THE OFFICIAL ERGODYNE

GUIDE TO HEAT STRESS
RELIEF IS CALLING.
BETTER PICK UP.
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HEAT STRESS OVERVIEW
Weather patterns are changing. The planet’s getting warmer. And, in fact, all but three of the hottest years on record have occurred since 2000. On average, excessive heat causes 650 deaths in the United States every year. 37 of those took place on the job in 2017 – double the amount that occurred in 2014. Construction workers in particular take the brunt of the burn, which makes sense when you think about their exposure to unpredictable outdoor temperatures. Services providing industry, such as trade, transportation, warehousing and utilities, account for a large percentage of the remaining occupational fatalities.

Know the Risk

Heat stress occurs when the body’s means of controlling its internal temperature starts to fail. Once the body’s temperature reaches 99.7° F (37.6° C), heat stress has begun to effect the body. At 104° F (40° C), it becomes susceptible to severe damage. As little as 30 minutes of 104° temps can cause cellular damage to the brain or even death.

Two factors contribute to how heat stress affects the body: personal and environmental. Some workers are at greater risk before they ever step foot in the heat due to personal factors: being older or overweight, having heart disease or high blood pressure, or taking medications that do not react well to extreme heat.

The second contributing factor is environmental: high temperatures, direct sunlight, humidity, limited air movement, hot equipment, reflected heat from ground, water or objects, and clothing/PPE choices chief among them.
Heat Related Illnesses (HRIs)

Heat rash, heat cramps, heat exhaustion and heat stroke are the four most common HRIs.

Heat Rash

» **How it happens:** Occurs when sweat ducts become clogged and sweat can’t get to the surface of the skin

» **Symptoms:** Red blister-like eruptions, bumps and an itching sensation

» **How to treat it:** Keep the skin dry and rest in a cool place

Heat Cramps

» **How it happens:** Salt and moisture levels are depleted through perspiration

» **Symptoms:** Painful spasms usually in the legs or abdomen

» **How to treat it:** Move to a cool, shaded area, apply something cool, drink plenty of fluids

Heat Exhaustion

» **How it happens:** Prolonged exposure to high temps and inadequate hydration causing body temps to rise

» **Symptoms:** Headaches, weakness, mood change, feeling sick, pale and/or clammy skin

» **How to treat it:** Move to a cool, shaded area, apply something cool, drink plenty of fluids and monitor

Heat Stroke

» **How it happens:** When the body becomes unable to control its core body temp

» **Symptoms:** Pale skin, nausea, vomiting, confusion

» **How to treat it:** Seek medical attention immediately
Prevention + Solutions

You can’t change the weather. But you can change your approach to working in the heat.

Shelter + Shade

Provide a reprieve from direct sunlight and an area for workers to rest, recover and cool down.

» **Smart solutions:** Portable work shelter or umbrella combined with a misting system

Hydration

It’s easier than you think to get dehydrated. Hydration before, during and after shifts is key.

» **Smart solutions:** Hydration packs encourage more fluid intake than bottles, and ensure workers are never without cool, clean water

Cooling Personal Protective Equipment (PPE)

Designed to cool, transport moisture, block sunlight or reduce direct sun exposure, three key factors in mitigating HRIs.

» **Smart solutions:** Evaporative cooling towels, head bands, vests and more combine water and airflow and help keep the body’s core temperature regulated

Plan Ahead

Heat-related illnesses and fatalities are 100% preventable when you know the risks, symptoms and solutions. With expert training, support and endless innovation, Ergodyne is here to help you lead the way in making the Workplace a Betterplace™.
Evaporative cooling is a simple, effective, and relatively inexpensive approach that can be used in outdoor and indoor environments, but works best in drier, low-to-moderately humid conditions with sufficient airflow.

Working on the same principles as how sweat cools the body, evaporative cooling solutions draw heat from workers’ bodies, using an external source of water. They can provide an enhanced cooling effect, even for workers still acclimatizing to new tasks, or to a change in environment. And they can help experienced workers keep their cool.

