Project Profile
DISPOSABLE SYRINGE

Product: DISPOSABLE SYRINGE

Product Code (NIC 2004) for Syringe: 33112

Product Code: (Based on ASICC -2000) for Syringe: 79537

Production Capacity:

<table>
<thead>
<tr>
<th>Syringe Type</th>
<th>Capacity (Pieces)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5 ml</td>
<td>93,24,000</td>
</tr>
<tr>
<td>5 ml</td>
<td>1,46,18,900</td>
</tr>
</tbody>
</table>

Total Production Capacity: 2,39,42,900

Month & Year of Preparation: December 2010

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DISPOSABLE SYRINGE

Introduction
Disposable Syringes made of plastic Material have been successfully used in medical and pharmaceutical practice for many years. The constantly increasing use of this type Syringe indicates its importance. Which is based mainly on the advantages it offers regarding cost and hygienic applications.

The manufacture of plastic syringes has been developed to such a degree that the products now satisfy the requirements and standards set by Hospital and physicians. At the same time they offer the best possible technique of application to the physician and the highest possible degree of safety to the patient.

Plant Capacity per annum
30 million syringe of 2.0 and 5.0 ml capacity each of 15 million nos. in 3 shifts per day and 300 day per year.

Market & Demand Aspects:
There are many manufacturer of disposable syringe in the country. Out of which about 5-6 units are under small-scale sector. The total installed capacity is to be about 400 million and actual production is about 350 million. Only one unit in Haryana with capacity of 50 million syringe.

Production in small-scale industry has not been considered because it is quite insignificant as compared to organized units and may eventually of cheaper and quality products from organize sector.

The Present demand of Disposable Syringe is being adequately met by indigenous production. In increasing awareness in health care, AIDs and like diseases and improvement in per capita income is expected to create further growth in demand of disposable syringe / needles. Since there is in need to add few more new units for manufacturing of Disposable Syringe. The growth in domestic demand may be conservatively expected to be 25% per annum. Assuming constant export of 100 million syringes /year only. One additional unit every year with 25 million
product shall be needed to increase in indigenous demand alone besides increase in export quantities is likely to be the further aggravate the demand. The Industry is exporting about 80 million syringes annually which is reasonably spread amongst various units. The measure Importing country is Russia. (For sustained exports on durable basis, accreditation under ISO:14000 or ISP 9000 is mandatory. Imports are limited to certain sizes like 10, 20 and 50 ml because of relatively uneconomical demand quantities in such sizes. The total imported in all size may be 35-40 million pieces.

**Raw Materials**

30 million syringe of 2.0 and 5.0 ml capacity each of 15 million nos. in 3 shifts per day and 300 day per year.

<table>
<thead>
<tr>
<th>Raw Material</th>
<th>Annual Requirement</th>
<th>Unit price Rs./sq.Mt./Nos.</th>
<th>Cost per Annum.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Polypropylene (tons)</td>
<td>132</td>
<td>57,000</td>
<td>75,24,000</td>
</tr>
<tr>
<td>2. Stampings (sq. Mt.)</td>
<td>22500</td>
<td>20,000</td>
<td>4,50,000</td>
</tr>
<tr>
<td>3. Ethylene oxide (tons)</td>
<td>6</td>
<td>50,000</td>
<td>3,00,000</td>
</tr>
<tr>
<td>4. Packing Paper (sq. Mt.)</td>
<td>151500</td>
<td>2.50 per sq.mt</td>
<td>3,79,000</td>
</tr>
<tr>
<td>5. Packing foil (sq. Mt.)</td>
<td>157500</td>
<td>10/- per sq.mt</td>
<td>15,75,000</td>
</tr>
<tr>
<td>6. Packing boxeses (Nos.)</td>
<td>300000</td>
<td>8/- per</td>
<td>24,00,000</td>
</tr>
<tr>
<td>7. Others</td>
<td>lot</td>
<td>Lump- Sum</td>
<td>5,72,000</td>
</tr>
</tbody>
</table>

Packing material cost is put in raw material cost.

