

# **IODISED SALT**

## **1. INTRODUCTION:**

The manufacturing process of an iodized salt manufacturing project is not very complex. Iodized salt is ordinary common salt treated with potassium iodate 50PPM to induce right quantity of Iodine in the diet to enhance the iodine deficiency in the people across our country. Salt was the name originally given to the residue left by evaporation of sea water. Iodizing salt for human consumption is a modern trend. Iodine is used in the body formation of thyroxin an essential hormone. Salt is used as a medium in supply iodine to the body. Any individual can initiate iodized salt production business. Additionally, you can start as small scale basis with comparatively small startup capital investment.

## **2. PRODUCT & ITS APPLICATION:**

Any important industrial chemical processes are based on sodium chloride. Iodized salt contains 50 ppm of Potassium Iodate ( $KIO_3$ ), which is equivalent to 3.0025%. Iodized salt is more stable in moisture absorbing characteristics in open atmosphere. The stability of this kind of salt depends upon various factors like moisture content, polarized light, impurities like ferric chloride & Magnesium Sulphate. Worldwide, iodine deficiency affects about two billion people and is the leading preventable cause of intellectual and developmental disabilities. Deficiency also causes thyroid gland problems, including "endemic goiter". In many countries, iodine deficiency is a major public health problem that can be cheaply addressed by purposely adding small amounts of iodine to the sodium chloride salt. Iodine is a micronutrient and dietary mineral that is naturally present in the food supply in some regions, especially near sea coasts, but is generally quite rare in the Earth's crust, since iodine is a so-called "heavy" element and abundance of chemical elements generally declines with greater atomic mass. Where natural levels of iodine in the soil are low and the iodine is not taken up by vegetables, iodine added to salt provides the small but essential amount of

iodine needed by humans. An opened package of table salt with iodide may rapidly lose its iodine content through the process of oxidation and iodine sublimation. Iodized salt is a white crystalline powder salt fortified by Iodine. Most of the people of the country are at risk of iodine deficiency disorder (IDD) because their soil lacks iodine and because they lack access to foods which contain iodine. IDD can be easily avoided by consuming sufficient amount of salt fortified with Iodine. Salt fortification is a highly cost-effective method of ensuring that everyone receives a steady and continuous iodine supply. Iodized salt improves thyroid function, improves brain function, fights against depression, controls weight and many more. Increasing health awareness and spending capacity of the people are the key factors of the growing market of iodized salt.

### **3. DESIRED QUALIFICATIONS FOR PROMOTER:**

Anyone can start this project.

### **4. INDUSTRY LOOKOUT AND TRENDS**

Iodized salt (also spelled iodized salt) is table salt mixed with a minute amount of various salts of the element iodine. The ingestion of iodine prevents iodine deficiency. Worldwide, iodine deficiency affects about two billion people and is the leading preventable cause of intellectual and developmental disabilities. Deficiency also causes thyroid gland problems, including "endemic goiter". In many countries, iodine deficiency is a major public health problem that can be cheaply addressed by purposely adding small amounts of iodine to the sodium chloride salt.

### **5. MARKET POTENTIAL AND MARKETING ISSUES, IF ANY:**

The manufacturing process is simple, producing iodized salt by iodinating common salt. India is the third largest salt producing country in the world after the US and China. The present demand for the iodized salt is estimated at 281,514 tons per annum. However, industry experts expect that the demand will reach 413,412 tons by the year 2020. At present there

are more than 40 iodization plants, among the 2 plants are vacuum evaporating and other plants are using wet spray refining process. The demand of iodized salt is more than 60 Lac tons per year as per the Ministry of Health survey. To meet this requirement, more production capacities are required. The bulk of the common salt produced in India goes for human consumption. A good and stable market exist for this product. Common Salt is in the form of colorless cubic crystals. It precipitates when heated. It is readily soluble in water with pH value between 6.7-7.3 of aqueous solution. Iodized salt contains 25 ppm of Potassium Iodate (KIO<sub>3</sub>).