While any damp rag could provide some relief, fabrics that hold moisture for an extended period of time, and products that are comfortable to wear, will provide more effective results for more productive workers.

**FOUR DIFFERENT TECHNOLOGIES. ONE PURPOSE: KOOLIN’ THE GANG.**

Ergodyne’s array of evaporative cooling technology takes the science of sweat to a whole new level. Using absorbent acrylic polymers, hyper-evaporative PVA, microfiber material or dry evaporative technology – these solutions activate quickly and easily to help you find your cool when the heat is on.
EVAPORATIVE SERIES // ACRYLIC POLYMERS //

// AIRFLOW

// WATER

// ACRYLIC POLYMERS

// COOLS BODY

// EVAPORATION

// COOLS BODY
ACRYLIC POLYMERS:

THEY PLUMP WHEN YOU CHILL ‘EM!

When soaked in cold water, these non-toxic, super-absorbent acrylic polymers expand and absorb just enough water to create a Love Potion No. 9 sensation for up to four hours. But if that sweet cooling sensation lasts more than four hours, please consult your physician.
6700
Tie Cooling Bandana
» Remains cool for up to 4 hours
» Re-usable, just re-soak to reactivate
» Available in nine colors and patterns

6700FR
Tie Cooling Bandana
» Remains cool for up to 4 hours
» NFPA 70E CAT 1 // ATPV 7.1 CAL/CM²
» Available in Blue and Lime

6705
Hook & Loop Cooling Bandana
» Remains cool for up to 4 hours
» Re-usable, just re-soak to reactivate
» Available in nine colors and patterns

6705FR
Hook & Loop Cooling Bandana
» NFPA 70E CAT 1 // ATPV 7.1 CAL/CM²
» Available in Blue and Lime
6710
Cooling Triangle Hat
» Remains cool for up to 4 hours
» Re-usable, just re-soak to reactivate
» Available in nine colors and patterns

6710FR
Cooling Triangle Hat
» Remains cool for up to 4 hours
» NFPA 70E CAT 1 // ATPV 7.1 CAL/CM²
» Available in Blue and Lime

6715
Cooling Hard Hat Pad
» Remains cool for up to 4 hours
» Attaches easily to hard hat suspension systems
» Available in Blue

6716
Cooling Hard Hat Liner
» Remains cool for up to 4 hours
» Attaches easily to hard hat suspension systems
» Available in Blue
**6717**

**Hard Hat Pad w/ Neck Shade**
- Remains cool for up to 4 hours
- Re-usable, just re-soak to reactivate
- Protects neck from harmful UV rays
- Available in Blue

**6665**

**Wet Evaporative Cooling Vest**
- Remains cool for up to 4 hours
- Re-usable, just re-soak to reactivate
- Water-resistant liner
- Available in Gray and HV Lime
- Sizes M–3XL
A REAL PROBLEM

NOAA has rated excessive heat as the number one weather related killer, more than tornadoes or hurricanes. On average there are 650 deaths in the United States due to exposure to excessive heat.

OFFICIAL PRODUCT REVIEW

TESTER: KATHLEEN CRAIN

PRODUCT: 6700 EVAPORATIVE COOLING BANDANA

“It’s Georgia, it’s July, it’s freaking hot. Surprisingly, it does a good job of keeping me from melting.”