**Manufacturing Process and Source of Technology**

The cylinder and pistons are produced by injection moulding machines, which are fed by individual granule feeding systems in different parts to be moulded determine the relevant types and quantities of raw material to be supplied by the feeding lines. Clamping force, Temperature, Dosing and injection pressure of raw material and clamping time of the machine are automatically controlled so that disturbance or faults in production should occur very rarely and wastes are kept at the lowest possible rate.
The Scrapes are separated from the moulded parts, which are then transported in, to a control channel. A conveyor belt situated below the machine removes the scrapes. For shrinking to their required dimensions. The moulded parts are packed in to plastic containers or bags and are deposited in an air conditioned interim storage room for at least one or two days.

After the shrinking is completed, the scales and the product logo are printed on the syringe cylinders by a semi automatic embossing machine. The feeding is performed manually while printing and discharging are done automatically.

The cylinders and the pistons are conveyed to the assembling by means of vibrating feeders. There thew piston is automatically fitted into the cylinder and is immediately tested for tightness. The complete syringe are placed by hand in to the deep –drawing cavities of the blister packing machine for sealing up the single units automatically with the plastic foil. Between 50-250 sealed units (acc.to delivery demands) are packed into a card board box by hand. The boxes are closed, labeled and subsequently palletized. After an in-process storage over a few days, sterilization is carried out.

The autoclave sterilization with ethylene oxide allows previous packing of the final products ready to be delivered ex-works. Therefore the card board boxes ca be placed into the autoclave on pallets but only after been stored under normal condition for two to three days in order to insured the sterilization effect. This minimum period is a presupposition for the bacteria to reach with the blister foil a certain to reach within the blister foil a certain degree of growth necessary for rendering them innocuous. It is recommended to design the autoclave chamber for one daily production in order to minimize quality controls because bacteriological tests are done batch-wise.

Due to the fact that ethylene oxide is inflammable, the sterilization equipments must be explosion proof and installed in a separate room. Sterilization of one batch takes about 8 hours.

Syringe shall be manufactured in accordance with recognised codes of good manufacturing practice for medical device and shall be substantially free from defects affecting appearance, safety and service-ability for the intended use.
FREEDOM FROM PYROGENIC MATERIAL
The syringe shall be capable of satisfying the test for freedom from pyrogenic material in accordance with the latest Indian Pharmacopoeia. The extract to be used in the test shall be prepared according to the procedure given using extraction fluid.

Test for abnormal Toxicity
The syringe shall be capable of satisfying the test for abnormal toxicity in accordance with the latest Indian Pharmacopoeia. The extract to be used in the test shall be prepared by the procedure given using extraction fluid.

Freedom from extraneous matter:
The surface of the syringe which comes in contact with injection fluids during normal use shall be clear and free from extraneous matter when viewed by normal or corrected vision without magnification.

LIMIT FOR EXTRACTABLE MATTER
General:
The syringe shall be capable of satisfying the chemical test for extractable matter in accordance with the latest Indian Pharmacopoeia.

LIMIT OF ACIDITY AND ALKALINITY
The pH of the syringe (Other than glass) extract shall be determined with a laboratory potentiometric pH meter and using a general purpose electrode in accordance with the procedure given in the relevant Indian Standard or the latest Indian Pharmacopoeia.

The pH value of syringe (other than glass) extract prepared by the procedure given and shall be within one unit of that pH control fluid.

Glass alkalinity shall be in accordance with IS: 23-3-1962 and the litre value shall given
As against Type –1 Quality of Glass.

LIMIT FOR EXTRACTABLE MATERIAL
An extract prepared in accordance shall contain not more than a combined total of five parts per million of lead, tin, zinc and iron when tested by a recognised micro analytical method. For example by an atomic absorption method. The cardamom content of the extract shall be less than 0.1 parts per million.
**LUBRICANTS**

The interior surface of the syringe including the piston may be lubricated with material which does not adversely affect the compliance with the requirements.

If undiluted dimethylpolysioxane is used having a viscosity of not less than 12 500 cSt at 250°C, The quantity should not exceed 0.25mg/cm² of the interior surface of the syringe barrel and piston (1 cSt = 100-6 m²/s = 1 mm²s).

