




Birla  
**pur**ocel™  
because we care



our spirit  
of caring remains  
unchanged.  
we've just  
given it a name.

Birla  
**pur<sup>o</sup>cel<sup>™</sup>**  
because we care

*Our vision extends far beyond making  
the world's finest fibre.*

*Because our values define who we are.*

*To be true citizens of the planet. To be  
conscientious of the choices we make.  
To give back more than we take.*

*To be at the cutting-edge of innovation,  
so our consumers can embrace better lifestyle  
opportunities. To set the highest benchmarks  
of safety, purity and quality.*

*To nurture an empathetic relationship with  
our esteemed partners, at every step of the  
value-chain. To be their partners in progress.*

*At the heart of everything we do, is a spirit  
of caring.*

*Birla Purocel. Because we care.*



A photograph of a woman with her hair in a bun, wearing a white tank top, kissing a young child on the cheek. They are lying on a field of bright yellow flowers. The image is partially obscured by a white circular logo and a white diagonal shape in the top right corner.

Birla  
**pu**rocel™  
because we care

*Birla Purocel is a 100% nature-based nonwoven fibre, ideal for personal care, hygiene & medical usage and next-to-skin applications. Purocel offers a wide range of fibres for nonwoven applications with a focus on sustainability, innovation and partnership.*

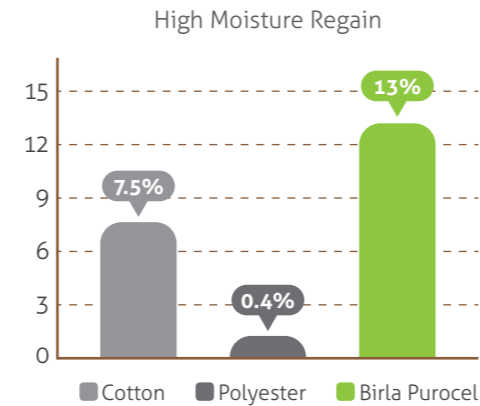


## Advantage Purocel



### Softness & Absorbency

Birla Purocel has a characteristic softness that makes it ideal for next-to-skin applications. It is one of the most absorbent fibres with absorbing capacities more than cotton, and with excellent moisture management. Purocel makes for great personal care and home-cleaning solutions.



### Purity & Hygiene

All the raw materials are carefully selected and the processes designed in such a way to maintain purity and hygiene of Purocel fibres. While purity is a base standard for nonwoven applications, Birla Cellulose has taken purity to the next level with its unique process innovations that ensure high quality and best standards of hygiene.



### Renewable & Sustainable

Originating from 100% renewable & natural resource wood, Birla Purocel brings to nonwoven a complete new paradigm of purity & environment friendliness.

## The Purocel Promise





giving back  
to our planet  
more than we take  
because we care

Birla  
**purcel**<sup>™</sup>  
because we care

**Renewable** - Cellulosic fibres are derived from renewable raw material wood

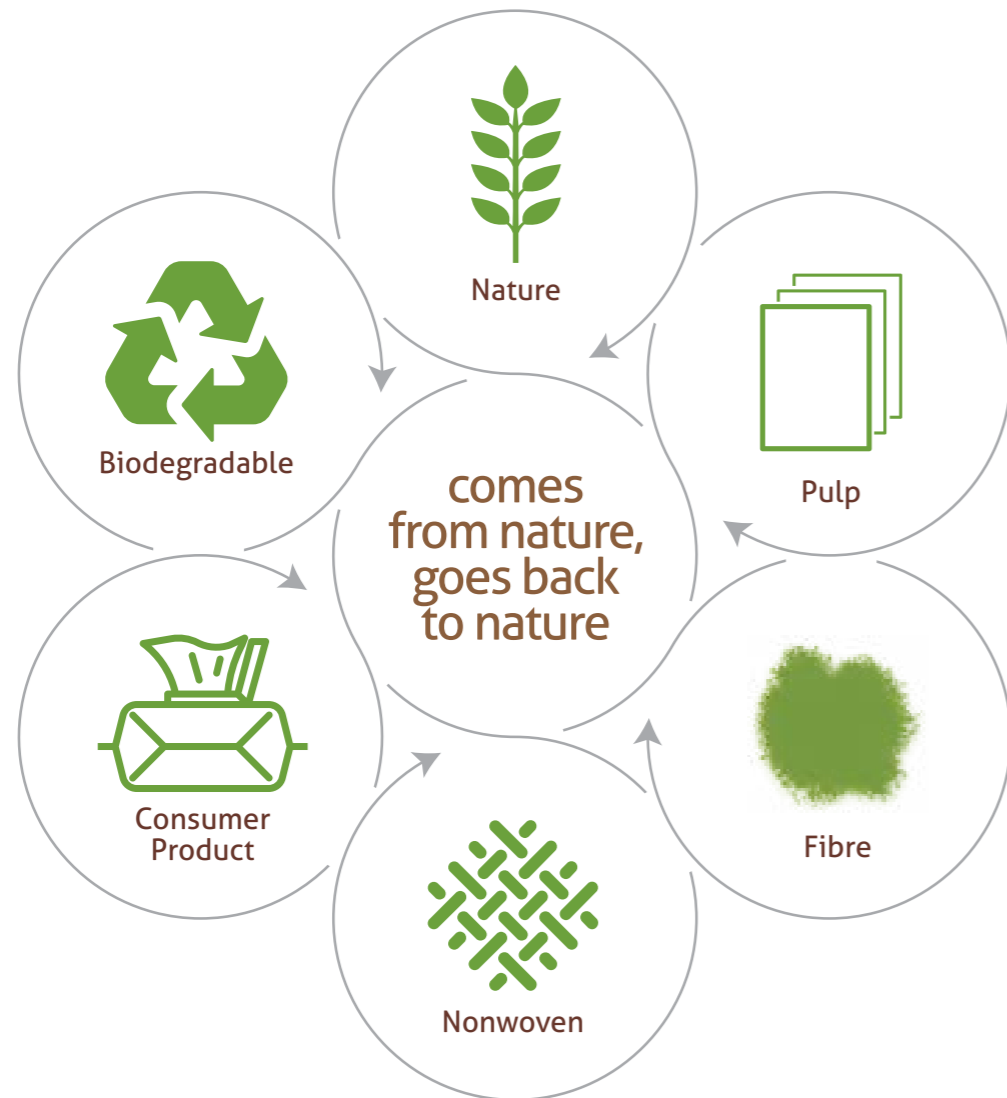
**Sustainable** - Strict control measures to source only from sustainable plantations and processes to ensure minimal environmental impact

