Biobutanol - Investment Opportunity


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Butanol (C4H10O) or butyl alcohol is an alcohol that can be used as a solvent or fuel. Biobutanol refers to butanol that has been produced from biomass. Biobutanol is produced by a microbial fermentation, similar to ethanol and can be made from the same range of sugar, starch or cellulosic feed stocks. Biobutanol production is currently more expensive than ethanol so it has not been commercialized on a large scale.
However, biobutanol has several advantages over ethanol and is currently the focus of substantial research and development.

Bio butanol industry offers a unique set of investment opportunities, depending on the location and proximity of available biomass as well as demand and dynamics.

Similar to synthetic butanol, bio butanol is used in paints, lacquers and other surface coatings; chemical markets including plastics and synthetic rubber; and for fuels production.
Bio Butanol Blended Fuels

Bio butanol blended fuels are especially valuable for use in marine engines, as they are highly resistant to phase separation in the presence of water and have been demonstrated to offer a high level of compatibility with the materials commonly employed in engines and fuel-handling equipment.
Biobutanol Production

**Diagram:**

- **Wheat straw** is subjected to **Milling**.
- The milled material is then treated with **H₂SO₄** for **Treatment**.
- Following treatment, it undergoes **Hydrolysis**.
- **Enzymes** are used in the **Fermentation** process.
- **CO₂ & H₂** are also involved in the fermentation.
- The products from fermentation go through a **Recovery** process which includes distillation and more.
- **Lignin** and **Solids** are recovered from the process.
- The final product is **BuOH & water**.
- The process culminates in the production of **Butanol**.
Market Outlook

Bio-butanol is expected to fulfill about 20% of the global domestic gas and diesel requirement. Butanol is being considered as a suitable and safe biofuel alternative to ethanol. Bio-butanol is mixed in various proportions with gasoline to be used as Bio-Fuels, as a gasoline, diesel and jet fuel replacement. It is used in adhesives, paints, personal care products, cleaners and other high end applications-jet fuel, bio based plastics and synthetic rubber, fibres etc.
Butanol is seen as a potential alternative to ethanol as it has 30 percent more energy per gallon than ethanol. The current global demand for butanol is exceeding 1.2 billion gallons per year and it has been valued over $6 billion annually. This high-value market will expand significantly as bio-butanol will make pathways to other chemical derivatives. In other industrial chemical markets it has a global presence of over $5 billion.
# Indian Import of Butanol

<table>
<thead>
<tr>
<th>Year (April to March)</th>
<th>Import In metric tonne</th>
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<tbody>
<tr>
<td>2012-13</td>
<td>72579</td>
</tr>
<tr>
<td>2013-14</td>
<td>89366</td>
</tr>
<tr>
<td>2014-15</td>
<td>56953</td>
</tr>
<tr>
<td>2015-16</td>
<td>62511</td>
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</table>
The global bio-butanol market is expected to reach USD 17.78 billion by 2022.

Bio-butanol demand in acetates exceeded 780 kilo tons in 2014. Growing demand from the textile industry is expected to stimulate growth over the next seven years. They are increasingly being used in detergents, cleaners and polishes which has augmented growth.
1. What is Biobutanol industry?

2. How has the Biobutanol industry performed so far and how will it perform in the coming years?

3. What is the Project Feasibility of a Biobutanol Plant?

4. What are the requirements of Working Capital for setting up a Biobutanol plant?
5. What is the structure of the Biobutanol Business and who are the key/major players?

6. What is the total project cost for setting up Biobutanol plant?

7. What are the operating costs for setting up a Biobutanol plant?

8. What are the machinery and equipment requirements for setting up a Biobutanol plant?
9. Who are the Suppliers and Manufacturers of Plant & Machinery for setting up a Biobutanol plant?

10. What are the requirements of raw material for setting up a Biobutanol plant?

11. Who are the Suppliers and Manufacturers of Raw materials for setting up a Biobutanol plant?

12. What is the Manufacturing Process and Formulations of a Biobutanol plant?
13. What is the total size of land required for setting up a Biobutanol plant?

14. What will be the income and expenditures for a Biobutanol plant?

15. What are the Projected Balance Sheets of a Biobutanol plant?

16. What are the requirement of utilities and overheads for setting up a Biobutanol plant?

17. What is the Built up Area Requirement and cost for setting up a Biobutanol Business?
18. What are the Personnel (Manpower) Requirements for setting up a Biobutanol Business?

