

How to Care for Technical Fabrics

Adapted from an article at www.rei.com

What's the best way to clean Gore-Tex and other rainwear? How about cleaning soft shells? Fleece? Wool? Wicking fabrics? Can any detergent do the job? This article covers care for all of these so-called "technical" clothing fabrics.

Care Tips for Any Technical Fabric

The following tips apply to all fabrics mentioned in this article:

- Read and follow care instructions provided with your garment. Basic care instructions should be either imprinted somewhere on its interior or on a tag stitched into a seam. (Sometimes these tags are hidden away inside pockets.) Additional instructions might be included on an information card attached to the item when new. If so, it's smart to save those instructions. Puzzled by those curious pictographs displayed in some care instructions? See the Guide to Fabric Care Symbols at the end of this article.
- Specific manufacturer instructions overrule any general guidance provided here. Presume that the manufacturer understands the fabrics it chooses better than anyone. Following their instructions validates the implied warranty you have with the manufacturer.
- Specialized cleaning products are available for most technical fabrics. Many manufacturers recommend the use of such products from companies such as Granger's, Nikwax, ReviveX and Sport-Wash. This is due to their ability to rinse cleanly from fabrics, leaving no residues from additives (which are common in grocery-story detergents) that can diminish performance.
- Close zippers, empty pockets, seal pockets and turn garments inside-out before laundering. Doing so minimizes the chance that fabrics will get abraded or have colors dulled while being cleaned.
- Wash heavily soiled items separately. Soil breaks into smaller particles and may wind up on cleaner fabrics, particularly if too little detergent is used, water temperature is low, the wash cycle is long or the wash load is large.
- Synthetic materials (nylon, polyester) are easily stained by oily substances. Treat oil stains quickly or they can be tough to remove. Massage a cleaning solution into the affected area and wash in warm water (if manufacturer care instructions permit it) as soon as possible. If the stain remains after washing, do not machine-dry the garment.
- Never use fabric softener (including dryer sheets) with technical fabrics. Oils, waxes and fragrances in fabric softener cling to fibers and diminish their water repellency, breathability and wicking. This tip often surprises people. But performance fabrics and fabric softener do not mix.

Waterproof/Breathable Rainwear Care

Overview

Rainwear needs routine cleaning and maintenance to perform at its best. An important but often overlooked maintenance step is the periodic revival of rainwear's durable water repellent (DWR) finish. The face fabric (exterior) of all waterproof/breathable rainwear is treated with a DWR. By making the effort to maintain it, you will reap the benefits on rainy days.

DWR cleaning, maintenance and revival are briefly addressed later in this article. For a detailed explanation, please refer to the separate article that offers a complete guide to the process:

[Restoring DWR \(Durable Water Repellent\) in Rainwear.](#)

Cleaning

Frequency of cleaning depends on individual usage. The makers of both Gore-Tex and eVent laminates encourage regular washings for optimal WP/BR performance. A general benchmark: Wash a waterproof/breathable (WP/BR) garment at least once a year, or more often when the need for cleaning is obvious (whenever the buildup of dirt or salt residue becomes noticeable). Washings enhance breathability. A few dozen washings over time, though, may eventually diminish the DWR by themselves.

Primary contaminants that impact WP/BR performance:

- Dirt (reduces breathability and water repellency).
- Smoke (invisible-to-the-eye particles can reduce water repellency).
- Oils, including sunscreen and insect repellent (reduces breathability and water repellency).

Note: Many bug repellents include DEET, which acts as a solvent on some materials. (Keep it off your golf club grips, for example.) It won't cause fabric to melt away, but exposing WP/BR fabric to DEET could potentially cause leakage at those contact points. Gore-Tex and eVent both say their membranes are not compromised by DEET, but it can't hurt to be careful when applying it. Coatings may be more susceptible to DEET's impact.

Specialized cleaning products (such as those from Granger's, Nikwax, ReviveX and Sport-Wash) are recommended for technical rainwear by many manufacturers .

- Why are they needed? Mass-market detergents contain additives such as foaming agents, optical brighteners, dyes, enzymes and fragrances known collectively as "surfactants" (shorthand for "surface-active agents"). One of their effects: They reduce water's "surface tension" so detergent-infused water molecules bind more readily with oil and dirt than with other water molecules, loosening oil and dirt from fibers.
- The downside of surfactants: They can leave residues on fibers that can potentially impact fabric performance, particularly water repellency. They could even add a couple grams of weight to a garment.



