

Textile Testing and Analysis Final

FAME 40253

Mackenzie Belmont



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02

Bear & Bean

DESIGN BRIEF

Bear&Bean

EMPOWERING LITTLE EXPLORERS

At Bear&Bean, we aim to inspire a brighter, more sustainable future for children. We exist to create beautifully crafted, sustainably and ethically sourced children's clothing that not only envelops them in comfort and quality but also nurtures their self-confidence. Our commitment to ethical practices and sustainable materials is a step towards a better world, where every child can grow with dignity and purpose. We strive to be a guiding light in the children's fashion industry, showing that style and values can coexist harmoniously, making a positive impact on the world one outfit at a time.

Bear&Bean is setting new standards in the childrenswear industry with its unwavering commitment to sustainability and ethics. What truly sets us apart is our devotion to sourcing materials and fabrics with the utmost care for our planet's well-being. From the inception of a design to the final creation, honesty is woven into the fabric of our company, ensuring that every piece of clothing is produced with integrity and fairness.

But we don't stop there! Bear&Bean believes in celebrating childhood joy and wonder, through exciting and trendy styles. We bring fashion to sustainable girl's childrenswear without compromising comfort, safety, and convenience for our parents. Our clothing is designed to empower kids to be themselves, allowing them to move, play, and explore freely, all while looking effortlessly stylish. Bear&Bean is more than just a brand; it's a promise to parents and a source of confidence for children, where sustainability, ethics, style, and comfort coexist seamlessly establishing a fresh benchmark in kids' fashion.

BEAR&BEAN LOGOS

LOGOS



Bear & Bean



EMPOWERING LITTLE EXPLORERS

SLOGAN

EMPOWERING LITTLE
EXPLORERS

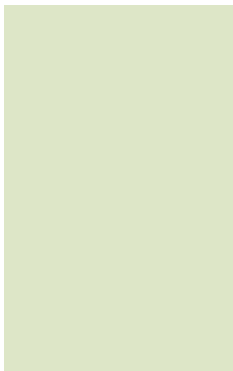
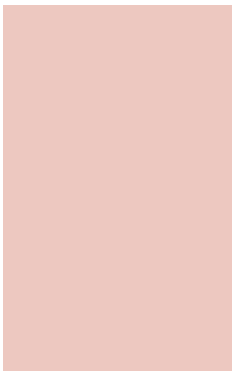
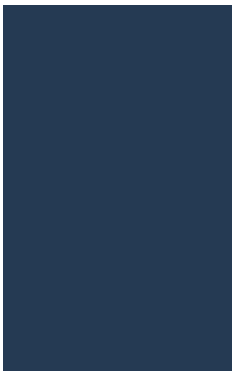
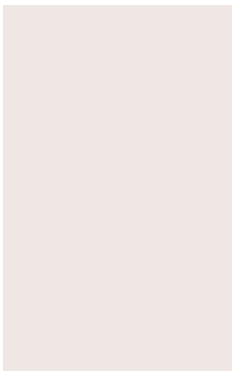
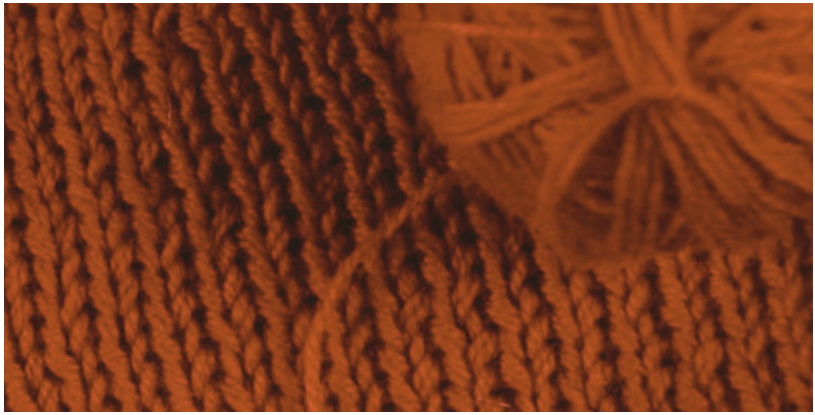


