


Production of Industrial Gases and Speciality Gases Mixture.

Investment & Business Opportunities in Oxygen, Nitrogen and Argon Gas Manufacturing Plant

[NPCS/5060/23355]

Introduction

Industrial gases are comprised of elements, molecular compounds, or mixtures. Industrial gases belong to a special class of chemicals that functions in a large number of applications in several end user industries. They are composed at ambient temperature and pressure. These are formed in both liquid and gaseous forms.

Industrial gases are specific gaseous materials produced for industrial purposes, with the most prominent ones being oxygen, nitrogen, carbon dioxide, helium, and hydrogen, although various other mixtures are also manufactured and provided as gas cylinders. A number of industries require these customized gases, including steel, oil and gas, chemicals and petrochemicals, biotechnology, medicine, environmental protection, and nuclear power, and the market for the same is feeding off the prosperity of each of them.

Industrial gases are used in a wide range of industries, which include oil and gas, petrochemicals, chemicals, power, mining, steelmaking, metals, environmental protection, medicine, pharmaceuticals, biotechnology, food, water, fertilizers, nuclear power, electronics and aerospace. Industrial gas is sold to other industrial enterprises; typically comprising large orders to corporate industrial clients, covering a size range from building a process facility or pipeline down to cylinder gas supply.

Specialty Gases

Specialty gases represent gases which are rare or ultra-high purity (99.995% and above). Many industries, including analytical, pharmaceutical, electronics and petrochemical benefit from the unique properties of specialty gases that help to improve yields, optimize performance and lower costs. Specialty gases are used in analytical methods such as gas and liquid chromatography as well as Fourier transform infrared (FTIR) and non-dispersive infrared (NDIR). Other analytical methods are described in the various subpages.

Oxygen

Oxygen is a gas. It is a colorless, tasteless, odourless gaseous element that constitutes 21% of the atmosphere and is found in water, in most rocks and minerals, and in numerous organic compounds, that is capable of combining with all elements except the inert gases, that is active in physiological processes, and that is involved especially in combustion processes. Oxygen is the third most abundant element in the universe after hydrogen and helium and the most abundant element.

Oxygen dissolves more readily in water than nitrogen, and in freshwater more readily than seawater. Water in equilibrium with air contains approximately 1 molecule of dissolved O2 for every 2 molecules of N2 (1:2), compared with an atmospheric ratio of approximately 1:4. The solubility of oxygen in water is temperature-dependent, and about twice as much (14.6 mg•L−1) dissolves at 0°C than at 20°C (7.6 mg•L−1).

Uses

The largest user of oxygen is the steel industry. It is also used in the manufacture of other metals, notably copper and lead. It is more economical to use pure oxygen, or oxygen-enriched air, rather than air as this increases the reaction rates and means that smaller chemical plants can be used. Further it makes it easier to ensure that no gases such as sulfur dioxide are lost and pollute the atmosphere.

The gas is also used in the manufacture of many chemicals including nitric acid, hydrogen peroxide, epoxyethane and chloroethene (vinyl chloride), the precursor to PVC.

Among its other uses is the burning off of carbon deposited on the fluid catalyst used in the catalytic cracking of gas oil

A growing use for oxygen is in treating sewage and effluent from industry. Polluted rivers and lakes can be cleaned by dissolving oxygen gas directly into the water to encourage a better ecological balance. It is used, for example, in fish farming to provide this balance.

It is also used, with sodium hydroxide, to bleach paper pulp as an alternative to chlorine dioxide or sodium chlorate (I) (sodium hypochlorite).

Nitrogen

Nitrogen gas is one of the most abundant resources on the planet. It makes up around 70 percent of the air around us. What makes it so special is that it is a nearly inert gas that doesn't react with other compounds in the air. Various industries take advantage of purified nitrogen's inert characteristics and use the gas to their advantage.

Nitrogen gas is used in many varying industries—a few of them are highlighted below:

- **Food Packaging – Nitrogen is used to displace oxygen in food packaging. By eliminating the oxygen, the food can last longer. It can also add a cushion around the food to keep it safe from breaking in transport.**
- **Light Bulb Production – In incandescent light bulbs, nitrogen gas is often used as a cheaper alternative to argon.**
- **Chemical Plants – Nitrogen is used to displace oxygen and prevent explosions in highly dangerous atmospheres, such as chemical plants and manufacturing facilities.**
- **Tire Inflation – Nitrogen offers many benefits when used to fill tires, such as giving them a longer life by reducing oxidation. It also improves tire pressure retention to give drivers better gas mileage.**

- **Electronics – When electronics are being assembled, nitrogen gas is used for soldering. Using nitrogen reduces the surface tension to provide a cleaner breakaway from the solder site.**
- **Stainless Steel Manufacturing – By electroplating the stainless steel with nitrogen, the finished product is stronger and resistant to corrosion.**
- **Pollution Control – Nitrogen gas can be used to remove the VOCs in liquids before they are discarded.**
- **Pharmaceuticals – Almost every major drug class contains some nitrogen, even antibiotics. Nitrogen, in the form of nitrous oxide, is also used as an anesthetic.**
- **Mining – In the mining industry, nitrogen gas is used to quickly extinguish fires by eliminating the oxygen from the air. And when an area is going to be abandoned, they use nitrogen to ensure the area will not explode.**

Nitrogen is used to make ammonia. It is also widely used to provide an inert atmosphere, a process known as 'blanketing', principally to exclude oxygen. For example, nitrogen is used in this way in food packaging, glass making, and semiconductor manufacture. It is also used to purge out pipes prior to welding (for example, oil pipes) to ensure that no flammable vapours are left behind.

Liquid nitrogen is being increasingly used to refrigerate food during transportation. Medical samples containing, for example blood, viruses for vaccinations and semen, can be stored for long periods if kept cool in liquid nitrogen.