**Natural** - Fibres are certified compostable and biodegradable, going back to nature - naturally

**Social** - Working with the communities to help bring societies closer

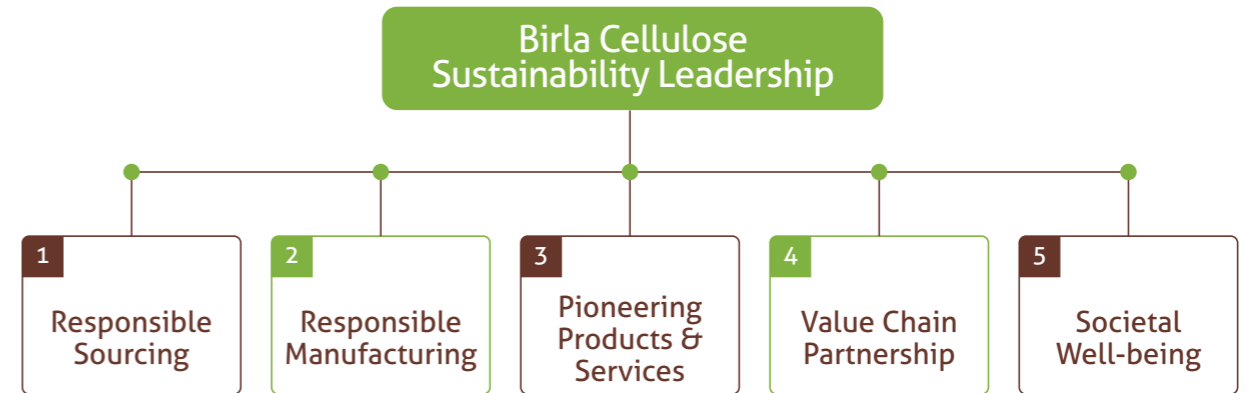
# 360° Approach

Sustainability is at the heart of every action that Birla Cellulose undertakes. Birla Cellulose fibres come from nature and go back to nature, leaving a positive footprint on the environment.



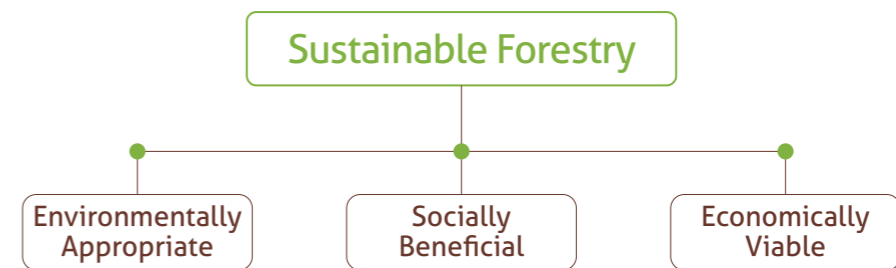
# Sustainability in the DNA

Birla Cellulose has a five-pillar approach for sustainability initiatives:



## 1 Responsible Sourcing: forestry and wood

Birla Cellulose has a comprehensive best-in-class forestry management system. The policies are compliant to global standards & partakes in conservation of endangered forests, High Conservation Value (HCV) forests & biodiversity.



• Wood sourcing policies at Birla Cellulose meet stringent global standards and are certified by the likes of FSC, SFI and PEFC.



• The business engages closely with leading NGOs like Canopy to understand globally available forestry information and standards. Birla Cellulose has achieved green shirt ranking in Canopy's Hot Button Report-2017, which is a testament to our global leadership position in responsible sourcing.





## 2 Responsible Manufacturing

Birla Cellulose has backward integration into pulp manufacturing across five plants in Canada, India and Sweden. These pulp plants have integrated closed loop system, which ensures lower energy and oil consumption.

Water consumption of Birla Cellulose fibre manufacturing units is amongst the lowest in the world. Adopting further roadmap to the Best Available Technologies (BAT standards) for key sustainability parameters by 2022.

As a signatory member of Zero Discharge of Hazardous Chemicals (ZDHC) Birla Cellulose has partnered with industry bodies, brands, technology experts and certification bodies to formulate global industry norms for greater sustenance. All our pulp and fibre manufacturing plants conform to ISO 14001 and ISO 9001.