19. What are Statistics of Import & Export Biobutanol?

20. What is the time required to break-even?

21. What is the Break-Even Analysis of a Biobutanol plant?

22. What are the Project financials of a Biobutanol plant?
23. What are the Profitability Ratios of a Biobutanol plant?

24. What is the Sensitivity Analysis-Price/Volume of a Biobutanol plant?

25. What are the Projected Pay-Back Period and IRR of a Biobutanol plant?

26. What is the Process Flow Sheet Diagram of a Biobutanol project?
27. What are the Market Opportunities for setting up a Biobutanol plant?

28. What is the Market Study and Assessment for setting up a Biobutanol plant?

29. What is the Plant Layout for setting up a Biobutanol Business?
Table of Contents of the Project Report
Our Detailed Project Report contains

- Introduction
- Properties
- Uses & Applications
- List of Plant & Machineries
- Miscellaneous Items and Accessories
- Instruments, Laboratory Equipments and Accessories
- Electrification, Electric Load and Water
- Maintenance, Suppliers/Manufacturers of Plant and Machineries
- Process of Manufacture
- Flow Sheet Diagram
- List of Raw Materials
- Availability of Raw Materials
- Requirement of Staff & Labour
- Skilled & Unskilled Labour
- Requirement of Land Area
- Built up Area
- Plant Layout.
Along with financial details as under:

- Assumptions for Profitability workings
- Plant Economics
- Production Schedule
- Land & Building
  - Factory Land & Building
  - Site Development Expenses
- Plant & Machinery
  - Indigenous Machineries
  - Other Machineries (Miscellaneous, Laboratory etc.)
• **Other Fixed Assets**
  - Furniture & Fixtures
  - Pre-operative and Preliminary Expenses
  - Technical Knowhow
  - Provision of Contingencies

• **Working Capital Requirement Per Month**
  - Raw Material
  - Packing Material
  - Lab & ETP Chemical Cost
  - Consumable Store
- **Overheads Required Per Month And Per Annum**
  - Utilities & Overheads (Power, Water and Fuel Expenses etc.)
  - Royalty and Other Charges
  - Selling and Distribution Expenses
- **Salary and Wages**
- **Turnover Per Annum**
- **Share Capital**
  - **Equity Capital**
  - **Preference Share Capital**
• **Annexure 1** :: Cost of Project and Means of Finance
• **Annexure 2** :: Profitability and Net Cash Accruals

- Revenue/Income/Realisation
- Expenses/Cost of Products/Services/Items
- Gross Profit
- Financial Charges
- Total Cost of Sales
- Net Profit After Taxes
- Net Cash Accruals
• **Annexure 3** :: Assessment of Working Capital requirements
  - Current Assets
  - Gross Working Capital
  - Current Liabilities
  - Net Working Capital
  - Working Note for Calculation of Work-in-process

• **Annexure 4** :: Sources and Disposition of Funds

• **Annexure 5** :: Projected Balance Sheets
▪ ROI (Average of Fixed Assets)
▪ RONW (Average of Share Capital)
▪ ROI (Average of Total Assets)

• **Annexure 6** :: Profitability ratios

D.S.C.R
Earnings Per Share (EPS)
Debt Equity Ratio

• **Annexure 7** :: Break-Even Analysis

Variable Cost & Expenses
Semi-Var./Semi-Fixed Exp.
Profit Volume Ratio (PVR)
Fixed Expenses / Cost
B.E.P

• **Annexure 8 to 11** :: Sensitivity Analysis-Price/Volume

Resultant N.P.B.T
Resultant D.S.C.R
Resultant PV Ratio
Resultant DER
Resultant ROI
Resultant BEP
• **Annexure 12** :: Shareholding Pattern and Stake Status
  - Equity Capital
  - Preference Share Capital

• **Annexure 13** :: Quantitative Details - Output/Sales/Stocks
  - Determined Capacity P.A. of Products/Services
  - Achievable Efficiency/Yield % of Products/Services/Items
  - Net Usable Load/Capacity of Products/Services/Items
  - Expected Sales/Revenue/Income of Products/Services/Items
• Annexure 14 :: Product wise domestic Sales Realisation

