

CHOOSING WATERPROOF WORKWEAR

A Guide for Safety Managers

By Leigh Stadelmeier

Working outdoors in rain, snow or wintry conditions—or working indoors in refrigerated or temperature-controlled environments—can negatively affect safety, comfort and productivity. Waterproof workwear is essential to keeping workers dry and comfortable in uncomfortable conditions.

Waterproof PPE guards against illness or injury from prolonged exposure to moisture, especially in cooler weather.

With a clearer understanding of how waterproof workwear is designed and how to use and care for it properly, safety managers can be better prepared to select weather-ready workwear, gloves and boots that meet the needs of their workforce while following safety compliance and budgetary standards.

What Makes Workwear Waterproof?

To ensure that workers have the rainwear they need to stay protected in wet conditions, safety managers and procurement teams must understand the subtle differences in how manufacturers describe weather-ready workwear. The main terms used to describe impervious materials in garments, safety toe boots and work gloves are water-resistant, water-repellent and waterproof.

While these terms may sound similar, they are not interchangeable. Choosing the wrong type of weather protection can leave workers vulnerable to moisture-related health problems such as skin irritation, blisters, fungal infections and trench foot. In cooler weather, working in damp clothes increases the risk of cold stress

(Glover, 2024) as well as more serious injuries such as hypothermia and frostbite.

Water-Resistant Materials

Of the three types of weather-ready workwear, garments, gloves and boots made with water-resistant materials are the least effective at keeping workers dry. This type of workwear is usually made from tightly woven fabrics, such as canvas or nylon that can withstand some penetration of water over a brief period. Water-resistant materials do not keep workers dry for more than a few minutes in steady rain, sleet or snow before the garment becomes sodden. Once the garment is soaked, worker productivity is dragged down by the weight of wet gear, and their steadily increasing level of discomfort and frustration distracts workers from the task at hand.

Water-Repellent Materials

Water-repellent materials have a durable water-repellent coating that causes water to bead up and roll off the surface of the fabric rather than soaking in. Durable water repellent treatment makes water-repellent garments, gloves and boots more effective than water-resistant materials at keeping workers dry. However, the coating can

break down and wear out over time, leaving workers with spotty or unreliable coverage in a rainstorm. Periodic treatments, such as oiling or spraying the material, are needed to maintain water repellency.

Fully Waterproof Materials

Fully waterproof materials are the gold standard in protection for workers facing wet weather or moisture on the job. The best waterproof workwear includes an inner thermoplastic polyurethane (TPU) membrane that can bend and stretch without compromising its integrity as a waterproof barrier. TPU membranes are impermeable to water but still allow air to pass through, so sweat on the inside of the garment can evaporate, keeping workers more comfortable while reducing the risk of moisture-related health problems.

Critical Design Features

Even gear built with a waterproof TPU membrane has a few points of vulnerability in rough, wet weather, so it is equally important to choose weather-ready outerwear, work gloves and waterproof boots with additional waterproofing features in their design and construction.

Physical Water Barriers

In waterproof rain jackets or rain suits, look for physical barriers such as storm flaps that snap over the main zipper to block out dripping rain or moisture blown around by high winds. Look for exterior pockets protected by waterproof zippers to ensure that pocket-sized tools and electronics are shielded. Seams covered by waterproof tape prevent water from leaking in, covering the tiny holes left by sewing needles as the garment is assembled. Adjustable cuffs join with waterproof work gloves to create a seal that prevents water from sliding into the sleeve or pooling around the wrist.

Layering Capabilities

Workers who clock in by stepping out on the jobsite understand that thoughtful layering is the key to comfort and productivity in challenging weather.



Rain gear that offers flexible layering options can help workers stay dry and regulate their body temperature while meeting requirements for safety and visibility. For example, a high-visibility rain jacket with a lightly insulated zip-in liner can conform to jobsite requirements for gear that meets or exceeds ANSI/ISEA 107-2020 standards for high-visibility protection, eliminating the need for a mesh safety vest that can snag on equipment or restrict range of motion while also protecting the worker from rain and cold. When the weather warms up, the liner can be removed, allowing the outer jacket to continue providing waterproof protection even in mild conditions.

