

## **PROJECT PROFILE**

PRODUCT : P V C COMPOUND

NIC PRODUCT CODE : 316204005

QUALITY STANDARD : AS PER CUSTOMER'S  
SPECIFICATION

PRODUCTION CAPACITY : (i) QUANTITY - 360 MT  
(ii) VALUE - Rs.2,91,60,000/-

MONTH & YEAR OF PREPARATION : JANUARY, 2011

PREPARED BY -

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## **PROJECT PROFILE ON P.V.C. COMPOUND**

### **I. INTRODUCTION :**

PVC is undoubtedly a very versatile thermoplastic material commercially available in a variety of compounded form to cover a wide range of flexibility and hardness for host of applications. Its physical strength and resistance to water and most of chemicals makes its popular plastic for wide variety of products.

In general, PVC material is difficult to ignite and self extinguishing (when flame removed) property/ characteristic make it important thermoplastic. Thermal degradation, an inherent property, makes it difficult to process and makes proper compounding essential, which needs incorporation of thermal stabilizers, internal and external lubricants, plasticizers (when softness is required), opacifier, anti UV agents (for outdoor use) etc.

Compounding of PVC is critical as economy and better quality are critical factors to control, uniform dispersion of additives is necessary to make good compound. The conventional type of machinery & equipment used for compounding are high speed mixer, ribbon blenders and extruders.

PVC Compounds, in general, may be divided into two groups i.e. Granulated Compound where mix is fused and extruded in pellets form and Dry Blend where resultant compound is often in free flowing powder form.

### **2.0 MARKET POTENTIAL :**

PVC Compounds are used extensively both in pellet and dry blend forms for wide variety of products ranging from flexible to rigid, plasticised to unplasticised for the manufacture of items like pipes, conduits, tubings, cables, shoes, footwear, films, sheating, moulded products etc.

With the increasing demand of above products, the consumption of PVC Compound is also rising proportionately. Construction activity is growing at fast pace so the demand for PVC Compounds is also increasing.

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### 3.0 BASIS & PRESUMPTIONS :

- (i) The project is based production capacity on single shift basis at 70% efficiency and 300 working days in a year.
- (ii) The cost of machinery & equipment and raw materials as indicated refers to a particular make and prices are approximate and are those obtained prevailing at the time of preparation of this profile.
- (iii) The rate of interest on investment is taken at 15% on an average and BEP in the profile has been calculated on full capacity.
- (iv) Where as some names of manufacturers/ suppliers of Machinery & Equipment, Raw materials etc. are indicated at the end of the profile, these are by no means exclusive or exhaustive.

### 3.0 IMPLEMENTATION SCHEDULE :

The following steps involved in the implementation of the project.

i)	Selection of Site	1 month
ii)	Preparation of Detailed Project Report	2 weeks
iii)	Filing of EM	1 week
iv)	Procurement of Machinery	3 months
v)	Construction of Building	3 months
vi)	Power Connection	1 month
vii)	Arranging Finance	2 months
viii)	Appointment of Staff & Labour	1 month
ix)	Trial Run	1 week

### 4.0 TECHNICAL ASPECTS :

#### 4.1 Process Outline :

- 4.1.1. **Dry Blends:** PVC Resin is added to high speed mixer and stirred for few minutes to remove volatile impurities and moisture. Measured qualities of plasticizer, heat stabilizer, pigments, filler, opacifiers etc, are added as per formulation and mixer run for few minutes. High speed and increase in temperature due to rotation helps to disperse the additives uniformly. Lubricants are added at the end and mixer is run for a few more minutes.

Blended mixer is discharged to cooler mixer is to allow the dry blends to cool down to room temperature. Final dry blend is packed in sacks for dispatch.

#### **4.1.2 Granulated Compound :**

The process of mixing the PVC compounding ingredient in the form of a powder compound is described as above. This powder compound is then fed to extrusion unit and extruded in the form of solid chords which are then cut in the form of pellets.

#### **4.1.3 Typical Formulations**

Certain typical formulations for PVC Compound required for some general purpose applications are as appended below. However, the actual formulations would depend on the performance requirements of the end product for which the compounds are formulated and also the cost considerations.

##### **4.1.3.1 Unplasticised Rigid PVC Pipes**

			<u>Parts by weight</u>
(i)	PVC resin	-	100
(ii)	Heat Stabilisers (non toxic)	-	5 – 6
(iii)	Internal lubricants	-	3
(iv)	External lubricants	-	4
(v)	Fillers	-	3 – 5
(vi)	Pigments & Colourants	-	0.5

##### **4.1.3.2 Wires & Cables (Electrical)**

(i)	PVC resin	-	100
(ii)	Stabiliser	-	3
(iii)	Primary Stabiliser	-	3.0
(iv)	Secondary Plasticiser	-	25
(v)	Lubricant	-	1
(vi)	Filler	-	40 – 50
(vii)	Pigment & Colourants	-	As per requirements

#### **4.1.3.3 Rigid PVC Sheet**

(i)	PVC resin	-	100
(ii)	Stabiliser	-	3
(iii)	Organic Chelater	-	1
(iv)	Lubricants	-	0.5

#### **4.1.3.4 Clear Tubings**

(i)	PVC resin	-	100
(ii)	Stabilizer	-	3
(iii)	Primary Stabilizer	-	3
(iv)	Internal Lubricant	-	0.5
(v)	External Lubricant	-	0.5
(vi)	Organic Chelater	-	0.75 – 1.0
(vii)	Blue Pigment	-	As per requirements

#### **4.2 QUALITY CONTROL & STANDARDS :**

No specific Standards have been laid down for PVC Compound. However, quality of the compound shall depend upon the performance requirement of the product for which a compound is formulated.