• Annexure 15 :: Total Raw Material Cost

• Annexure 16 :: Raw Material Cost per unit

• Annexure 17 :: Total Lab & ETP Chemical Cost

• Annexure 18 :: Consumables, Store etc.,
- **Annexure 19**: Packing Material Cost
- **Annexure 20**: Packing Material Cost Per Unit
- **Annexure 21**: Employees Expenses
- **Annexure 22**: Fuel Expenses
- **Annexure 23**: Power/Electricity Expenses
- **Annexure 24**: Royalty & Other Charges
<table>
<thead>
<tr>
<th>Annexure Number</th>
<th>Description</th>
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<tbody>
<tr>
<td>25</td>
<td>Repairs &amp; Maintenance Exp.</td>
</tr>
<tr>
<td>26</td>
<td>Other Mfg. Expenses</td>
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<tr>
<td>27</td>
<td>Administration Expenses</td>
</tr>
<tr>
<td>28</td>
<td>Selling Expenses</td>
</tr>
<tr>
<td>29</td>
<td>Depreciation Charges – as per Books (Total)</td>
</tr>
<tr>
<td>30</td>
<td>Depreciation Charges – as per Books (P &amp; M)</td>
</tr>
</tbody>
</table>
• Annexure 31 :: Depreciation Charges - As per IT Act WDV (Total)

• Annexure 32 :: Depreciation Charges - As per IT Act WDV (P & M)

• Annexure 33 :: Interest and Repayment – Term Loans

• Annexure 34 :: Tax on Profits

• Annexure 35 :: Projected Pay-Back Period And IRR
Reasons for buying our report:

• This report helps you to identify a profitable project for investing or diversifying into by throwing light to crucial areas like industry size, market potential of the product and reasons for investing in the product.

• This report provides vital information on the product like it’s characteristics and segmentation.

• This report helps you market and place the product correctly by identifying the target customer group of the product.
• This report helps you understand the viability of the project by disclosing details like machinery required, project costs and snapshot of other project financials

• The report provides a glimpse of government regulations applicable on the industry

• The report provides forecasts of key parameters which helps to anticipate the industry performance and make sound business decisions
Our Approach:

• Our research reports broadly cover Indian markets, present analysis, outlook and forecast for a period of five years.
• The market forecasts are developed on the basis of secondary research and are cross-validated through interactions with the industry players.
• We use reliable sources of information and databases. And information from such sources is processed by us and included in the report.
The report titled “Market Survey cum Detailed Techno Economic Feasibility Report on Biobutanol” provides an insight into the Biobutanol market in India with focus on uses and applications, Manufacturing Process, Process Flow Sheets, Plant Layout and Project Financials of Biobutanol project. The report assesses the market sizing and growth of the Indian Biobutanol Industry. While expanding a current business or while venturing into new business, entrepreneurs are often faced with the dilemma of zeroing in on a suitable product/line. And before diversifying/venturing into any product, they wish to study the following aspects of the identified product:
• Good Present/Future Demand
• Export-Import Market Potential
• Raw Material & Manpower Availability
• Project Costs and Payback Period

We at NPCS, through our reliable expertise in the project consultancy and market research field, have demystified the situation by putting forward the emerging business opportunity in the Biobutanol sector in India along with its business prospects. Through this report we have identified Biobutanol project as a lucrative investment avenue.

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Selection process starts with the generation of a product idea. In order to select the most promising project, the entrepreneur needs to generate a few ideas about the possible projects. Here’s we offer a best and easiest way for every entrepreneur to searching criteria of projects on our website www.entrepreneurindia.co that is “Instant Online Project Identification and Selection”
NPCS Team has simplified the process for you by providing a "Free Instant Online Project Identification & Selection" search facility to identify projects based on multiple search parameters related to project costs namely: Plant & Machinery Cost, Total Capital Investment, Cost of the project, Rate of Return% (ROR) and Break Even Point % (BEP). You can sort the projects on the basis of mentioned pointers and identify a suitable project matching your investment requisites.

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Who are we?

- One of the leading reliable names in industrial world for providing the most comprehensive technical consulting services.