Birla Cellulose is a member of Sustainable Apparel Coalition (SAC) and is amongst the first fibre brands to adapt Higg FEM 3.0 in which it has scored in upper 3<sup>rd</sup> quartile.



All Birla Cellulose pulp and fibre factories focus on self-improvement through Life Cycle Assessment, conforming to ISO 14040/44, and global benchmarking.

## 3 Pioneering Products and Solutions



Birla Cellulose fibres have certification like USDA Bio-based, Oeko-Tex Standard 100, Cradle to Cradle Gold Material Health Certificate.



Birla Spunshades, the spundyed viscose has excellent advantages in downstream. It reduces greenhouse gas emission by 20%, effluent discharge and water consumption by 40%. Birla Cellulose has earned gold level material health certificate from the Cradle to Cradle Products Innovation Institute for our product Birla Spunshades, thereby becoming the first manufacturer of VSF to get this certification.

The fibres are friendly during the end of cycle as they biodegrade and decompose within eight weeks, thus avoiding problems due to landfills.

## 4 Value Chain Partnerships

Birla Cellulose has formed a first-of-its-kind Value Chain Integration & Engagement Platform, called LIVA Accredited Partner Forum (LAPF). This has helped facilitate the development of the entire textile value chain by bringing the partners together & jointly improving on quality, service, innovation and environment footprint across the entire value chain.

Similar initiatives are done for Nonwovens value chain, such as ConvergeX 2018, to bring the partners together to unleash newer opportunities.

Multiple sustainability-focussed programs related to transparency & traceability of the value chain are implemented to support requirements of global brands & markets.



## 5 Societal Well-being

Birla Cellulose engages with communities in vicinity of its manufacturing units by understanding their needs in a systematic manner. Welfare initiatives like Health Care, Women Empowerment, Education, Infrastructure Development and Clean Water &

Sanitation are implemented to benefit the community. The Group's footprint straddles across 5000 villages globally, reaching out to 7.5 Million people annually. This is actively managed across the Group as a stakeholder management program for sustainable business.





innovating  
solutions  
that improve  
peoples' lives  
because we care

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**purocel**<sup>™</sup>  
because we care

**Process Research** - Focussed research unit at every phase across the value chain process, from plantation to fibre

**Innovation** - Dedicated team of scientists with global state-of-the-art R&D facilities to work on new concepts and products

**End-to-End Solutions** - Programs to co-develop and offer end-to-end product & process solutions for our value chain partners

**New Application Development** - Focus on new application development to open new business avenues for the value chain





**Forest Research Institute**  
*Sapling to Plantation*



**Pulp Research Institute**  
*Plantation to Pulp*



**ABSTC**  
*Fibre & Application Research*



**ABCFRC**  
*Unique Viscose Scale-up R&D facility*



**Birla Research Institute**  
*Pulp to Fibre*

## Process Innovations

Our process innovation centres are working on innovating processes at each step right from plantations to pulp production to final fibre production.

This is helping to improve the processes and make them more sustainable and at the same time creating newest quality benchmarks to benefit customers and end consumers.

## Product Innovations

Birla Cellulose has unmatched global leadership and capability in terms of product & application development centres. This allows us to work jointly with our partners to develop new products and validate them in respective applications.



**TRADC**  
*Application Development Centre*

### FOREST

**Grasim Forest Research Institute | Harihar, India**

The institute focuses on pulpwood tree improvement educating farmers in tree cultivation, and genetic engineering for improved yields from plantations.

### PULP & FIBRE

**Pulp Research Institute & Birla Research Institute  
Domsjo, Sweden & Nagda, India**

#### ABSTC

**Mumbai, India**

This is a premier research institute focused on developing product innovations and process improvements relating to rayon-grade wood pulp and viscose technology.