ONE WORD REVIEW: SURPRISING
EVAPORATIVE SERIES // PVA //

1. AIRFLOW
2. WATER
3. PVA
4. COOLS BODY
CALL IT COOL. JUST DON’T CALL IT A CHAMOIS.

An innovative, hyper-evaporative material, Poly Vinyl Acetal (PVA) retains water while remaining dry to the touch for sweet cooling relief on the most sweltering of days.
POLY VINYL ACETAL (PVA)

6601
Economy Cooling Towel
› 20% thinner than 6602
› Remains cool for up to 4 hours
› Re-usable, just rewet to re-activate
› Available in Blue

6602 // 6602-BULK (50 pc.)
Standard Cooling Towel
› Remains cool for up to 4 hours
› Re-usable, just rewet to re-activate
› 6602: Available in five colors
› 6602-BULK: Available in Blue

6603
Cooling Neck Band
› Remains cool for up to 4 hours
› Re-usable, just rewet to re-activate
› Available in Blue
**6700CT**
Tie Cooling Bandana // Patented
- Remains cool for up to 4 hours
- Re-usable, just rewet to reactivate
- Available in nine patterns and colors

**6705CT**
Hook & Loop Cooling Bandana // Patented
- Remains cool for up to 4 hours
- Re-usable, just rewet to reactivate
- Available in nine patterns and colors

**6710CT**
Cooling Triangle Hat // Patented
- Remains cool for up to 4 hours
- Re-usable, just rewet to reactivate
- Available in nine patterns and colors
6717CT
Hard Hat Pad & Neck Shade
» Remains cool for up to 4 hours
» Re-usable, just rewet to reactivate
» Available in Blue

6715CT
Hard Hat Pad
» Remains cool for up to 4 hours
» Re-usable, just rewet to reactivate
» Available in Blue

6670CT
Hard Hat Neck Shade // Patented
» Remains cool for up to 4 hours
» Re-usable, just rewet to reactivate
» Available in HV Lime

8935CT
Ranger Hat w/ Cooling Towel // Patented
» Remains cool for up to 4 hours
» Re-usable, just rewet to reactivate
» Available in HV Lime
WHO’S MOST EXPOSED?

More than $\frac{3}{4}$ of all heat related fatalities occur in construction and services providing industry such as trade, transportation, warehousing and utilities.  

*BLS 2016

OFFICIAL PRODUCT REVIEW

TESTER: DAN ERICKSON

PRODUCT: 6602 PVA EVAPORATIVE COOLING TOWEL

“I work for the Post Office, those trucks DO NOT have air conditioning. THESE WORK GREAT! Well worth the money!”

ONE WORD REVIEW: GREAT
EVAPORATIVE SERIES // MICROFIBER //

// WATER // MICROFIBER // COOLS BODY
// AIRFLOW // EVAPORATION // COOLS BODY
MICROFIBER COOLING TOWEL (MF):

SWEET COOLING RELIEF FOR YOUR INNER GREENIE.

Our chemical-free, non-toxic, cooling powerhouse. Microfiber technology activates instantly when wet, whether that be from water or perspiration, and wicks moisture away from the body. Soft and absorbent when dry. Provides sustained cooling for hours on end when wet.
6602MF
ChillIX™ Microfiber Cooling Towel
» Remains cool for up to 4 hours
» Re-usable, just rewet to reactivate
» Available in five colors

Blue  | Hi-Vis Lime  | Orange
Pink  | Gray        | Black

9.8IN X 40.9IN
(25CM X 104CM)

8935MF
Ranger Hat w/ Microfiber // Patented
» Remains cool for up to 4 hours
» Re-usable, just rewet to reactivate
» Available in HV Lime

6690
Cooling Arm Sleeves
» When wet, super-evaporative cooling is immediate and can last for hours
» When dry, sleeves will absorb sweat and wick moisture away from the body
» UPF 50+ protection from UV rays
» Available in Black, Lime and Blue
MID-DAY MELTDOWN

68% of occupational heat-related injuries happen after 12:01 PM. Almost half of those injuries (36%) resulted in at least three days away from work.

*BLS 2016

OFFICIAL PRODUCT REVIEW

TESTER: JOSH NELSON

PRODUCT: 6602MF MICROFIBER COOLING TOWEL

“Cools me off, isn’t too heavy, easy to clean. A must-have on the job!”

