

Air Pollution Mask

1. INTRODUCTION

The "Air Pollution Mask" project in Uttarakhand, India, represents a micro and small-scale investment endeavor aimed at addressing a pressing concern – air pollution. This project envisions the manufacturing of high-quality air pollution masks to safeguard the health and well-being of individuals in the region. With a commitment to environmental protection and public health, this initiative seeks to offer affordable and effective solutions to combat air pollution in Uttarakhand.

1. PRODUCT & ITS APPLICATION

The core product of this project, the air pollution mask, is designed to offer respiratory protection by effectively filtering out harmful airborne particles, allergens, and pollutants, catering to a wide range of applications. For individuals commuting daily to work or school in polluted urban environments, these masks provide essential protection, ensuring a safer journey. Similarly, enthusiasts of outdoor activities such as jogging, cycling, or hiking can significantly benefit from wearing air pollution masks, safeguarding their health against the inhalation of pollutants and allergens. In industrial settings where workers are exposed to dust, chemicals, or pollutants, these masks serve as a critical tool for maintaining a safe and healthy work environment. Furthermore, in the healthcare sector, both medical professionals and patients can rely on air pollution masks for added protection against infectious diseases and airborne pathogens. Individuals suffering from respiratory conditions like asthma or allergies also find these masks invaluable in reducing exposure to environmental triggers. Beyond individual health benefits, this project underscores a commitment to environmental conservation by promoting the use of reusable and eco-friendly materials in the manufacturing of air pollution masks, aligning personal health and safety with sustainable practices.

2. DESIRED QUALIFICATION FOR PROMOTER

Embarking on the journey of establishing and managing an air pollution mask manufacturing unit in Uttarakhand requires a promoter to possess or seek to develop a multifaceted set of qualifications. Firstly, technical expertise is crucial, encompassing a basic understanding of the manufacturing processes, materials used, and adherence to quality standards specific to air pollution masks. An entrepreneurial spirit is equally important. Additionally, in-depth product knowledge about the various types of air pollution masks, their filtration capabilities, and usage scenarios is vital to address the diverse needs of potential users effectively. Lastly, a thorough understanding of regulatory and compliance requirements is essential to ensure that manufacturing processes, product safety, and quality standards meet or exceed industry norms, safeguarding both the business and its customers.

3. INDUSTRY OUTLOOK AND TRENDS

The air pollution mask industry is experiencing a significant surge in growth globally, with its impact being notably profound in regions such as Uttarakhand. This growth is largely fueled by an increasing awareness among the general population about the detrimental health effects associated with air pollution, leading to a rising demand for air pollution masks. Additionally, health concerns are amplified during seasons of high pollution, further driving the adoption of masks. The industry is also witnessing a wave of technological advancements, with innovations in mask design, filtration technologies, and the integration of wearable tech, all contributing to the evolution of the market. Consumers are now seeking masks that cater to their specific needs, showing a preference for features such as adjustable straps, stylish designs, and enhanced comfort. Furthermore, there is a growing trend towards environmental sustainability, with a preference for eco-friendly and reusable mask materials becoming more prevalent. Government initiatives aimed at combating air pollution and promoting mask usage

are opening new opportunities for market expansion. Moreover, the COVID-19 pandemic has highlighted the critical role of masks in personal protection against airborne pathogens, thereby boosting demand. This convergence of factors is shaping the industry outlook, indicating a future marked by innovation, customization, and heightened importance of air pollution masks in public health strategies.

4. MARKET POTENTIAL AND MARKETING ISSUES; IF ANY

The air pollution mask market in India is experiencing significant growth amid rising concerns over air quality, particularly in urban areas. As per a Grand View Research report, the global market was valued at USD 2.7 billion in 2019, with a projected CAGR of 8.7% from 2020 to 2027. In India, demand spikes in cities like Delhi and Mumbai, especially during winter when pollution levels escalate. Major players like 3M, Honeywell, and Vogmask dominate the market, offering advanced filtration technologies and catering to a health-conscious consumer base. The trend towards fashionable and reusable masks is also notable, reflecting a shift towards sustainability and style in consumer preferences.

