

Sewing Threads Required for Children's Sleepwear

Introduction

Two Flammability Standards must be satisfied when sewing children's sleepwear for the U.S. market:

Fed. Std. FF3 – 71 Children's Sleepwear, Sizes 0 to 6X

Fed. Std. FF5 – 74 Children's Sleepwear, Sizes 7 to 14

The apparel manufacturer is responsible for: 1) Fabric sampling and testing; 2) Prototype testing (Pre-production prototypes of a garment style and type; and 3) Production testing (unit testing of production work).



Seam Testing

Seam testing of a prototype garment or a production sample must be conducted according to the procedures covered in the Federal Standards listed above. "Burn time" and "char length" are two of the key parameters measured when testing seam performance. There are many factors that should be considered when designing a garment to pass the Flammability Seam Testing requirements and satisfy the needs of the consumer. Some of these factors include the following.

Threads for Children's Sleepwear

A&E has developed several polyester threads that have a special FR finish that are commonly used in children's sleepwear. They are:

- *Perma Kool*®: Poly wrapped poly-core thread available in sizes T-24, T-40, T-50, T-80.
- *Spun Kool*®: Spun polyester thread available in sizes T-21 and T-27.
- *Tex Kool*®: Textured polyester thread available in sizes T-18 and T-35.
- *Magic Kool*®: Air-entangled polyester thread available in sizes T-45.

Note: Threads made from aramid fibers like Kevlar® and Nomex® are not required when sewing children's sleepwear made from FR treated cotton, polyester, and cotton/polyester fabrics.

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No Federal Standard exists for the thread used for seaming children's sleepwear. The standard is related to the sewn seam. The most important characteristic of the thread used to sew children's sleepwear is the type and amount of thread lubricant applied to the thread. A&E has developed a special FR lube (132A) that will optimize sewability but give the desired flame-resistant properties.

Our 132A will retard combustion from the thread standpoint! It will not stop the fabric from burning! Remember that the goal of our FR Products is to make sure that thread does not play a role in aiding combustion in a sewn seam!

Fabric Finish

The fabric alone without a seam must pass the minimum flammability requirements. Fabrics with good flame retardant properties make thread selection and seam construction less critical. Fabrics with borderline properties make these other factors very important. In fact, seams sewn with A&E flame-retardant threads will still fail if the fabric has not been treated properly.

Seam Mass and Fabric Compatibility

The stitch and seam type, stitches per inch and layers of fabric in the seam all contribute to how the fabric and thread will perform during the flammability testing. This is why the components of a seam are not tested separately but together in the finished seam. A&E's Perma Kool®, Spun Kool® and Tex Kool® are compatible with most treated fabrics made of cotton, polyester or cotton/poly blends.

Embroidery

A&E has received inquiries for an FR embroidery thread for Children's Sleepwear. The Rule from CPSC regarding embroidery thread for Children's Sleepwear states: "Individual pieces less than 2 inches in their longest dimension, provided that such pieces do not constitute or cover in aggregate a total of more than 20 square inches of the item do not need to be tested for FR." This means that, if the embroidery pattern is less than 2 inches in any direction, the embroidery stitching does not have to be tested for FR and an FR embroidery thread is not required.

Summary

Fabric selection is very important because fabric has the greatest effect on flammability of the finished garments. A&E has industry tested threads like our Perm Kool®, Spun Kool® or Tex Kool® that have a special flame-retardant finish. These threads are recommended to help pass the Federal Flammability Children's Sleepwear testing. If you have any questions, please contact your local A&E Sales Representative or A&E's Technical Service Department.