Argon

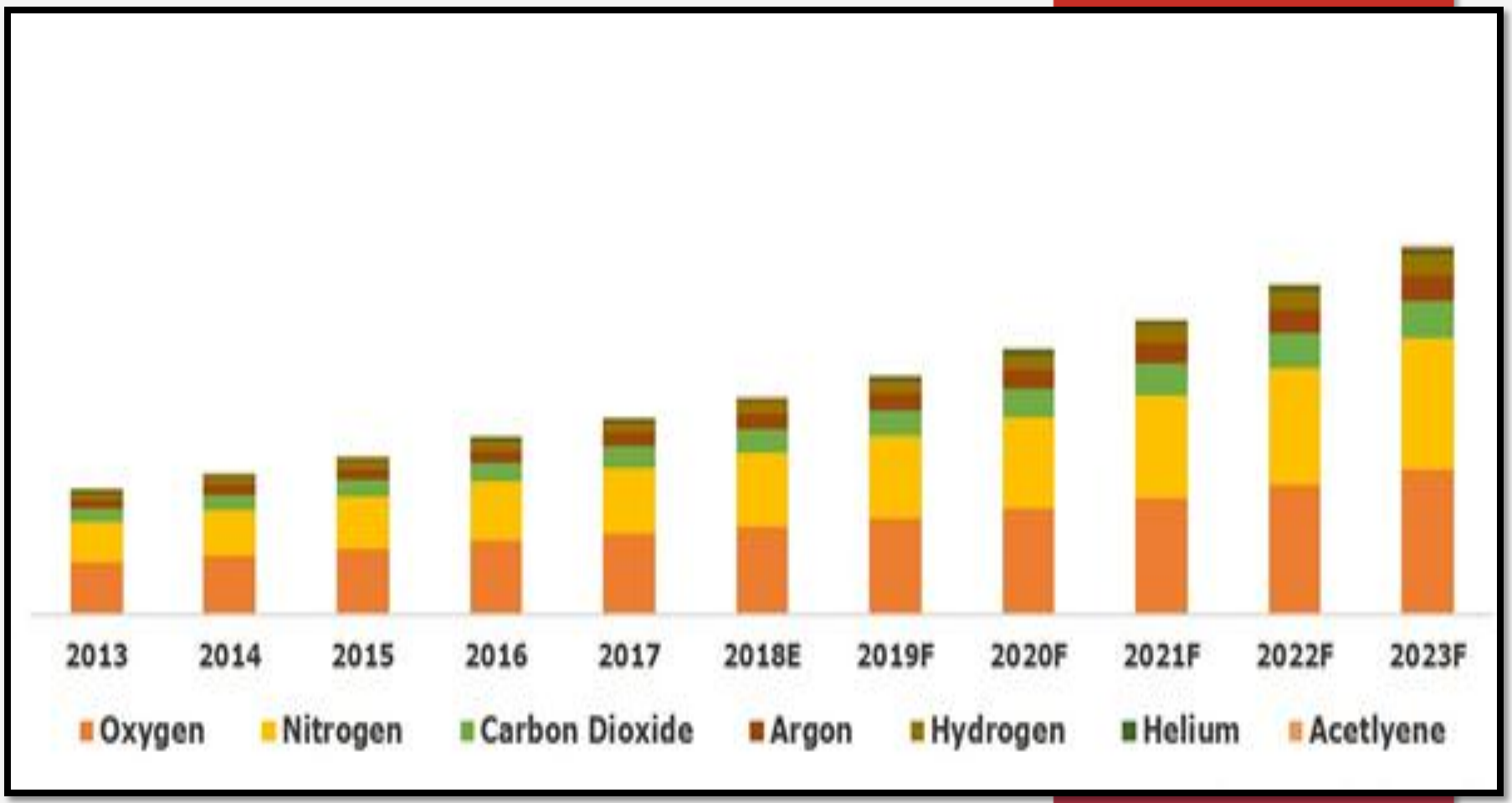
Argon is a colourless, odourless, inert gas sourced through the fractional distillation of liquid air. The omnipresent argon gas exists in its natural form in the form of multiple isotopes such as 40Ar, 36Ar, and 38Ar. Owing to its inert reactivity, argon is one of the most preferred gases for shielding metals from oxidation during welding. It is also used for joining several nonferrous and ferrous alloys. Owing to these reasons, the argon gas also finds great usage in aerospace, aircraft and automotive industry where it is used to weld parts and frames.

The argon gas has better thermal insulation properties than air and hence, it is one of the most widely used gases for filling the dry suits used for scuba diving. Excimer lasers, which are used for the production of microelectronic devices, use a mixture of argon, fluorine and helium. Argon is also used for a variety of other purposes. For instance, it is used in incandescent lamps and phosphorescent tubes, fire extinguishers and airbag inflation. It is also used during cryosurgery spectroscopy and decarburizing of stainless steel. Although argon is nontoxic in nature, excessive contact can lead to asphyxiation.

Market Outlook

India industrial gases market was valued at $ 2.1 billion in 2017 and is forecast to grow at a CAGR of over 11% to surpass $ 3.9 billion in 2023 on account of growing demand from metal industry, particularly steel. Moreover, regular capacity expansions by automobile, refinery and chemical companies coupled with increasing number of new applications of industrial gases is further augmenting demand for industrial gases in the country. Additionally, continuing growth in the country's healthcare sector and booming food & beverages sector is anticipated to augur well for the industrial gases market in India through 2023.

India Industrial Gases Market Size, By Product, By Value, 2013-2023F



Growth in the market is anticipated on account of growing demand from various end user industries such as metallurgy and petrochemicals, coupled with implementation of various favorable government policies to support manufacturing sector. Various upcoming steel projects are integrating industrial gas production units to address the bulk requirements for industrial gases, thereby aiding the industrial gases market in the country.

