Evaporative/Phase Change Cooling Vest - Usage Instructions

Introduction
The Evaporative/Phase Change Cooling Vest offered by TechNiche International is the only combination Phase Change Material and Evaporation vest of its kind. This multi-technology product helps extend the cooling effect for the user and creates multiple use cases not available from a Phase Change only or Evaporative only vest.

Preparation of the Evaporative Vest

1. Soak the vest in clean water for 1-2 minutes or until fully hydrated.
2. Wipe dry or let hang for 10 mins. to dry. The vest will be dry when worn. The water is held by the Polymer Embedded Fabric liner. Depending on the weather conditions, the water in the vest held by the Polymer Embedded Fabric will evaporate over 4-8 hours, keeping the user 10-15 degrees cooler than the outside temperature.

Notes:
1. The vest can be worn without the Phase Change Material inserts, and the user can use only the Evaporative portion of the vest.
2. Any water source can be used to hydrate the vest, however, the cleaner the water the longer the Polymer Embedded Fabric will last.
3. While the vest will look dry after it is soaked and hung to dry, the water will be held in the Polymer Embedded Fabric liner. The vest should look “fatter” than before it was soaked.

Preparation of Phase Change Inserts

1. Place the Phase Change Inserts in ice water, or the freezer, for 35-40mins, or until frozen all the way through. The inserts freeze at 14.4°C.
2. Take the frozen inserts and place them in the pockets of the vest, one insert per pocket. There are four pockets, two in the front and two in the back.

Note:
1. The inserts may look frozen after 15-20 minutes, but they are not. They need 35-40 mins in the freezer to freeze all the way through. Freezing begins from the outside and works its way in so it may look frozen but it is not until 30-40 mins. have passed.

Wearing the Cooling Vest

Picture One

1. After the Phase Change Material inserts are properly frozen and the vest is soaked in clean water for 1-2 minutes the vest can be worn.

Picture Two

2. Place the vest overtop your undershirt or combat shirt (see Picture One and Two). Some soldiers are placing the vest over their undershirt and not wearing the combat shirt when regulations permit, otherwise the vest is being worn over the combat shirt.

Picture Three

3. Adjust the shoulder and side straps until you achieve a snug fit (see Picture Three).

4. Place your body armor overtop of the vest (see Picture Four).

Picture Four

Note:

1. Depending on the outside temperature, the vest will keep the user cool at 14.4°C for up to two hours.
2. The evaporation portion of the vest will last 4-8 hours and will keep the user 10-15 degrees cooler than the outside temperature.

Accessories

1. An additional set of Phase Change Inserts
2. Insulated carrying case for additional set of Phase Change Inserts
3. Evaporative Cooling Boonie Cap
4. Evaporative Cooling Neck Band
5. Evaporative Cooling Beanie
6. Phase Change Cooling Helmet insert
7. Evaporative Cooling Sleeves
8. Combination Evaporative & Phase Change Vest with 70 ounce hydration pack built in

Sample Use Cases

1. Soldiers going on long patrols will often leave out the inserts and soak the vest making use of the Evaporative features of the vest only. They then soak the vest whenever water is available. This reduces the weight of the vest when on long patrols.
2. Soldiers will wear the inserts when bedding down for the night to provide cooling while they sleep.
3. Soldiers in vehicles, or sentry duty. wear the vest with inserts and keep a spare set of inserts available to keep cool through the hottest part of the day. With this approach, they get up to four hours of cooling at 14.4°C and then are kept cool by the Evaporative portion of the vest or swap in the just frozen inserts.
4. Soldiers wear the inserts and hydrate the vest when going on patrol, sentry duty, working at base camp, making supply runs in vehicles, working in/with armored vehicles, flying helicopters etc.

Some Accessory Images

Figure 1 Evaporative Cooling Boonie Cap

Figure 2 Phase Change Cooling Military Helmet Insert

Figure 3 Insulated Carrying Bag for spare inserts

Figure 4 Evaporative & Phase Change Cooling vest w/ Sleeves