Maintaining Range of Motion

Waterproof workwear should keep water out but not prevent workers from reaching, bending or stretching. Ergonomic design and construction that give workers a full range

of motion—particularly at the shoulders, underarms, elbows, waist and knees—are essential to support productivity and safety. Look for weather-ready workwear with gussets sewn into the underarms and crotch, along with curved or articulated knees and flexible panels at the elbows, to allow workers to move more freely and to ensure that they can move quickly and without restriction in a wet-weather safety emergency.

Proper Use & Care Affects Total Cost of Ownership

While it might be less expensive in the short term to hand out low-cost, single-layer rain jackets that employees can toss over their regular workwear or uniform in a pop-up shower, such a solution might ultimately be more costly because less durable gear will likely require more frequent replacement.

Choosing longer-lasting workwear, gloves and boots that not only hold up in wet weather but also stand up to strenuous daily use in harsh conditions can reduce costs associated with PPE and rainwear programs while increasing worker safety and preparedness. A worker outfitted with waterproof workwear for everyday use does not need to stop working to look for rain gear when inclement weather rolls in—they are already dressed for whatever splashes or showers the day may hold.

Employers and safety managers must balance budget constraints with consideration of the long-term durability and expected lifespan of the selected waterproof PPE, along with the positive impacts of choosing durable waterproof PPE on worker satisfaction and minimizing weather-related downtime.

Waterproof Garments & Gloves

Garments and gloves made with water-resistant materials are usually machine washable in cold water with regular household laundry detergent. The same usually holds true for water-repellent and fully waterproof materials. However, these garments and gloves usually come with instructions for laying flat to dry or hanging to dry, rather than tumbling in a residential clothes dryer. Air drying is preferred over machine drying because the intense heat of a dryer can prematurely age or even damage durable water-repellent coatings and TPU membranes.

Follow the instructions on the care label inside the garment or glove for detailed information on the recommended water temperature for washing, guidance on drying and any post-laundering treatments, such

as oiling or spraying, that may be needed to maintain water resistance. If the care label is missing or unclear, contact the manufacturer for assistance before washing a water-repellent or waterproof garment or glove.

Waterproof Safety Toe Boots

To clean and maintain waterproof work boots, brush the outsole clear of any pieces of gravel or debris that could reduce traction and increase the chances of slip-and-fall injuries and wipe the upper with a damp cloth to clear any oil or chemical splashes that could compromise the water resistance of the boot.

Leather boots may require a periodic conditioning treatment, such as an oil or spray, to keep the leather supple and waterproof. Boots with uppers made of synthetic materials, such as nylon or Kevlar, generally do not require such treatment to maintain their waterproof barriers.

Choosing the Correct Waterproof PPE Matters

In wet or cold environments, the right waterproof workwear and PPE can make the difference between a safe, productive shift and one disrupted by discomfort, injury or lost efficiency.

For safety managers, understanding the distinctions between water-resistant, water-repellent and fully waterproof materials, and the design features and care requirements of each, is critical to making informed PPE decisions. Investing in durable, high-performance waterproof workwear supports compliance, protects workers and reduces long-term costs by extending product lifespan and minimizing weather-related downtime.

With the right choices, safety managers can ensure that their teams stay dry, focused and ready to work in any wet weather. **PSJ**

References

Glover, P. (2024, Dec.). Understanding and preventing cold stress. *Professional Safety*, 69(12), 31-33.

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SELECTING & CARING FOR WATERPROOF PPE

- Match protection level to exposure.** Choose fully waterproof PPE—not just water-resistant or water-repellent PPE—when workers face sustained rain, snow or wet environments to prevent moisture-related injuries and productivity loss.

- Verify true waterproof construction.** Look for workwear with an intact waterproof membrane (such as TPU) as well as taped seams, storm flaps and waterproof zippers to block common water entry points.

- Plan for smart layering.** Select rain gear with removable or compatible liners so workers can regulate temperature, maintain visibility compliance and stay comfortable across changing weather conditions.

- Prioritize mobility and fit.** Ensure that waterproof garments include ergonomic features such as gussets and articulated joints so protection does not restrict movement or slow emergency response.

- Invest for durability, not just price.** Balance upfront cost with lifespan by choosing rugged waterproof PPE that withstands daily use, reducing replacement frequency.

- Maintain waterproof performance.** Follow care labels—wash gently, air-dry and reapply treatments when needed—to preserve membranes, coatings and overall waterproof integrity.