However, the industry faces challenges, including the presence of counterfeit products and varying levels of consumer awareness across different regions. The market's integrity is threatened by low-quality imitations, underscoring the need for strict quality control. While urban areas show higher adoption rates, rural and semi-urban regions lag behind, indicating a gap in market penetration. Additionally, the rise in alternative air purification methods and public initiatives to combat air pollution may impact long-term demand. To sustain growth, manufacturers need to focus on quality assurance, targeted marketing, and educational initiatives to expand their consumer base and maintain trust.

5. RAW MATERIAL REQUIREMENTS

The production of air pollution masks involves a diverse array of raw materials and components, each playing a crucial role in the mask's effectiveness and comfort. Key among these are high-efficiency filter materials, such as activated carbon, HEPA filters, and electrostatic filters, which are essential for capturing airborne particles and pollutants. The mask body is typically made from non-woven fabric or other breathable materials to ensure user comfort while maintaining breathability. To keep the mask securely in place, elastic straps or fasteners are utilized, alongside adjustable nose clips that provide a snug fit and minimize air leakage. Additionally, exhalation valves are incorporated to facilitate easier breathing and reduce the buildup of moisture within the mask. The packaging process also requires specific materials to ensure that each mask is individually packaged, maintaining hygiene and simplifying distribution. Elastic ear loops are another critical component, offering a comfortable means to secure the mask over the user's ears. Lastly, the process includes materials for printing logos, branding, and product information on the masks, which is vital for marketing and user instruction. The sourcing, availability, and quality of these materials are fundamental to the production of high-quality air pollution masks, impacting their effectiveness, durability, and user satisfaction.

Here is the list of suppliers:

- **Atat India:** 2nd, D 14, Sector 80, D 14, Noida - 201301, Gautam Buddha Nagar, Uttar Pradesh, India.
- **Alka Industries:** Parasnath Complex Building E6, Gala No 6, First Floor, Dapoda Road, Bhiwandi, Thane-421302, Maharashtra, India.
- **Balaji Trading Co.:** Ground floor, 1045 - B, gali no - 9, govindpuri, kalkaji, Dominos Pizza, New Delhi-110019, Delhi, India.
- **Shree Anand & Balaji Co. :** P-61,sector-1, Bawana New Delhi - 110086, India

- H N Medipack Products Pvt Ltd (A unit of H N Enterprise): A 22, Adhya Shakti Vishnu Estate, Bapunagar, Opposite Raghunath School, D Colony, Ahmedabad-382350, Gujarat, India

6. MANUFACTURING PROCESS

The manufacturing process of air pollution masks is a meticulous sequence that begins with the thorough inspection of incoming raw materials, such as filter materials, mask body materials, and other components, to ensure they meet quality standards and comply with regulatory requirements. Following inspection, these materials are cut and shaped into the desired sizes and forms using specialized cutting machines. The assembly stage involves attaching the filter materials to the mask body and incorporating features like adjustable nose clips and exhalation valves to enhance functionality and user comfort. Throughout this process, quality control checks are rigorously conducted at various stages to ensure the masks are assembled correctly, offer a proper fit, and achieve the necessary filtration efficiency. Additionally, the masks undergo specific testing, including filtration efficiency and fit tests, to verify that they meet or exceed industry standards. Once the masks pass these tests, they are individually packaged to maintain hygiene and ease distribution, with disposable medical face masks typically measured at 17.5 cm x 9.5 cm and boxed in quantities of 50. The distribution phase involves leveraging an efficient network, including wholesalers, retailers, and online channels, to ensure the masks reach consumers promptly. Alongside production and distribution, effective marketing and branding strategies are implemented to promote the masks, build brand recognition, and educate customers on the benefits of using air pollution masks. Adhering to strict quality control standards and product safety regulations throughout this process is crucial to delivering reliable and effective air pollution masks to the market.

IS 9473 and IS 16289 are BIS standards for respiratory protective devices and surgical face masks, respectively.

- IS 9473:2002 is a standard for filter half masks that protect against Class FFP2 particles.
- IS 16289:2014 is a standard for medical textiles and surgical face masks.