ABOUT

SARAH MILLER

Meet Sarah Miller, a 32-year-old Director of Sustainability for a local designer brand in Seattle, Washington, with a salary of \$150,000 a year. She's a loving mother, married, with one adorable child, a 4-year-old daughter named Lily. Sarah is a conscientious and responsible consumer, placing a strong emphasis on sustainability, ethics, style, and comfort when it comes to her children's clothing choices. As a sustainability professional, she is acutely aware of the fashion industry's impact on the planet and is committed to making ethical and sustainable choices for her family. Sarah has a personal style that values both modern design and eco-consciousness, seeking trendy and fashionable clothing that also ensures her active kids are comfortable and free to explore. She values brands that align with her family's values, and Bear&Bean's commitment to sustainability, style, and comfort makes

it a perfect fit. Her children, Lily and Ethan, benefit from her conscious consumer choices, enjoying stylish, comfortable, and eco-friendly clothing as they explore the world around them. When it comes to communication, Sarah prefers to engage with brands like Bear&Bean through their website and social media platforms, staying updated on new collections, sustainability initiatives, and parenting tips. She also appreciates newsletters and email updates to ensure she doesn't miss any important information about the brand. To sum it up, Sarah is an environmentally conscious and stylish parent who values sustainability and ethics in children's clothing, ensuring that her children, Lily and Ethan, are not only comfortable and stylish but also growing up with a strong sense of environmental responsibility.



COLOR PALETTE

FEATHER

MIDNIGHT

ROSE

MOSS

SUNRISE

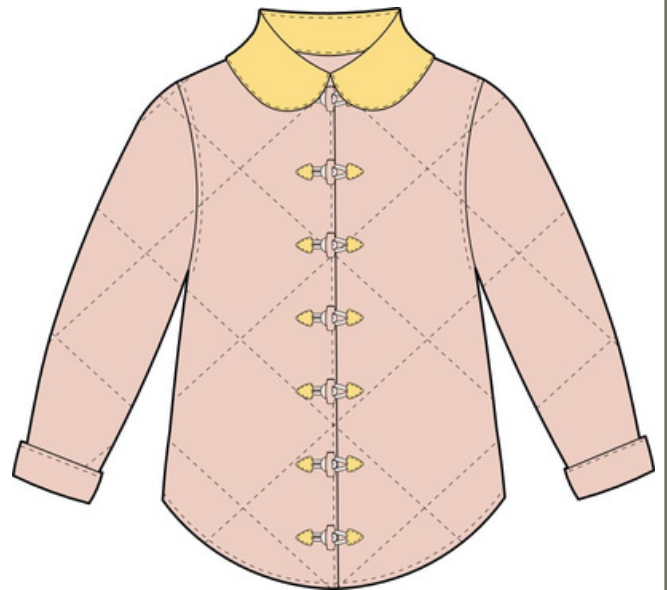
FOX

Bear & Bean

PRODUCT OFFERING

Willow Winter Jacket

FLATS



Willow Winter Jacket

Fabrics and Findings

Bear&Bean has designed a winter jacket, featuring a resilient 100% polyamide outer shell and a soft 100% recycled polyester fleece lining. The outer shell of the jacket is durably constructed with a water-repellent finish, elevating its performance in adverse weather conditions. The inner filling is composed of 100% recycled polyester, aligning with Bear&Bean's eco-friendly principles while ensuring optimal insulation. The jacket is adorned with seven toggle buttons down the center front, securing a flap covered durable plastic zipper beneath. This provides a secure closure mechanism, ensuring that the cold stays out and warmth remains within.

Special Considerations

Special Regulations:

- Zipper
 - It's important to ensure that the zipper is made of plastic to prevent the possibility of harmful chemicals or materials such as nickel. The zipper must also have no indirect attachments hanging from the pull as this poses a safety threat to the child wearing it.

Care Instructions:

- Machine Wash Warm, Do Not Bleach, Line Dry, Do Not Iron

Testing Techniques

Outer Shell:

- **ASTM F115-18 Standard Practice of Evaluating the Comfort, Fit, Function, and Durability of Protective Ensembles, Ensemble Elements, and other Components**
 - This test method evaluates fit, comfort, durability, and function of protective ensembles and elements, in order to ensure they are suitable for the given environment. This test method was chosen to prove that the outer shell fabric will provide comfort, good feel and fit, and functionality.

