Ophthalmic and Sun Photochromatic Glasses

PRODUCT CODE	:	91103 and 91111
QUALITY AND STANDARDS	:	IS 6472:1976
PRODUCTION CAPACITY	:	3000 dozens. of Photochromatic lenses Valued at: Rs. 30,12,000 575 dozs. of Coloured glasses Valued at: Rs.3,57,500 Total: Rs. 33,69,500
MONTH AND YEAR OF PREPARATION	:	January, 2003
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Introduction

The people of all age groups use sunglasses as an aid to protect eyes against glare or wind and also as a fashion wear. The present younger generations is using these glasses mainly as fashion in different colours and varieties. The sunglasses are mostly manufactured in plane without power in various sizes, colours and shades.

Photochromatic glasses are the latest introduction in the range of sunglasses in the country. These are special variety of glasses with the characteristics that when the sun light strikes on them the invisible micro-crystals of silver halides inside the glass automatically get darker and imparts colour and shade to the glass and in normal indoor light, the glasses revert to its colourless clear transparency. These glasses also protect eyes from UV rays and are useful both as sunglasses and reading glasses.

Market Potential

There is wide spread use of sunglasses for eye care apart from the style and fashion. The need of powered glasses is felt after the age of forty. The demand for sunglasses/ophthalmic glasses is increasing day-by-day to produce ophthalmic lenses as per doctor's prescription. There is a good scope for setting up of new units with modern machinery in different parts of the country, particularly in the urban and semi-urban areas, where there is immediate demand for the product.

BASIS AND PRESUMPTIONS

The project is based on single shift of 8 hours per day with 300 working days in a year utilising the latest automatic machines indigenously available. The prices and other charges shown in the profile may vary from place to place and brand of the product.

IMPLEMENTATION SCHEDULE

Sl. No.	*Activity*	*Period (in month)*
1.	Project preparation and acquirement of shed and provisional Registration etc.	2
2.	Procurement of machinery and raw materials	4
3.	Installation of machinery and equipments and appointment of Labour etc.	2
4.	Starting trial production	1
	Total	9

TECHNICAL ASPECTS

Process of Manufacture

Glass blanks of particular diameter and thickness are selected on the basis of power to be given to a lens. Glass blanks are first blocked with the help of surface blocker which is latest attachment developed for blocking purposes. After blocking the surfaces are ground by means of Diamond Curve Generator. After grinding and smoothing, the surface is polished with the help of fixing felt cloth and using polishing material (cerium oxide) on fully automatic machines. The polished glass blanks are then de-blocked in alloy reclaim tank, that is a compact unit for de-blocking of lenses. The process is further repeated for grinding and polishing of the second surface of the blanks. Lenses are then cleaned and tested for accuracy and perfection. Though the process of grinding and polishing is simple, it is quite sophisticated in practice with rigid quality control measures at each stage of manufacture.

Quality Control and Standards

The specifications laid down by the Bureau of Indian Standards are:

IS 6472:1976 General requirement for tinted ophthalmic glass.

FINANCIAL ASPECTS

A. Fixed Capital

(i) Land and Building		(Rs.)
Rented premises	Approx. 900 Sq.ft. area	4,000

(ii) Machinery and Equipments

Description	Qty	Value (Rs.)
Spherical Diamond Curve Generator with motor and pump on three phase 440 volts, 1 HP on AC supply and switch	1 No.	50,000
Automatic two spindle spherical machine with feeding pump to each spindles for smoothing with switch and motors of ½ HP each and timer	2 Sets	45,000
Automatic two spindle spherical machine with feeding pump to each spindle for polishing with motor and ½ HP motor of each	5 Sets	80,000
Surface blocker and deblocker unit with adjustable exterior	1 Set	15,000

Description	Qty	Value (Rs.)
Thermostat, 220 V AC.1000 watts. Set of grinding and polishing spherical tools 20 pairs	20 Pairs	1,500
Spherical blocking gotes 50 mm to 55 mm each	25 doz. Pairs	1,500
	Total	1,93,000

Testing Equipments	Qty.	(Rs.)
Brass gauges 600±diapter	10 Nos. (Each Rs. 25)	2,500
Lensometer (Indigenous)	1 No.	10,000
Lens measure (Indigenous)	2 Nos.	750
Trial set	1 Set	2,500
Office equipment, furniture etc.		20,000
Installation, electrification charges at 10% of the total cost of machinery and equipment		22,875
Preliminary and pre-operative expenses		8,375
	Total	2,60,000

B. Working Capital (Per Month)

(i) Staff and Labour (per month)

Designation	No.	Salary (Rs.)	Total (Rs.)
Supervisor	1	5,000	5,000
Skilled workers	5	2,700	13,500
Semi-skilled workers	2	1,800	3,600
Clerk-cum-Typist	1	3,500	3,500
Watchman/Peon	1	1,800	1,800
		Total	27,400
+ Perquisites 15% on salary			4,110
		Total	31,510