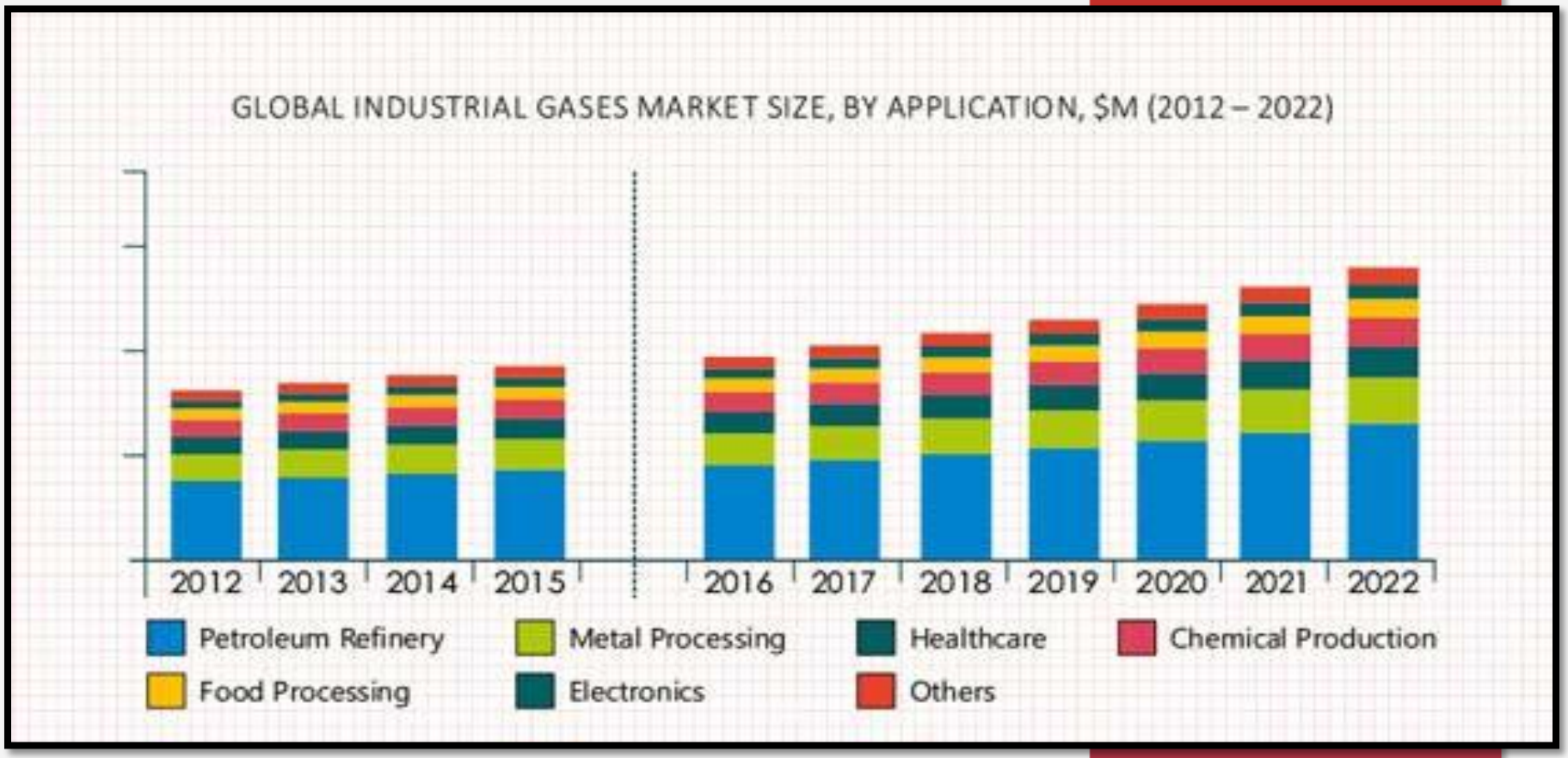
On the basis of type, the industrial gases market in India has been segmented into three categories, namely, Oxygen, Nitrogen and Argon. Region-wise, east region is forecast to dominate the industrial gases market in India over the next five years on account of various upcoming metallurgical projects coupled with presence of major steel production units in this region.

Moreover, regular capacity expansions by automobile, refinery and chemical companies coupled with increasing number of new applications of industrial gases is further augmenting demand for industrial gases in the country.

The Indian market for specialty gases will grow at a CAGR of more than 12% by value during 2017-2026. Specialty gases are ultra-pure gases or minor gases used in specific quantities and proportions for specialized operations in various end user applications. Owing to their unique properties and nature, specialty gases find use in many industries, improving the production process, optimizing operations, improving efficiency and reducing labor time, thus bringing down the overall cost. The two key segments set to drive the specialty gases market in the country are metal & mining and healthcare.

