



A PROJECT PROFILE ON

LATEX SINGLE USE GLOVES

<i>Name of the product</i>	<i>: Latex disposable gloves(non-sterile)</i>
<i>Product code</i>	<i>: 40151900</i>
<i>Quality standard</i>	<i>: ISI Specification for Latex single use gloves is IS15354(Part 1):2018 / ISO11193-1:2008. For International marketability ASTM D3578 & EN 374 are mandatory.</i>
<i>Production capacity/ Am</i>	<i>: Latex disposable gloves – 6,00,000 numbers/ Annum</i>
<i>Year of preparation</i>	<i>: June 2020</i>
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(I) INTRODUCTION

Disposable gloves are widely used in the healthcare and food industries for protection from infections. It acts as a barrier between users and contaminations as well as infectious diseases. The disposable gloves are used in various sectors such as medical, dental, food, chemical, oil & gas, and other industries for preventing cross-contamination. These gloves exhibit outstanding strength, dexterity, and comfort. In addition, these gloves provide chemical resistance and good grip to the users.

Rubber gloves are basically divided into 4 categories which are medical gloves, household gloves, Industrial gloves, Speciality gloves. This project profile envisages manufacturing of disposable rubber gloves.

(II) MARKET:

Disposable gloves India market was valued at \$303 million in 2017, and is expected to reach \$760 million by 2025, growing at a CAGR of 12.4% during the forecast period. In terms of volume, the natural rubber gloves segment accounted for more than two-fifth of the total market share in 2017.

India disposable gloves market is expected to exhibit significant growth during the forecast period due to rise in awareness & concern of safety & hygiene among the population as well as growth in the number of end users. In addition, development of novel approaches and technological advancements further supplement the growth of the India disposable gloves market.

Based on form, the non-powdered disposable gloves segment is expected to experience rapid growth in the market, and is projected to grow at a CAGR of 15.6% from 2018 to 2025. By distribution channel, the online store segment is estimated to grow at a highest CAGR during the forecast period. In terms of volume, wholesale & direct selling segment holds the highest share in 2017, and is anticipated to continue this trend during the forecast period.

(III) BASIS & PRESUMPTIONS:

1. This project is based on single shift basis and 300 working days in a year.
2. The cost of machinery & equipment/materials indicated refer to a particular make and the prices are approximate to these prevailing in the market at the time of preparation of this profile.
3. Depreciation has been taken as an –
 - a) On Machinery & Equipment @ 10%

- b) On Office Furniture & Fixture @ 20%
- 4. Interest on Total Capital Investment has been taken @ 13% per annum.
- 5. Minimum 40% of the total investment is required as margin money.
- 6. Payback period of the project will be 5 years.
- 7. Break Even Point has been calculated at the full capacity utilization.
- 8. For smooth functioning of unit it is suggested that unit should have a good stock of quality raw materials.

(IV) IMPLEMENTATION SCHEDULE:

The following steps involves in the implementation of the project.

- a) Selection of site.
 - b) Form ownership.
 - c) Feasibility report.
 - d) Registration with DIC, PFA etc.
 - e) Arrangement of finance.
 - f) Construction of Factory Shed & Building.
 - g) Plant Erection & Electrification.
 - h) Recruitment of manpower.
 - i) Arrangement of raw materials including packaging materials.
 - j) Selection of marketing channel
 - k) Miscellaneous work i.e. Power and Water connection, Pollution control board clearance etc.
- Normally 6 months is required to implement the project.

(V) TECHNICAL ASPECTS:

a) Types of Gloves:

Based on product, the market is classified into natural rubber gloves, nitrile gloves, vinyl gloves, neoprene, polyethylene, and others. The neoprene segment would exhibit the highest CAGR as these gloves have wide usages in medical and non-medical industries. Neoprene gloves are ideally used in the field of agriculture, chemical, cleaning, oil & petrol refining, and cleaning & maintenance. These gloves are resistant to chemicals and more durable than the natural rubber gloves.