ONE WORD REVIEW: MUST-HAVE
EVAPORATIVE SERIES // DRY EVAPORATIVE //

// AIRFLOW // EVAPORATION // PERMEABLE MEMBRANE
// WATERWICK // WATER // COOLS BODY

// COOLS BODY
Three to 20 ounces of water provides up to three days of cool. Just pour in water, evenly distribute and ... ahhhh. 100% dry, lightweight cooling relief. With our exclusive dry evaporative technology, workers find their chill without getting bogged down (and it’s machine-washable to boot!)
**6685**

Dry Evaporative Cooling Vest

// Patented

» Remains cool for up to 3 days
» Re-usable, just refill to reactivate
» Available in HV Lime
» Sizes M–4XL

**6687**

Economy Dry Evaporative Cooling Vest

// Patented

» Remains cool for up to 3 days
» Re-usable, just refill to reactivate
» Available in HV Lime
» Sizes S/M and L/XL available

**ACTIVATE WITH 13-20OZ (400-600ML) OF COOL WATER**

**ACTIVATE WITH 13.5-15.5OZ (400-450ML) OF COOL WATER DEPENDING ON VEST SIZE**
6686
Dry Evaporative Cooling Cap
» Remains cool for up to 3 days
» Re-usable, just refill to reactivate
» Available in Gray

DRINK TO YOUR HEALTH

During moderate activity in moderately hot conditions, workers should drink about one (8oz) cup every 15 to 20 minutes.

*CDC
Unlike evaporative cooling technology, airflow is not required for phase change cooling, making it a prime choice for high-heat indoor settings like foundries, glass manufacturing, and paper & pulp.

Solutions like Phase Change Cooling Vests use a cooling charge pack that works to pull heat away from the body (heat energy always moves from a warmer place to a cooler place). These packs contain liquids like non-toxic phase change material that solidify typically between 55° F (13° C) and 64° F (18° C), but unlike conventional ice or gel freezer packs, phase change packs aren’t frosty to the touch, so they’ll remain comfortable against the body. As the phase change cooling pack absorbs heat, it begins to change from a solid to a liquid. The cooling effect can last anywhere from an hour-and-a-half to four hours, depending on the solution.

Ergodyne’s Premium and Standard Phase Change Cooling Pack maintains a 64° F (18° C) temperature for up to four hours regardless of outside temp. The Lightweight Phase Change vest cooling packs contain a 100% biodegradable PCM that maintains 59° F (15° C) temperature for up to two hours. When it’s time, the pack is quickly recharged by placing in a cooler of ice water for 10 minutes; a freezer for 15 minutes; refrigerator for 25 minutes or near an air conditioner for 1 to 2 hours.
6215 // 6215HV
Premium Phase Change Vest
» Maintains a constant 64° F / 18° C
» NFPA 70E CAT 1 //
  ATPV 7.1 CAL/CM²
» Also available in HV Orange

6230
Standard Phase Change Vest
» Maintains a constant 64° F / 18° C
» Non-toxic, non-carcinogenic

6220 // 6250
Replacement Charge Packs
» 6220 packs fit: 615, 6215HV and 6230
» 6250 packs fit: 6260 only

6260
Lightweight Phase Change Vest
» 30-60% lighter weight than other PCM vests
» Maintains a constant 59° F / 15° C
» Cooling cycle lasts up to 2 hours
PHASE CHANGE TECHNOLOGY

WHAT IS THIS THING, ANYWAY?
UP CLOSE & PERSONAL WITH THE PHASE CHANGE VEST:

• Keeps workers cool + productive.
• Maintains a constant temp. No more. No less. Lasts for up to 4 hours regardless of outside temp. (2 hours on model 6260).
• FR protection on premium models.
• Unlike evaporative products, there is no airflow required for cooling!
• Ideal for extreme heat applications: foundries, glass manufacturing, paper and pulp.
Sweat happens. And for a very good reason: to regulate body temp. But you know what they say about too much of a good thing. That’s where absorptive technology comes in. A sweaty palm or stinging droplet in the eye isn’t just uncomfortable, it’s a jobsite hazard.