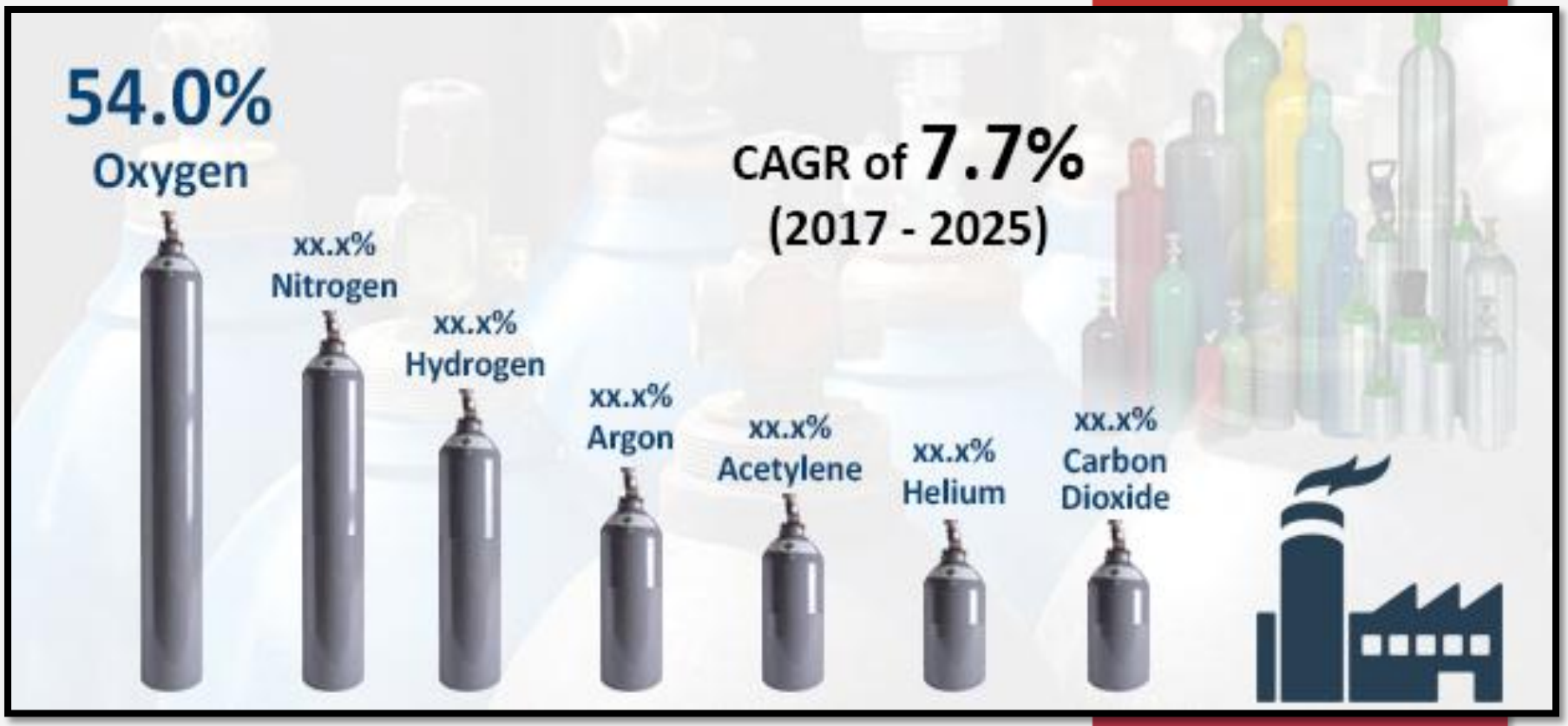
The global industrial gases market size is projected to reach $71.0 billion by 2022, growing at a CAGR of 6.2% during the forecast period. The factors driving the growth of the market include large base of end-use industries, increasing government initiatives toward alternate sources of energy, and increasing healthcare expenditure.

Global Industrial Gases Market Size, By Application $M (2012-2022)



Rising demand from the major end-use industries such as chemicals, petrochemicals, oil and gas, and energy has resulted in the development of the global industrial gases market. With rising environmental concerns, renewable resources are witnessing a growth worldwide, thereby facilitating the market. Apart from this, increasing urbanization and industrialization in the countries of Asia-Pacific and Middle East are expected to provide a thrust to industries such as food and beverages, transportation, chemical and metal fabrication, which in turn will amplify the demand for industrial gases. Additionally, improving economic scenario, climate control initiatives, increased energy demand and healthcare needs in both the developing and developed regions are projected to contribute in the expansion of the market.

Global Industrial Gases Market Share (%), By Gas Type (2017)



Asia Pacific is the largest regional market for industrial gases owing to the growth of several associated end-user industries in this region. Asia Pacific, apart from being the largest market, is expected to be the fastest growing regional market for industrial gases. In terms of demand, Asia Pacific was followed by North America and Europe. However, these regional markets are anticipated to lose out some of their market share to the other emerging markets such as Asia Pacific and Latin America.

Oxygen Gas

The growth of industries such as agriculture, automobiles, beverages, chemicals, construction equipment, food, glass, medicine, ship building, space explorations, steel manufacture etc. require stable oxygen for processes; which is increasing the demand for oxygen production throughout the world. The versatile uses of oxygen in chemical industry as an oxidizing agent and catalyst are contributing to the growth of oxygen market.

Oxygen

Demand : Past and Future

Year	(In Million m^3)
1990-91	450
2000-01	1335
2001-02	1525
2002-03	1725
2003-04	1975
2004-05	2315
2005-06	2760
2006-07	3360
2007-08	3730
2008-09	4910
2009-10	5400
2010-11	6250
2011-12	7210
2012-13	8200
2013-14	9165
2014-15	10000
2015-16	11250
2016-17	12800
2017-18	13950
2018-19	15700
2019-20	17230
2024-25	27125

Oxygen consumption as breathing aids and apparatus is increasing around the globe because of the increasing pollution, which contaminates air and reduces quantity of natural oxygen in the breathing air. Liquid oxygen is extremely cold apart from its vast applications. Oxygen is being used instead of air to improve performance and capital efficiency in various industries. Oxygen can also enable and activate carbon capture processes. Oxygen is used in gasification processes, process heaters, industrial fermentation and boilers to enhance productivity. In water treatment plants, oxygen is being added directly to the waste water in order to improve the effectiveness of removing pollutants from the water. Most of the celebrities undergo oxygen facials at spas, these facials provide instant nutrition and radiance to the skin. A pressurized steam of oxygen under hyperbaric therapies fortifies the skin with vital nutrients.

Nitrogen Gas

The industrial nitrogen market was valued at USD 15.03 Billion in 2017 and is expected to reach USD 19.96 Billion by 2022. The market is projected to grow at a CAGR of 5.83% during the forecast period. The base year considered for the study is 2016, and the market size is projected from 2017 to 2022.