### SIZE AND DIMENSION OF THE SYRINGE

<table>
<thead>
<tr>
<th>Graduated Capacity of syringe (ml)</th>
<th>Tolerance limit in any graduated capacity exceeding half the nominal capacity (Percent)</th>
<th>Minimum length of intervals (mm)</th>
<th>Scale intervals (ml)</th>
<th>Length of long graduation mark (m)</th>
<th>Numbering of scale intervals</th>
<th>Minimum length of projection piston (Mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>+5</td>
<td>57</td>
<td>0.05</td>
<td>0.2, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1.0</td>
<td>10.0</td>
<td>12.5</td>
</tr>
<tr>
<td>2</td>
<td>+5</td>
<td>27</td>
<td>0.1, 0.2</td>
<td>1.2</td>
<td>12.5</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>+4</td>
<td>36</td>
<td>0.3, 0.4</td>
<td>1.2, 3, 4, 5</td>
<td>12.5</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>+4</td>
<td>44</td>
<td>0.5, 0.6</td>
<td>1.2</td>
<td>12.5</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>+4</td>
<td>52</td>
<td>0.7, 0.8</td>
<td>1.2</td>
<td>12.5</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>+4</td>
<td>67</td>
<td>0.9, 1.0</td>
<td>1.2</td>
<td>12.5</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>+4</td>
<td>75</td>
<td>1.0, 2.0</td>
<td>1.2</td>
<td>12.5</td>
<td></td>
</tr>
</tbody>
</table>

The subdivision of scale intervals, Overall length of the graduated scale and the minimum length of the graduation, shall be in accordance with table 2.1. Tolerance limit in graduated capacity shall be in accordance with table 2.1. Additional graduation marks or scale intervals or dual scale intervals shall not be permitted. Minimum length of projection of piston shall be in accordance with table 2.1. Diameter of effluent shall be not less than 1 mm. The length of the barrel (without measuring the nozzle) shall be such that the syringe has a usable capacity of 20 percent more than the normal for 2 ml size of the syringe and 10 percent more all other size.

### NOZZLE

The male conical tip of the nozzle is of the lunar lock or luer type and shall comply with OS: 3234-1979. When the syringe is provided with luer lock connection of the same material as of barrel. The main conical of the nozzle shall be of the luer type and shall comply with IS 3234-1979 and then tip has a collar with the interval threaded to receive the...
corresponding needle and which when rotated shall securely hold it. Threaded dimensions shall be in accordance with IS 3236-1980 but window gap is to be excluded. Nozzle tip shall be situated centrally on the barrel for 1 ml. And 2 ml. Capacities of syringes and either centrally or eccentrically in barrel of 5 ml capacities and greater. If eccentric, the distance between the axis and the tip and the nearest point on the internal surface of the bore of the barrel shall be not greater than 4.5 mm. The eccentric nozzle shall be below the axis of the barrel when the syringe is lying on a flat surface with scale upper most. A nozzle cap of adequate size and dimension may be provided.

GRADUATION POSITION OF SCALE NUMBERING

Graduation and subdivision shall be in accordance with details given in table 2.1. The graduation lines shall be clear defined, legible and shall of uniform thickness and shall be evenly spaced along the longitudinal axis between the zero mark of the total graduated capacity. When syringe is held vertically with tip uppermost and scale facing a person. The number shall be appearing upright on the scale and a position that it would be bisected by a prolongation of the graduation lines to which they relate. The number shall close to, but shall not touch the right ends of the graduation line to which they relate.

When the plunger is fully inserted, that is as near to the nozzle end of the barrel as it will go, the zero datum mark of the scale shall coincide with the fiducial line on the piston to within a quarter of the smallest scale interval.

FLANGE OF BARREL OR FINGER GRIPS

The open end of the barrel be shall be provided with finger grips or flange which shall ensure that syringe will not be roll when it is placed on a flat surface with the scale upper most and at an angle of 100° to the horizontal.