Willow Winter Jacket

Lining Fabric:

- **ASTM D737-18(2023) Standard Test Method for Air Permeability of Textile Fabrics**
 - This test method measures the air permeability of textile fabrics. This measures the rate of air flow passing through a known area of fabric. The specific test method was picked as it will allow Bear&Bean to evaluate the level of air that will move through the lining fabric. Children need winter clothing that keeps heat in, this test method would help ensure lining fabrics provide the correct amount of insulation.

Insulation/Filling:

- **ASTM F1291-22 Standard Test Method for Measuring the Thermal Insulation of clothing using a heated manikin**
 - This test method is used to evaluate and compare the insulation properties of a garment. The test uses a heated manikin to test resistance to heat transfer from a warm subject to a relatively cool external environment. This test method was chosen to prove the insulation properties of the jacket, which make it suitable for young children to be in cold weather(Standard test method for measuring the thermal, n.d.).

Testing Techniques Specific to Weather Conditions

AATCC TM35-2018, Water Resistance: Rain Test

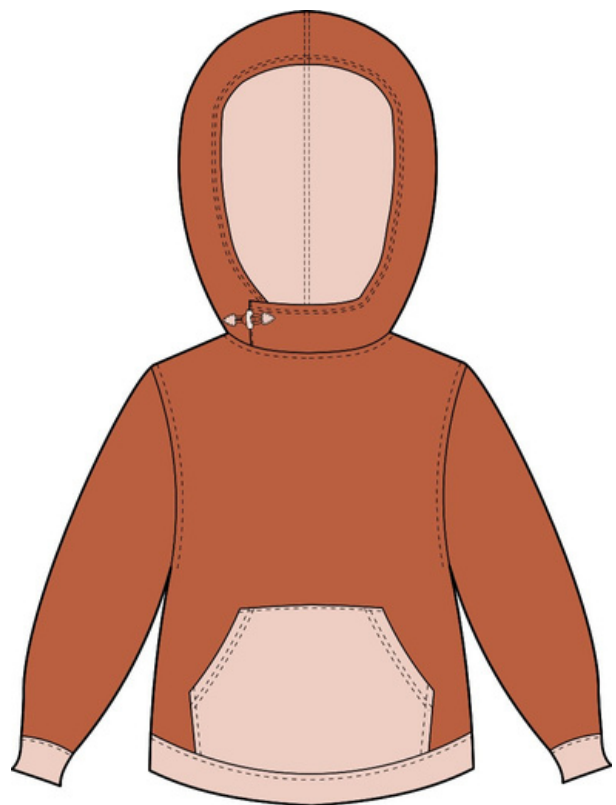
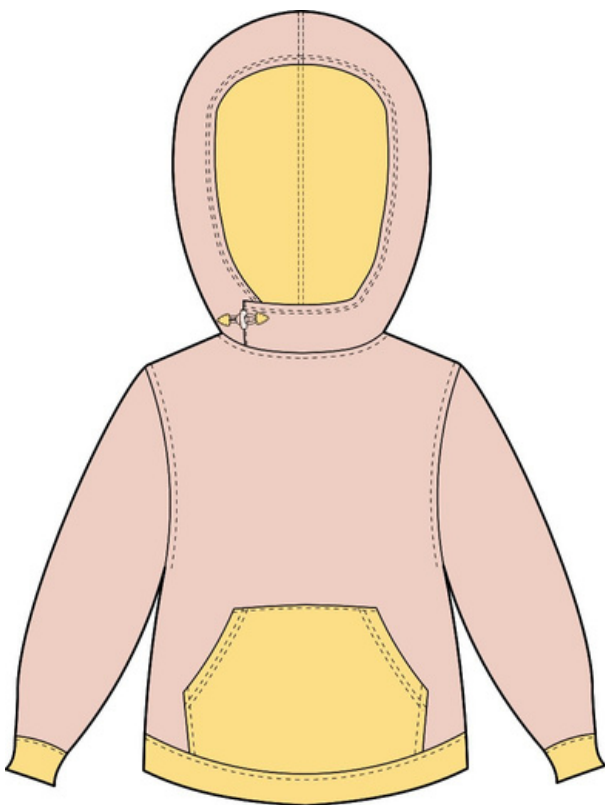
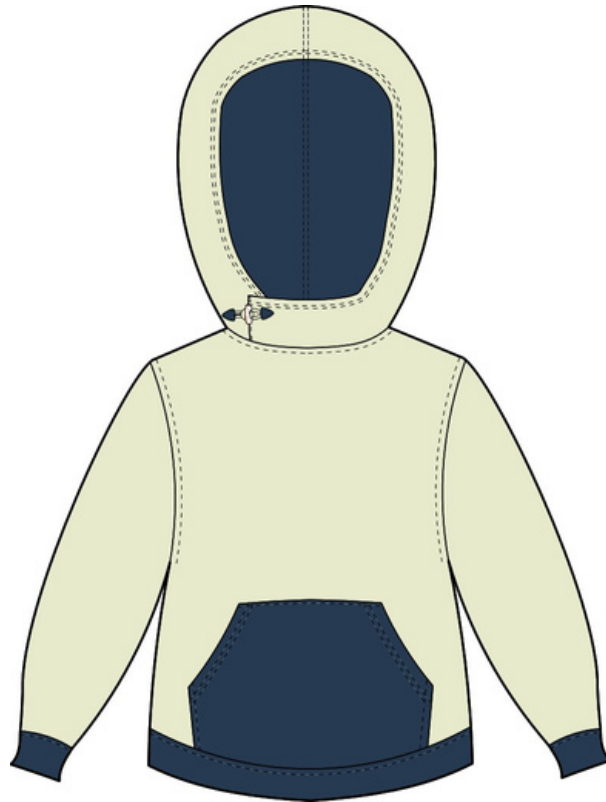
- This test method predicts the rain penetration resistance of fabrics. A sample is sprayed with water for 5 minutes, and weighed after to evaluate the level of water repellency. This test was picked as it is important to have a certain level of water resistance in outerwear. When developing children's outerwear, it's important to keep in mind how active children can be. When fabrics used for outerwear are not water repellent, it will cause the child and garment to become damp or cold, defeating the purpose of the garment.