Increasing wide range of applications of nitrogen gas springs across various industries such as automotive, manufacturing, and healthcare sectors is a key factor expected to drive growth of the global nitrogen gas springs market. Nitrogen gas springs are used in vehicles, furniture such as in office chairs, beds, cabinets, kitchen shelves, etc. in order to provide ease of handling and are efficient for lifting, supporting, and motion control of bonnets, hatches, doors, lids etc.

However, prime application areas include automotive and industrial sectors. In addition, abundance availability of nitrogen gas, low cost, and various usable properties of the product are other major factors expected to fuel market growth in the coming years. Moreover, major advantages of nitrogen gas springs over conventional springs is expected to further drive growth of the market. Other advantages are that these are corrosion-free, heavy-duty, and have an average lifespan of around 10 years which is expected to drive market growth.

Argon Gas

The increase in the sale of argon is pivotally being driven by the consumption and demand from the thriving metal fabrication industry. Escalating application of argon as a cryogenic inert gas is aiding in the development of the argon gas market. Argon is used during manufacturing and storage in food and beverage and pharmaceutical packaging industry. The thriving electronics industry is also one of the pivotal industry boosting the demand for argon gas. Since argon gas provides the inert atmosphere needed for rapid cooling and heating of materials, it is used for manufacturing semiconductors, flat panels, solar pv cells and microelectronic devices in the electronics industry. The growing popularity of 3-D printed parts, components and even complete systems, is driving growth for the argon gas market.

Global argon market is expected to grow over the forecast period, owing to risings demand in numerous application segments such as electronics, stainless steel and fabricated metal working markets. Argon is often substituted by helium in various sectors; however, rising helium prices are projected to boost argon demand in several applications. Growing infrastructural activities is expected to foster demand of steel which in turn is expected to drive argon market over the forecast period. Expanding automobile sector is also anticipated to increase product demand as steel is one of the main components of this sector.

Increasing urbanization in emerging economies of Asia Pacific, South America and Africa are expected to drive the demand for argon for lighting purposes. In addition, rapid industrialization in these regions is expected to augment the demand for argon over the next few years.

Furthermore, argon is being increasingly used for lightning purposes as it does not cause any harm to the environment. However, inhalation of argon gas is harmful to human life as excessive inhalation causes asphyxiant, which in turn can lead to death.

The automobile industry is anticipated to increase demand of steel, eventually supporting the growth of the global argon market. The growing energy market is likely to increase demand of argon due to its application in insulated window and solar energy. The solar energy market demands massive volumes of argon for manufacturing process. Argon gas is used for insulation of windows to prevent the cold air from glass panes to enter inside. Growing number of malls and shopping complexes using lighting is expected to boost the market during the forecast period.

Machinery Photographs

Project at a Glance

PROJECT AT A GLANCE						(` in lacs)
COST OF PROJECT				**MEANS OF FINANCE**		
Particulars	**Existing**	**Proposed**	**Total**	**Particulars**	**Existing**	**Proposed**	**Total**
Land & Site Development Exp.	0.00	0.00	0.00	Capital	0.00	76.76	76.76
Buildings	0.00	0.00	0.00	Share Premium	0.00	0.00	0.00
Plant & Machineries	0.00	177.76	177.76	Other Type Share Capital	0.00	0.00	0.00
Motor Vehicles	0.00	8.00	8.00	Reserves & Surplus	0.00	0.00	0.00
Office Automation Equipments	0.00	80.04	80.04	Cash Subsidy	0.00	0.00	0.00
Technical Knowhow Fees & Exp.	0.00	10.00	10.00	Internal Cash Accruals	0.00	0.00	0.00
Franchise & Other Deposits	0.00	0.00	0.00	Long/Medium Term Borrowings	0.00	230.28	230.28
Preliminary& Pre-operative Exp	0.00	2.00	2.00	Debentures / Bonds	0.00	0.00	0.00
Provision for Contingencies	0.00	16.75	16.75	Unsecured Loans/Deposits	0.00	0.00	0.00
Margin Money - Working Capital	0.00	12.49	12.49				
TOTAL	0.00	307.05	307.05	TOTAL	0.00	307.05	307.05

Project at a Glance

Year	Annualised		Book Value	Debt	Dividend	Retained Earnings		Payout	Probable Market Price	P/E Ratio	Yield Price/ Book Value
	EPS	CEPS	Per Share		Per Share	Per Share				No.of Times	
	`	`	`	`	`	%	`	%	`		%
1-2	3.92	9.12	13.92	24.00	0.00	100.00	3.92	0.00	3.92	1.00	0.00
2-3	6.86	11.34	20.77	18.00	0.00	100.00	6.86	0.00	6.86	1.00	0.00
3-4	9.72	13.59	30.49	12.00	0.00	100.00	9.72	0.00	9.72	1.00	0.00
4-5	12.45	15.80	42.95	6.00	0.00	100.00	12.45	0.00	12.45	1.00	0.00
5-6	15.03	17.93	57.98	0.00	0.00	100.00	15.03	0.00	15.03	1.00	0.00

Project at a Glance

Year	D. S. C. R.			Debt / - Deposits Debt	Equity as- Equity	Total Net Worth	Return on Net Worth	Profitability Ratio					Assets Turnover Ratio	Current Ratio
	Individual	Cumulative	Overall					GPM	PBT	PAT	Net Contribution	P/V Ratio		
	(Number of times)			(Number of times)		%	%	%	%	%		%		
Initial				3.00	3.00									
1-2	1.33	1.33		1.72	1.72	1.94		25.77 %	11.05%	9.28%	291.36	89.93 %	1.06	0.86
2-3	1.62	1.47		0.87	0.87	1.03		31.91 %	20.16%	13.93 %	339.87	89.91 %	1.20	1.44
3-4	1.96	1.62	1.96	0.39	0.39	0.52		35.98 %	26.43%	17.27 %	388.42	89.91 %	1.24	2.19
4-5	2.37	1.78		0.14	0.14	0.24		38.66 %	30.78%	19.67 %	436.98	89.91 %	1.21	3.11
5-6	2.85	1.96		0.00	0.00	0.08		40.35 %	33.76%	21.37 %	485.53	89.91 %	1.14	9.57