Based on the form of disposable gloves, the market is bifurcated into powdered disposable gloves and non-powdered disposable gloves. The powdered

disposable gloves segment holds the highest revenue in 2017 and is anticipated to continue its dominance during the forecast period as these gloves contain powder as a lubricant that makes them non-sticky and they are easily available at an affordable cost in the Indian market.

b) Raw Material for Disposable gloves Production:

The principal raw materials required for the production of latex gloves are natural rubber latex, Titanium Oxide, Zinc Oxide, Potassium Hydroxide, Calcium nitrate, Calcium Carbonate, Sulphur, Terric and packaging materials. All the enlisted raw materials can be procured locally.

c) Latex disposable gloves Production Unit Setup & Machinery:

Selecting a right location for factory operation is an important aspect. Major required utilities are water and electricity. Easy availability of transport facility and labour is important. Create a floor plan indicating specific space for raw material storage, finished products storage, production unit area, administrative work space, store room and space for miscellaneous usage. Generally, you will need to have 5000 sq.ft of nonagricultural land for establishing an improved disposable latex gloves manufacturing unit. Here, you can erect a plant (2000 sq.ft) with a processing capacity of 6,00,000numbers /annum. Additionally, the land must come with proper elevation.

In manufacturing of disposable latex gloves, the ammonia content of the latex is first reduced to about 0.1% by blowing air and by treating with formaldehyde. Then dispersion of various additives is made and added in the latex compound. Later, a coagulant solution is prepared with the mould of aluminum, wood, glass or porcelain, dipped in the coagulant solution and then into the latex compound. After withdrawal, the mould is rotated to assure even distribution of latex film deposits. The next operations are leaching, drying and preliminary finishing operations such as beading. Finally, the gloves are cured in hot air or steam and packed.

Latex disposable gloves manufacturing plant machinery / equipments consist of the following:

1. Pot mills with jars
2. Paddle mixer
3. Dipping vats
4. Coagulating tanks
5. Hot air oven
6. Micrometer, hardness tester, weighing balance and moulds.
7. Hot water bath
8. Bleach bath
9. Revolving brushes
10. De-ammoniating tank

d) Latex disposable gloves Production Process & Technology

The first step in preparing latex disposable gloves is to fix the batch size. It is assumed with the machinery listed in this project profile, 2,000 number of gloves can be made per day.

Latex will be collected from the rubber tree. Growing mostly in southeastern Asian countries, farmers will extract the latex sap from trees into a collection bucket. Next, the sap is sent to a production facility for preparation. Once delivered to a production facility, various compounds are added to the sap that add to the latex's ability to stretch, and to stabilize the material. It is at this time that liquid pigment dispersions can be added to color the latex to any color or shade.

After the latex has been colored and prepared, the hand shaped molds must be cleaned and prepped for use. Latex disposable gloves production uses ceramic or aluminum hand-shaped molds, or formers, that are first extensively washed in hot water and chlorine to ensure there is no residue from previous batches. Next the formers, suspended on a continuous moving chain, are dipped into a mixture of calcium nitrate solution and calcium carbonate—the nitrate is a coagulant, while the carbonate helps the gloves release from the formers.

After drying, the molds are dipped into the latex compound, with the duration of the dip determining the mil thickness of the gloves. The freshly molded gloves are next leached in a mixture of hot water and chlorine, which removes residual latex proteins and chemicals to help reduce the severity of any allergic reactions to latex.

The gloves are then dried and cured. Vulcanization converts the gloves to an elastic state by causing a reaction between rubber molecules in the latex and chemicals that have been added, and gives gloves their elasticity so they are less likely to tear.

After drying, the gloves are rinsed again to leach out more latex proteins, then the cuffs are beaded, or rolled, to make them easier to don and doff. After a dip into cornstarch and a final drying, pneumatic air jets strip the finished gloves from the formers. The gloves are hot-air tumbled to remove any remaining powder. The molds are given another thorough chemical wash and rinse, and the process begins anew.

e) Quality & specification requirements

In general, latex disposable gloves have a shelf life of 3 years, if stored under proper storage conditions. For latex disposable gloves production, mentioning the shelf life on packets or labels is mandatory.