- The advantage of specialized cleaning products: They are engineered to rinse away thoroughly without depositing residues.

If you do use a mass-market laundry product, follow any specific guidelines for such detergents provided by the garment manufacturer. Be vigilant to thoroughly rinse a garment to remove surfactant residue. (Two rinses are often recommended.) These additives may help your cotton jeans resist staining and appear bright, but they can negatively impact the performance of technical fabrics.

- Best bet: If you elect to use a grocery-store detergent, choose one labeled "Clear," "Free" or "Earth-friendly," which are more likely to exclude additives that can leave performance-inhibiting residues. Avoid detergents containing chlorine bleach.

Prewash stain removers:

- Products such as Shout and Spray 'n' Wash are almost always acceptable. Check the care instructions on your particular product for any specific prohibitions.
- It's also acceptable to apply small amounts of specialized cleaning products (from Granger's, Nikwax, ReviveX and Sport-Wash) directly to stains as a prewash treatment.

Stain removal:

- If a stain is fresh, keep it wet, if possible. Or rub it with ice (but not bar soap).
- In the case of tree sap or a gob of grease, use a dull knife or straight edge to scrape off as much as possible. Tips: Scrape IN from the edges of the stain to avoid spreading it further; while scraping, lift the stained portion away from nonstained fabric.
- Wash immediately. If remnants of the stain are still visible, wash it again before attempting to machine-dry the garment.

Washing method:

- Use a front-loading washer or hand-wash WP/BR garments.
- Avoid top-loading washers. The center-axis agitator inside top-loaders can potentially snag a garment and stretch it.

Wash cycle tips:

- Let water and your cleaning product mix before adding garments.
- Close main zipper, empty pockets, fasten any rip-and-stick (a.k.a. hook-and-loop) closures on pockets and cuffs, and turn the garment inside-out. The goal: Avoid snagging or abrasion while garments tumble.

Rinse cycle:

When a standard laundry product is used, 2 rinses are usually advised to remove all residue.

Drying:

Tumble dry, low heat or hang dry. Following manufacturer directions.

Things to avoid:

- Fabric softener, including dryer sheets. Oils, waxes and fragrances in fabric softener, as stated previously, diminish breathability and water repellency.

- Woolite and similar products. Too oily.
- Ivory Snow detergent. Mild, yes, but still too many surfactants.
- Chlorine bleach.
- Dry cleaning (unless a garment manufacturer advises differently).
- Open flames or intense heat (synthetic fabrics can melt).

Here's some guidance for a few well-known WP/BR brands:

Gore-Tex

Note: Any garment's specific manufacturer care instructions supersede these general tips for Gore-Tex laminates:

- Launder regularly for best performance.
- A Gore-Tex rep tells REI.com that any laundry product is acceptable for use on Gore-Tex. (Check your garment's care tag for any specific instructions it requires.) If contemplating mass-market laundry products, Gore-Tex recommends powders over liquids.
- Wash in warm (104°F/40°C) water.
- Rinse thoroughly; 2 rinse cycles are usually recommended.
- Tumble dry, low heat.
- Use no fabric softener or dryer sheets.
- Some garments that use Gore-Tex also use silk or wool and require dry cleaning. When dry cleaning Gore-Tex items, W.L. Gore recommends requesting a clear, distilled solvent rinse and a spray-repellent.
- For troublesome stains, contact W.L. Gore: 1-800-467-3839.

DWR maintenance (needed when water no longer beads up on a garment's face fabric; for a detailed explanation of this key maintenance step, please refer to the separate article that offers a complete guide to the process: [**Restoring DWR \(Durable Water Repellent\) in Rainwear**](#).

- Machine-drying (tumble dry, low to medium heat) for 10-15 minutes after each washing.
- If a washing is not needed, W.L. Gore recommends touching up Gore-Tex items with an iron (at a warm steam setting). Place a towel between the iron and garment during touch-ups.
- If the face fabric continues to show signs of wetness, use a DWR reapplication product from Granger's, Nikwax, ReviveX or Sport-Wash.
- Spray-on DWR products are usually preferred over wash-in products, leaving linings and membranes untouched.

eVent

Note: Any garment's specific manufacturer care instructions supersede these general tips for eVent laminates:

- Launder regularly for best performance.
- Use liquid detergent. (Specialized cleaning products are good; mass-market liquids are also acceptable.) The maker of eVent believes using liquids eliminates the chance that microparticles of powder detergent might lodge in the eVent membrane.
- Wash in warm (104°F/40°C) water.
- Rinse thoroughly; usually 2 rinse cycles are recommended.