## **6. RAW MATERIAL REQUIREMENTS:**

The unit will require a total connected load of 100 KVA and a maximum demand of 80 KVA. Water requirement is about 1500 KL per annum. The requirement of raw materials for the production of 6000 Tonnes of Iodized Salt per annum is as under:

Raw Salt	:	6000 MT
Potassium Iodate	:	3000 Kg

## **7. MANUFACTURING PROCESS:**

The Raw Salt is fed to conical shaped hopper and is crushed with a High carbon steel Roll crusher to the size of 2-3 mm. This salt is conveyed through an inclined conveyor to discharge point at ground. The 0.1% aqueous solution of potassium Iodate is sprayed over a mixing bed of salt of thickness 10-15cm, by air pressure. This iodized salt is mixed in a horizontal mixer for uniform mixing of Iodine. This salt is bagged from the hopper in fixed amount. Alternatively it can be packed in one Kg poly pack for direct sales.

## **8. MANPOWER REQUIREMENT :**

The enterprise requires 10 employees as detailed below:

Sr. No.	Designation	Salary	Salary ₹	Number	Number	Number	Number	Number
	<b>Working Staff</b>		<b>Per Annum</b>	<b>Year-1</b>	<b>Year-2</b>	<b>Year-3</b>	<b>Year-4</b>	<b>Year-5</b>
1	Production Manager	18000	18000	1	1	1	1	1
2	Operators	20000	40000	2	2	2	2	2
3	Helpers	12000	48000	4	4	4	4	4
			106000	7	7	7	7	7
1	<b>Fixed Staff:</b>							
2	Admin Manager	15000	15000	1	1	1	1	1
3	Accounts/Assistant	12500	12500	1	1	1	1	1
	Office Boy	9000	9000	1	1	1	1	1
	<i>Sub-Total</i>		36500	3	3	3	3	3
	Total		142500	10	10	10	10	10

## 9. IMPLEMENTATION SCHEDULE:

The project can be implemented in 4 months' time as detailed below:

Sr. No.	Activity	Time Required
1	Acquisition of premises	2.00
2	Construction (if applicable)	2.50
3	Procurement & installation of Plant & Machinery	2.50
4	Arrangement of Finance	1.00
5	Recruitment of required manpower	1.00
	Total time required <i>(some activities shall run concurrently)</i>	4.00

## 10. COST OF PROJECT:

The project shall cost ₹ 88.60lacs as detailed below:

Sr. No.	Particulars	₹ in Lacs
1	Land	5.00
2	Building	5.00
3	Plant & Machinery	36.00
4	Furniture, other Misc. Equipments	3.00

5	Other Assets including Preliminary / Pre-operative expenses	3.60
6	Margin for Working Capital	36.00
	<b>Total</b>	<b>88.60</b>

## 11. MEANS OF FINANCE:

	Particulars	₹ in Lacs
1	Promoter's contribution	22.15
2	Bank Finance	66.45
	<b>Total</b>	<b>88.60</b>

## 12. WORKING CAPITAL CALCULATION:

The project requires working capital of ₹ 10.80 lacs as detailed below:

Sr. No.	Particulars	Gross Amt	Margin %	Margin Amt	Bank Finance
1	Inventories	18.00	0.25	4.50	13.50
2	Receivables	9.00	0.25	2.25	6.75
3	Overheads	9.00	100%	9.00	0.00
4	Creditors	-		0.00	0.00
	<b>Total</b>	36.00		15.75	20.25

## 13. LIST OF MACHINERY REQUIRED:

The major and important plant and machineries require for this projects are roll type 450 mm width & 6.8 meters length crushing units, Spraying chamber (SS) for Potassium Iodate spray. Mixing Screw Conveyor 3 meter long, SS Storage tank (100 ltrs) for potassium Iodate solution. Air Compressor, Capacity 26 c.f.m.

Sr. No.	Particulars	UOM	Qty	Rate (₹)	Value
					(₹ in Lacs)
	<b>Plant &amp; Machinery / Equipments</b>				
<b>a)</b>	<b>Main Machinery</b>				
1	Crushers	NOS	1	15.00	15.00
2	Spray Chamber	NOS	1	8.00	8.00
3	Belt Conveyor	NOS	1	3.50	3.50
4	Testing, Packing Machine	L.S.	1	4.00	4.00
5	Utility Equipments	L.S.	1	1.25	1.25
	Installation, Taxes And Transportation	L.S.		3.25	3.25
	<i>Sub-Total</i>				<b>36.00</b>
	<b>Furniture / Electrical Installations</b>				
a)	Office Furniture	LS	1	100000	1.00
b)	Stores Cupboard	LS	1	100000	1.00
c)	Computer & Printer	LS	1	100000	1.00
	<i>Sub Total</i>				<b>3.00</b>
	<b>Other Assets</b>				
a)	Preliminary And Preoperative				3.60
	<i>Sub-Total Other Assets</i>				3.60
	<b>Total</b>				<b>42.60</b>