Much like evaporative cooling solutions, materials matter when it comes to all-around comfort and performance with absorptive solutions. Again, you could wrap any old rag around your head and call it good, but ultimately what starts as a solution becomes a hindrance because it just wasn’t designed for that purpose.

From old school but super-effective cotton terry sweatbands (think early ‘80s John McEnroe) to dew rags, skull caps, multi-bands and headbands made of high-performance materials that pull sweat away from the body for fast evaporation, Ergodyne sweats the details with its selection of absorptive solutions made to take the sting out of working in the heat.
6615
High-Performance Dew Rag
› Hi Cool® moisture management fabric
› Wide, absorbent terry headband
› Elastic band for a great fit
› Available in ten patterns and colors

6630
High-Performance Skull Cap
› Hi Cool® moisture management fabric
› Wide, absorbent terry headband
› Wear under hard hats, helmets and more
› Available in nine patterns and colors

6605
High-Performance Headband
› Hi Cool® moisture management fabric
› Wide, absorbent terry headband
› Elasticized back for a great fit
› Available in nine patterns and colors
6650
High-Performance Hat w/ Neck Shade
» Hi Cool® moisture management fabric
» Wide, absorbent terry headband
» Wide panel neck protection
» Available in HV Lime or Orange

6660
Hard Hat Brim w/ Shade // Patented
» 100% polyester fabric
» Universal design fits most hard hats
» Available in HV Lime or Orange

6500 // 6550
Terry Sweatbands
» Thick, absorbent cotton terry
» Elastic band maintains snug fit
6500: available in black only
6550: available in white or black
6609
Terry Sweatband
» Absorbent terry headband
» Fits most hard hat suspensions
» 100% cotton

CHILL-ITS® COLORS & PATTERNS:

Camo
Flames
Stars & Stripes

Red Western
Navy Western
Skulls

Black
Blue
HV Lime // Orange

Realtree®
Be Tenacious
Stars & Stripes (Multi-Band)

*Note: all colors not necessarily available in all styles. See specific product for listing.
6485
Multi-Band
» Multiple style and usage configuration
» Stretchable, comfortable and seam-free
» Anti-stink treatment helps workers remain unscented
» Available in eight colors and patterns

6486: FR Multi-Band also available

Promote your company, charity, team, and more by customizing our Chill-Its® Multi-Bands with your unique logo, pattern or slogan.

www.ergodyne.com/custom-multi-band.html
Heat-related illnesses such as heat rash, heat cramps, heat exhaustion, and heat stroke are closely associated with a worker’s hydration level. Since heat stress is a widely recognized hazard, states including California and Washington have established specific workplace drinking water requirements as a major part of heat stress workplace controls. OSHA standards for both general industry and construction activities, as well as various safety guidelines, mandate that adequate drinking water is available to workers at all workplaces and jobsites.

Dehydration risks are more commonly recognized for work performed outdoors in warm temperatures or for work in hot indoor environments like foundries, bakeries, boiler rooms, kilns, etc. But they also exist for those toiling away in indoor jobsites with poor airflow or workers who wear special, protective clothing – such as non-permeable HAZMAT suits – as they face additional challenges.