- No fabric softener or dryer sheets.
- Hang dry. (The maker of eVent makes no recommendations regarding dryers. If a dryer is used, close all zippers, turn the garment inside-out and monitor its progress to avoid overheating the fabric.)
- Never dry clean.

DWR maintenance (needed when water no longer beads up on a garment's face fabric; for more details, please refer to the separate article that offers a complete guide to the process: [**Restoring DWR \(Durable Water Repellent\) in Rainwear**](#)):

- As mentioned above, the maker of eVent makes no recommendation regarding dryers, which is a customary method of reviving a DWR. If care instructions on the garment permit, touch up the exterior with an iron (warm steam setting) to revive the DWR. Place a towel between the iron and the fabric during touch-ups.
- If the face fabric shows signs of wetness, eVent's maker advocates the use of a DWR reapplication product (available from Granger's, Nikwax, ReviveX or Sport-Wash). Follow instructions on the product.
- Spray-on DWR products are usually preferred over wash-in products, leaving linings and membranes unaffected.

REI Elements

REI Elements is an umbrella brand name that represents an assortment of WP/BR treatments (both laminates and coatings) used in REI outerwear. Due to the variety of technologies employed, it is imperative to follow specific care recommendations included with each garment.

Care for Soft Shells

Overview

The evolving soft-shell category has branched off into subgroups:

- "Classic" soft shells: Stretchy, water-resistant garments designed for elevated breathability during aerobic activity in cool or misty conditions (but not in heavy or sustained rain).
- Windproof jackets/shirts: Designed to buffer the body from wind chill while also resisting light precipitation. The addition of a windproof membrane (or other barrier) creates an impact on breathability that varies by individual garments.
- Waterproof/breathable soft shells: These garments utilize a WP/BR membrane, so their breathability performance typically is no different than traditional "hard shell" rainwear. Their advantage: stretch, for flexibility.

Nearly all soft shells have face fabrics that are treated with a DWR finish. A DWR requires periodic revival to be consistently effective at shedding moisture.

- Maintaining a DWR is critical for a soft shell, maybe even more for than a hard shell. Hard shells are equipped with a WP/BR barrier (either a laminate or coating) that prevents moisture from penetrating the garment's interior even if the DWR has grown ineffective. Soft shells rely almost entirely on DWRs in order to resist moisture.

- A few rare soft shells are constructed with very tightly woven face fabrics. Since they shed water by construction, a DWR is not needed.

Cleaning

Frequency of cleaning depends on individual usage. Soft shells (classic soft shells in particular) are popular among fast-moving, high-exertion outdoor athletes, so perspiration, dirt and odor build-up can accumulate quickly. When they do, put them in the wash. All soft shells breathe better when clean.

Cleaning guidance for soft shells mirrors much of the laundering advice for waterproof/breathable garments already explained above. Here is a brief summary:

- Primary contaminants: Dirt, body oils, smoke, sunscreens and insect repellents. DEET won't melt soft-shell fabrics, but it can potentially diminish water repellency.
- Specialized cleaning products: Some products are made specifically for soft shells.
- Mass-market laundry products: If chosen, consider using milder detergents labeled "Clear," "Free" or "Earth-friendly."
- Prewash stain removers: OK to use.
- Washing method: A front-loading washer or hand-washing is preferred.
- Water temperature: Cold or warm (104°F/40°C); stick with what the garment's manufacturer advises.
- Rinse cycle: 2 rinses, particularly when a standard laundry product is used.

General guidance for specialized soft shells:

- Gore-Tex WindStopper: Machine wash warm (104°F/40°C), or according to manufacturer instructions.
- WP/BR soft shells: Follow manufacturer recommendations; consider the use of a specialized cleaning product.

Drying:

Tumble dry low or warm; 10-15 minutes or until dry to the touch; or hang dry.

Things to avoid:

- Fabric softener, including dryer sheets.
- Woolite and similar products.
- Chlorine bleach.
- Ironing.
- Dry cleaning (unless a garment manufacturer advises differently).
- Open flames or intense heat (synthetic materials can melt).