All the machines and equipments are available from local manufacturers. The entrepreneur needs to ensure proper selection of product mix and proper type of machines and tooling to have modern and flexible designs. It may be worthwhile to look at reconditioned imported machines, dies and tooling. Some of the machinery and dies and tooling suppliers are listed here below:

1. Fry-Tech Food Equipments Private Limited  
S. No. 4, Raviraj Industrial Estate,

Bhikhubhai Mukhi Ka Kuwa Bharwadvash,  
Ramol, Ahmedabad - 380024,  
Gujarat, India

2. Hindustan Vibrotech Pvt. Ltd.

Office No. 2, Ground Floor,  
Vrindavan Building, Vile Parle East,  
Mumbai – 400057,  
Maharashtra, India

3. Electronics cooling systems Pvt. Ltd.

S-27, SIDCO Industrial Estate  
Kakkalur Industrial Estate  
Tiruvallur – 602003,  
Tamil Nadu, India

4. Springboard Enterprises India Ltd.

1st, 2nd & 3rd Floor,  
Plot No. 7, 8 & 9,  
Garg Shopping Mall,  
Service Centre, Rohini Sector 2  
New Delhi – 110085,  
Delhi, India

5. Flour Tech Engineers Private Limited

Plot No. 182, Sector 24,  
Faridabad - 121005,  
Haryana, India

6. P Square Technologies

3, Swami Mahal,  
Gurunanak Nagar,

Off. Shankarsheth Road Bhavani Peth,  
Pune - 411002,  
Maharashtra, India

7. Ricon Engineers

10 To 13, Bhagwati Estate,  
Near Amraiwadi Torrent Power,  
Behind Uttam Dairy,  
Rakhial, Ahmedabad - 380023,  
Gujarat, India

8. Kamdhenu Agro Machinery

Plot No. 6, Near Power House,  
Wathoda Road Wathoda,  
Nagpur - 440035,  
Maharashtra, India

**14. PROFITABILITY CALCULATIONS:**

Sr. No.	Particulars	UOM	Year-1	Year-2	Year-3	Year-4	Year-5
1	Capacity Utilization	%	60%	70%	80%	90%	100%
2	Sales	₹. In Lacs	108.00	126.00	144.00	162.00	180.00
3	Raw Materials & Other direct inputs	₹. In Lacs	84.55	98.64	112.74	126.83	140.92
4	Gross Margin	₹. In Lacs	23.45	27.36	31.26	35.17	39.08
5	Overheads except interest	₹. In Lacs	5.10	5.42	6.06	6.25	6.38
6	Interest @ 10 %	₹. In Lacs	6.65	6.65	4.43	3.32	2.66
7	Depreciation @ 30 %	₹. In Lacs	10.80	7.56	5.51	4.32	3.24
8	<b>Net Profit before tax</b>	₹. In Lacs	<b>0.90</b>	<b>7.73</b>	<b>15.26</b>	<b>21.28</b>	<b>26.80</b>



The basis of profitability calculation:

This unit will have capacity of 20 TONES PER DAY. The growth of selling capacity will be increased 10% per year. (This is assumed by various analysis and study; it can be increased according to the selling strategy.)

Energy Costs are considered at 7INR/Kwh and fuel cost is considered at Rs. 65 per liter. The depreciation of plant is taken at 10-12 % and Interest costs are taken at 14 -15 % depending on type of industry.

## 15. BREAKEVEN ANALYSIS:

The project shall reach cash break-even at 23.13 % of projected capacity as detailed below:

Sr. No.	Particulars	UOM	Value
1	Sales at full capacity	₹. In Lacs	180.00
2	Variable costs	₹. In Lacs	140.92
3	Fixed costs incl. interest	₹. In Lacs	9.04
4	$BEP = FC/(SR-VC) \times 100 =$	% of capacity	23.13%

## 16. STATUTORY / GOVERNMENT APPROVALS

The Ministry of Food Processing Industries has been operating several plan schemes for the development of processed food sector in the country during the 10th Plan. One of the schemes relates to the Technology Up-gradation/ Establishment/ Modernization of food processing industries.