Finger grips or flange be of adequate size, shape and strength for the intended purpose and shall enable the syringe to be held securely during use. Finger grips or flange shall be free from flash and sharp edges.
PISTON
Design of the piston and push button of the syringe shall be such that when the barrel is held in one hand the piston can be depressed by the thumb of that hand. The piston shall not became detached from the plunger under aspiration conditions of normal use.

The projection of the piston and the configuration of the push button shall be such as to enable the piston to be withdrawn without difficulty. The minimum length of projection from the top of the barrel to top of piston shall be as given in column 7 of table 2.1.

There shall be clear visible and defined edge serving as fiducial line at the end of the piston for determining the capacity and corresponding to any scale reading on the syringe. The fiducial line shall be in contact with inner surface of the barrel.

The out end of the plunger shall be of suitable size to allow finger pressure to be applied to the plunger for the ejection of liquid from the syringe.

The piston fit in to barrel shall be such that is slides smoothly throughout the graduated length of the barrel.

DEAD SPACE VOLUM:
The volume of liquid contained in the barrel and the nozzle when the piston is fully inserted shall be in accordance with table 2.2 when tested as described in the appendix D.

<table>
<thead>
<tr>
<th>Normal size of Syringe</th>
<th>Maximum Volume of dead space, ml.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.07</td>
</tr>
<tr>
<td>2</td>
<td>0.07</td>
</tr>
<tr>
<td>5</td>
<td>0.07</td>
</tr>
<tr>
<td>10</td>
<td>0.10</td>
</tr>
<tr>
<td>20</td>
<td>0.15</td>
</tr>
<tr>
<td>30</td>
<td>0.17</td>
</tr>
<tr>
<td>50</td>
<td>0.20</td>
</tr>
</tbody>
</table>
Leakage test
Leakage test between luer Nozzle of the barrel and the needle hub – between syringe nozzle is mated with the reference hub complying with requirements. It shall make a leak proof union when subjected to the pressure test specified in Appendix B and the aspiration test specified.

Leakage test between barrel and piston
The syringe shall satisfy the test for liquid leakage under pressure specified in appendix B and the test for air leakage during aspiration specified.

Sterility”
The contents of the unit container shall be sterile and shall be capable of satisfying the sterility test requirements as specified in IS : 10150-1981 Guide for Sterilization of medical products.

Packing
Unit container –each hypodermic shall be sealed in a unit container. The materials of which shall not have detrimental effect on the contents. The material and design of the container shall be such as to ensure.
a) Maintenance of the contents under dry ,clean and adequately ventilated storage conditions.
b) Minimum risk of contamination of the contents during opening and removal from the container .
c) Adequate protection of the contents during normal handling transits and storage.
d) That once opened , the container cannot be easily released.

OUTER CONTAINER
A convenient number of unit containers shall be packed in the outer container which shall sufficiently robust to protect the containers during transit and storage.

Marking of container
Marking of unit container :
a) Description of contents
b) The word sterile
c) The word Destroy after Single Use or the equivalent(Note: Use of term Disposable is not acceptable) .
d) A warning of solvent incompatibility , If necessary , For Example not to be use with paraldehyde.
e) The name or the Tread mark of the manufacturer
f) The identification reference to the batch No. or Lot No. and
g) Date and method of sterilization.
Marking of outer containers
a) Description of the contents including the word sterile and for single use or the equivalent.
b) Warning to each the integrity of each unit container.
c) Identification reference to the batch No. Lot No. date month and year of sterilization.
d) The name and tread mark of the manufacturer with address.

Each unit container and the outer container may also marked with the ISI certification mark.

LEAKAGE TESTING
a) Connect the syringe nozzle to a pre tested stainless steel hub (Teste according to IS : 3234-1979)both components being dry. The hub shall have an accurate 6 per cent female luer taper complying with requirement of IS:3234-1979, IS: 3317-1965 and have a dead space not greater than a normal hypodermic needle.