The rubber product manufacture must obtain license from rubber board. The Latex should be concentrated to about 60 %. The ISI specification of latex disposable

gloves is No. IS-15354 (part 1):2018. The entrepreneur may approach the rubber board or ISI specification for better marketing of the product.

f) Latex disposable gloves Production License & Registration

In establishing a latex disposable gloves production unit, you will need to obtain several different license and registration from different Government authority.

1. UAM Registration (udyogaadhaar.gov.in)
2. Company Registration with ROC
3. Trade License
4. Factory License
5. Rubber board License
6. BIS Certification
7. Fire License (easybusiness.tn.gov.in)

g) Production Capacity (per annum)

The estimated production capacity per annum is as follows:

Item	Quantity / annum	Value (Rs. Lakhs)
Latex disposable gloves	6,00,000 No's	42 lakhs

h) Power requirement

15 HP motor

i) Pollution Control:

Entrepreneur is advised to contact State Pollution Control Board for detailed guidance directly.

(VI) FINANCIAL ASPECTS

I. Fixed Capital	
A. Land & Building	
Build up Area (Processing Hall, Store, etc)	2000 Sq.Mtrs Rented @ Rs. 15000 P.M

B. Machinery & Equipment				
Sl.No	Description	Qty	Rate (Rs)	Amount (Rs in lakhs)
1	Pot mill with 1.5 HP motor	1 No	1,50,000/-	1.50
2	Mixer with 0.5 HP motor	1 No	50,000/-	0.50
3	De-ammoniating vessels 0.5 HP motor	1 Nos	1,00,000/-	1.00
4	Electrical air oven	1 No	2,00,000/-	2.00
5	Moulds		50,000/-	0.50
6	Dipping vats	2 Nos	1,50,000/-	3.00
7	Coagulation tanks	1 Nos	1,70,000/-	1.70
8	Testing equipments		1,50,000/-	1.50
9	Misc. equipment & Tools such as can sealing machine, box stamping machine	NA	LS	0.50
10	Electrical Accessories: Electric Meter, Starter, Switch, etc	NA	LS	0.50
Total (lakhs)				Rs.12.7
C.	Electrification, Installation, Packaging, Taxes in Lakhs Forwarding charges etc @20 %			Rs.2.54
D.	Office furniture & fixtures in lakhs @10 %			Rs.1.27
E.	Preliminary & pre-operative expenses @ 10 %			Rs.1.27
Total Fixed Investment (lakhs)				Rs.17.78

II. Working Capital			
A. Personnel			
Designation	No	Salary (Rs)	Total (Rs)
Manager	1	20,000	20,000
Accountant/ Store-keeper	1	18,000	18,000
Skilled worker/ QC Chemist	2	15,000	30,000
Unskilled worker	2	10,000	20,000
Total			88,000
Prequisites @10%			8800
Total			Rs. 0.97 lakhs

B. Raw material including packaging materials (per month)			
Items	Qty	Rate	Amount in lakhs
Latex 60 % DRC	250 kg	90 / kg	0.22
Vulca stabilizer-20 %	5 kg	300 / kg	0.015
Zinc oxide	35 kg	220 /kg	0.077
Sulphur	33 kg	20 / kg	0.0066
Accelerator	15 kg	210 / kg	0.0315
Antioxidant	10 kg	600 / kg	0.06
Casein	2 kg	540 /kg	0.011
Dispersal	2 kg	120 /kg	0.0024

Calcium nitrate	70 kg	25 / kg	0.0175
Calcium carbonate	60 kg	15 / kg	0.009
Other additives	5 kg	70 / kg	0.0035
Glove packaging box	333	5 / box	0.017
Total			Rs.0.47 lakhs
C. Utilities (per month)			
Power, Electricity & water charges			0.15 lakhs
Total			Rs.0.15 lakhs

D. Other contingent expenses (per month)		
Sl No	Description	Amount in Rs
1	Rent	15,000/-
2	Consumable Store, Repair & maintenance, postage, stationery, Insurance, Telephone bill, advertisement, Transport etc	10,000/-
Total		Rs.0.25 lakhs

