtra

## **8. List of Association**

All India Plastic Industry Forum comprising of more than 25 Plastics Associations of India, most of them affiliated to All India Plastic Manufacturers Association(AIPMA).

1. Indian Plastics Institute, Mumbai
2. Bombay Small Scale Industries Association, Mumbai
3. Federation of Industries of India, Mumbai
4. Indian Plastics Federation, Kolkata
5. Organisation of Plastics Processors of India, Mumbai
6. Kerala Plastics Manufacturers Association, Cochin
7. Gujarat State Plastics Mfrs. Association, Ahmedabad
8. Andhra Pradesh Plastics Mfrs. Association, Hyderabad
9. Daman Industries Association, Daman
10. Maharashtra Plastics Mfrs. Association
11. Plastics Mfrs. Association of Rajasthan, Jaipur
12. Association for the Promotion of Plastics, Pune
13. The Small-Scale Acrylic Plastics Products Manufacturers Association
14. Saurashtra Plastic Mfrs. Association
15. All India Flat Tape Mfrs. Association, Ahmedabad & Delhi
16. Kerala PVC Pipe Manufacturers Association
17. All India Industries Association, Delhi
18. Tamil Nadu Plastics Manufacturers Association (TAPMA), Chennai
19. Bhavnagar Plastic Manufacturers Association, Bhavnagar
20. Indian Plastpack Forum, Indore
21. Plastics Exports Promotion Council, Mumbai
22. Surat Plastics Mfgs Association, Surat
23. Karnataka Plastics Mfgs Association, Bangalore
24. Federation of Panchmahal Industries.
25. Ludhiana Plastics Mfgs Association

## **9. Additional Information on Biodegradable plastic**

The corn starch bags look and feel just like the ones made of plastic. A factor behind the huge demand for the corn starch bags is inadequate raw material. Bags made out of corn starch are bio-based and renewable. Agricultural Crops like Corn can be harvested every year in the fields and are annually renewable. Through photosynthesis, they convert the energy from the sun into carbon chains, which can be processed into plastics and paper.

They:

- have a high barrier to air, grease and bacteria: ideal for food packaging
- are watertight
- have a hard and crinkly texture
- can be heat sealed
- are made from natural renewable resources
- are biodegradable
- are compostable in a compost facility
- Use these bags to package dry goods, nuts, fruit, beans peas etc.

These biodegradable bags are being liked over traditional plastic products, especially for the fast-moving consumer goods and food packaging.

### **MARKET OUTLOOK**

plastic bags and sacks market are trying to provide improved and versatile products. The players are focusing to offer high quality and biodegradable additives so as The biodegradable plastic bags and sacks market have consolidated landscape owing to increasing strategic business activities. The key players operating in the biodegradable to gain more shares than other rivals. In addition, several players are indulging in strategic business activities such as mergers and acquisitions to improve their global presence.



### **Global Biodegradable Plastic Bags Market**

The increasing dependence of the medical and food industry on environmental-friendly plastic packaging is a notable factor catalyzing the market demand for biodegradable plastics bags and sacks.

### **BIODEGRADABLE PLASTICS MARKET**

Biodegradable plastics are plastics which decompose in the environment within a reasonable period of time. Biodegradable plastics are made up of renewable raw materials. Many of these plastics require biodegradable additives to enhance biodegradation process and some may require a specific environment to disintegrate. Time taken by plastics to decompose depends upon various factors such as raw material used and environmental conditions such as moisture and temperature.

The global biodegradable plastics market size is projected to reach USD 6.73 billion by 2025. The starch based segment lead the global biodegradable market. Starch based plastics are used in various applications such as packaging, consumer electronics, agriculture, automotive and textiles.

The Global Biodegradable Plastic market is primarily driven by a positive attitude of government towards green procurement policies and superior characteristics of biodegradable plastics. The government of different countries are initiating stringent actions for reducing the use of conventional plastics by implementing taxes on oil-based plastics and disallowing the use of conventional plastics.