DWR maintenance:

- After each washing, machine-drying (tumble dry, low to medium heat) for 10-15 minutes.
- Machine drying can also revive a DWR between washings. Do not attempt this, however, if the garment is soiled; heat can permanently set stains. Wash the garment first.
- If the face fabric continues to show signs of wetness, reapply a DWR to the face fabric by using a DWR reapplication product from Granger's, Nikwax, ReviveX or Sport-Wash.

- For soft shells with no membranes, the use of a spray-on or wash-in DWR treatment is a tossup. Wash-in products are simpler.
- If using a wash-in product, consider pausing the wash cycle after a few minutes and let the garment soak in the solution for 30-60 minutes, then resume washing.

Durable Water Repellent (DWR) Revival

When a waterproof or water-resistant garment is new, any moisture that falls on its exterior (face fabric) quickly beads up and—zip!—slides right off. It's a thing of high-tech textile beauty, and such action is due to the presence of a durable water repellent on the fabric.

Over time, a DWR loses some of its effectiveness. Why? Dirt, body oils, perspiration, launderings and abrasion all have an impact. When water stops beading up and instead starts soaking in and creating wet splotches on the face fabric, the fibers are absorbing water and the garment will feel heavier. The DWR either needs revival or reapplication.

This is an important maintenance step many people overlook. For a detailed explanation of durable water repellents, please refer to the separate article that offers a complete guide to the process: [Restoring DWR \(Durable Water Repellent\) in Rainwear](#).

Here are a few highlights:

- Washing, followed by machine-drying (tumble dry, low to medium heat) for 10-15 minutes, usually brings a fatigued DWR back to life.
- If a washing is not needed, a short spin in a dryer might be all a DWR needs to regain its optimal water-shedding abilities. Just don't skip the washing phase if the garment is dirty; heat can permanently set stains.
- Items using either Gore-Tex or eVent laminates can have their DWRs revived with a touch-up using an iron at a warm steam setting. It is usually a good practice to place a towel between the iron and garment during touch-ups.
- When washing and heat do not restore the desired level of water-repellency, use a DWR reapplication product from Granger's, Nikwax, ReviveX or Sport-Wash.
- In general, spray-on DWR reapplication products are usually preferred over wash-in products, leaving linings and membranes unaffected.

Fleece Care

Overview

Modern fleece garments are insulation pieces constructed almost exclusively from synthetic fibers (typically 100% polyester, a type of plastic). Such fibers are heat-sensitive. If a dryer is used, choose a low temperature setting. Synthetic fibers could potentially melt if exposed to high heat.



Some fleece or fleece-like garments are given DWR finishes to make them weather-resistant, making them quite similar to soft shells. Be sure to follow manufacturer care instructions provided with individual fleece garments. Sometimes this information is hidden on tags inside pockets.

Pilling

"Pilling" is a flaw that plagued early generations of polyester fleece. It occurs when fibers pull away from yarns due to friction or excessive time spent in a clothes dryer. These frayed fibers can form tiny clumps by the hundreds on fleece surfaces.

Happily, modern fleece is pill-resistant thanks to improved finishing methods, the use of microfibers and other higher-grade fibers. Pilling is still possible (so be skeptical of claims of "nonpilling" fleece), but the risk is significantly reduced.

Tip: If you own a cherished fleece item that appears hopelessly pilled, try shaving away the pills. Take a disposable razor and lightly, carefully stroke the garment's surface to shave away pills. This process dulls blades quickly, so several razors likely will be needed to complete the job on any sizable garment.

The following general guidelines can apply to most fleece and microfiber products:

Cleaning

Frequency of cleaning depends on usage and how quickly you accumulate dirt, stains or odors. Synthetic fleece is a fairly robust fabric. Feel no hesitancy to wash it often.

Specialized cleaning products (such as those from Granger's, Nikwax, ReviveX and Sport-Wash) are available for fleece, though mass-market laundry products or delicate-care products are usually acceptable.

Residues are less of an issue with fleece. However, some detergents may include additives that could cause fleece to mat or compact, impacting its ability to insulate. If you notice this happening, change detergents. Also: Residues can possibly impact color quality. Consider using a mild or specialized soap if a garment's color is important to you.