II. Recurring Expenses (per month)		
A	Personnel	Rs.0.97 lakhs
B	Raw material	Rs.0.47 lakhs
C	Utilities	Rs.0.15 lakhs
D	Other Expenses	Rs.0.25 lakhs
Total		Rs.1.84lakhs
Working capital for 3 months		Rs.5.52 lakhs

III. Total Cost of the Project		
A	Fixed Investment	Rs.17.78 lakhs
B	Working Capital for 3 months	Rs.5.52 lakhs
Total		Rs.23.30lakhs

IV. Financial Analysis		
A	Cost of production (per annum)	
S.No	Particulars	Amount (Rs in lakhs)
1	Total recurring expenditure	22.08
2	Depreciation on machinery & equipment @10 % p.a	1.78
3	Depreciation on Office Furniture & Fixtures @ 20%	0.25
4	Interest on total capital investment @ 13% p.a.	2.31
Total		Rs.26.42lakhs

V. Turnover (per annum)			
Item	Qty per annum	Rate (Rs/ number)	Amount (Rs in lakhs)
Latex disposable gloves	6,00,000	Rs 7/ piece	42 lakhs/-
LS Marketing Expenses (-)			Rs.2.00 lakhs
Net Sales:			Rs.40 lakhs

C. Net Profit Per Annum (Before Taxes)	Rs. 13.58 Lakhs
D. Net Profit ratio on Sales (Per Annum): Profit/ annum X100 (13.58X100/40=33.95%) Sale per annum	33.95 %
E. Rate of return: Profit/ annum X100(13.58X100/17.78=76.38%) Total Capital investment	76.38 %
F. Fixed Cost / Annum: (Rent) + (Depreciations & Amortization) + (40 % of salaries & wedges)+ (40 % of utilities & other expenses excluding rent) + Interest on capital investment (1.8 +0.81 +4.656+1.2+2.31=10.78 lakhs)	10.78 lakhs
G. Breakeven point: Fixed cost per annum X100(10.78X100/(10.78+13.58)=44.25%) (Fixed cost per annum + Net Profit per annum)	44.25 %

(VII) ADDRESSES OF MACHINERY & EQUIPMENTS SUPPLIERS:

S.No	Name & Address of the Supplier
1	S D Machineri 7, Rajeshwari Estate, Nexa Showroom CTM Ahmedabad - 380026, Gujarat, India, Ph: 07971375706
2	EIE Instruments Private Limited A-1301, BVR Ek Ellis Bridge Ahmedabad - 380006, Gujarat, India, Ph: 08048762555
3	Gemini Motor And Machinery Sf No 220/1, Behind Annamalai Industrial Park, Kalapatti Kalapatti, Coimbatore - 641048, Tamil Nadu, India, Ph: 07971370220
4	Akassh Industry, Ondipudur, Coimbatore, Tamil Nadu, Ph: 08045318342
5	Asian Test Equipments F-23, U. P. S. I. D. C. Industrial Area MussoorieGulawathi Road

	Ghaziabad - 201015, Uttar Pradesh, India, Ph: 08046035947
6	Industrial Fabricators GIDC, Vapi, Valsad, Gujarat, Ph: 08045337972
7	Om Metals And Engineers , Akurdi, Pune, Maharashtra, Ph:08048423322

(VIII) ADDRESSES OF RAW MATERIAL SUPPLIERS:

S.No	Name & Address of the Supplier
1	Japan Rubber Industries Kurla East, Mumbai, Maharashtra, Ph: 08045138448
2	Vulcan Industrial Engineering Company Limited A-2/440, G.I.D.C. VithalUdyognagar Anand - 388121, Gujarat, India, Ph: 09998332437
3	SBF Pharma Private Limited Thaltej, Ahmedabad, Ph: 08042537967
4	PR Corporation Private Limited Alkapuri, Vadodara, Ph: 08037824651
5	Arihant Reclamation Private Limited 40.3 KM Mile Stone, G. T. Road, Bahalgarh, Sonipat - 131021, Dist. Sonipat, Haryana, Ph: 08048749456
6	KIP Chemicals Ghatkopar West, Mumbai, Ph: 08048414123