### FABRIC & GARMENTS

**TRADC | Kharach, India**

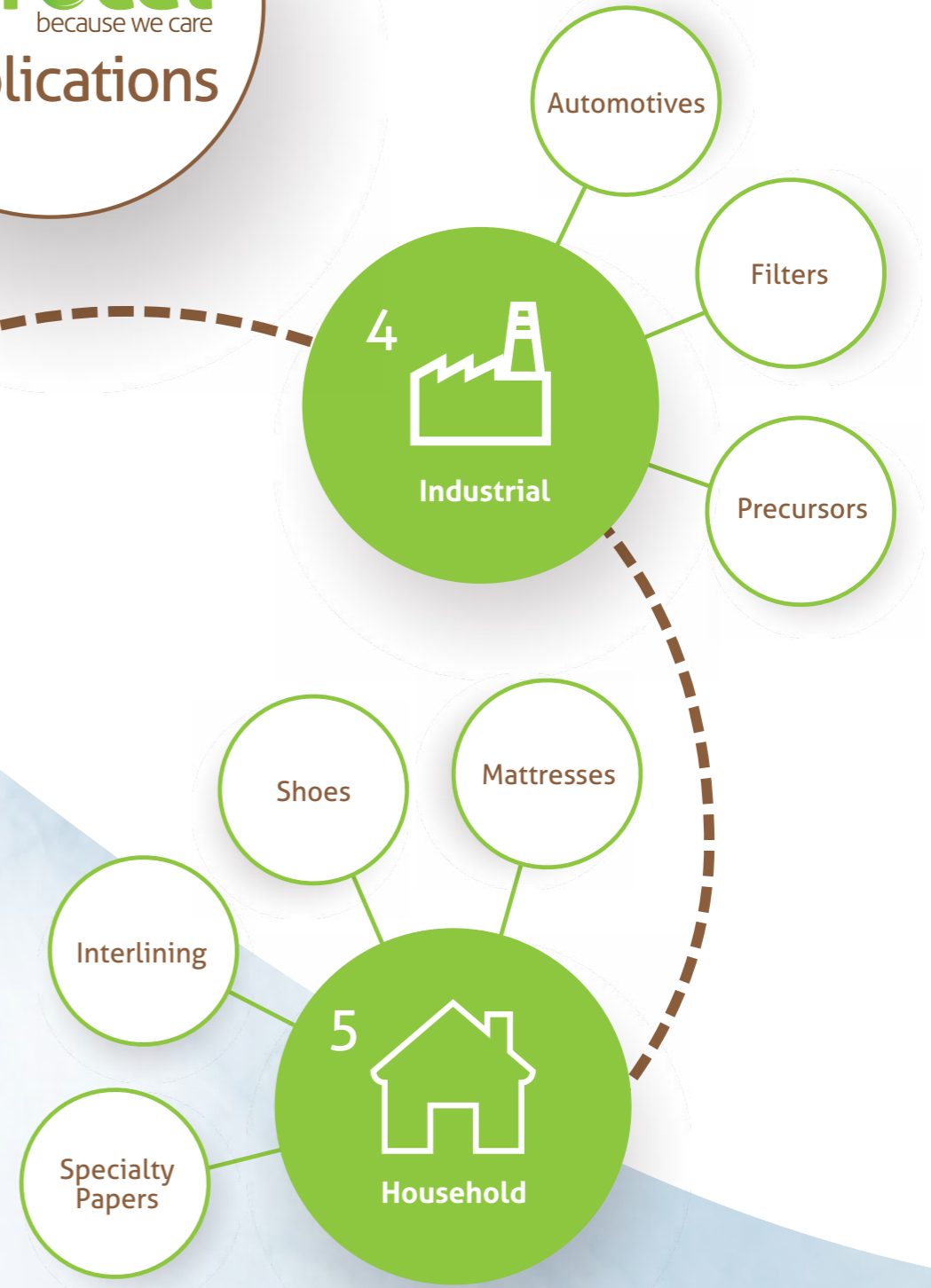
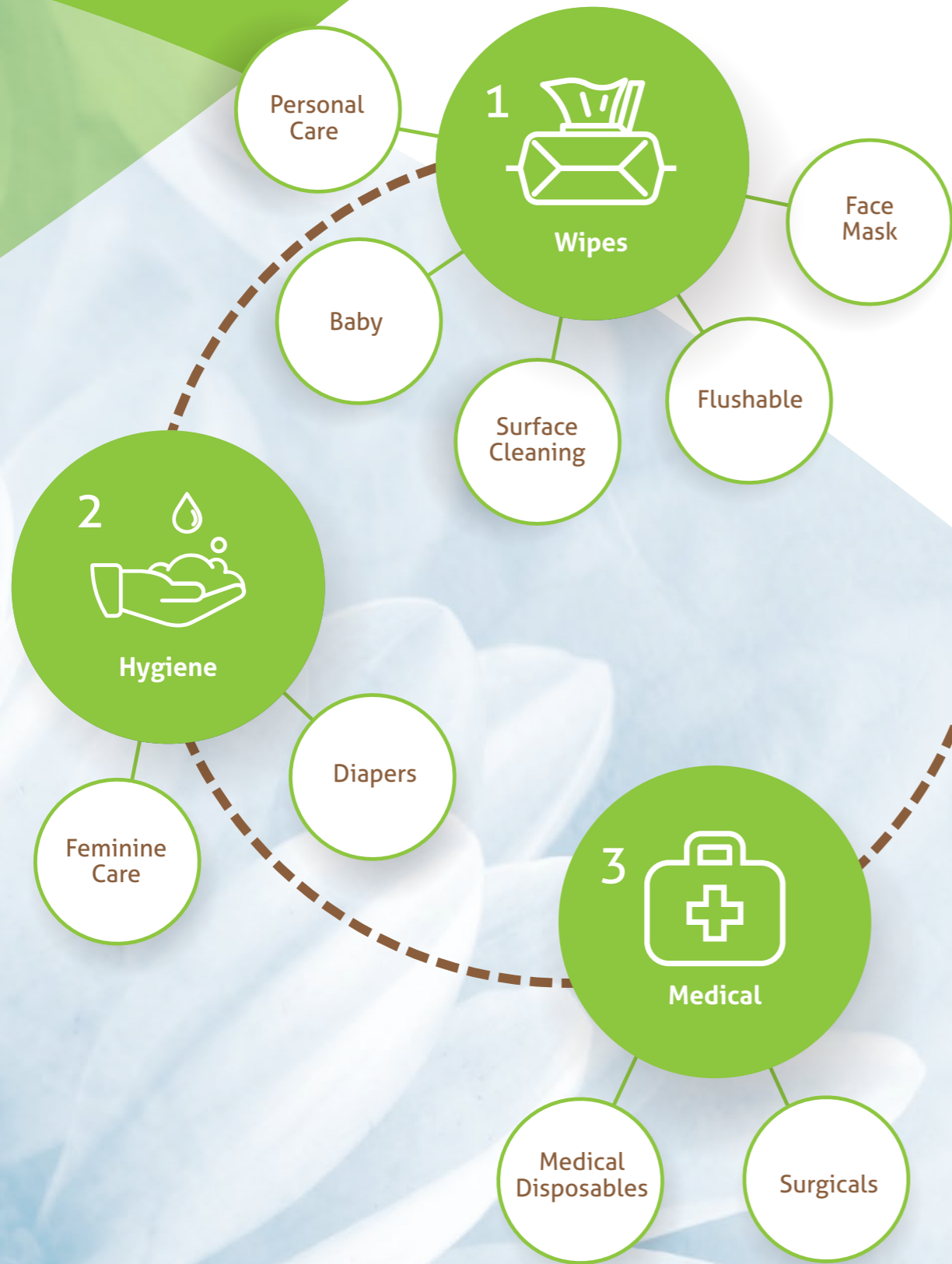
The Textile Research And Development Centre (TRADC) brings innovation to the textile and fashion industry. In addition, TRADC offers many services that assist our value chain partners in bringing cellulosic fibre products to market.

