**Raw Material Specifications**

Sparsa pads are composed of a minimum of three and up to four distinct layers. Each layer has a specific function, and considerations of comfort, absorbency, compostability, and safety guide the selection of materials.

**1.1 Top Layer (User Contact Layer)**

* **Material Used:** 100% Non-Woven Viscose Fabric
* **GSM:** 40 GSM
* **Width:** 203 mm (8 inches)
* **Source:** Procured from India
* **Certifications:** Supplier certification for compostability is mandatory

**Properties:**

* Highly soft and skin-friendly
* Excellent liquid wicking and dispersion
* Fully compostable and biodegradable
* More expensive than conventional polypropylene (PP) or polyethylene (PE) layers used in non-compostable pads

**Note:** The highly absorbent nature of non-woven viscose may cause undesirable dispersion if the pad design does not include a controlled liquid distribution system.

**1.2 Middle Layer (Absorbent Core)**

* **Material Used:** Banana Fiber Fluff (processed from dried banana stem)
* **Processing Method:**
  + Converted into sheet paper
  + Transformed into cotton-like fluff using a pulverizing machine (see Building Block 3 for machine details)
* **Weight per Pad:** 6.5 grams
* **Thickness:** 2–2.5 mm
* **Color:** Natural brown (unbleached)
* **Absorbency (In-house test):** ~90 mL of fluid capacity
* **Additives:** None – 100% natural without chemical treatment

**Note:** This layer acts as the primary absorbent core and provides essential retention during menstrual flow. Being chemical-free, it supports a skin-safe and environmentally friendly product.

**1.3 Barrier Layer (Leak-Proof Layer)**

* **Material Used:** Bioplastic film (PLA/PBAT blend)
* **Thickness:** 35–40 microns (single-layer)
* **Width:** 203 mm (8 inches)
* **Source:** India
* **Type:** Currently single-layer; potential upgrade to double-layer (18+18 microns from tubular blown film)

**Technical Properties of Bioplastic Film:**

* **Composition:** PBAT-based biodegradable composite with calcium carbonate as filler
* **Carrier Matrix:** PBAT with functional additives for flexibility and processability
* **Standards:**
  + Moisture Content: ASTM D6980
  + Density: ASTM D792
  + Melt Flow Index (MFI): ASTM D1238

**Note:** The inclusion of calcium carbonate improves dimensional stability and cost-efficiency, while maintaining partial compostability under controlled conditions (industrial composting or landfill within 250 days).

**1.4 Adhesive**

* **Type:** Silicone-based, pressure-sensitive adhesive
* **Placement:** Manually applied to center and wings of pad
* **Dimensions:** 40 mm width × 220 mm length
* **Backing:** Release paper
* **Source:** India

**Note:** Manual adhesive application is preferred for better control and to minimize material usage.

**3. Packaging Specifications**

**3.1 Individual Pad Packaging**

* **Material:** Bioplastic pouch (PLA/PBAT blend)
* **Thickness:** 25–30 microns
* **Sealing Method:** Manual heat sealing

**3.2 Retail Box (8 Pads)**

* **Material:** Paperboard
* **Capacity:** 8 pads per box
* **Box Dimensions:** 10 cm × 10 cm × 10 cm

**3.3 Master Carton (Shipping Box)**

* **Material:** Corrugated fiberboard
* **Capacity:** 100 retail boxes (800 pads total)
* **Carton Dimensions:** 47.5 cm × 46 cm × 48 cm

**4. Key Considerations and Recommendations**

* **Supplier Engagement:** Ensure suppliers for top layer and bioplastic components provide valid certifications for compostability and food-grade safety.
* **Storage:** Store all raw materials in dry, clean, and pest-free areas to prevent contamination.
* **Testing:** Periodically test raw material batches for quality assurance and consistency, especially absorbency and tensile strength of absorbent core.
* **Documentation:** Maintain material safety data sheets (MSDS) and supplier certifications for all raw materials.