Hence, PVC compounds are normally manufactured as per Customer's Specifications.

#### **4.3 PRODUCTION CAPACITY (ANNUAL) :**

Quantity : 360 M.T.

Value : Rs.2,91,60,000/-

#### **4.4 MOTIVE POWER :**

The unit would need approximate 7,500 KW Electric Motive Power per month.

#### **4.5 POLLUTION CONTROL :**

Although the manufacturing of PVC Compound is not a pollution prone manufacturing activity, however, it is advisable that NOC must be obtained from State Pollution Control Board (SPCB) before commencement of commercial activity.

Proper utilization / recycling of water used in cooler mixer and cooling bath should be optimized and effluent should be discharged only after ascertaining the parameters in accordance with PCB Rules & Regulations.

**4.6 ENERGY CONSERVATION :**

For conservation of energy shunt capacity for electric motors, thermal insulation for chill water line and heaters are suggested besides maintaining power factor.

**5.0 FINANCIAL ASPECTS :**

**5.1 Fixed Capital**

**5.1.1 Land & Building**

Land	400 Sq. Meter	4,00,000
Built up Area	325 Sq. Meter	12,00,000
Working Shed, Laboratory, Office, Godown.		----- 16,00,000 -----

**5.1.2 Machinery & Equipment :**

1.	<b><u>Mixing Unit</u></b>	<u>Nos.</u>	<u>Rs.</u>
	High Speed Mixer, Capacity 50 Kg. Batch size for construction material S.S. with Air tight lid with opening and closing device mounted on steel frame and 25 HP motor with cooling trays fitted with all accessories.	2	14,00,000

<b>2. <u>Extrusion Unit</u></b>			
Extruder 65mm, twin screw with AC drive, Reduction Gear fitted with 10 H.P. Motor with die head, control panel for heating control, starter, switches, thermocouples etc. with petteting unit and water cooling trough fitted with guides.	2 Nos.		18,00,000
3. Scrap Grinder with 3 H.P. Motor	1 No.		1,50,000
4. Maintenance tools & Equipments	L.S.		25,000
5. Testing & Quality Control Equipments	L.S.		60,000
6. Electrification and installation charges @ 10% of cost of machinery & equipment			3,43,500
7. Dies and other fixtures			75,000
8. Office Equipment & Furniture with Computer, Printer etc.			1,00,000
			-----
	<b>Total</b>		<b>39,53,500</b>
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**5.1.3 Total Fixed Capital**

(i) Land & Building		16,00,000
(ii) Plant & Machinery		39,53,500
(iii) Pre Operative Expenses		21,500
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		<b>55,75,000</b>

**5.2 Working Capital (Per Month) :**

**5.2.1 Staff & Labour (Per Monh)**

Production Engineer	1	7,500	7,500
Accountant	1	4,000	4,000
Peon / Chowkidar	1	2,200	2,200
<b>Technical Staff :</b>			
Skilled Worker	4	4,000	16,000
Unskilled Worker	6	2,200	13,200
			-----
			42,900
		Add 15% perquisites	6,435
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			<b>49,335</b>
	<b>Say</b>		<b>49,500</b>

**5.2.2 Raw Materials (Per Month)**

	<u>Qty.</u>	<u>Rate/Kg</u>	<u>Cost (Rs.)</u>
PVC Resin	20 M.T.	61/-	12,20,000/-
DOP	5 M.T.	104/-	5,20,000/-
CPW 40%	1 M.T	45/-	45,000/-
Fillers	3.2 M.T.	9/-	28,800/-
Stabilizer	600 Kg.	125/-	75,000/-
Epoxy	200 Kg.	75/-	15,000/-
Pigments	L.S.		15,000/-
Other additives and Packaging Materials			

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**19,18,800/-**  
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**5.2.3. Utilities (Per Month)**

(i)	Electricity	7500 KW @ 5.50 per kwh.	41,250/-
(ii)	Water	L.S.	1,000/-

**Total :** -----  
**42,250/-**  
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**5.2.4 Other Contingent Expenses (Per Month)**

(i)	Postage & Stationery		1,000/-
(ii)	Telephone		500/-
(iii)	Repair & Maintenance		1,000/-
(iv)	Transport		5,000/-
(v)	Advertisement & Publicity		2,500/-
(vi)	Insurance		1,800/-
(v)	Packaging		8,000/-