### NONWOVEN & WIPES | ABSTC & ABCFRC

**Mumbai & Kharach, India**

The research teams at ABSTC and ABCFRC continuously work on the development and validation of newer nonwoven products and applications to help the nonwoven value chain bring faster and sustainable innovations

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**purocel**<sup>™</sup>  
because we care  
**Applications**





bio-safe &  
flushable

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**purocel**<sup>™</sup>  
because we care

**EcoFlush**

*Short length fibres for biofriendly flushable nonwovens  
and other applications*

Short-cut fibres can be used to produce the nonwoven wipes that provides the fine balance between strength and dispersion. The fibres enable to make nonwoven wipes strong enough for product performance during use and at the same time be flushed down the toilet without the danger of clogging the sewer system and that are completely biodegradable.

Special application nonwovens or papers can also be made from these fibres, as the fibres help to balance the tear strength, porosity and other characteristics of the product.

**Distinct Advantages**

- Good and uniform dispersion in the slurry for wet laying
- Individual fibre strength to hold the short pulp fibres together in nonwovens
- Ability to lose short fibres when flushed, to fulfill flushability norms
- Biodegradable & compostable
- Fibres are available in cut length 8-12mm

**Applications**

- Moist toilet wipes
- Wet wipes
- Specialty papers







keeping  
it dry,  
naturally

Birla  
**pur<sup>o</sup>cel<sup>™</sup>** | **EcoDry**  
because we care

*Biodegradable & compostable fibres for sustainable and environment friendly hygiene disposable products*

Birla Purocel Hydrophobic is a viscose fibre with incorporated durable hydrophobicity based on covalently bound water repellent hydrocarbon chains to the fibres.

It helps in creating nonwovens that keeps the user skin dry at the same time allowing fluids to get transferred to the absorbent core. Fibre remains biodegradable and compostable like regular viscose. The hydrophobic fibre is made by use of non-fluorinated and non silicon based chemicals which gives the contact angle with water of approximately 100°. This allows to make safer and environment friendly hygiene products with the requisite performance characteristics.

**Distinct Advantages**

- Hydrophobicity is retained in the product even after spunlacing
- Fibre feel is soft and similar to regular viscose
- This fibre can be used in 100% or in blends with other fibres
- Can be processed using spunlace and wetlaid technologies
- Biodegradable and compostable

**Applications**

- Hygiene products such as diapers
- Feminine hygiene
- Absorbent pads



efficient  
cleaning,  
environment  
friendly.

Birla  
**purocel**<sup>™</sup>  
because we care

**Quat  
Release**

*Fibres created for effective cleaning and disinfecting in household and industrial environment*

These speciality fibres have been infused with a quat release technology which enables easy & quick release of quats – quaternary ammonium compounds usually found in quat based deep cleaning disinfectants. The technology helps in higher amount of disinfectant (>85%) getting transferred to the target surface thus effectively cleaning hard surfaces of your household and industrial areas. Along with the deep cleaning, wipes made from Purocel fibres are bio-degradable compared to existing deep cleaning wipes made out of synthetic fibres. Due to its ability to hold more water, it offers better fluid management while offering soft feel inherent to viscose fibre.

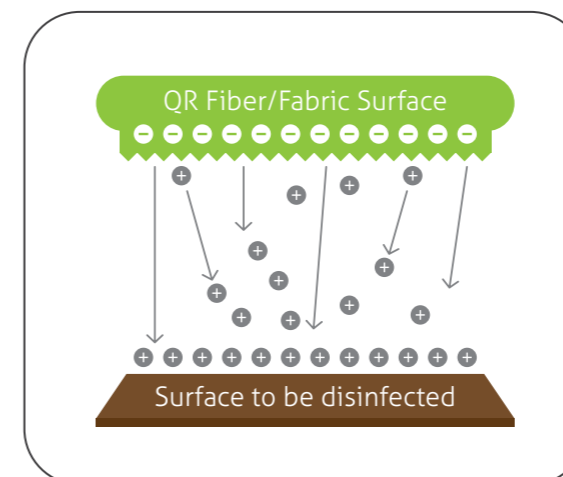
Purocel QR can be used in blends with other fibres like polyester, polypropylene or standard viscose in disinfecting and surface cleaning wet wipes.

**Distinct Advantages**

- High percentage of free quat in disinfecting wipes
- Made of 95%+ renewable raw materials
- Soft hand-feel
- Homogenous distribution of lotion
- Compatible with spunlace and needle punch process

**Applications**

- Surface cleaning wipes



making  
safe,  
safer!

