



WATER COOLING - ARMY | DoD CFD

PURPOSE:

It is estimated that 1.5 million bottles of water are shipped into theater daily. Due to the limited availability of refrigerated assets (refrigerated trucks, MILVANS, and CONEX primary shipping containers), the temperature of the bottled water given to the Warfighter rises due to high heat and extreme solar loading conditions. Reports from the field state that Soldiers are not consuming enough water to support proper hydration. They should be consuming water at a rate of 3 gal (11 L) per day. Therefore, with a HMMWV that carries up to four Soldiers, a requirement exists for 12 gal (45 L) of cooled water per day. To satisfy this need, Warfighters in theater are currently utilizing COTS coolers purchased from PXs that do not maintain cool temperatures for extended periods of time.

CFD FSET's current project investigating this issue is in response to a formal Request For Information (RFI) received through the Field Assistance in Science and Technology (FAST) team that identified a need for more effective COTS coolers that could effectively store chilled water bottles for vehicular mounted Warfighters. The RFI also identified a need for effective methods of securing loose water bottles within HMMWVs. In a survey with Warfighters, many reported that they pour out water due to high temperature and feel that space is available inside tactical vehicles for a water cooling unit. Many also reported that there is a need for actively chilled bottled water inside their vehicles to ensure hydration and combat effectiveness is maintained at optimal levels.

In order to provide a low-cost, immediate solution of providing chilled water to Warfighters, CFD FSET performed market research on a variety of both low-tech and low-power cooler options to determine which would be most beneficial to send to the field to meet Warfighters' immediate needs. Key aspects of the research were the structural strength of the coolers and the ability to keep contents cold. Various COTS coolers were then sent to units in theater and feedback was gathered. As a result of the RFI, the FSET identified the YETI Tundra cooler to Project Manager – Mine Resistant Ambush Protected Vehicles (PM-MRAP) as the recommended cooler for purchase by units in the field."

CHARACTERISTICS:

- Has latches to keep cooler securely closed.
- Durable design with rugged fiberglass material will not easily break.

CAPABILITY & BENEFITS:

- Positive initial feedback from field:
 - Water is still palatable after 5 days in sun.
 - Increases user satisfaction.
- During event of impact, cooler is more likely than others tested to prevent water bottles from becoming projectiles, increasing user safety.
- Performance outweighs increased cost over lower-tech coolers.

COMMENTS:

An additional challenge of proving chilled bottles of water to Warfighters in the field is ensuring those bottles are secure from rolling around in vehicles. Warfighters have reported the problem of loose water bottles rolling around in MRAPs during Force Protection Patrols. This is a safety hazard in the event of impact and the bottles becoming projectiles. The graphic shown above depicts a bandolier system to alleviate this problem. The fabric attaches to the inner vehicle wall and holds water bottles secure while remaining within arm's reach so Warfighters do not have to constantly open coolers to retrieve the bottles.

POINT OF CONTACT:

DoD Combat Feeding

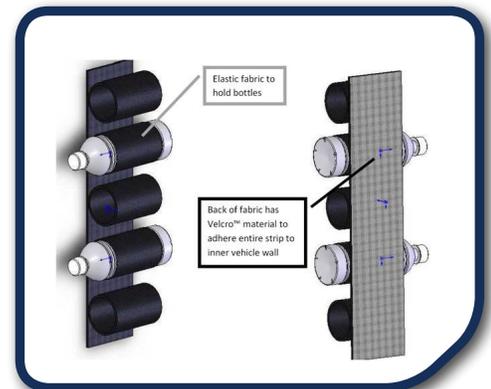
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Various COTS coolers were evaluated by CFD FSET and surveyed in theater; YETI Tundra is the PM-FSS identified cooler for effective storing of chilled, bottled water.



Potential bandolier system to help keep water bottles secure & accessible in vehicle