For an extra-high level of care:

- Wash fleece items separately.
- Wash in lukewarm water (unless otherwise specified).
- Wash with like colors only, particularly if you're very fond of a certain color. (Use cold water in this case.)
- Turn inside out (to minimize piling).
- Tumble dry low or air dry; air dry if the fleece is older and at risk of piling.
- A Polartec rep indicated that fabric softener can be an option on fleece garments with no membranes (unless manufacturer care instructions specifically prohibit its use). Fabric softener, he says, can minimize or eliminate static electricity in fleece.

- A wash-in style of DWR re-treatment can work very well on weather-resistant fleece. It is especially useful on fleece accessories such as hats and gloves which are often exposed to snowfall or drizzle.

For its products in general, Polartec suggests:

- Machine wash warm.
- Tumble dry low (or air dry).
- No bleach.
- Avoid fabric softener and dryer sheets (possible exception: fleece-only items).
- Do not iron.
- Do not dry clean.

Fleece is sometimes bonded to laminates or wind-buffering barriers to deliver specialized performance attributes and may require special handling instructions. Definitely inspect your garment for specific cleaning and handling directions.

Synthetic Base Layer Care

Overview

Synthetic fabrics used in wicking base layers (typically 100% polyester) are designed to transport moisture (sweat) and hasten its evaporation. They're so comfortable and functional that they are routinely worn for workouts (indoor and outdoor) or daily use.

As a result, base layers are the technical fabric that most often lands in everyday laundry loads. This means they are commonly exposed to mass-market laundry products.

This is generally not considered to be a problem, though keeping them free of detergent residues could potentially give them a slight performance boost. Thus a specialized cleaning product (seek out choices from Granger's, Nikwax, ReviveX and Sport-Wash) or a "Clear" or "Free" variety of detergent would be good choices. A thorough rinsing is advised. If your washer permits adjustable rinse cycles, choose the longest cycle available.

Odors

Decades ago, polypropylene was the synthetic wicking material in widest use. It fell out of favor due to its tendency to retain perspiration odors. Polyester eventually became the wicking fabric of choice, though some people grumble that it, too, has a proclivity to retain odors (though not polypropylene's level). Tips for odor avoidance:

- Launder base layers regularly.
- If you wear a base layer on consecutive days (during a multiday backcountry trip, for example), air it out at night. On warmer summer nights, you could rinse it out and hang it to air dry. To do this, collect water from a lake or stream in a container, carry it 200 yards from the water source and rinse the garment at that location, away from the water.
- To combat persistent odors, consider enzyme-based cleaners (examples: MiraZyme by McNett and Bio-O-Kleen's Bac-Out).

Cleaning

Frequency of cleaning: Regularly.

Follow any specific laundering instructions provided on your garment. Otherwise, general guidelines for this category include:

- Wash in cold or warm water (with like colors).
- Base layers can be vulnerable to snagging. Either separate them from garments that include zippers, clasps or openings that use rip-and-stick closures, or place them inside a protective bag during laundering.
- No fabric softener or dryer sheets. Oils and waxes in fabric softener can diminish wicking performance.
- No bleach.
- Do not iron.
- Do not dry clean.

Wool Care

Overview

Merino wool garments designed for performance use are usually machine-washable. That's not always so with woolen fashion apparel, where hand-washing is often required. Yet most merino wool items designed for athletic or recreational use (socks, base layers, tops) can be tossed in the washer. (Front-loaders preferred.) Always check manufacturer care instructions on any wool item before laundering.

Shrinkage

Shrinkage is one of wool's enemies. Moisture, heat and friction are the principle forces that cause it. To combat shrinkage, merino wool used for performance-wear garments typically undergoes a "superwash" process (involving chlorine) early in its production cycle. This shrinkage-resistant treatment masks the natural scales on individual wool fibers.

When exposed to a slippery solution such as detergent, these scales (which resemble irregularly stacked cones) migrate in one direction—toward the root, a reaction that causes the scales of the fiber to lock together, creating a very strong, irreversible bond. As the fibers lock together, the fabric actually shrinks. This is called "felting shrinkage" and is unique to wool.

The superwash process, though, greatly minimizes felting shrinkage. It makes merino wool garments capable of safely weathering the agitation and spinning actions involved in machine washing.

The people at SmartWool share an additional observation: Beyond felting shrinking, another type of shrinkage can impact wool—relaxation shrinkage.

Fabrics are knit under tension (a stretched condition). During initial home launderings water lubricates natural fibers, enabling them to return to a more natural/relaxed/less-stretched state. This is why a cotton T-shirt shrinks the first few times it's washed.

