

KesophaneTM

Nature Wrap



- Plastic Free Biodegradable • Cellulose Transparent Paper
- Non Fogging

Kesophane
Nature Wrap

Healthy and Hygienic
Safe Food Wrap

- Is my food safe!
- Increased Government and Industry awareness.
- What to do with the waste!
- High proportion of flexible packaging is sourced from oil derivatives.
- Public perception of 'Biodegradable'
- Marketers are aware and want to take advantage – significant market opportunity.

History

- Invented in 1900 by a Swiss chemist Jacques Brandenberger, commercialized in 1912
- Candy wrapping as first application
- First coated moisture proof cellulosic film in 1927, nitrocellulose coating from Du Pont



A vintage advertisement for Du Pont Cellophane. The top half features a color illustration of a woman in a blue suit and yellow shirt, smiling while holding two packages of meat in a grocery store. The background shows shelves stocked with various meat cuts. Below the illustration, the text reads: "New SELF-SERVICE MEATS Make Shopping Quicker, Easier". Further down, it says: "You help yourself to the cuts you want —packaged in Du Pont Cellophane—". A small paragraph follows: "Here's the pleasing new way to buy meats—self-service, just like other foods. Pre-cut, weighed, priced and wrapped in Cellophane right in the store . . . displayed in open, refrigerated cases. You select the cut you want, all trimmed and ready . . . you waste no time. Cellophane lets you see exactly what you buy . . . keeps the meat fresh and clean." Below this is another paragraph: "More and more leading food stores now sell meats this new way. When it comes to your community, we're sure you'll like it, because it's so convenient and time-saving." To the right of the text, there are several small illustrations of different meat packages labeled: ROAST, PORK, BEEF, HAM, CORNED, and COLD CURE. At the bottom right, the Du Pont Cellophane logo is prominently displayed in a red and white box. The bottom of the advertisement features the Du Pont logo and the tagline: "BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY".

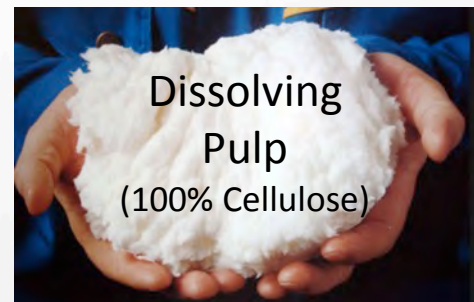
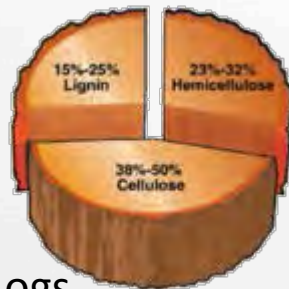
Kesophane : How is it made

- Kesophane is made from dissolving grade Wood Pulp.

Paper Types	Cellulose (%)	Hemicel(%)	Lignin(%)
Cardboard	61	12	18
News Paper	38	15	21
Packaging Paper	60	11	7
Napkins	58	6	4
Bottling Paper	81	6	4
Office Paper	62	5	1
Kesophane	>99	0	0