- We adopt a systematic approach to provide the strong fundamental support needed for the effective delivery of services to our Clients’ in India & abroad.
We at NPCS want to grow with you by providing solutions scale to suit your new operations and help you reduce risk and give a high return on application investments. We have successfully achieved top-notch quality standards with a high level of customer appreciation resulting in long lasting relation and large amount of referral work through technological breakthrough and innovative concepts. A large number of our Indian, Overseas and NRI Clients have appreciated our expertise for excellence which speaks volumes about our commitment and dedication to every client's success.
We bring deep, functional expertise, but are known for our holistic perspective: we capture value across boundaries and between the silos of any organization. We have proven a multiplier effect from optimizing the sum of the parts, not just the individual pieces. We actively encourage a culture of innovation, which facilitates the development of new technologies and ensures a high quality product.
What do we offer?

- Project Identification
- Detailed Project Reports/Pre-feasibility Reports
- Market Research Reports
- Business Plan
- Technology Books and Directory
- Industry Trend
- Databases on CD-ROM
- Laboratory Testing Services
- Turnkey Project Consultancy/Solutions
- Entrepreneur India (An Industrial Monthly Journal)
How are we different?

- We have two decades long experience in project consultancy and market research field
- We empower our customers with the prerequisite know-how to take sound business decisions
- We help catalyze business growth by providing distinctive and profound market analysis
- We serve a wide array of customers, from individual entrepreneurs to Corporations and Foreign Investors
- We use authentic & reliable sources to ensure business precision
Our Approach

1. Requirement collection
2. Thorough analysis of the project
3. Economic feasibility study of the Project
4. Market potential survey/research
5. Report Compilation
Who do we serve?

- Public-sector Companies
- Corporates
- Government Undertakings
- Individual Entrepreneurs
- NRI’s
- Foreign Investors
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- Educational Institutions
- Embassies & Consulates
- Consultancies
- Industry / trade associations

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- Activated Carbon & Activated Charcoal
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- Bio-fertilizers And Biotechnology
- Breakfast Snacks And Cereal Food
- Bicycle Tyres & Tubes, Bicycle Parts, Bicycle Assembling
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- Bamboo And Cane Based Projects
- Building Materials And Construction Projects
- Biodegradable & Bioplastic Based Projects
- Chemicals (Organic And Inorganic)
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- Cereal Processing
- Coconut And Coconut Based Products
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- Coal & Coal Byproduct

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- Electrical, Electronic And Computer based Projects
- Essential Oils, Oils & Fats And Allied
- Engineering Goods
- Fibre Glass & Float Glass
- Fast Moving Consumer Goods
- Food, Bakery, Agro Processing
Sectors We Cover Cont...

- Fruits & Vegetables Processing
- Ferro Alloys Based Projects
- Fertilizers & Biofertilizers
- Ginger & Ginger Based Projects
- Herbs And Medicinal Cultivation And Jatropha (Biofuel)
- Hotel & Hospitality Projects
- Hospital Based Projects
- Herbal Based Projects
- Inks, Stationery And Export Industries
Sectors We Cover

- Infrastructure Projects
- Jute & Jute Based Products
- Leather And Leather Based Projects
- Leisure & Entertainment Based Projects
- Livestock Farming Of Birds & Animals
- Minerals And Minerals
- Maize Processing (Wet Milling) & Maize Based Projects
- Medical Plastics, Disposables Plastic Syringe, Blood Bags
- Organic Farming, Neem Products Etc.
Sectors We Cover

- Paints, Pigments, Varnish & Lacquer
- Paper And Paper Board, Paper Recycling Projects
- Printing Inks
- Packaging Based Projects
- Perfumes, Cosmetics And Flavours
- Power Generation Based Projects & Renewable Energy Based Projects
- Pharmaceuticals And Drugs
- Plantations, Farming And Cultivations
- Plastic Film, Plastic Waste And Plastic Compounds
- Plastic, PVC, PET, HDPE, LDPE Etc.
Sectors We Cover

- Potato And Potato Based Projects
- Printing And Packaging
- Real Estate, Leisure And Hospitality
- Rubber And Rubber Products
- Soaps And Detergents
- Stationary Products
- Spices And Snacks Food
- Steel & Steel Products
- Textile Auxiliary And Chemicals
Sectors We Cover

- Township & Residential Complex
- Textiles And Readymade Garments
- Waste Management & Recycling
- Wood & Wood Products
- Water Industry (Packaged Drinking Water & Mineral Water)
- Wire & Cable
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