

The major raw material for match industry is wood splints. Aspen wood is being preferentially used for manufacture of match splints. As the supply of aspen wood is limited in India, other species such as semul, sawal, kadam, poplar, rubber have been identified as alternative species for match splints. There is a gap between demand and supply of wood raw material and the demand is always been higher. Scarcity of wood raw material has compelled the industrialists to cut down their production.

Search has been made for alternate source of raw material for match splints. IPIRTI has collaborated with INBAR to develop technology for making bamboo match splints. 2-3 years old bamboo are quite suitable for use. Anatomical structure of bamboo with respect to strength and fast growing features has encouraged its adoption for production of match splints.

The use of bamboo as match splint has several advantages. It is cheap and renewable resource because bamboo is short rotation species. It can be easily converted into splints of required size by using simple tools. The splints once made has a clean surface and the stick possesses high tensile strength and donot break easily. Post incandescent treatment is given to prevent after glow for match splint with boric acid which also offers good resistance to borer attack.

Preparation of bamboo splints: Bamboo after cross cutting are split either manually or mechanically. Split bamboo is converted into slabs and later sized into splints of 37mm length and 1.5mm x 1.5mm cross section. Dry bamboo is usually used for making match splints. Some green bamboo are yellowish to reddish in colour is bleached although bleaching is option. Bleaching is followed by carbonization, which improves easy quenching of after glow of the match stick. The splints are then subjected to waxing and head fixing to make match stick. An Indian patent has been filed jointly by IPIRTI and INBAR (provisional applied patent no. 627/MAS/7-8-2000)

Bamboo Match Stick Production: Cottage Industry

Equipment for Bamboo Match splint production.

Wooden Frames	=	100 nos.
Trays for bleaching	=	10 nos.
Trays for carbonization	=	10 nos.
Hot plate for melting wax	=	1 number
Head fixing trays	=	2 nos.
Hot air chamber for drying-	=	100 sq.m.

PROJECT COST

Land and building:

i) Land	:	20m x 15m = 300 sq. m
ii) Building	:	200 sq. m

Capital Investment:

i) Equipment	:	2 lakhs
ii) Raw material (per month)	:	1.21 lakh
iii) Chemicals	:	0.5 lakh

Raw Material Requirement:

(300 working days)

i) Bamboo for Match Stick (1.5 tons/day)	:	450 tons
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Chemicals for bleaching carbonization, waxing, head fixing

Man Power

i) Manager	:	1
ii) Supervisor	:	1
iii) Worker	:	50

COST OF BAMBOO MATCH STICK

(Preliminary Estimate)

cost of 1 ton of bamboo	=	Rs.3,000/-
Cost of 50 Splints	=	1.55 Paise
Bleaching Cost	=	5 Paise
Carbonization cost	=	1 Paise
Waxing and Head fixing	=	6 Paise
Cost of box	=	10 paise
Labour	=	4 paise
1 ton of bamboo	=	1,94,200 boxes of 50 splints

Total cost	=	28.00 paise
Of one box	=	23 paise
Selling price of one box	=	40 paise

NOTE: If bamboo is white in colour, bleaching is not necessary.
The cost of making is 23 paise per box only.

COST COMPARISON OF WOOD MATCH STICK AND BAMBOO MATCH STICK

(Preliminary Estimate)

Material & Processing	Cost in rupees	
	Wood Match Stick	Bamboo Match Stick
One ton of material including processing	13,000	6,000
Bleaching (optional)	4,400	4,400
Carbonization	450	450
Waxing	2,630	3,900
Head fixing	16,000	16,000
Cost of Box	22,000	17,600
		(Smaller size)
Total	58,480	47,350
Labour	5,000	5,000
Grand total	63,480	53,350
No. of boxes of 50 splinters produced from 1 ton of material	1,80,000	1,94,000
Cost per box	35 paise	28 paise



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