

**Commissioner of Industries  
Hyderabad  
Andhra Pradesh**

## **Annato Dyes**

### **1. Nature of the Product and Its Applications:**

The parent of annato dye is a shrub native to tropical locations. This is called Bixa Orellana. It is now naturalised in India in forest areas. Colours which are permitted to be added to food and edible materials are food colours. These are usually harmless, water soluble or oil soluble and added to butter and similar foods.

The main use is to distinguish margarine etc., from other milk products. Annato dye is widely used for colouring of food materials like dairy products, oils and bakery products. More of it is used in cosmetics preparation like lip-sticks, furniture, dyeing of leather and shoe polishes etc. It is also used in sun tans, floor wax, etc.

### **2. Market Potential :**

The main market is from foreign buyers. Fast and convenient foods are a major sector where these dyes find a market to attract customers. Due to its non-toxic nature, it is widely used in colouring good materials like butter, ghee, margarine, cheese and chocolate. These products promise a good and vast market for the dye. Due to foreseen pollution problems and environmental erosions, synthetic dyes will soon be out of use at least in food preparations and products like annato dyes will catch up.

### **3. Technology/Manufacturing Process :**

Crystal like pure form of annato dye is produced via batch type percolation technique using counter current extraction of annato seeds with selective solvents and further recovery of solvent and vacuum dehydration of concentrated dye to a crystal like form. This crystal like dye can be further used in the form of water soluble, oil soluble or refined powder. There are other methods too. Seeds are bruised and the pulp macerated with hot water in wooden vessels and soaked till colour settles, etc or boiling the seeds with sodium carbonate solution.

### **4. Capacity :**

12 TPA dye with 120 TPA oleoresin (II GRADE) AS BY PRODUCT GOES OK with the projection for a feasible project.

### **5. Raw Materials :**

Annato seeds are available in the forest regions of Vizag and Srikakulam in Andhra Pradesh, Trivandrum, Malabar and Coromandal Coasts in Kerala and some districts of West Bengal, Maharashtra, Assam, Karnataka, Orissa and Madhya Pradesh. These are available either in Orange or Red colour.

### **6. Plant and Machinery :**

The major equipments required are as below:

- Glass lined reactors
- Stainless steel reaction vessels

- Pulveriser
- Crystalliser
- Centrifuge
- Filters
- Dryers
- Granulator Demineralised water plant
- Percolator
- Chilled water plant
- Boiler
- Homogenisers, etc

The total cost of plant and machinery will be Rs. 34.65 lakhs.

#### 7. Plant Location :

Best location will be nearer to the areas where the raw material availability is good and in areas, as said earlier.

#### 8. Other Features :

Era of synthetic dyes will go oblivion in few decades because of the inherent environmental problems of these products and hence world is concentrating much on natural dyes. This is one such promising product for safe future.

#### 9. Pollution Control Measures :

No special precautions are required.

#### 10. Utilities :

Power : 7 HP  
 Water : 5 KL/day (For processing alone)  
 Fuel : 80 LPD

The approximate expenditure towards utilities per year will be Rs. 2.23 lakhs (3rd year).

#### 11. Manpower Requirement :

The skeletal requirement of manpower for the project will be as below:

Particulars	Nos.	Salary/month/person
Manager	1	Rs. 2,500
Clerk	1	Rs. 1,500
Security	1	Rs. 1,000
Supervisor	1	Rs. 2,000
Semi-skilled Workers	4	Rs. 1,250
Unskilled Workers	4	Rs. 1,000

The annual wage bill will work out of Rs. 1.92 lakhs.

## 12. Project Cost :

Particulars	Rs. Lakhs
Land, buildings & civil works	20.13
Plant and machinery	34.65
Other fixed assets	1.50
POP expenses	1.90
Working capital margin	2.33
Deposits	0.25
Total	60.75

Out of this, the promoters' contribution will be Rs. 23.22 lakhs and the rest to be met by institutional loans.

## 13. Break Even Point :

At 700% capacity utilisation.

Particulars	Rs. Lakhs
Raw materials	21.00
Consumables	1.20
Utilities	2.23
Packaging material	3.99
Repairs, etc	1.08
Interest on working capital	1.62
Wages	1.59
Total variable expenses	32.71
Depreciation	2.13
Admn. salaries	0.72
Admn. expenses	7.18
Interest	4.43
POP Expenses	0.19
Total fixed/semivariable expenses	14.66

Sales realisation : 14.66  
BEP at 70% capacity utilisation : 31.14%  
BEP at installed capacity : 21.80%

## 14. Equipment Suppliers:

1. M/s Billy Engg Enterprises, Chennai
2. M/s Sulzer Brothers, Mumbai
3. M/s ATV Projects India Ltd. Mumbai
4. M/s Texmaco Ltd, Calcutta

5. M/s L&T Ltd, Mumbai
6. M/s Technochem Engrs., Ratlam

15. Raw Material Suppliers :

1. M/s National Organic Chemical & Industries Ltd.,  
Mafatal Centre, Nariman Point  
Mumbai 21
2. M/s Satyen Chemical Industries  
Baria Bldg., 1st Floor  
Opp. Cramford Mkt. Mumbai 3
3. Agricultural Farms
4. Cooperative Seed Producers Federation, etc