ASTM F2732-16: Standard Method for Determining the Temperature Rating for Cold Water Protective Clothing

- This is a standard test method in which the thermal resistant value of a garment is measured with a heated manikin. The test uses heat loss methods to predict the lowest environmental temperature in which the jacket could be deemed comfortable (ASTM F2732-16, n.d.) This test was picked to ensure comfort, fit and function of the garment in snowy or cold weather conditions.

Ember Hoodie

FLATS



Ember Hoodie

Fabrics and Findings

Bear&Bean's two-colored Ember hoodie is designed for both style and safety. The hoodie is meticulously crafted from 100% cotton jersey sweatshirt fleece, ensuring a soft and comfortable feel. The cuffs and bottom hem, made of the same 100% cotton sweatshirt jersey, not only enhance the hoodie's durability but also provide a snug fit for active little ones. The hood fits loosely, complying with regulations and offering ample comfort. In adherence to safety guidelines, this hoodie skips drawstrings and opts for an innovative strap secured by a single toggle button. The fabrics provide warmth and flexibility so that little explorers can move freely. Bear&Bean's hoodie combines style with safety-conscious features, making it the perfect choice for both playtime adventures and stylish outings.

Special Considerations

Special Regulations

- Drawstrings
 - In compliance with the U.S. Consumer Product Safety Commission(CPSC), children's wear is not permitted to have any functioning "drawstrings in the hood and neck area of children's clothing sizes 0-16"(Metro Consulting, 2008). Designs must opt for alternatives such as buttons, velcro, or elastic.