FSC Wood Logs



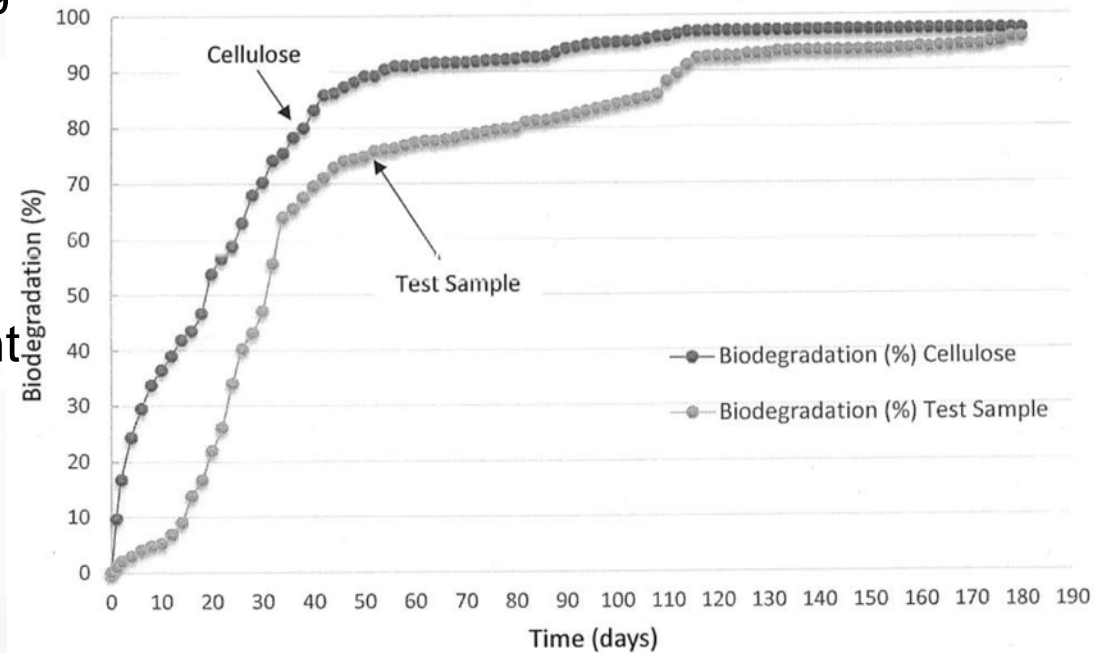
Kesophane : Renewability



- Biodegradable and Home Compostable
- Easy renewability

Kesophane : Biodegradation

- Paper & its product form most environment friendly packaging
- Various Paper Grades have different % of Cellulose Hemicellulose & lignin
- Cellulose is the most consistent fastest biodegradable component globally acknowledged
- Our Product Kesophane is 100% Cellulose
- All material are Biodegradable, few in months & others in decades



Kesophane : is it Paper!

Test	Kesophane	Plastic Films
1. Hand Tear :	Kesophane being a paper by nature will tear with easy propagation.	Plastic films in general is very difficult to initiate tear by hand
2. Stretch :	Kesophane is crystalline in nature and as such will not expand by manual stretch.	Plastic films will stretch easily.
3. Burn :	Kesophane will burn like paper without much odour and leaving behind powdery ash	Plastic films will burn with pungent odour forming hard beads.



Necessity	Other wrap solutions (Al & plastic)	Kesophane
1. Protect the food from dust, dirt, oil etc :	Protects from dust and dirt	Apart from protecting from dust and dirt, Kesophane surface is resistant to grease and dust
2. Maintain freshness of the product :	High moisture barrier – creates fog and turns warm food soggy	High moisture permeability – keeps food fresh longer
3. Hold the product :	Can hold the product by wrapping.	Excellent dead-fold characteristic. Easy wrap with end twist.
4. Ornament the product :	Can see the product with plastic, product not visible with Aluminium.	Kesophane is crystalline, it shines and enhances appeal of the wrapped product.

Application :

Wrap warm and fresh Roti and Paratha with Kesophane. They will remain fresh and soft in your Tiffin Box for several hours.

Advantage :

No more soggy Roti and Paratha for your loved ones.



Kesophane : wrap Sandwiches

Application :

Wrap freshly toasted or grilled sandwich with Kesophane.

Advantage :

No fear of contamination of harmful Metal or Plastic particles in your food.



Kesophane : wrap Vegetables

Application :

Wrap cut and whole vegetables with Kesophane.

Advantage :

Vegetables remain fresh and juicy for longer time without any smell or contamination.



Kesophane : wrap Fruits

Application :

Serve cut fruits wrapped in Kesophane to keep it attractive and fresh.

Advantage :

Minimise discolouration of cut fruits and maintain moisture content.



Kesophane : wrap Meat

Application :

Wrap any meat product in sparkling transparent wrapping of Kesophane

Advantage :

Kesophane helps in keeping meat fresh longer, prolongs discolouration and protects from bacteria.



Application :

Wrap silver articles to maintain shine and prevent discolouration.

Advantage :

Kesophane acts as a superior barrier for Oxygen and thereby prevents oxidation and blackening of Silver.



Kesophane : wrapping



Wrap Kesophane around the product



Twist in circles to close the ends



Twist in circles to close the ends



Twist in circles to close the ends

- Future structures with Bio-based films

Reverse printed barrier Kesophane
Compostable adhesive

Biosealant film

- Kesophane to provide durability and good surface printing.
- Biosealant film to provide enhanced seal strength.
 - Snacks, Pasta, Noodles, Nuts, Cookies, Confectionaries, etc...

Material (20μm)	H ₂ O (WVTR) [g/m ² /day] [ASTM E96 38°C; 90% RH]	O ₂ (OTR) [cc/m ² /day.atm] [ASTM D3985-05 23°C; 0% RH]
Regenerated Cellulose	1500	10 [50% RH]
BioPBS	620	770
PLA	680	1,900
PBAT	900	>2,000
LDPE	26	8,850

Kesophane – Nature Wrap

- Completely Biodegradable and Home Compostable
- Excellent oxygen barrier
- Superior moisture permeability
- High gloss and brilliant transparency
- Naturally twistable – excellent dead-fold
- Resistant to grease and dust



- A tool to teach the young minds on the importance of usage of Biodegradable and Home compostable material for packaging.
- Surface receptive to Inks and Adhesive : can be used to draw, paint and stick using standard pens, paints and glues
- Surface resistant to grease and dust : stays neat and clean





CONTACT DETAILS

Cygnnet Industries Limited
"Industry House", 11th Floor
10, Camac Street, Kolkata-700017
Phone : +91 33 2282 4721
Fax : +91 33 2282 8879
Email : info@kesoramrayon.com

THANK YOU