Apply the syringe nozzle with a twisting action and just sufficient axial force to achieve a torque a torque of 73.6 N mm (0.750 kg cm)
b) Draw into syringe a volume of freshly boiled and cooled water exceeding the
Graduated capacity of the syringe. avoid wetting the hub/nozzle union.
c) Expel Air.
d) Adjust the volume of water in the syringe to the maximum graduated capacity.

Apply the side load to the push button at the right angle to the plunger to swing the plunger radically about the push seal with a force as noted below:

<table>
<thead>
<tr>
<th>Normal capacity of syringe, ml</th>
<th>Force N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.245</td>
</tr>
<tr>
<td>2</td>
<td>0.981</td>
</tr>
<tr>
<td>5</td>
<td>1.961</td>
</tr>
<tr>
<td>10</td>
<td>2.942</td>
</tr>
<tr>
<td>20</td>
<td>2.942</td>
</tr>
<tr>
<td>30</td>
<td>2.942</td>
</tr>
<tr>
<td>50</td>
<td>2.942</td>
</tr>
</tbody>
</table>

The plunger shall be oriented to permit the maximum deflection for the axial position.
g) Apply an axial force to the syringe so that a pressure is generated by the relative action of the piston and barrel of 300 kpa gauge for syringes below 20 ml nominal capacity and 200 kpa gauge for the 20 ml and larger nominal capacity syringes and maintain the pressure for 30 seconds.

Acceptance Criteria
No leakage shall appear behind the piston seal no leak shall appear at the union of the syringe nozzle and hub.

Testing For air leakage past the syringe piston seal(s) and syringe nozzle during aspiration.

Air Test for leakage past the piston seal(s) during aspiration:

Procedure
a) Draw into the syringe a volume of fresh boiled water and cool water up to 25% of the graduated capacity.
b) With nozzle uppermost with-draw the piston axially till the maximum graduated capacity and clamp the piston in position.
c) Connect the syringe nozzle to standard hub so that the union is leakproof.
d) Switch to vacuum pump with air bleed control open.
e) Adjust bleed control so that a gradual increase is obtained and a manometer reading 80kpa (600-mm hg) is reached.

Acceptance criteria
There shall no leak of air past the piston seal(s) upto and including a manometer reading of 88 kpa (660 mm hg). as a further check the syringe and manometer assembly shall be isolated by a vacuum tight vale and the manometer reading observe for air into the syringe assembly.

Air test for leakage past the nozzle and hub union during aspiration.

The Test Shall be followed as below
a) Connect the syringe nozzle to a reference hub, both components being dry. The hub shall have an accurate female taper complying with mean dimensions in accordance with IS:3234-1979 having a dead space not greater than a normal hypodermic needle.

BASIS AND PRESUMPTION
The process of manufacture is on the basis of 3 shifts of eight hours per day with three hundred working days in a year.

I. To achieve full plant capacity it requires 1 year after trial production.

II. Labour and wages mentioned in profile are as per the prescribed minimum wages.

III. Interest rate at 14% considered in the project profile.

IV. Operative period of project is around 10 years considering technology obsolescence rate and period of repayment of loan.

**Production Capacity per annum**

<table>
<thead>
<tr>
<th>Product</th>
<th>Capacity</th>
<th>Price (P)</th>
<th>Annual Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disposable Syringe</td>
<td>2.5 ml</td>
<td>1.85</td>
<td>5040000</td>
</tr>
<tr>
<td>-do-</td>
<td>5 ml</td>
<td>2.90</td>
<td>5041000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Total: 2,39,42,900</strong></td>
</tr>
</tbody>
</table>

**Utilities:**

Electricity charges for 58.00 k.w. = 38,980

(58 x 0.6 x 0.8 x 500 x 2.80 paise) = 38976 unit) Say 39,000

**Financial Aspects**

**Fixed Capital**

1. Land ½ Acre  Rs. 3,00,000
   Land Development Cost  Rs. 50,000
   **Total:**  Rs. 3,50,000

2. **Building & Civil Construction:**
   i) Factory shed:-
      Angle iron truss with ACC roofing
      30x120 = 3600 @ 350/-per sq. ft. = 12,60,000
   ii) Finished products godown hall
      30x60 = 1800 @ 350/- per sq.ft. = 6,30,000
   iii) Office Building, laboratory, stores (Raw material) etc,
      RCC roofing 30x60 = 1800 @ 450/- per sq. ft. = 8,10,000
   iv) Bore well & water overhead tank = 1,30,000
   v) Chowkidar shed, main gate, time office, sanitary,
      drain, road (internal), compound wall etc. = 4,25,000