(ii) Raw Materials (per month)

Description	Qty.	Value (Rs.)
Photochromic glass blanks i.e. (photogrey, photogrey extra, photobrown and photosun) of 60 mm to 65 mm diameter of 2.8 mm to 5 mm thickness @ Rs.680 per doz.	260 dozs.	1,76,800
Coloured glass blanks of different shades i.e. SP2, SP4 and SP10 of 55 to 65 mm diameter and 3.00 mm to 5.00 mm thickness @ Rs. 430 per doz.	50 doz. Pairs	21,500
Abrasive and polishing compounds	LS	1,500
Blocking alloy and cleaning chemical and other allied materials	LS	1,500
Packing materials	LS	1,000
Other miscellaneous	LS	700
Total		2,03,000

(iii) Other Contingent Expenses (per month)	(Rs.)
Postage and stationery	500
Telephone expenses	1,000
Consumable stores	500
Repairs and maintenance	1,000
Advertisement and publicity	1,000
Miscellaneous expenses	500
Insurance	2190
Total	6,690

(iv) Utilities (per month)	(Rs.)
Power	3,000
Water	300
Total	3300

(v) Total Recurring Expenditure (per month)	(Rs.)
2,03,000+31,510+6,690+ 3,300+4,000	2,48,500
Total working capital for 3 months 2,48,500 × 3	7,45,500

C. Total Capital Investment

Machinery and Equipments	Rs. 2,60,000
Working capital for 3 months	Rs. 7,45,500
Total	Rs. 10,05,500

MACHINERY UTILISATION

85% of utilisation has been taken into consideration on the machinery and man power.

FINANCIAL ANALYSIS

(1) Cost of production (per year)	(Rs.)
Rent (4,000 x 12)	48,000
Raw materials	24,36,000
Staff and labour	3,78,120
Other Contingent expenses	80,280
Utilities	39600
Depreciation on machinery and equipment @ 10%	26,000
Interest on investment at @ 14%	1,40,770
Total	31,48,770

(2) Turnover	(Rs.)
3000 doz. Pairs of Photochromic lenses of various diameters, thickness and shades at an average rate of Rs.1050 per doz. Pairs	31,50,000
575 doz. Pairs of coloured glass blanks of different diameters, thickness and shades at an average rate of Rs.600 per doz. Pairs	3,45,000
Total	34,95,000

(3) Profit (per year)	(Rs.)
Turnover	34,95,000
Cost of production	31,48,770
Profit	3,46,230

(4) Net Profit Ratio

$$= \frac{\text{Net profit per year x 100}}{\text{Turnover per year}}$$

$$= \frac{3,46,230 \times 100}{34,95,000}$$

$$= 9.90\%$$

(5) Rate of Return

$$= \frac{\text{Net profit per year x 100}}{\text{Total investment}}$$

$$= \frac{3,46,230 \times 100}{10,05,500}$$

$$= 34.43\%$$

(6) Break-even Point

Fixed Cost	(Rs.)
Rent	48,000
Depreciation	26,000
Interest on total investment	1,40,770
Insurance	26,280
40% of Salaries and wages	1,51,248
40% of Other contingent expenses	21,600
Total	4,13,898

$$\text{B.E.P.} = \frac{\text{FC x 100}}{\text{FC + NP (per year)}}$$

$$= \frac{4,13,898 \times 100}{4,13,898 + 3,46,230}$$

$$= 54.45\%$$

Addresses of Machinery and Equipment Suppliers

1. M/s. Prabhat Works
   1055-56, Lal Kuan,
   Delhi-110006.
2. M/s. New Way Optical Industries
   2795, Peepal Mahadev,
   Hauz Kazi, Delhi-110006.
3. M/s. J.C. Dass and Co.
   7, Usha Ganj,
   Indore (MP).

Raw Material Suppliers

1. M/s. Jain Optical Industries
   Chasma Building,
   Ballimaran Street,
   Chandni Chowk,
   Delhi-110006.
2. M/s. Micro Abrasives
   65, Jor Bagh,
   New Delhi.

3. M/s. Indian Rare Earth Ltd.
(Cerium Oxide),
Udyog Mandal-683501,
(Kerala)
4. M/s. Ehance Pilkington Ltd.
(Glass Blanks),
A Subsidiary of Pilkintor Bros.,
PLC,St. Asaph Clyyd LL.176,
LL Great, (Britain).
5. M/s. Corning France
BP 61, 7721, Avor,
Gedey, (France).
6. M/s. Desag, Dehlshe Special Glass
at Grunenplan Posttach,
80, D-3223, Delligsen-2,
(West Germany).