**Birla**  
**purocel**<sup>™</sup>  
because we care

**Antibac  
Plus**

*Antibac Plus is a unique fibre that helps to create nonwovens that restrict the growth of odor-causing bacteria.*

Antibac Plus, by Birla Cellulose is an 'Antibacterial fibre' created for fast, effective and long lasting antibacterial protection. This specially treated fibre eliminates the step of antibacterial treatment for your product without compromising on its purity, hygiene and performance. The fibre retains its efficacy after standard spunlacing. Thus, Antibac Plus is not just a fibre but promise of long lasting antibacterial protection.

**Distinct Advantages**

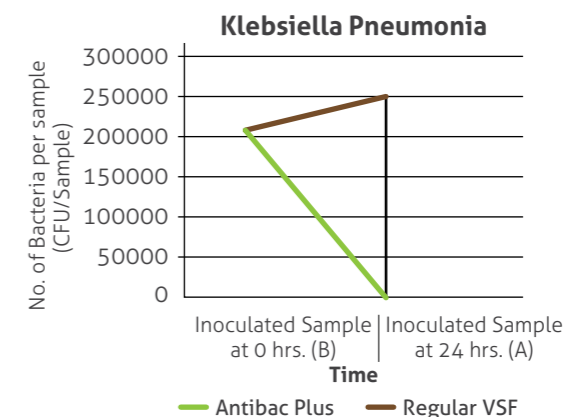
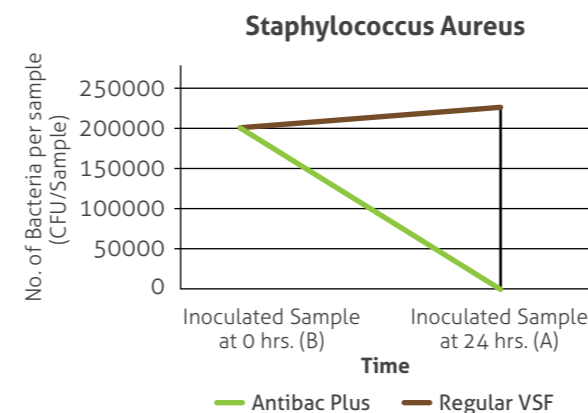
- Inhibits odor development
- Protection against microbial growth
- Available in raw-white and other shades

**Applications**

- Cosmetic wipes
- Surface cleaning wipes
- Medical and wound care
- Substrate for industrial applications

\*\* Geographic & application specific regulation may apply

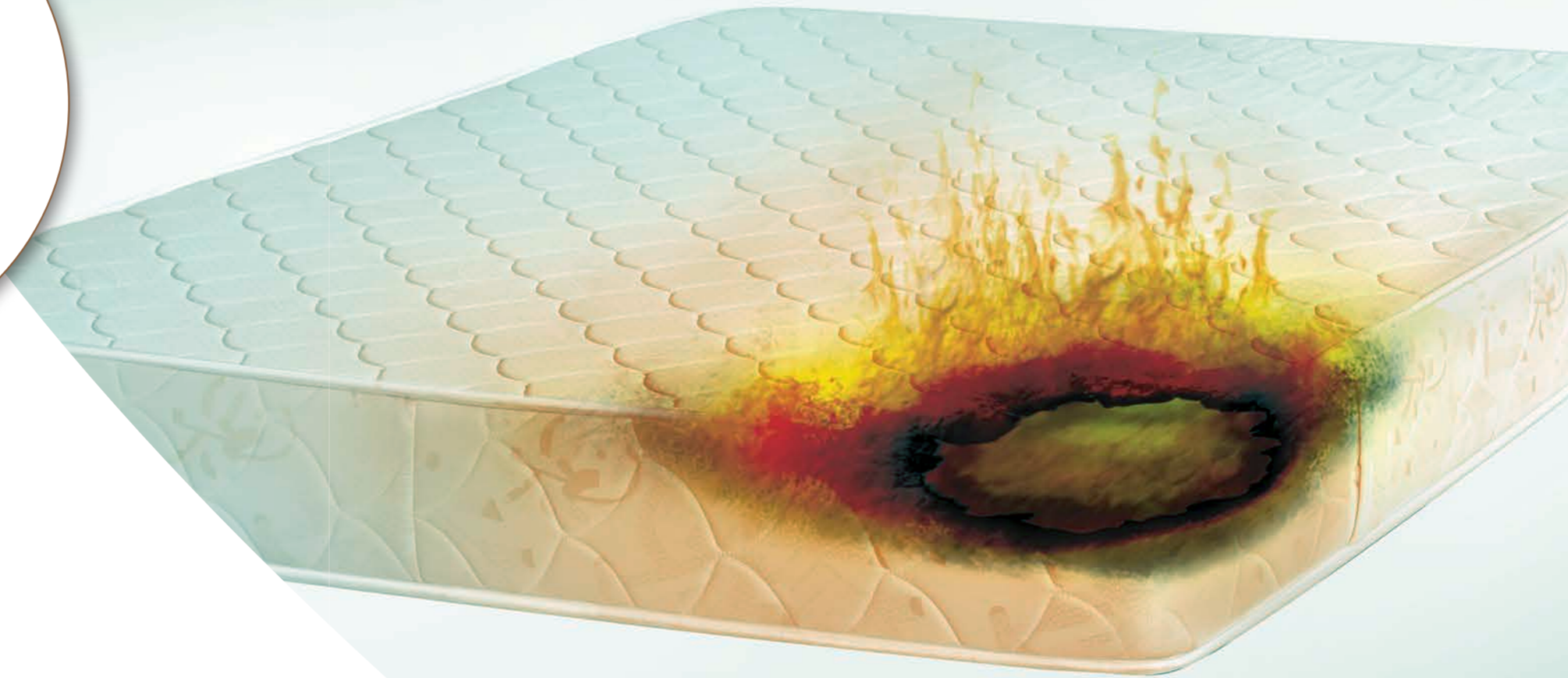
**Interpretation:**



Antibac Plus has shown >99.9 % antimicrobial activity, whereas Regular VSF has shown NO antimicrobial activity tested against Staphylococcus Aureus and Klebsiella Pneumonia respectively when analysed as per AATCC 100-2012 Test Method.