Care Instructions:

- Machine was Warm, Do Not Bleach, Tumble dry low

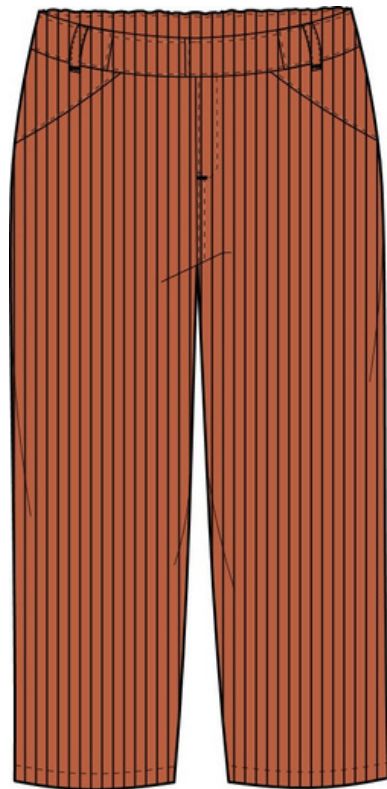
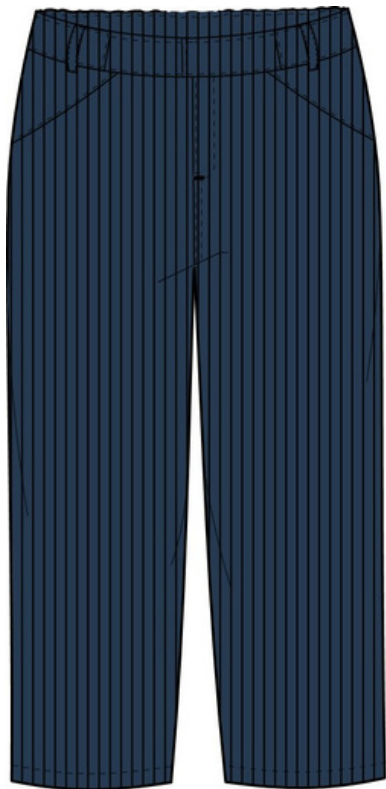
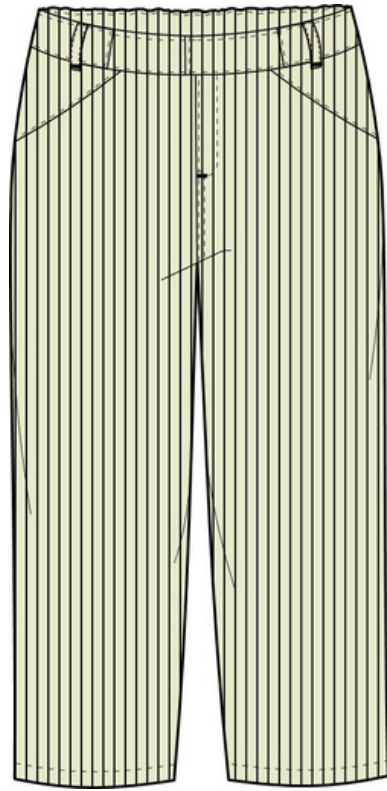
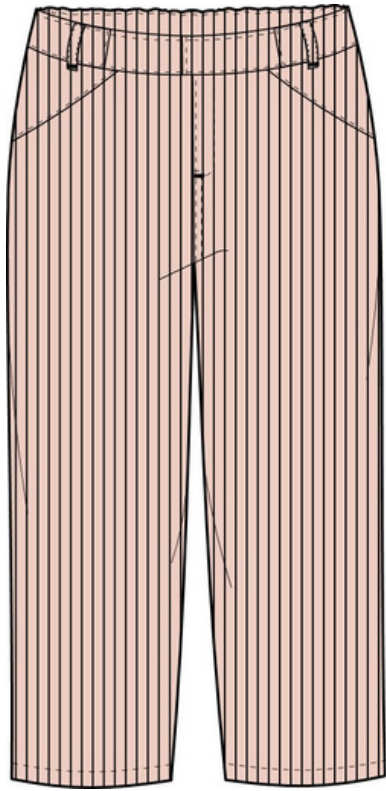
Testing Techniques

ASTM D3512-02 Standard Method for Piling Abrasion

- This is a test method used to evaluate pilling resistance and other surface changes on a fabric. The test uses a random tumble pill tester to produce surface abrasion and pilling on select samples. This test method will ensure that the fabrics feel and aesthetics remain consistent over time.