The same thing happens with wool. Depending on the knit, wool garments are vulnerable to varying degrees of relaxation shrinkage.

The tighter the knit, the less potential for relaxation shrinkage. Base layers, for example, are knit tightly. Tight construction permits safe machine-drying with minimal risk of shrinkage. Fashion sweaters, meanwhile, have a looser knit and may shrink more. Accordingly, SmartWool recommends laying fashion items flat to dry.

Yet even the most tightly knit fabrics will experience a minor amount of shrinkage. SmartWool says it takes this into account when sizing machine-dry garments.

Odor Resistance

One of merino wool's chief advantages over polyester (used in synthetic base layers) is its natural ability to resist odors. Of course, even wool's odor-fighting ability can be overwhelmed by a week-long backpacking trip or too many hours spent near a smoky fire. In general, though, wool substantially outperforms synthetic materials in its ability to minimize odors.

Cleaning

Frequency of cleaning: Launder merino wool regularly.

Mass-market laundry detergents are generally considered safe and acceptable for machine-washable merino wool. Avoid any that contain chlorine bleach.

Wool has a high resistance to acid, yet some U.S. detergents contain an elevated alkali content that, if used over an extended time, may weaken wool fibers. Other evidence indicates that, over time, the use of household detergents can cause light-colored woolens to yellow slightly. It's the same effect wool experiences if it is exposed to excessive amounts of ultraviolet light (direct sunlight).

One wool-clothing manufacturer, Ibex, recommends mild cleaning products such as Ivory Snow. Producers of clean-rinsing fabric-care products for outdoor clothing (from Granger's, Nikwax, ReviveX and Sport-Wash) offer wool-specific laundry washes. If a household detergent is used, consider choosing those with minimal additives, usually labeled "Free" or "Clear." Mild detergents may extend the life of merino wool products.

What about Woolite? It is composed primarily of coconut oil, which gives garments a luxuriously soft feel. A minority opinion in the textile trade believes its oily residue may diminish wool's absorption and release of moisture, which is how the fibers produce both a cooling and warming effect during temperature extremes. Opinions vary on its use.

Wool is less resistant to abrasion than other fibers. Therefore never wash wool with any item that includes exposed hook-and-loop (rip-and-stick) fasteners on cuffs or pockets. For optimal care, wash wool items only with other soft garments, such as other knits.

Icebreaker, another maker of performance wool garments, proposes a 1-time exception to the wash-with-soft-fabrics guideline stated above. When laundering its merino wool garments for the first time, Icebreaker suggests machine-washing in cool or warm water on normal cycle with "hard" fabrics (denim, for example) to remove any loose fibers. In subsequent launderings, use the normal cycle and wash with like colors and textures.

Other points to remember:

- Never use bleach.
- No fabric softener.
- Ironing is OK (as long as individual care instructions permit it). Wool in general exhibits a natural resistance to wrinkling and thus infrequently requires ironing. SmartWool recommends using a low heat setting on your iron.
- Dry cleaning is OK (as long as individual care instructions permit it). Wool items with a print or pattern usually do not permit dry cleaning.

Drying

In general, hang-drying or flat-drying is preferred. Refer to individual care instructions to determine if a dryer can be used. SmartWool, for example, is one manufacturer that green-lights tumble drying for all of its socks and base layers on low heat. The company adds, however, laying any garment flat to dry will enhance its appearance and reduce shrinkage (not just wool garments).

Add no fabric-softening dryer sheets when a dryer is used.

To speed dry time:

- Lay the wet garment flat on a dry bath towel.
- Roll the towel and the garment together.
- Unroll the towel and let the garment dry flat.

Storage

If is fairly rare for insects to attack woolen products. Several specialized insect families (clothes moths and carpet beetles) are able to digest wool when in their larval stages. However, these species are more attracted to wool in its raw form than as a finished product. Some wool products also contain an insect-resistant treatment to deter attack.

A few suggestions:

- Moths dislike light, fresh air and regular laundering.
- Rather than use mothballs, keep all wool products in a cedar-lined chest or closet.
- Clean wool items after all periods of extensive wear. Be especially vigilant when food spills are evident.
- After cleaning and before storing for prolonged periods, place items in an air-tight plastic bag (though some insects can chew through plastic).

Down Jacket Care

Overview

Washing down items is an event, a process, not something done casually. Many people choose to have a down-cleaning professional handle the task. (Do NOT dry clean a down item, however.)