   **PLANT & MACHINERY EQUIPMENTS:**

   **Total:** 32,55,000
1. Windsor Ferromatic Injection moulding machine  
   (model – FRIIO) 1 No. 19,60,000  
2. Screen printing machine 1 No. 70,000  
3. Sterilisation plant (Ethylene Oxide) 1 No. 7,00,000  
4. Packing machine (Blister pack), 5 kw 1 No. 9,80,000  
5. Automatic Assembly machine, 10.00 kw 1 No. 28,00,000  
6. Scrap grinding machine (1.5 kw) 1 No. 70,000  
7. Weighing machine (Electronic) 1 No. 70,000  
8. Packing charges 1% 66,500  
9. Transit Insurance 19,600  
10. Excise duty @ 5% 3,32,500  
11. C.S.T. @ 4% (against ‘C’ form) 2,66,000  
12. Electrification installation (58.00 kw load) 4,00,000  
13. Erection & Installation 2,80,000  
14. Transportation charges 60,000  

**Total: 80,74,600**

**MOULDS, FIXTURE & UTILITY EQUIPMENT:**

1. One set mould for 2.5 ml syringe 4,20,000  
2. One set mould for 5 ml syringe 7,00,000  
3. Fire fighting equipment 14,000  
4. Air compressor (5 HP) 70,000  
5. Water submersible pump (2 HP) 14,000  
6. Chilling plant (5 ton) (3.00 kw) 1,40,000  

**Total: 13,58,000**

**Other Fixed Assets:**

1. Office chair, table, cupboard, rack … 50,000  
2. Telephone … 3,500  
3. Computer etc. … 50,000  

**Total: 1,03,500**

**Pre-operative expenses:**

1. Legal charges … 1,00,000  
2. Contingencies … 50,000  
3. Miscellaneous expenses … 50,000  

**Total: 2,50,000**

**Total Fixed Capital**

1. Land … 3,50,000
2. Building                        ...  32,55,000  
3. Plant & Machinery               ...  95,36,100  
4. Pre-Operative Expenses          ...  2,50,000  

**Total**                        **1,33,91,100**  

**Working Capital per month:**

**Raw material:**
1. Polypropylene 6,250 kgs. @ 68/- per kg. 4,25,000  
2. Needle 8,40,000 Nos. @ Re.0.30 per piece 2,52,000  
3. Packing material                     ...  1,40,000  

**8,17,000**  

**Salary and wages per month:**

**a) STAFF**
1. Works Manager 1 7,000  7,000  
2. Sales Executive 1 6,500  6,500  
3. Chemist 1 5,000  5,000  
4. Accountant 1 3,500  3,500  
5. Steno-typist 1 2,500  2,500  
6. Clerk 1 2,500  2,500  
7. Peon 1 1,750  1,750  
8. Watchmen 3 1,750  5,250  

**34,000**  

**b) LABOUR**
1. Machine operator 6 3,500  21,000  
2. Semi skilled worker 3 3,000  9,000  
3. Maintenance Fitter 1 3,500  3,500  
4. Unskilled worker 6 1,750  10,500  

**44,000**  

**Total (a + b)** = **78,000**  

**Perquisites @ 15%** = **11,700**  

**Total:** **89,700**  

**Utilities:**
1. Electricity charges for 58.00 k.w. = 38,980  
   \((58 \times 0.6 \times 0.8 \times 500 \times 2.80 \text{ paise}) = 38976 \text{ unit})\)  Say 39,000  

**Other Expenses:**
1. Transportation ... 75,000
2. Telephone ... 5,000
3. Stationery, postage etc. ... 10,000
4. Insurance & legal fee ... 2,000
5. Repairing & maintenance ... 25,000
6. Consumable stores ... 2,000
7. Sales expenses ... 26,000
8. Advertisement ... 25,000
9. Misc. expenses. ... 15,000