Zephyr Pants

FLATS



Zephyr Pants

Fabrics and Findings

The trousers being offered by Bear&Bean are pull-on style, blending comfort, and style. Crafted from 100% organic GOTS-certified cotton corduroy, these trousers offer a soft and eco-friendly choice for your little one's wardrobe. The fabric features jumbo waves, adding a delightful texture. Additionally, they feature a faux front fly and elastic waistband for added style. Practicality meets versatility with adjustable waistband tabs secured by buttons, allowing for a fit that grows with your child. Embracing the organic cotton's natural properties, these trousers provide warmth, unparalleled comfort, and the flexibility needed for children on the go.

Special Considerations

- Waistband
 - Bear&Bean has designed their trousers in a pull-on style, featuring an elastic waistband. This reduces the level of risk produced by drawstrings or metal zipper closures. Zippers have the possibility of containing irritating metals such as nickel. The use of an elastic waistband lessens potential risks posed by the waistband.

Care instructions:

- Machine Wash Cold Inside Out, Non-Chlorine Bleach, Tumble Dry Low, Cool Iron Setting on Wrong Side

Zephyr Pants

Testing Techniques

ASTM D3939 Standard Test Method for Snagging Resistant Fabrics (Mace)

- This test method is commonly used to evaluate the probability of a knit or woven fabric becoming snagged. The test uses a Mace snagging apparatus, exposing the fabric to a metal ball with spikes, and rotating the fabric in a random order. This is an important test in evaluating whether the fabric will be suitable for activities commonly performed by children. The snag test will ensure the longevity and durability of a fabric despite the constant and unpredictable movement of young children.

Clover Long Sleeve Screen Printed T-shirt

FLATS



Clover Long Sleeve Screen Printed T-shirt

Fabrics and Findings

The long sleeve t-shirt offered by Bear&Bean is made of a 100% cotton jersey knit fabric. Cotton will give comfort, warmth, and durability for the child wearing the garment. The t-shirt is a long sleeve style with a ruffle hem, providing an elevated look to the classic t-shirt. The Bear Bean logo is screen printed largely on the front of the t-shirt for added detail. The fabric allows for stretch without the addition of elastic fiber, giving the garment the ability to move freely with the child.

Special Considerations

Special Regulation:

- The ink used in the screen-printing must not use any harmful or toxic chemicals to be approved for children's wear. Specifically lead is regulated heavily in the use of screen printing. The entire garment must be "within 100 parts per million" to be approved for consumption (U.S. Consumer Product Safety Commission, n.d.).

Care Instructions:

- Machine Wash Cold Inside Out, Tumble Dry Low, Do not Dry Clean, Cool Iron Setting

Clover Long Sleeve Screen Printed T-shirt

Testing Techniques

AATCC 150 Dimensional Changes of Garment after Home Laundering

- This test method is used to determine dimensional changes in length and width of a garment after simulated home laundering. The test includes four washing temperatures, three agitation cycles, and four drying procedures to represent common home laundering conditions (AATCC 150, n.d.) This test method was picked in order to understand why this fabric would be best in producing a garment which stays consistent in fit and looks after several home launderings.

Clover Long Sleeve Embroidered T-shirt

FLATS



Clover Long Sleeve Embroidered T-shirt

Fabrics and Findings

In addition to the screen printed long sleeve t-shirt, Bear&Bean will be offering an embroidered version with a smaller, more delicate logo. The embroidered t-shirt is constructed of the same 100% cotton jersey knit fabric. The Bear&Bean logo will be embroidered using a standard 6 ply embroidery yarn that is 100% cotton. This yarn was chosen as it provides a nice shiny and soft finish. Additionally the composition of the yarn works well with the fiber content and knit of the t-shirt.

Special Considerations

Safety Issues:

- Adding embellishment to children's clothing can be incredibly difficult as often time embellishments and appliques pose as potential choking hazards. In order to prevent potential choking hazards, the embroidery on the t-shirt will have no additional elements such as sequins or beads. Additionally, the embroidery and lining will be heat sealed to the shirt to allow for further durability and a lowered choking risk.

Care Instructions:

- Machine Wash Cold Inside Out, Tumble Dry Low, Do not Dry Clean, Cool Iron Setting

Colorfastness Dilemma

An unusually high number of t-shirts has been returned to Bear&Bean with complaints of color fading over time and bleeding onto other garments. To prevent this issue in any future products, Bear&Bean will perform AATCC 61 Colorfastness to Laundering: Accelerated.