Project at a Glance

BEP	
BEP - Maximum Utilisation Year	5
Cash BEP (% of Installed Capacity)	57.86%
Total BEP (% of Installed Capacity)	62.45%
IRR, PAYBACK and FACR	
Internal Rate of Return .. (In %age)	25.37%
Payback Period of the Project is (In Years)	2 Years 3 Months
Fixed Assets Coverage Ratio (No. of times)	3.647

Major Queries/Questions Answered in the Report?

1. What is Industrial Gases and Speciality Gases Manufacturing industry ?

2. How has the Industrial Gases and Speciality Gases Manufacturing industry performed so far and how will it perform in the coming years ?

3. What is the Project Feasibility of Industrial Gases and Speciality Gases Manufacturing Plant ?

4. What are the requirements of Working Capital for setting up Industrial Gases and Speciality Gases Manufacturing plant ?

5. What is the structure of the Industrial Gases and Speciality Gases Manufacturing Business and who are the key/major players ?

6. What is the total project cost for setting up Industrial Gases and Speciality Gases Manufacturing Business?

7. What are the operating costs for setting up Industrial Gases and Speciality Gases Manufacturing plant ?

8. What are the machinery and equipment requirements for setting up Industrial Gases and Speciality Gases Manufacturing plant ?

9. Who are the Suppliers and Manufacturers of Plant & Machinery for setting up Industrial Gases and Speciality Gases Manufacturing plant ?

10. What are the requirements of raw material for setting up Industrial Gases and Speciality Gases Manufacturing plant ?

11. Who are the Suppliers and Manufacturers of Raw materials for setting up Industrial Gases and Speciality Gases Manufacturing Business?

12. What is the Manufacturing Process of Industrial Gases and Speciality Gases?

13. What is the total size of land required for setting up Industrial Gases and Speciality Gases Manufacturing plant ?

14. What will be the income and expenditures for Industrial Gases and Speciality Gases Manufacturing Business?

15. What are the Projected Balance Sheets of Industrial Gases and Speciality Gases Manufacturing plant ?

16. What are the requirement of utilities and overheads for setting up Industrial Gases and Speciality Gases Manufacturing plant?

17. What is the Built up Area Requirement and cost for setting up Industrial Gases and Speciality Gases Manufacturing Business?

18. What are the Personnel (Manpower) Requirements for setting up Industrial Gases and Speciality Gases Manufacturing Business?

19. What is the Plant Layout for setting up Industrial Gases and Speciality Gases Manufacturing Business?

20. What is the time required to break-even of Industrial Gases and Speciality Gases Manufacturing Business?

21. What is the Break-Even Analysis of Industrial Gases and Speciality Gases Manufacturing plant?

22. What are the Project financials of Industrial Gases and Speciality Gases Manufacturing Business?

23. What are the Profitability Ratios of Industrial Gases and Speciality GasesManufacturing Project?

24. What is the Sensitivity Analysis-Price/Volume of Industrial Gases and Speciality Gases Manufacturing plant?

25. What are the Projected Pay-Back Period and IRR of Industrial Gases and Speciality Gases Manufacturing plant?

26. What is the Process Flow Sheet Diagram of Industrial Gases and Speciality Gases Manufacturing project?

27. What are the Market Opportunities for setting up Industrial Gases and Speciality Gases Manufacturing plant?

28. What is the Market Study and Assessment for setting up Industrial Gases and Speciality Gases Manufacturing Business?

Table of Contents of the Project Report

1. PROJECT LOCATION
1.1. DISTRICT PROFILE & GEOTECHNICAL SITE CHARACTERIZATION
1.1.1. General
1.1.2. Physical Characteristics
1.1.3. Topography
1.1.4. Administrative Set Up
1.1.5. Map
1.1.6. Languages and Culture
1.1.7. Climate & Rainfall
1.1.8. Transportation and Communications
1.1.9. Economy & Industry

2. INTRODUCTION
2.1. MODE OF GAS SUPPLY
2.2. GAS DELIVERY
2.3. INDUSTRIAL GAS
2.4. GASES

3. OXYGEN GASES
3.1. PROPERTIES
3.2. APPLICATIONS
3.3. LIFE SUPPORT AND RECREATIONAL USE

4. NITROGEN GAS
4.1. PROPERTIES
4.2. APPLICATIONS

5. ARGON GAS

5.1. PROPERTIES
5.2. APPLICATIONS
5.3. CHARACTERISTICS

6. B.I.S. SPECIFICATIONS
6.1. IS: 1747 – 1972 SPECIFICATION FOR NITROGEN (FIRST REVISION)
6.2. IS: 11552 – 2008 LIQUID NITROGEN VESSELS OF CAPACITY UP TO 75 LITRES – SPECIFICATION (FIRST REVISION)
6.3. IS 13490 (1992): CODE OF PRACTICE FOR HANDLING SPECIALITY
6.4. GASES [CHD 6: INDUSTRIAL GASES]
6.5. IS 15130-3(2002): NATURAL GAS-DETERMINATION OF COMPOSITION WITH DEFINED UNCERTAINTY BY GAS CHROMATOGRAPHY, PART 3: DETERMINATION OF HYDROGEN, HELIUM, OXYGEN, NITROGEN, CARBON DIOXIDE AND HYDROCARBONS UP TO C8 USING TWO PACKED COLUMNS

