Keep Hot Hot and Cold Cold with Thermal Fabrics

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Years ago the Thermos® company had the slogan, “Keeps hot things hot and cold things cold.” You can't say it much better than that. Did you know there are fabrics that help you do the same thing? These aren't the heavy industrial materials that keep steelworkers, astronauts, and firefighters safe, but honest-to-goodness fabrics you can actually sew with.

Thermal fabrics are useful for all kinds of projects where you want to keep hot stuff hot and cold stuff cold, such as pot holders and oven mitts, table pads, lunch carriers, shopping totes, ironing board pads, outdoor stadium cushions, tea cozies, and many other items.

And, because of the metallic coatings common to many of types, and the fact that they're easy to sew, you can even use them to make some pretty creative costumes – from medieval armor to Lady Gaga!

The options fall into three basic categories:

- Thermal Batting, which has insulating properties.
- Thermal Fabric, which can withstand high temperatures without scorching.
- Thermal Interfacing, which is a lighter weight insulating option.

An important note about microwaving: The materials listed below that have a metallic layer specifically say, “Do not microwave.” None of the rest actually state they are safe to microwave either. So for any kind of thermal fabric, unless it specifically says it's microwavable, we recommend you don't risk it. One exception, described at the end of this page, is Wrap-N-Zap by Pellon, which is specifically designed to be microwaved.

Thermal Batting
The thermal batting product that's been around the longest is Insul-Bright from The Warm Company. It's made with hollow, polyester fibers that have been needle-punched through a nonwoven substrate, and then through a reflective metalized poly film. The needled material is breathable. The hollow fibers insulate by resisting conduction. And the metalized poly film resists radiant energy by reflecting it back to its source.

It contains no resins or glues and will not shift, migrate, or bend. You could use it in clothing, but it would be rather noisy. However, babies and animals often love the noise and like to scrunch it up in soft books and toys.

Insul-Bright is machine washable, easy to cut to size, and apart from being just a bit slippery, is quite nice to work with. Most sources offer it by the yard in 22” and 45” widths, and a few outlets offer 36” x 45” pre-cuts.

Even though we've listed this material in the 'batting' category, The Warm Company does suggest considering two layers or layering Insul-Bright with a standard cotton batting if you are using it for a high-heat application.

A number of sources offer Insul-Bright online, including Fabric Depot, Jo-Ann and Fabric.com. It's also readily available at many local fabric and craft stores.

Insul-Shine
This space-age thermal batting from The Warm Company was originally designed for insulating air conditioning ducts or wrapping your hot water heater (for which it's very effective). But Insul-Shine is actually quite sewable.

You can make something simple, like a reflective visor for your car or to put in your RV windows to prevent sun damage. If you're looking for a mod metallic look, you could also use it to cover a headboard, throw pillows, or make a budding astronaut very happy with some rocket wall art.

Insul-Shine has two layers, reflective material and insulating polyester batting. The metal surface wipes clean and actually acts as a water barrier for soft coolers, diaper bags, and bottle carriers.

It is washable, but doing this may dull the reflective side. Sold in 22" and 45" widths.

You can find it at Amazon and Fabric.com among others.

**Insul-FAB**

Also made by The Warm Company, this thermal batting is very similar to Insul-Shine, but Insul-FAB has an additional layer of white lining-style fabric. It's a good solution when you want a smoother and more comfortable finish on the interior of your project.

Because it's designed not to show the insulation, it's perfect for insulating totes, lunch sacks, casserole covers, and more.

It's also machine washable and dryer-safe. We found Insul-FAB by the yard in a 22" width at CreateForLess.com and in a 45" width at Fabric Depot.

**Solarize**
Solarize, a new thermal product by Fairfield, is a uniquely thin metallic insulating fabric. Less noisy and crinkly than other offerings, Solarize still creates a strong thermal barrier that keeps things hot or cold. And it works with the shiny side in or out – you choose. Keep the shiny side exposed to help conduct heat or reflect light.

It is a sew-in product, made of 50% polyester + 50% aluminum, and the standard width is 22”. You can purchase it as yardage or get it in a “grab-and-go” pre-cut package of 22” x ¾ yd.

Use Solarize inside pillows, fabric scarves, mittens, jackets, hats, and blankets for added warmth. Add it to casserole carriers, potholders, and trivets. Cool things down by Solarizing inside can cozies, thermal freezer bags, or ice pack wraps.

You can purchase Solarize directly from Fairfield or find it Walmart and other retailers. You can also buy full bolts from Amazon.