keeping  
the heat  
away



Birla  
**purocel**<sup>™</sup>  
because we care

## Hope FR

*Inherent flame retardant fibres for mattress and upholstery products*

Flame retardant property in nonwovens help in making the mattresses and upholstered furniture more safe for consumers at home and public places. However, topically treated nonwovens have chemicals which create challenges like toxic hazard. Inherent flame retardant fibres offer a complete solution for flame retardancy in mattresses to fulfill the specific requirements of CPSC 16CFR part : 1633 : US federal mattress flammability standard, in the form of nonwoven matt.

### Distinct Advantages

- Inherent flame retardant property
- Builds-up a char layer avoiding oxygen flow, providing barrier against the heat source
- Biodegradable cellulosic fibres that do not melt or drip when burnt
- Denier Range - 3 Den to 4.6 Den/Cut Length - 51 or 60mm

### Applications

- Mattress ticking
- Mattress backing
- Upholstered furniture

soft,  
softer,  
softest



*Smoothest experience for next to skin applications like facial masks with advanced moisture management*

Birla Purocel Face Mask fibres have been specifically developed for the use in facial masks. The smooth fibre surface with lowest possible friction is created for a soft silky feeling. The unique structure provides superior moisture management for optimum transfer of active ingredients which is unmatched. High strength of fibres provides dimensional stability to the mask Cellulosic fibres which are biodegradable and compostable. The fibres are manufactured with highest level of purity and are made from the renewable raw material wood which is sourced from responsibly managed forests. The comfort to end user is already making it the best choice for the next generation face mask products.

**Distinct Advantages**

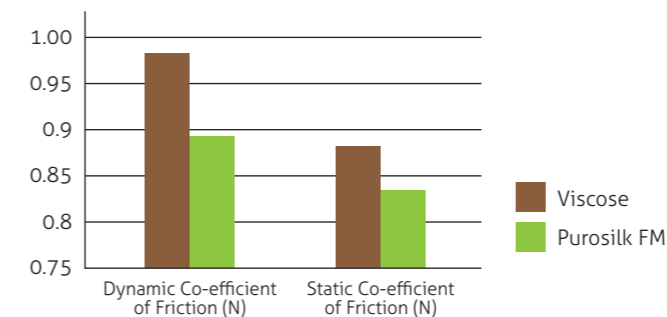
- Extremely soft feel
- Enhanced dimensional stability
- Improved compatibility with cosmetic beauty care lotion

**Applications**

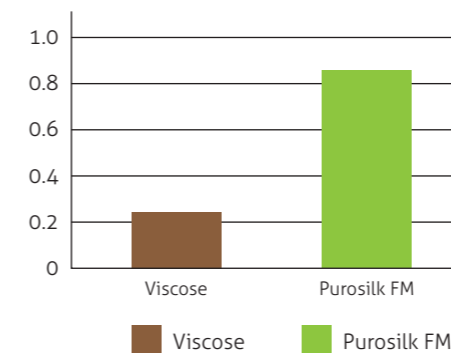
- Face masks
- Premium facial wipes
- Cosmetic pads



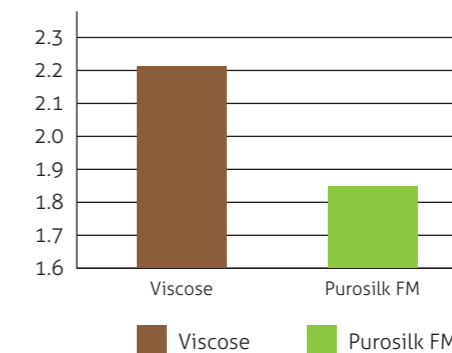
**Extremely soft feel**  
The lower frictional properties of Purosilk FM confirms its soft silky feel.



**Enhanced dimensional stability**  
Higher bursting strength means better dimensional stability of face mask for user



**Improved compatibility with cosmetic beauty care lotion**  
Faster wetting gives quick release of active formulation to the skin







hygiene  
begins  
at home

Birla  
**purocel**<sup>™</sup> | **Spunshades**  
because we care

*Inherently colored Cellulosic fibres for brilliant colored nonwoven wipes*

Colored wipes can be produced by using color pigments on the surface of nonwovens. However, the surface pigments tend to leach more when used in wiping application. This challenge is overcome by using Spunshades- fibres that are dyed inherently during spinning stage itself called spundyed process. The dye pigments are deep embedded in fibres giving brilliant colors which is impossible to achieve otherwise. The color is not faded while in use, maintaining aesthetics of the wipe product.