7. MARKET SURVEY
7.1. NITROGEN
7.2. ARGON
7.3. HYDROGEN
7.4. CARBON DIOXIDE
7.5. SPECIALITY GASES AND GAS MIXTURES
7.6. FUTURE SCENARIO

8. EXPORT & IMPORT: ALL COUNTRIES
8.1. EXPORT: ALL COUNTRIES FOR NITROGEN
8.2. EXPORT: ALL COUNTRIES FOR ARGON (RARE GASES)
8.3. IMPORT: ALL COUNTRIES NITROGEN
8.4. IMPORT: ALL COUNTRIES NITROGEN

9. FINANCIALS & COMPARISON OF MAJOR INDIAN PLAYERS/COMPANIES

9.1. ABOUT FINANCIAL STATEMENTS OF CMIE DATABASE
9.2. PROFITS & APPROPRIATIONS
9.3. TOTAL LIABILITIES
9.4. TOTAL ASSETS
9.5. NET CASH FLOW FROM OPERATING ACTIVITIES
9.6. SECTION – I
9.6.1. Name of Company with Contact Details
9.6.2. Name of Director(S)
9.6.3. Plant Capacity
9.6.4. Location of Plant
9.6.5. Name of Raw Material(S) Consumed With Quantity & Cost
9.7. SECTION – II
9.7.1. Assets
9.7.2. Cash Flow
9.7.3. Cost as % Ge of Sales
9.7.4. Growth in Assets & Liabilities
9.7.5. Growth in Income & Expenditure
9.7.6. Income & Expenditure
9.7.7. Liabilities
9.7.8. Liquidity Ratios
9.7.9. Profitability Ratio
9.7.10. Profits
9.7.11. Return Ratios
9.7.12. Structure of Assets & Liabilities (%)
9.7.13. Working Capital & Turnover Ratios

10. COMPANY PROFILE OF MAJOR PLAYERS

11. EXPORT & IMPORT STATISTICS DATA OF INDIA
11.1. EXPORT STATISTICS DATA FOR OXYGEN GAS
11.2. IMPORT STATISTICS DATA FOR OXYGEN GAS
11.3. EXPORT STATISTICS DATA FOR NITROGEN GAS
11.4. IMPORT STATISTICS DATA FOR NITROGEN GAS
11.5. EXPORT STATISTICS DATA FOR ARGON GAS
11.6. IMPORT STATISTICS DATA FOR ARGON GAS

12. PRESENT MANUFACTURERS

13. RAW MATERIAL
13.1. LIQUID OXYGEN
13.2. PROPERTIES
13.3. LIQUID NITROGEN
13.4. PROPERTIES

14. INDUSTRIAL PROCESS
14.1. OXYGEN GAS
14.2. STORAGE
14.3. LIQUID NITROGEN
14.4. SAFETY
14.5. ARGON GAS
14.6. SAFETY

15. CYLINDER FILLING PROCESS

16. PROCESS FLOW DIAGRAM

17. BUYER'S LIST

17.1. CONTACT DETAILS OF BUYER'S
17.2. NAME OF DIRECTOR(S)
17.3. CREDIT RATINGS
17.4. PLANT CAPACITY
17.5. LOCATION OF PLANT
17.6. COMPANY WISE CONSUMPTION DETAIL OF THE RAW MATERIALS

18. SUPPLIERS OF PLANT & MACHINERY

19. SUPPLIERS OF RAW MATERIAL

20. PHOTOGRAPHS/IMAGES FOR REFERENCE

20.1. PRODUCT PHOTOGRAPHS
20.2. MACHINERY PHOTOGRAPHS

20.3. RAW MATERIAL PHOTOGRAPHS

21. PLANT LAYOUT

Project Financials

- **Project at a Glance** **Annexure**

- Assumptions for Profitability workings ……..1
- Plant Economics……..2
- Production Schedule……3
- Land & Building……4

  Factory Land & Building
  Site Development Expenses

- Plant & Machinery……..5
  - Indigenous Machineries
  - Other Machineries (Miscellaneous, Laboratory etc.)

- Other Fixed Assets……..6
  - Furniture & Fixtures
  - Pre-operative and Preliminary Expenses
  - Technical Knowhow
  - Provision of Contingencies

- Working Capital Requirement Per Month……7
  - Raw Material
  - Packing Material
  - Lab & ETP Chemical Cost
  - Consumable Store

- Overheads Required Per Month and Per Annum……..…….8
  - Utilities & Overheads (Power, Water and Fuel Expenses etc.)
  - Royalty and Other Charges
  - Selling and Distribution Expenses
- Salary and Wages ……..……..9
- Turnover Per Annum ……....…10
- Share Capital……....11
  - 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-Variable/Semi-Fixed Expenses
- 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
- Annexure 25 :: Repairs & Maintenance Expenses
- Annexure 26 :: Other Manufacturing Expenses
- Annexure 27 :: Administration Expenses
- Annexure 28 :: Selling Expenses

- Annexure 29 :: Depreciation Charges – as per Books (Total)
- Annexure 30 :: Depreciation Charges – as per Books (P & M)
- 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

Scope of the Report

The report titled "Market Survey cum Detailed Techno Economic Feasibility Report on Industrial Gases and Speciality Gases Mixture." provides an insight into Industrial Gases and Speciality Gases market in India with focus on uses and applications, Manufacturing Process, Process Flow Sheets, Plant Layout and Project Financials of Industrial Gases and Speciality Gases project. The report assesses the market sizing and growth of the Indian Industrial Gases and Speciality Gases 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 Industrial Gases and Speciality Gases sector in India along with its business prospects. Through this report we have identified Industrial Gases and Speciality Gases project as a lucrative investment avenue.