**Thermal Fabric**

**Iron Quick**

Iron Quick is a specialty fabric made of 100% aluminum with 100% cotton backing. It's designed to protect from heat (up to 399˚), but does not have any insulating properties so it's long been the go-to choice for things like ironing board covers.
When you need insulating as well as heat protection, like in your oven mitts, Iron Quick also comes as a quilted material. This is simply the regular Iron Quick fabric with a 100% cotton backing, plus polyester batting and a polyester/cotton backing. This doesn't afford a huge amount of insulation, but you could use more than one layer or add a layer of regular or thermal batting.

Both varieties come in the same 45" width. When sewing, you should use a size 80/12 needle.

Neither Iron Quick products should ever be used in the microwave.

Both can be machine washed but should then be air dried – not tossed in the dryer. You can also use a damp cloth to wipe clean.

Nancy's Notions carries both types of Iron Quick products by the yard.

**Therma Flec**

Therma Flec is a lightweight, heat resistant cloth similar to the Iron Quick but made from 80% cotton/20% polyester. It is scorch-proof to 360˚, but like the Iron Quick cloth, does not provide insulation. However, also like the Iron Quick, you can find Therma Flec in a quilted version for items such as hot pads, oven mitts or ironing board pads.

Both the flat cloth and the quilted option are available in two colors: silver and light gold, all in a 43-44" width. Don't put this product in the microwave.

We found Therma Flec, in both colors, several places online, including Fabric.com and OnlineFabricStore.

**Thermal Interfacing**

**Thinsulate**
Back in the 1980s, the 3M Company introduced an amazing new insulating material called Thinsulate. Ounce for ounce it had one and a half times the warmth of down and twice the warmth of other high-loft insulation materials. It meant you could get sleek ski gloves that were just as warm as giant, puffy mittens.

A quarter century later, Thinsulate is still amazing. Made from microfibers that are only a tenth the size of of other synthetic insulation, it's much more effective at reflecting back heat. And Thinsulate absorbs less than 1% of its weight in water, allowing it to retain its insulating ability even in damp conditions. You can use it in any kind of project where you want to keep warm but don't want a lot of bulk, such as jackets and blankets.

You can get varying densities of Thinsulate, depending on the weight and R-value (insulating property) you want, from 1.6 up to 2.9.

Thinsulate is machine washable and dry cleanable once you have sewn it inside your project. It is a bit tough to find as yardage, but we did locate Thinsulate online at Vogue Fabric Store and The Rain Shed. It's available by the yard, 60" wide.

**Thermolam**

Pellon makes a 100% polyester interfacing called Thermolam, which is a needle-punched fleece with a protective scrim that can provide some warmth. It's available by the yard at a 45" width as both a sew-in or a fusible and is machine washable. It's considered a heavy-weight in the general world of interfacing, however, it doesn't have any loft, so it isn't a choice for projects...
that call for high-level insulating and/or padded properties.

There's no microwave warning for this fabric, but then again, we couldn't find anything that said it was okay to use either. Maybe you should just forget the microwave, huh?

Fabric Depot offers a good price on Thermolam by the yard (both sew-in and fusible).

**Wrap-N-Zap**

Wrap-N-Zap by Pellon is the only thermal product mentioned on this page that we can safely declare to be microwave safe. It's got Zap in its name and it says "Microwave Friendly!" right on the package.

Made from 100% cotton batting, without glues or other chemicals that could leach into foods, Wrap-N-Zap is designed for projects like insulated baked potato bags and casserole warmers – situations where you heat up the food *inside* the cover and leave the cover on to keep food warm.

You can machine wash Wrap-N-Zap after you've sewn it into a project, but you should only use cotton fabrics, threads, and trims to insure it retains its full microwave-safe designation.

We found it in a 45" x 1 yard package at Joann Fabric and Nancy's Notions.

**Thermal fabrics are a "hot" trend**

When we first researched this topic several years ago, we could only find about four kinds of thermal fabric or batting that was sewable and relatively easy to locate as yardage. Now we're finding a lot more options. And we didn't even include all the new energy-saving materials you can sew into things like super thermal window shades. It's nice to see the selection growing.

Be adventurous and try some projects that are made to keep hot things hot, and cold things cold. Below are a few Sew4Home projects to get you started:

- **Casserole Carrier**
- **Insulated Baby Bottle Carrier**
- **Lunch Bag**
- **Picnic Tote**
- **Hot Pads**
- **Oven Mitts**