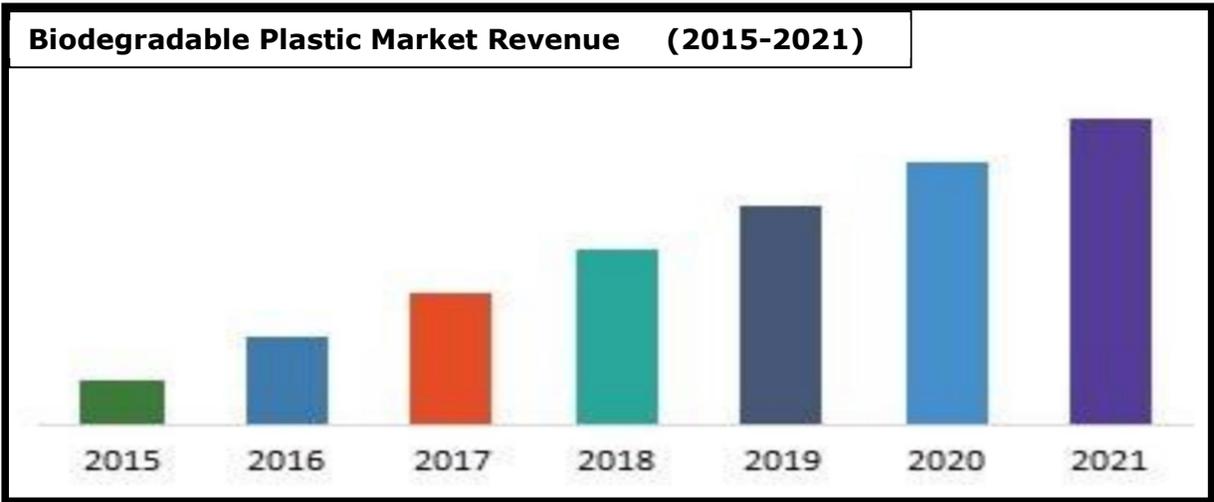
Rising consumer awareness about global warming and government legislation such as banned on plastic bags will increase the demand for biodegradable plastics across the

globe. Plastics that decompose to carbon dioxide and water under the actions of microorganisms is known as biodegradable plastics.

Packaging industry is leading segment in application of biodegradable plastics. Increasing demand of biodegradable plastics as major packaging applications in food & beverage, textiles, pharmaceuticals and consumer goods is augmented to market growth over the forecasted period. Changing lifestyle of consumer along with increase in packaged food products demand in developed regions are boosting the demand for biodegradable plastics in packaging industries. Rising awareness among farmers to build green houses for production of fruits and vegetables has boosted the biodegradable plastics in agriculture application. Growing electronic, medical and automobile industry has also boosted the demand of biodegradable plastics market.

Biodegradable plastics are a billion dollar growing industry that is pushed by the increased regulations and bans against plastic bags and other single-use plastic items. The demand for biodegradable plastics worldwide is growing as more people become concerned about plastic waste.

Consumer awareness of sustainable plastic solutions, government interest in the reduction of greenhouse gas emissions, and a pervasive, general desire to eliminate fossil fuel independence are the reasons for the market growth. Western Europe combines all of these factors and implements biodegradable plastics even in household and business products, such as foam packaging, mulch films, textiles, implants and sutures, down hole tools for oil and gas field operations, 3-D printing filament, etc.



## BIODEGRADABLE PLASTIC BAGS MAKING MACHINE

Biodegradable plastics is widely used in the packaging & bags industry. It is expected to be the fastest-growing end-use industry segment of the biodegradable plastics market between 2018 and 2023.



Model	F1520UV
Machine Name	Bio Compostable bag Making Machine
Bag Material	Corn starch based bio compostable
Usage / Application	Bio compostable bag can be used for Carry bags, Grocery bags, Shopping bags, Garbage bags etc.
Power	30 HP
Production Capacity	35 Kgs/Hr
Country Of origin	Made In India
Cost	Rs.6.90 Lakhs (approx.)
Supplier Name & Address	Vikrant Industries Faridabad, Haryana.