Test Method:

- **AATCC 61 Colorfastness to Laundering: Accelerated.**
 - AATCC 61 Colorfastness to Laundering: Accelerated is a short testing method that produces color fading and surface changes equivalent to or similar to at home laundering (American association of textile chemists and colorists). This test method entails laundering garments with detergent and some form of abrasion to produce the results of five hand or home cycles.

Materials Need for Testing:

- 6 inch by 2 inch sample
- 50 Stainless steel balls
- Stainless steel canister
- 0.225 grams of Laundry Detergent (powder)
- 150ml of Deionized Water
- Accelerated Laundering Machine
- 0.5 inch Strip of multifiber test fabric
- AATCC Grayscale for Color Change
- AATCC Grayscale for staining
- AATCC 9-Step Chromatic Transference scale

Colorfastness Dilemma

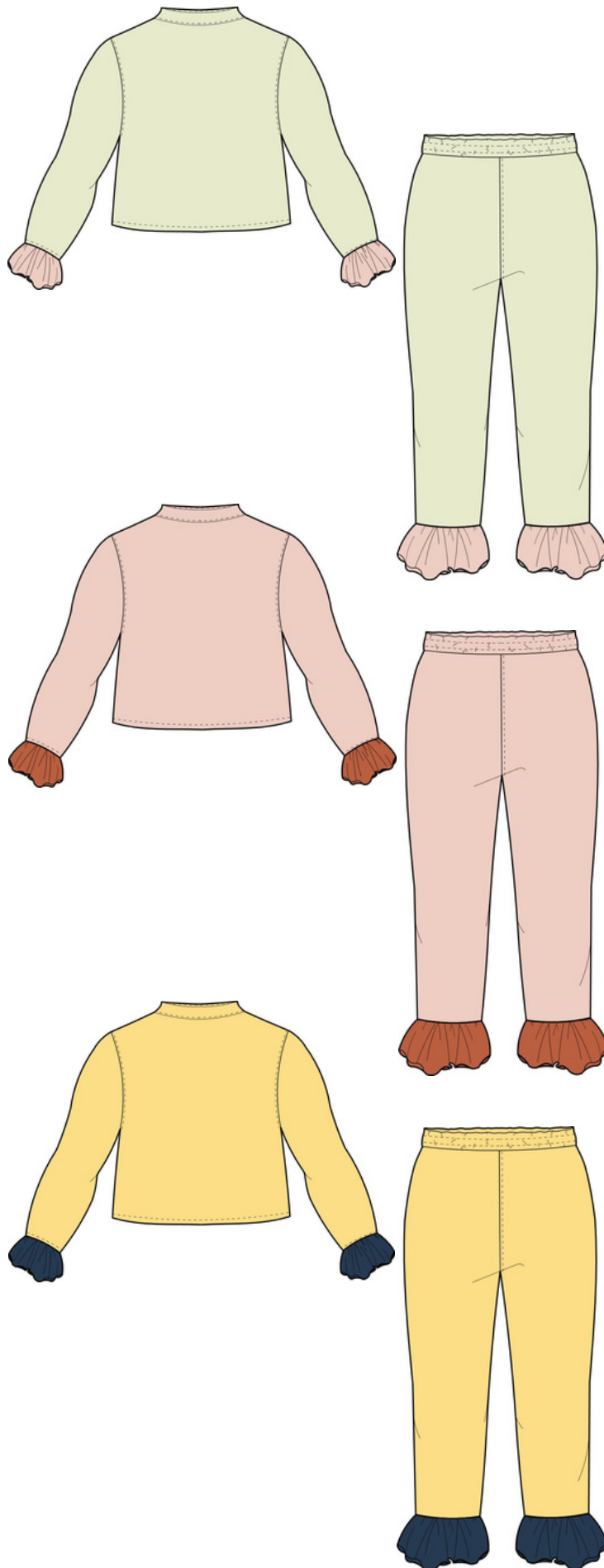
Test performance:

This test requires 45 minutes to complete. The test measures the surface changes seen and color loss after laundering with detergent for the specified time. The following steps are taken;