Laundering a down garment (but not a sleeping bag) can sometimes be handled at home, depending on the size of the garment. More often, though, it's better to handle the task at a facility equipped with a large-capacity commercial washer and dryer.

Cleaning

Place your jacket ALONE in the washing machine. Launder it on a GENTLE cycle (set for warm temperature). Use a detergent designed for down. Do not use bleach. If your washing machine has a NO-AGITATE option, select this.

When the wash cycle ends, remove your jacket immediately. At this point, it will look saggy and soggy. Do not be alarmed. The next step will restore it to its original puffy form.

Drying

Dry your jacket ALONE in your automatic dryer. Toss three brand-new/clean tennis balls in the dryer with it. Tennis balls are ideal for fluffing up feather-filled items. Set your dryer warm, but not hot. (Most down jackets are made of nylon, and you do not want to melt this!)

Do not use the DELICATE setting, as this will not provide enough air or motion to restore your jacket.

You may have to run your jacket through a few dryer cycles, but it will come out clean and puffy, just like new.

When the dryer stops, and your jacket is done, be very careful in handling it. Nylon can heat up quickly. Also, the snaps, zippers, and other hardware on your garment will be quite hot. Allow the jacket to cool off before you attempt to wear it.

Care for Bike Shorts/Tights/Bibs

Overview

Fabrics used in compression clothing are typically a rugged breed of polyester blended with stretchy spandex. It's possible that cycling or triathlon shorts that include a chamois may require specialized handling. Be sure to follow care instructions provided with each garment.

Cleaning

In general: Use a specialized cleaning product (examine the choices available from Granger's, Nikwax, ReviveX and Sport-Wash) or a mild detergent, preferably one of the "Free" or "Clear" varieties. Mass-market detergents are usually considered acceptable as well.

- Mix water and detergent before adding the clothing.
- Close any zippers, empty pockets and seal any rip-and-stick closures. Turn the garment inside-out.
- Cold or warm water.
- Gentle cycle, if recommended on care instructions.
- Rinse a second time if soap can be detected at the end of the cycle.
- Hang dry, or tumble dry low if in a hurry.
- No fabric softener or dryer sheets.

Stain and Odor Removal

Some techniques offered here may conflict with manufacturer care directions. These tips are offered only as suggestions for people desperate to remedy a stubborn cleaning issue that defied standard resolution. None of these suggestions are guaranteed to work. NOTE: Employ them at your own risk.

General Tips for Tough Stains

- Keep fresh stains wet in cold water, then launder immediately. (Avoid hot water; it can set some stains.) Fresher stains can be removed more easily.
- Do not rub a stain with bar soap; doing so may set the stain.
- Rubbing a stain with an ice cube may be beneficial. Rub a stain outside-in to avoid spreading the stain.
- Rub or blot stains with a white material (cloth or paper). Using a dark material may cause a new problem. Avoid using materials prone to causing lint.
- Carefully scrape off any material that can be scraped off (again, in an outside-in motion), but do so only if you can avoid spreading the stain.
- Do not allow stained garment to touch any colored fabric.

Perspiration: Apply liquid detergent directly to the stain or soak in warm water with a presoak product for 15 to 30 minutes. Then launder. If the stain, try laundering again before attempting to machine-dry the garment.

Oil (such as sunscreen or insect repellent): Start with one of the following:

- Treat with a prewash spray or liquid.
- Pour a small amount of liquid detergent directly on the spot.
- Mix powdered detergent and water to create a gooey paste.

Whatever treatment you choose, massage the solution into the stain. Using additional detergent, wash it in the warmest water allowable for your garment. After rinsing, inspect the garment

before attempting to machine-dry it. If some portion of the stain remains, repeat the treatment without machine-drying.

Mud, blood, food (known as protein stains): If the stain is fresh, soak and agitate in cold water prior to washing. If dried, soak in cold water with detergent or a presoak product. Wash in warm (not hot) water. (Hot water can set some stains, particularly blood.) Inspect before attempted to machine-dry the garment. If necessary, repeat the soak-then-wash process for 30+ minutes before machine-drying.

Grass or ink (dye stains): Use hair spray; rub gently with white cloth or paper. Avoid excessive rubbing, though; it could spread the stain.