7. MANPOWER REQUIREMENT

Sr. No	Particulars	No. of Person	Months	Monthly Wages Amount/Person (Rs in Lakhs)	Monthly Wages - Total (Rs in Lakhs)	Annual Expenses (Rs in Lakhs)
1	Skilled	2	12	0.15	0.30	3.60
2	Semi-skilled	2	12	0.12	0.24	2.88
3	Unskilled	3	12	0.10	0.30	3.60
	Total					10.08

8. IMPLEMENTATION SCHEDULE

Sr. No.	Activity	Time Required (in months)
1	Acquisition of premises	2
2	Construction (if applicable)	2.5
3	Procurement & installation of Plant & Machinery	2.5
4	Arrangement of Finance	2

5	Recruitment of required manpower	1
Total time required (some activities shall run concurrently)		8

9. COST OF PROJECT

Sr. No.	Particulars	Amount (Rs in Lakhs)
1.	Land and Building	5.00
2.	Machinery	22.75
3.	Equipment and Furniture	0.50
4.	Misc. Fixed Asset	-
5.	Preoperative & Preliminary Exp.	3.00
6.	Working Capital	6.00
Total Project Cost		37.25

10. MEANS OF FINANCE

Bank-term loans are assumed @ 75 % of fixed assets.

Sr. No.	Particulars	Percentage Share	Amount (Rs in Lakhs)
1	Promoter's Contribution	25%	9.31
2	Bank Finance	75%	27.94
Total			37.25

11. LIST OF MACHINERY REQUIRED

A. Machinery

Sr. No.	Particulars	Unit	Unit Cost (Rs in Lakhs)	Amount (Rs in Lakhs)
1	Face Mask Making Machine	1	12.00	12.00
2	Quality Control Equipment	1 Set	2.00	2.00
3	Packaging Machine	1	1.10	1.10
4	Printing and Branding Equipment	1 Set	0.70	0.70
5	Compressor and Air Supply System	1 Set	0.50	0.50
6	Material Handling Equipment	1 Set	1.20	1.20
Total Amount				17.50
Tax, Transportation, Insurance, etc.				3.50
Electrification Expenses (Wiring)				1.75
Grand Total				22.75

B. Furniture & Equipment

Sr. No	Particulars	Unit	Unit Cost (Rs in Lakhs)	Amount (Rs in Lakhs)
1	Office Furniture	Set	0.50	0.50
Total				0.50

1. Five Fingers Exports

468/6, Near Top Spin Tennis court,
Vellalore Road, Singanallur,
Coimbatore – 641005,
Tamil Nadu, India.

2. Ocean Extrusions Private Limited

Office No. 11-15, Wing A, First Floor,
Barcelona Complex, Near Odhav Circle,
Ahmedabad - 382415, Gujarat, India

3. Axttech

1st Floor, sco-t15, Imt Manesar,
Sector 1, Imt Manesar Manesar - 122050,
Gurugram, Haryana, India.

4. Surya Laxmi Industries

Khasra No. 380/109, 381/109,
Naraingarh, Kala Amb - 173030,
Sirmaur, Himachal Pradesh, India

12. SALES REALIZATION CALCULATION

Sr. No	Product	Quantity (in Numbers)	Sales in Percentage	Total Sales (Rs in Lakhs)
1	Air Pollution Masks	62390	100%	40.55
	Total			40.55

13. PROFITABILITY CALCULATIONS

Sr. No	Particulars - Amount (Rs.)	Year-I (Rs in Lakhs)
A.	Sales Realization	
	Sales (Assuming 15% growth per year)	40.55
	Other Income (Assuming constant)	
	Total Sales Realization	40.55
B.	Cost of Production	
	i) Raw Materials	16.00
	ii) Utilities (Assuming constant)	0.40
	iii) Manpower (Salaries/wages)	10.08
	iv) Administrative Expenses (Assuming constant)	0.45
	v) Selling & Distribution Expenses (Assuming constant)	0.54
	viii) Interest (Assuming constant)	3.73
	Total Cost of Production	31.2
	Gross Profit/Loss (A - B)	8.81
	Less: Depreciation	2.98
C.	PBIT (Profit Before Interest and Tax)	5.83
D.	Income-tax (Assuming 28% tax rate)	1.64
E.	Net Profit/Loss (C - D)	4.20
F.	Repayment	3.73
	Retained Surplus (E - F)	0.47

14. BREAKEVEN ANALYSIS

Fixed cost	Year-I (Rs in Lakhs)
Depreciation	8.78
Interest	1.20
Manpower	1.40
Total Fixed cost	11.38