- set temperature
- add detergent
- add stainless steel balls
- load canister, add sample
- run cycle, blot dry before tumble dry
- tumble dry low
- eventuate using color scales

Luna Pajamas

FLATS



Luna Pajamas

Fabrics and Findings

Bear&Bean presents a winter pajama set designed for utmost comfort and safety. This two-piece ensemble, featuring a long-sleeve top and pants, is tailor-made for chilly weather, ensuring your little one stays cozy and snug throughout the night. The pajamas are meticulously crafted from a high-quality 100% cotton combed rib knit, giving a soft feel against the skin. The design features cuffs in contrasting colors with a delicate ruffle made of the same cotton material. Both the pants and top are designed to fit snugly to the body, reducing flammability and choking hazards. The pull-on pants style, with an elastic waistband, ensures ease of wear while maintaining a secure and comfortable fit. With Bear&Bean's cozy pajama set, your child can drift into a peaceful sleep wrapped in warmth, style, and safety.

Special Considerations

- **Flammability**
 - One of the biggest safety concerns when it comes to children's clothing is flammability. This is a regulation required in the United States and many other countries, stating that children's sleepwear must be flame resistant. This means the fabric used in the product must pass a certain flammability test.
- **Fit**
 - Children's sleepwear should not be loose fitting as it poses a potential fire hazard and safety risk. This is a requirement by flammability regulations.

Care Instructions:

- Machine Wash Cold, Only Non-Chlorine bleach when needed, Tumble Dry Low, Cool Iron Setting

Luna Pajamas

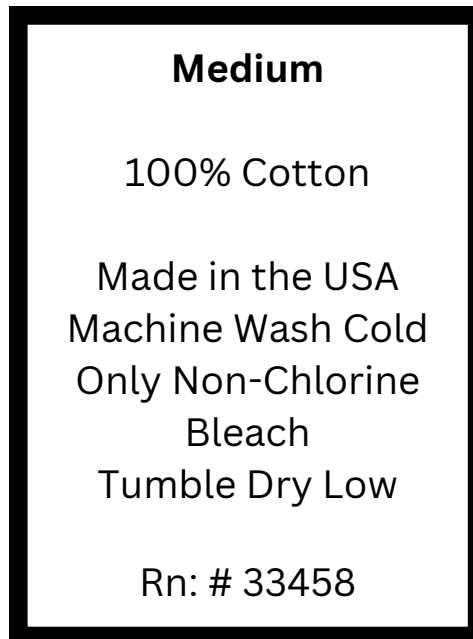
Mandatory Testing Methods

ASTM D6545-22 Standard Test Method for Flammability of Textiles used in children's Sleepwear

- This is a test method used to evaluate the flammability characteristics of textiles used in children's sleepwear. (Standard Test Method for Flammability of Textiles Used in Children's Sleepwear, n.d.). This method tests the fabric in its original state and after 50 cycles of laundering. The testing follows the same procedures and laundering methods as title 16 of the Code of Federal Regulation Volume 2 part 1615 and 1616. Dimensional specifications must be met in age groups for garments and the char-length test must be passed in order to have a passing result overall.

Luna Pajamas Hangtag

The Following hangtag will be displayed in each garment. This will clearly state any and all care instruction, as well as size, country of origin and RN#.



All children's sleepwear is required by law to have easily visible hangtags. The hangtags must adhere to the following specifications:

- Must be 3.81 cm by 15.88 cm
- The background must be standard safety yellow color
- Text must be printed in black Arial or Helvetica font in size 18. Additionally the text must fit within the black outlined rectangle (2.45 cm by 14.61 cm).
- Text on hangtag must read "For child safety, garment should fit snugly. This garment is not flame resistant. Loose-fitting garment is more likely to catch fire."



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[:~:TEXT=THEREFORE%2C%20THE%20ENTIRE%20CHILDREN'S%20GARMENT,LIMIT%20FOR%20TOTAL%20LEAD%20CONTENT](https://www.cpsc.gov/Business-Manufacturing/Business-Education/Lead/Lead-in-Paint#:~:text=THEREFORE%2C%20THE%20ENTIRE%20CHILDREN'S%20GARMENT,LIMIT%20FOR%20TOTAL%20LEAD%20CONTENT)

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