1,84,000

TOTAL RECURRING EXPENSES PER MONTH:

1. Raw material ... 8,17,000
2. Salary & Wages ... 89,700
3. Utilities ... 39,000
4. Other Expenses ... 1,84,000

11,29,700

Working Capital for 2 months = 22,59,400

TOTAL CAPITAL INVESTMENT:

1. Land ... 3,50,000
2. Building ... 32,55,000
3. Plant & Machinery ... 97,86,100
4. Working Capital for 2 months ... 22,59,400

1,56,50,500

COST OF PRODUCTION:

Total Recurring Expenses ... 1,35,56,400
Interest on capital (1,56,50,500) @ 12.5% ... 19,56,312
Depreciation on Building 5%(32,55,000) ... 1,62,750
Depreciation on Plant & Machinery @ 10% ... 8,32,460
Depreciation on Tool & Mould @ 25% ... 3,39,500
Depreciation on Fixed Asset @ 20% ... 20,700

1,68,68,122

Turnover per Annum:
By sale of Disposable Syringe 2.5 ml 1.85 P 5040000 ... 93,24,000
  -do- 5 ml 2.90 P 5041000 ... 1,46,18,900
  2,39,42,900

Net Profit per year (Before Tax):
  Turn over per annum ... 2,39,42,900
  Cost of Production ... ( - ) 1,68,68,122
  70,74,778

Profitability Ratio:
  Net Profit P.A. x 100 = 70,74,778 x 100 = 41.94%
  T.D. P.A. 1,68,68,122

Rate of Return :
  N.P. p.a. x 100 = 70,74,778 x 100 = 45.20%
  Total Investment 1,56,50,500

Break Even Point :
  Depreciation on Building ... 1,62,750
  Depreciation on Plant & Machinery ... 8,32,460
  Depreciation on Tool & Mould ... 3,39,500
  Depreciation on Fixed Asset ... 20,700
  Interest on Total Investment ... 19,56,312
  40% Salary & Wages ... 4,30,560
  40% Other Contingency expenses ... 6,48,000
  Insurance & Tax ... 24,000
  Marketing Advertisement ... 3,00,000
  47,14,282

Net Profit per year :
  BEP = F.C. x 100 = 47,14,282 x 100
  F.C. + N.P 47,14,282 + 70,74,778

  = 39.98% or say 40%
List of Suppliers Address for
►Plant & Machineries
●For Plastic Processing Machinery, Extrusion Plants
1. M/s Larsen & Toubro Limited
   Plastics Processing Machinery Division
   10, Club House Road
   CHENNAI-600002, Tamilnadu
   Tel: 91 44 852 2141; Fax: 91 44 855 0906
   5, Africa Estate, B/h.Chakudia Mahadev, Opp.Comet House,
   Rakhial, Ahmedabad-380023
   Tel: (079 ) 2741262 / 6746345; Fax: (079 ) 2744409
3. M/s Jigar Industries
   Opp.Tikujiniwadi 27 Acre
   Land, Manpada, Thane (W) - 400607
   Tel: (022 ) 25803881; Fax: (022 ) 25810266
4. M/s Windsor Machinery Ltd.,
   Shah Ind.Est., C Bldg., 1st Flr., Saki Vihar Rd., Mumbai-400072
   Tel: (022 ) 28571353
●For Moulds
1. Floss International
   Gohar Medical Center, Swabi, NWFP
   Tel: (092938 ) 221585
●Raw Materials:
1. For needles:
   M/s Healcare Devices Ltd.,
   101, Sector-25, Faridabad-124007, Haryana
   Tel: (0129 ) 2234203; Fax: (0129 ) 220238
►Technology Resource:
M/s Datanet India Pvt. Ltd.
Sterling House
5/7, Sorabji Santuk Lane
Off Dr. Cowasji Hormasji Lane
Dhobi Talao, Mumbai - 400 002
Tel:022-30271756 /55; Fax: 022-30271733