Variable cost	
Raw materials	29.15
Utilities	0.36
Man Power	12.24
Administrative expenses	0.38
Selling & distribution expenses	0.40
Total Variable cost	42.53
Contribution margin	23%
Break-Even Point in Value	49.31

15. STATUTORY/GOVERNMENT APPROVALS

To initiate an air cooler manufacturing business in Uttarakhand, several statutory and government approvals are essential to ensure compliance with legal requirements. These approvals encompass:

1. **Business Registration:** Register the business with the relevant authorities, including the Uttarakhand State Industrial Development Corporation (USIDC). USIDC plays a pivotal role in promoting industrialization, supporting infrastructure development, and fostering industrial growth within the state.
2. **Factory Licensing:** If the manufacturing unit falls under the definition of a factory as per the Factories Act, obtain the necessary licensing from the Directorate of Factories and Boilers. This department is responsible for regulating and overseeing industrial safety, health, and boiler-related matters in various states.
3. **Environmental Clearance:** Obtain environmental clearance from both the State Pollution Control Board (SPCB) and the Ministry of Environment, Forest and Climate Change (MoEFCC). Compliance with environmental regulations is crucial, as non-compliance may result in fines, legal actions, and even the closure of non-compliant units. Environmental clearances are essential to ensure eco-friendly and sustainable manufacturing practices.
4. **BIS Certification:** Secure certification from the Bureau of Indian Standards (BIS) for product testing and compliance. BIS certification is mandated by various government departments and ministries to ensure product safety, quality, and adherence to specified standards. It guarantees uniformity, consistency, and safety standards for the product.
5. **Tax Registration:** Register for applicable taxes, such as the Goods and Services Tax (GST), depending on the type and turnover of the business. Tax registration is mandatory to comply with tax regulations and ensure proper tax filing and payment.
6. **Customs and Duties:** If the manufacturing unit involves importing or exporting materials, adhere to customs and duties regulations related to international trade. These regulations are necessary for the regulation, control, and revenue generation associated with international trade.

16. BACKWARD AND FORWARD INTEGRATIONS

Backward Integration:

- **Filter Material Production:** Integrating backward may involve establishing or partnering with facilities for the production of specialized filter materials used in air pollution masks. This ensures control over the quality and composition of the filters.
- **Polymer and Textile Manufacturing:** Backward integration might include engaging in or securing sources for the production of polymer materials and textiles needed for the mask structure. This ensures a reliable and cost-effective supply chain.
- **Chemical Treatments and Coatings:** Integrating backward could involve in-house or partnered facilities for chemical treatments and coatings to enhance the effectiveness of the mask materials, such as anti-microbial coatings or additional filtration layers.

- **Metal Nose Strips Production:** For masks with metal nose strips for a secure fit, backward integration might involve the production or sourcing of these metal strips to ensure a consistent supply.

Forward Integration:

- **Brand-Owned Retail Stores:** Forward integration may include establishing brand-owned retail stores or partnering with existing retailers to directly sell air pollution masks to consumers.
- **E-commerce Platforms:** Developing a strong online presence through e-commerce platforms to sell masks directly to consumers globally. This expands market reach and provides a convenient purchasing channel.
- **Customized Mask Services:** Offering customized mask services, allowing customers to personalize masks based on design, color, or specific features. This adds value and caters to diverse consumer preferences.
- **Subscription Services:** Implementing subscription-based services for regular mask delivery to consumers, ensuring a continuous revenue stream and convenience for customers.
- **Collaborations with Health Institutions:** Collaborating with healthcare institutions, pharmacies, or government agencies to distribute air pollution masks for public health initiatives or in response to environmental concerns.
- **Diversification into Health and Safety Products:** Forward integration might involve diversifying into related health and safety products, such as gloves, face shields, or sanitizers, creating a comprehensive product line.

17. TRAINING CENTERS AND COURSES

The Institute for Industrial Development (IID) is an online learning platform that offers professional, technical, industrial, and entrepreneurship training programs. IID is an incubator with the Government of India, Ministry of Micro, Small and Medium Enterprises (MSME), and the Department of Start-ups.

Swayam portal (link: <https://swayam.gov.in/>) can also be accessed for enhanced learning on business commerce, accounting, production, marketing, and areas of entrepreneurship.

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