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**19,800/-**  
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**5.2.5 Working Capital (Per Month)**

(i)	Staff & Labour		49,500/-
(ii)	Raw Materials		19,18,800/-
(iii)	Utilities		42,250/-
(iv)	Other Expenses		19,800/-

**Total:** -----  
**20,30,350/-**  
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## 6.0 WORKING CAPITAL FOR 3 MONTHS :

$$20,30,350 \times 3 = 60,91,050/-$$

## 7.0 TOTAL INVESTMENT :

(i)	Fixed Capital	55,75,000/-
(ii)	Working Capital (for 3 months)	60,91,050
	<b>Total :</b>	<b>1,16,66,050/-</b>
	<b>Say</b>	<b>1,16,66,000/-</b>

## 8.0 FINANCIAL ANALYSIS :

### 8.1. Cost of Production (Per Annum) :

(i)	Total Recurring Expenses	2,43,64,200/-
(ii)	Depreciation on Building @ 5%	60,000/-
(iii)	Depreciation on Plant & Machinery @ 10% of cost.	3,85,350/-
(iv)	Depreciation on Office & Furniture	20,000/-
(v)	Interest on Investment @ 15%	17,49,900/-
	<b>Total</b>	<b>2,65,79,450/-</b>

### 8.1 Turn Over (Annual) :

By sale of 360 M.T. of PVC Granules @81,000 per M.T.	2,91,60,000/-
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### 8.3 PROFITABILITY (PER ANNUM) :

8.3.1	Total Profit (Before Tax)	25,80,550/-
8.3.2	Net Profit Ratio	- 8.8%
8.3.3	Rate of Return on Investment	- 22.1%

### 8.3.4 Break Even Point (BEP):

#### (A) Fixed Cost (FC):

(i)	Depreciation	-	4,65,350/-
(ii)	40% of Salary	-	2,37,600/-
(iii)	40% of Other Expenses	-	86,400/-
(iv)	Interest on Investment	-	17,49,900/-
(v)	Insurance	-	21,600/-
			<b>25,60,850/-</b>

(B) Profit (P) : **25,80,550/-**

$$\frac{FC \times 100}{FC + P} = \frac{2560850 \times 100}{2560850 + 2580550} = 49.8\%$$

### 9.0 NAMES & ADDRESSES OF MACHINERY & EQUIPMENT SUPPLIERS

- 1) M/s Kabra Extrusion Technik Ltd.,  
402, Lalita Complex, Opp. HDFC, Navrangpura,  
Ahmedabad – 380009.  
Phone: 079-26564828, Fax: 079-26427281
- 2) M/s M.N. Panchal & Co.,  
Plot No. 23-24/A, Gopal Indl. Estate,  
Behind Harshad Chambers, Opp. Vallabh Nagar High School,  
Odhav, Ahmedabad.  
Phone: 22879204, Fax: 079-22870204.
- 3) M/s Pioneer Engineering Corporation,  
E-14, Ansa Indl. Estate, Saki Vihar Road,  
Sakinaka, Andheri (E), Mumbai – 400072.  
Phone: 022-28473143 Fax: 022-28473787
- 4) M/s Jogendra Engineering Works Pvt. Ltd.,  
B-6, 70 Ram Road,  
New Delhi – 110 015.  
Phone: 011-25442112 Fax:011-25453836

- 5) M/s V.K. Engineering Works,  
2 Heera Bari (Near S.K. Industries),  
Jhotwara Indl. Area, Jaipur – 302012.  
Phone: 0141-2346878.
- 6) M/s Shree Radhakrishna Extrusion Pvt. Ltd.,  
Plot No.C-1-4 509, Phase-IV,  
Behind Techno Industries Ltd., Vatva, GIDC,  
Ahmedabad – 382 445  
Phone: 07925842509, 2584-1785.

**10.0 NAMES & ADDRESSES OF RAW MATERIAL MANUFACTURERS/  
SUPPLIERS :**

**10.1 PVC Resin**

- 1) M/s Reliance Industries,  
Maker Chambers-IV, 222,  
Nariman Point, Mumbai – 400 021.  
Phone: 022-22785000
- 2) M/s Shriram Vinyl & Chemical Industries,  
Kirti Mahal, 19, Rajendra Place,  
New Delhi – 110129.  
Phone: 011-25713442, 25714006

**10.2 Lubricants, Pigments & other additives**

- 1) M/s Calchem Industries (India) Ltd.,  
61-62, MIDC Industrial Area, Village- Dhatav,  
Rodha, Distt. Raigad – 402116 (MS)  
Phone: 0219-2363734, 263833.
- 2) M/s Shri Ram Sons Wax Pvt. Ltd.,  
181, Tilak Bazar, New Delhi – 110 006.  
Phone: 011-23927312 Fax: 011-23927312
- 3) M/s Viraver Chemicals,  
12, Mills Officers Colony, Opp. Times of India,  
Ashram, Ahmedabad.  
Phone: 26582199, 26581780.

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