**Distinct Advantages**

- Brilliant colors
- Widest range of shades
- Unmatched color depth
- Suitable for hygiene applications

**Applications**

- Surface cleaning wipes
- Mops
- Wet wipes





pure &  
hygienic

Birla  
**pur<sup>o</sup>cel<sup>™</sup>** | **Viscose**  
because we care

***Purest viscose fibres for all hygienic nonwoven applications***

These fibres have been manufactured under strict hygiene conditions complying with global hygiene standards making them suitable for all kinds of hygienic nonwoven applications. What's more, the finish given to these fibres is FDA compliant making their use extra safe for everyone. Applications made out of our Purocel viscose fibres are not just good for you but for mother nature as well, as these fibres are fully bio-degradable & compostable.

**Distinct Advantages**

- Global hygiene standard compliant
- FDA compliant finish
- Suitable for high speed processing with latest spunlacing technologies
- Denier – 1.5 D
- Cut Length Range – 25 to 60 mm
- Fully biodegradable & compostable

**Applications**

- Personal hygiene products
- Medical disposables
- Wet / Dry Wipes
- Industrial products like filters, substrates, etc.





for the  
finest  
wipes

Birla  
**purocel**<sup>™</sup> | **Fine Denier**  
because we care

*Fibres for creating differentiated softer and lighter nonwoven end products*

The fibres help to get much softer, lighter and fuller nonwoven fabrics to add value to the wipes and other end consumer products. At the same time, the Fine Denier range fibres including micro fibres are carefully developed, to maintain the superior product performance and efficiencies already displayed by regular viscose fibres from Birla Cellulose. Our wide range Fine Denier fibres have already been appreciated for giving a right balance of performance and value.

**Distinct Advantages**

- Fine Denier Range – 1.1 Den & 1.2 Den
- Micro Denier Range – 0.8 Den & 0.9 Den
- Various cut lengths available
- Biodegradable

**Applications**

- Cosmetic wipes
- Baby wipes





delivers  
high  
performance

Birla  
**purocel**<sup>™</sup>  
because we care

**Coarse  
Denier**

*High performance fibres for industrial nonwoven applications*

These high performance fibres are available in a wide range to cater to a variety of industrial applications. More than 50 years of experience in making coarse denier fibres have made us a trusted quality supplier across the globe. Applications made out of our coarse denier fibres deliver a high performance while caring for mother nature as they are fully bio-degradable & compostable.

**Distinct Advantages**

- Wide Denier Range Availability – Up to 6 D
- Wide Cut Length Range Availability – 32 to 120 mm
- Fully biodegradable & compostable

**Applications**

- Battery separators
- Carbon precursors
- Filters
- Waddings





we work as hard  
as our partners  
because we care

Birla  
**purcel**<sup>™</sup>  
because we care

**Trusted Partner** – Long-term relationship-based approach with business partners

**Co-creation** – Dedicated team to execute special joint development programs with value chain partners

**Strategic Partnership Programs** - Partnerships for product testing and process perfection at the value chain / Partnerships for business development & marketing through Global Sales & Marketing Teams



## Reach

*Marketing and Manufacturing Operations spread across 9 regions*

- **Plantations:** India
- **Pulp Plants:** India, Sweden and Canada
- **Fibre Plants:** India, Thailand, Indonesia and China.
- **Marketing Offices:** India, Bangladesh, Thailand, Indonesia, China, Turkey and USA

## rewarding partnerships

## Response

*Dedicated Business Development & Technical Services*

- Dedicated team of professionals
- Constant engagement with the customers
- Technical assistance for product development, application development and to improve product performance

*Our team of scientists work to develop innovative product solutions at our research centres for our partners through:*

### **Proactive Innovations**

Our own innovations for our customers of nonwovens

### **Co-created Products**

Joint innovations with specific customers







**ADITYA BIRLA GROUP**

Aditya Birla Group is a US \$48.3 Billion corporation, in the League of Fortune 500. Anchored by an extraordinary force of over 120,000 employees, belonging to 42 nationalities. Over 50 percent of the group's revenues flow from its overseas operations spanning 34 countries.

Pulp & Fibre business started in 1954 and is globally known as Birla Cellulose. Birla Cellulose is a World leader in Viscose Staple Fibre (VSF) and has a commandable position with major world market share. Birla Cellulose fibres are of natural origin, moisture absorbent, have soft feel, and are completely biodegradable. As an extremely versatile and easily bendable fibre, Viscose Staple Fibre is widely used in apparels, home textiles, dress materials, knitted wear and nonwoven applications.

The group is amongst the top cement producers in the globe, fourth largest producer of insulators and boasts of having the best energy efficient fertilizer plants.

**1<sup>ST</sup> IN  
ALUMINIUM  
ROLLING**

**1<sup>ST</sup> IN  
CARBON  
BLACK**

AMONG TOP  
**VISCOSE** **3**  
STAPLE FIBRE

**3<sup>RD</sup> LARGEST  
PRODUCER OF  
INSULATORS**

AMONG TOP  
**CEMENT** **3**  
PRODUCERS  
(excluding China)



**Bangladesh | China | India | Indonesia | Thailand | Turkey | U.S.A**

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Despite careful research and studies conducted with utmost care, Birla Cellulose - the Pulp and Fibre business of Aditya Birla Group (hereinafter referred to as Birla Cellulose) assumes no liability whatsoever for the actuality, completeness, preciseness and correctness of the information made available in this brochure. Birla Cellulose reserves right to change and/or modify individual pieces of information, parts of individual pages and/or the entire brochure from time to time.

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[www.birlacellulose.com](http://www.birlacellulose.com)