The Indian food processing industry is regulated by several laws which govern the aspects of sanitation, licensing and other necessary permits that are required to start up and run a food business. The legislation that dealt with food safety in India was the Prevention of Food Adulteration Act, 1954 (hereinafter referred to as "**PFA**"). The PFA had been in place for over five decades and there was a need for change due to varied reasons which include the changing requirements of our food industry. The act brought into force in place of the PFA is

the Food Safety and Standards Act, 2006 (hereinafter referred to as "**FSSA**") that overrides all other food related laws.

FSSA initiates harmonization of India's food regulations as per international standards. It establishes a new national regulatory body, the Food Safety and Standards Authority of India (hereinafter referred to as "**FSSAI**"), to develop science based standards for food and to regulate and monitor the manufacture, processing, storage, distribution, sale and import of food so as to ensure the availability of safe and wholesome food for human consumption. Entrepreneur may contact State Pollution Control Board where ever it is applicable.

**All food imports will therefore be subject to the provisions of the FSSA and rules and regulations which as notified by the Government on 5th of August 2011 will be applicable.**

#### **Key Regulations of FSSA**

- A. Packaging and Labelling
- B. Signage and Customer Notices
- C. Licensing Registration and Health and Sanitary Permits

## **17. BACKWARD AND FORWARD INTEGRATIONS**

The objective of the scheme is to provide effective and seamless backward and forward integration for processed food industry by plugging the gaps in supply chain in terms of availability of raw material and linkages with the market. Under the scheme, financial assistance is provided for setting up of primary processing centers/ collection centers at farm gate and modern retail outlets at the front end along with connectivity through insulated/ refrigerated transport.

The Scheme is applicable to perishable horticulture and non-horticulture produce such as, fruits, vegetables, dairy products, meat, poultry, fish, Ready to Cook Food Products, Honey, Coconut, Spices, Mushroom, Retailers Shops for Perishable Food Products etc. The Scheme would enable linking of farmers to processors and the market for ensuring remunerative prices for agri produce.

The scheme is implemented by agencies/ organizations such as Govt./ PSUs/ Joint Ventures/ NGOs/ Cooperatives/ SHGs / FPOs / Private Sector / individuals etc.

**Backward Linkage:**

- Integrated Pack-house(s) (with mechanized sorting & grading line/ packing line/ waxing line/ staging cold rooms/cold storage, etc.)
- Pre Cooling Unit(s)/ Chillers
- Reefer boats
- Machinery & equipment for minimal processing and/or value addition such as cutting, dicing, slicing, pickling, drying, pulping, canning, waxing, etc.
- Machinery & equipment for packing/ packaging.

**Forward Linkage:**

- Retail chain of outlets including facilities such as frozen storage/ deep freezers/ refrigerated display cabinets/cold room/ chillers/ packing/ packaging, etc.
- Distribution centre associated with the retail chain of outlets with facilities like cold room/ cold storage/ ripening chamber.

**18. TRAINING CENTERS AND COURSES**

There are few specialised Institutes provide degree certification in Food Technology, few most famous and authenticate Institutions are as follows:

1. Indian Institute of Food Science & Technology,  
Plot No.1, Near Maa-Baap ki Dargah,Opp to Nath Seeds,  
Paithan Road Aurangabad  
Aurangabad - 431005  
Maharashtra, India
2. MIT College of Food Technology, Pune  
Gate.No.140, Raj Baugh Educational Complex,  
Pune Solapur Highway,  
Loni Kalbhor, Pune – 412201

Maharashtra, India

3. CSIR - Central Food Technological Research Institute (CFTRI)  
Cheluvamba Mansion, Opp. Railway Museum,  
Devaraja Mohalla, CFTRI Campus, Kaggihundi, Mysuru  
Karnataka – 570020

Udyamimitra portal ( link : [www.udyamimitra.in](http://www.udyamimitra.in) ) can also be accessed for handholding services viz. application filling / project report preparation, EDP, financial Training, Skill Development, mentoring etc.

Entrepreneurship program helps to run business successfully is also available from Institutes like Entrepreneurship Development Institute of India (EDII) and its affiliates all over India.

**Disclaimer:**

Only few machine manufacturers are mentioned in the profile, although many machine manufacturers are available in the market. The addresses given for machinery manufacturers have been taken from reliable sources, to the best of knowledge and contacts. However, no responsibility is admitted, in case any inadvertent error or incorrectness is noticed therein. Further the same have been given by way of information only and do not carry any recommendation.