Keeping clean, cool and convenient water accessible to workers can prove to be more challenging than one would think. The use of hydration packs is a good way to not only solve for that challenge, but encourage more intake of water. Because hydration packs make water so readily available and hands-free simple, workers can hydrate without having to take a break from the task at hand.
**3L Premium Cargo Hydration Pack**
- 600D rip-stop polyester
- 8mm foam padded straps
- 4 zippered compartments

**3L Premium Low-Profile Hydration Pack**
- 600D rip-stop polyester
- 8mm foam padded straps
- 1 zippered compartment

**2L Low-Profile Hydration Pack**
- 600D rip-stop polyester
- Breakaway straps for safety
- 100% anti-microbial valve
5158
Hydration Pack Pressure Pump
» FDA-approved food grade silicone
» Valve cover keeps debris off tip
» Fits all Chill-Its® Hydration Packs

5159
Hydration Pack Bladder Cleaning Kit
» Compatible with any Chill-Its® bladder
» Includes:
  - Drying rack
  - Bladder cleaning brush
  - Delivery system cleaning brush
  - Bite valve cleaning brush

5151/ 5152
DualCap Water Bottles
» DualCap opening, wide mouth for ice+filling with smaller drink spout
» 5152: Keeps liquids cold for 24 hours and hot for 12
  5151: 1000ml, tritan BPA free copolyester
  5152: 750ml, stainless steel
// SHELTERS & SHADE
Using a combination of natural and temporary shade devices can shield workers from harmful UV rays and help them stay stronger for longer.

When work must be done in the heat of the day, taking regular breaks and meals under the cover of shelters such as canopies, umbrellas and other temporary structures is important. So important, in fact, that states like Washington and California have regulations that require it.

Providing effective jobsite shade may require planning. Shelters should block direct sunlight with a purpose to provide a recovery area with access to fluids. Consider using areas with the natural shade of heavy tree cover or an awning or other temporary structure at the site. Adding a misting system to your shelter can cool things down by up to 30° F / 14° C below ambient air. And if the structures are air-conditioned, even better!
## SHELTERS & SHADE

### 6015
10x20’ Heavy-Duty Commercial Tent
- 300D canopy w/ PU & UV coating
- Double-vented top, peak height 14’
- Powder-coated steel frame
- Heavy-duty ground stakes and ropes included
- Pallet quantities also available

### 6000 // 6051
10x10’ Heavy-Duty Commercial Tent/Kit
- 300D canopy w/ PU and UV coating
- Double-vented top, peak height 14’
- Powder-coated steel frame
- Heavy-duty ground stakes and ropes included
- 20 quantity pallet available
- 6051 Kit includes:
  1. 6000 tent,
  2. 6094 tent weight bags
  3. 6098 side panels

### 6010
10x10’ Lightweight Tent
- 210D canopy w/ PU and UV coating
- Peak height of 14’
- Reinforced corners
- Hammer-tone steel frame
- Heavy-duty ground stakes and ropes included
- Side panel available
- 25 quantity pallet available

---

6097 10x20’ SIDE PANEL ALSO AVAILABLE
6098 10x10’ SIDE PANEL ALSO AVAILABLE IN HI-VIS LIME AND BLUE
**6100 Lightweight Industrial Umbrella**

- 300D canopy w/ PU & UV coating
- 84" diameter with vented top
- Powder-coated steel pole and ribs
- Includes 6192 ground spike
- 35 quantity pallet available

---

**6095 Misting System**

- Heavy-duty 2 gal. tank with pressure pump
- 25' hose with 8 stainless steel nozzles
- H&L straps included for easy tethering
- Each set of pumps provides up to 20 minutes of misting

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**6094 Tent Weight Bags (set of 2)**

- Polyester bags with PU backing
- Easy-to-carry handle
- 40lbs (18.1kg) capacity
- H&L for a secure fit around legs

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**6190 // 6193 Umbrella Stand/Trailer Mount**

- Holds 6100 umbrella
- Power-coated steel construction
- Thumbscrew holds pole in place
TENACIOUS SINCE 1983.

INTERGALACTIC HEADQUARTERS:
44° 58’ 18.31” N  93° 09’ 12.88” W ALT. 934 FT.
1021 BANDANA BOULEVARD EAST SUITE 220 SAINT PAUL, MN, USA 55108
PHONE 651 642 9889 // 800 225 8238 ERGODYNE.COM

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