Red wine (tannin stains): Pour on some club soda; rub gently with white cloth or paper. As with ink, avoid excessive rubbing. Wash soon using detergent. Do not use bar soap or soap flakes. Nonchlorine bleach can be tried on severe spot stains, but it offers no guarantee of removal. Realize some stains simply cannot be removed.

Odors: Laundering usually removes most odors. If they persist, try storing them in a box or closet with an open container of baking soda, activated charcoal or calcium carbonate crystals. Another option: Sprinkle soda directly on a fabric and let it stand for a day or longer; eventually shake it off or use a hand vacuum.

Guide to Fabric Care Symbols

Fabrics care tags sometimes include few or no words, just small line drawings accompanied by dots, dashes, tangential lines and other markings that at first glance resemble some sort of ancestral artwork. Instead they are international fabric care symbols.

To better understand the nuances they convey, here is what they mean:

Washing

Symbol	Written instructions	Notes
	Machine wash: Normal	Any water temp, any detergent
Or	Machine wash: Cold	Max water temp: 85°F (30°C)
	Machine wash: Warm	Max water temp: 105°F (40°C)
Or	Machine wash: Hot	Max water temp: 120°F (50°C)

Note: Additional hot-temperature symbols include up to 6 dots (200°F/95°C max).



Machine wash: Permanent press



Machine wash: Gentle or delicate



Hand wash



Do not wash

Look for dry cleaning instructions

Note: Dots and underlines are sometimes used in combination with other symbols.



Bleach (if needed)

Any bleach OK



Non-chlorine bleach (if needed) Only color-safe bleach OK



Do not bleach

Dry Cleaning



Dry clean



Do not dry clean

Note: Several special-situation symbols for dry cleaning are not included in this list.

Drying



Tumble dry: Normal



Tumble dry: Normal, low heat



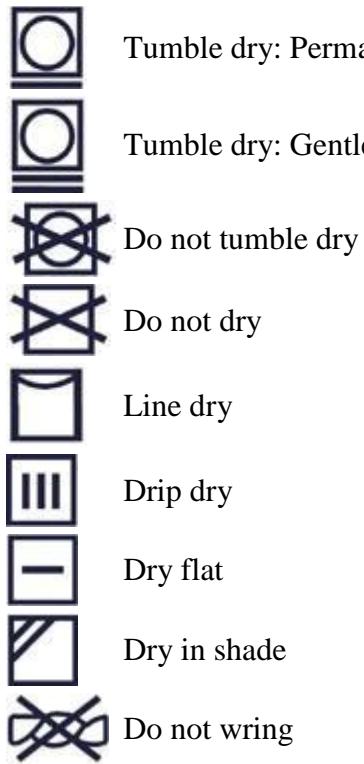
Tumble dry: Normal, medium heat



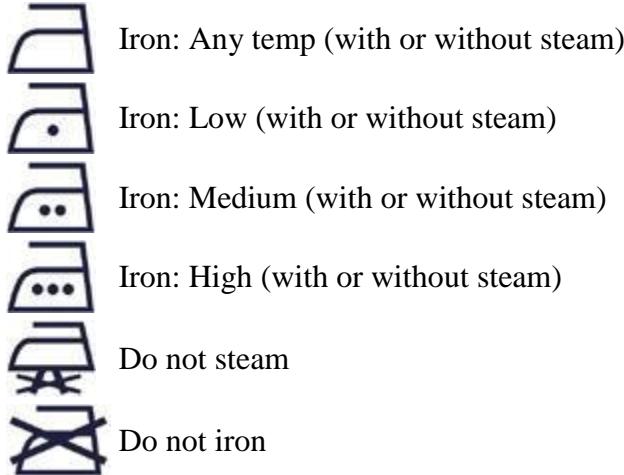
Tumble dry: Normal, high heat



Tumble dry: Normal, no heat



Ironing



Examples

The following examples are common symbol combinations you might see displayed on care-instruction tags. We interpret each group:



Translation: Machine-wash in warm water on gentle cycle (note the 2 underlines beneath the wash basin; they indicate that the gentle cycle should be used); tumble dry low on gentle cycle (2 underlines again); non-chlorine bleach OK if needed; may be ironed on low heat (with or without steam); do not dry clean.



Translation: Hand-wash in any water temperature; line dry; do not dry clean; no bleach; do not iron.



Translation: Machine-wash in hot water; any bleach OK if needed; tumble dry on medium heat; may be ironed on medium heat (with or without steam); do not dry clean.