

Innovation for sustainability and growth- An efforts at Yash Papers Ltd.

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Growth & Sustainability

- Rectification
- Modification
- Up gradation
- Invention
- **Innovation**

Why necessary

- **Industry reputation**
- **Business competition**
- **Digitalization**
- **Rules and regulations**
- **Resources shortage**

What to do

➤ Talent management-

Innovation is totally a knowledge based **know-how** process to achieve the results.

➤ Innovation Sources-

Experts, consultants, R&D and Education center, machinery and chemical suppliers

Innovative approaches at Yash

- 1. New product development- (Moulded pulp products)**
- 2. Waste utilization-(Pith Pelletization)**
- 3. Bi-product utilization-(Lime sludge as filler)**

1-Moulded Pulp Products-(MPPs)

- **MPPs is the new packaging materials, an excellent alternatives to the plastics and Styrofoam.**
- **These products are made from cellulosic fiber, 100% backyard compostable. In “Thermoformed” process it molded into strong, dimensionally stable and having smooth and rigid surface material.**
- **It is microwavable and freezable.**
- **FDA- certified product.**

Applications

- **Food related packaging.**
- **Disposable items.**
- **Industrial packaging.**

MPPs Project Details

Brand Name – **Chuk!**

1. Investment	60 Cr
2. Projected ROI	3 yrs
3. Product	Disposable Bowls, serving trays, containers, plates and glasses
4. Furnish	90% unbleached bagasse pulp + 10% soft wood fiber
5. Capacity	11.5 MT/Day (6.6Lacs pieces/day)
6. No. of machines	Nine (2 small machine@500kg/day) and (7 big machines@1500kg/day)
7. Product Weight	5 to 40 gm
8. Sizing chemicals	Water and oil proofing chemicals
9. Heating media	Thermic Fluid
10. Fuel	Rice husk & Pith
11. power consumption	18000 KwH/day
12. Fuel consumption	12 MT pith / day.

Manufacturing Description-

STOCK MAKING → FORMING → PRESSING & DRYING →
STACKING → QUALITY INSPECTION → DESPATCH



Our Products



(Bowl)



(Plate)



(Tray)



(Glass)



(Container)

Results and Targets

- **Good market demand (Health & environment friendly)**
- **Replacing Styrofoam and Plastics (Making our mother earth more greener)**
- **Asia's biggest compostable tableware products manufacturing unit.**
- **Delighted Customer**

2-Pith Pelletization



- Pith is the dust of bagasse @ 30% approx.
- Traditional uses- Partially mixed as a fuel for energy.

Analysis data

- Moisture- 50-60%
- Bulk density-70-75 Kg/M³
- As such GCV- 1700-1800 Kcal/kg

Issues

Pith has **High moisture and low bulk density** resulting in

- Low Burning rate
- Low heating efficiency
- Corrosive in nature

Project details

Raw material	Pith at 50% moisture
Investment	1.3 Cr
ROI	8months
Pith consumption	75 MT /Day(50% moisture)
Pellets production	32 MT/Day (8 to 10% moisture)
No of pellet machine	2 no's
Briquette fuel internal consumption	7 MT / Day
Power consumption	2200-2400 Kwh/Day
Net pellet production	25 MT/Day
Pellet size	10 mm dia.



Results

MATERIAL	PITH	PELLET
Moisture %	63.1	8.8
Ash %	4.06	3.48
Bulk Density Kg/m ³	70.8	410
GCV Kcal/Kg	1707	4123
NCV Kcal/Kg	-	3817



Pelletization process will enhance both demand and value of biomass residues as **renewable** energy source.

3-Lime sludge usages as filler

- Bi-product of causticizing Plant.
- Quantity- 100 MT/day @50% moisture
- Existing Usage- Land filling
- Issues- Cost for land fill, Soil and water hazardous.

Filler Properties

Test Parameters		UNIT	RESULT	
			TALC	LIME SLUDGE
Abrasion loss at 174000 rev.		mg/cm ²	51.6	2.7
charge	Streaming potential	mV	-385	-265
	Cationic demand	(μ eq/liter)	1.34	1.15
ISO Brightness		% ISO	69.84	87.45
CIE Whiteness			46.25	87.91
Calcium as CaCO ₃		%	ND	78.3
Magnesium as MgCO ₃ (Sample digested)			4.17	4.22
Silica as SiO ₂			49.5	3.93

Trial with Lime Sludge:Talc (50:50)

Observations

- Settling and screen chocking
- Increased AKD consumption
- Increased surface roughness

Action Taken

Dried and grinded at an existing facility

Particle size distribution

Test Parameters		UNIT	RESULT		
			TALC	LIME SLUDGE without Grinding	LIME SLUDGE after Grinding
Particle size distribution	D90	Micron	17.4	47.5	14.3
	D50		9.03	21.4	7.46
	D10		3.7	7.2	3.30
	MEAN		10.1	25.4	8.31

System Charge Analysis

Charge Analysis				
		Soap Stone 100%	Lime Sludge 100%	
CHEST	Charge(mV)	Demand (μ eq/liter)	Charge(mV)	Demand (μ eq/liter)
Back water	-118	154	-114	169
Head Box	-119	147	-107	162

M/C DATA

		Soap Stone 100%	Lime Sludge 100%
Grade		MSP	MSP
GSM	g/m²	62	62
Speed	m/m	194	205
Back water	Alkalinity (ppm)	260	274
FPR	%	71.2	85.9
FPAR	%	47.1	57.1

Paper Properties

		Soap Stone 100%	Lime Sludge 100%	
Grade		MSP	MSP	
GSM	g/m²	62	62	62
Cobb	g/m²	41	42	46
TF		55.01	51.72	50
BF		20.22	20.1	19.87
Tensile strength	kg/15 mm	3.6	3.54	3.28
BL	Meter	3920	3752	3492
Moisture	%	5.25	5.15	5.01
Ash	%	14.51	27.98	29.37

Chemical Consumption

Chemicals added in stock preparation				
		Soap Stone 100%	Lime Sludge 100%	
Filler Dose	Kg/Ton	273	266	224
Black BF Dye	gm/Ton	1000	1230	1040
Coagulant	gm/Ton	0.93	0.903	0.913
Sizing	Kg/Ton	8.8	23.1	24.56
Retention aid	gm/Ton	197	217	215

Discussion

- It will provide solution to one of key environmental challenges.
- It will have tremendous cost implication by way of cutting filler procurement bill & sludge handling cost.

Remarks

- Companies that adopt innovation for growth & sustainability will have a bright future.
- We at Yash Papers Ltd. are always putting our efforts to adopt innovative ways to ensure growth based on sustainability.

Suggestion?