Tags

Industrial Gas, Industrial Gas Manufacturing, Industrial Gases Industry, Industrial Gas Manufacture, Industrial Gases Pdf, Industrial Gas Manufacturing Industry, Industrial Gas Business, Industrial Gases Production, Manufacturing of Industrial Gases, Projects on Industrial Gases, Opportunities in Industrial Gases Industry, Industrial Gases and Gas Mixtures, Oxygen & Nitrogen Gas Manufacturing, Speciality Gases, Manufacturing Process for Specialty Gases, Production of Specialty Gases, Specialty Gases Manufacturing Project Ideas, Specialty Gas Production, Specialty Gases Plant, How Oxygen is Made, Production of Oxygen Gas, Industrial Production of Oxygen, Oxygen Gas Production Plant, Oxygen Plant, Oxygen Gas Manufacturing Process, Uses And Applications of Oxygen Gas, Oxygen Manufacturing Plant Cost, Liquid Oxygen Plant in India, Manufacturing Process of Oxygen, Nitrogen Gas, Industrial Gas Manufacturing Plant, Industrial Nitrogen Gas, How is Nitrogen Produced for Industrial Applications? Nitrogen Gas Uses,

Nitrogen Production Process, Industrial Preparation of Nitrogen, Nitrogen Plant Flow Diagram, Liquid Nitrogen Plant, Industrial Production of Nitrogen Gas, Process for Making Liquid Nitrogen Gas, Nitrogen Production, Manufacturing Process of Nitrogen Gas, Nitrogen Gas Plant, Producing Oxygen and Nitrogen Gases, Argon Production, Production of Argon, Argon (Ar) Gas Manufacture, Argon Gas Manufacture, Project Report on Oxygen Manufacturing Industry, Detailed Project Report on Industrial Gases Production, Project Report on Specialty Gases Plant, Pre-Investment Feasibility Study on Oxygen Manufacturing, Techno-Economic feasibility study on Nitrogen Production, Feasibility report on Nitrogen Production, Free Project Profile on Nitrogen Production, Project profile on Specialty Gases Plant, Download free project profile on Industrial Gases Production

Niir Project Consultancy Services (NPCS) can provide Detailed Project Report on

Production of Industrial Gases and Speciality Gases Mixture.

Investment & Business Opportunities in Oxygen, Nitrogen and Argon Gas Manufacturing Plant

See more

https://goo.gl/muLdPz

https://goo.gl/CPGJBX

npcs

www.entrepreneurindia.co

Visit us at

www.entrepreneurindia.co

Take a look at
Niir Project Consultancy Services
on #Street View

https://goo.gl/VstWkd

Locate us on

Google Maps

https://goo.gl/maps/BKkUtq9gevT2

OUR CLIENTS

Our inexhaustible Client list includes public-sector companies, Corporate Houses, Government undertaking, individual entrepreneurs, NRI, Foreign investors, non-profit organizations and educational institutions from all parts of the World. The list is just a glimpse of our esteemed & satisfied Clients.

Click here to take a look

https://goo.gl/G3ICjV

Free Instant Online Project Identification and Selection Service

Our 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.....Read more

Download Complete List of Project Reports:

- **Detailed Project Reports**

NPCS is manned by engineers, planners, specialists, financial experts, economic analysts and design specialists with extensive experience in the related industries.

Our Market Survey cum Detailed Techno Economic Feasibility Report provides an insight of market in India. The report assesses the market sizing and growth of the 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**

The detailed project report covers all aspect of business, from analyzing the market, confirming availability of various necessities such as Manufacturing Plant, Detailed Project Report, Profile, Business Plan, Industry Trends, Market Research, Survey, Manufacturing Process, Machinery, Raw Materials, Feasibility Study, Investment Opportunities, Cost and Revenue, Plant Economics, Production Schedule,

Working Capital Requirement, uses and applications, Plant Layout, Project Financials, Process Flow Sheet, Cost of Project, Projected Balance Sheets, Profitability Ratios, Break Even Analysis. The DPR (Detailed Project Report) is formulated by highly accomplished and experienced consultants and the market research and analysis are supported by a panel of experts and digitalized data bank.

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 India along with its business prospects.....Read more

Contact us

NIIR PROJECT CONSULTANCY SERVICES

106-E, Kamla Nagar, Opp. Spark Mall,

New Delhi-110007, India.

Email: npcs.ei@gmail.com , info@entrepreneurindia.co

Tel: +91-11-23843955, 23845654, 23845886, 8800733955

Mobile: +91-9811043595

Fax: +91-11-23845886

Website : www.entrepreneurindia.co , www.niir.org

Take a look at NIIR PROJECT CONSULTANCY SERVICES on #StreetView

https://goo.gl/VstWkd

NIIR PROJECT CONSULTANCY SERVICES

An ISO 9001:2015 Company

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

Requirement collection

Thorough analysis of the project

Economic feasibility study of the Project

Market potential survey/research

Report Compilation

Contact us

NIIR PROJECT CONSULTANCY SERVICES

106-E, Kamla Nagar, Opp. Spark Mall,

New Delhi-110007, India.

Email: npcs.ei@gmail.com , info@entrepreneurindia.co

Tel: +91-11-23843955, 23845654, 23845886, 8800733955

Mobile: +91-9811043595

Fax: +91-11-23845886

Website : www.entrepreneurindia.co , www.niir.org

Take a look at NIIR PROJECT CONSULTANCY SERVICES on #StreetView

https://goo.gl/VstWkd

Follow us

- https://www.linkedin.com/company/niir-project-consultancy-services
- https://www.facebook.com/NIIR.ORG
- https://www.youtube.com/user/NIIRproject
- https://plus.google.com/+EntrepreneurIndiaNewDelhi
- https://twitter.com/npcs_in
- https://www.pinterest.com/npcsindia/

For more information, visit us at:

www.niir.org

www.entrepreneurindia.co