

NBC Operations

1. Wearing NBC individual protective clothing and equipment during cold weather operations increases the risk of injuries due to cold, and even heat stress.
2. NBC protective clothing can restrict the blood flow to the fingers and areas of the face, increasing the susceptibility of these areas to frostbite and limiting the ability to visually inspect for signs of cold injury.
3. When mask carriers are worn outside the clothing at below freezing temperatures, donning the cold mask can cause a contact freezing injury, especially at the points where exposed rivet heads contact the face.
4. Wearing the impermeable NBC protective Battle Dress Over garment (BDO) over heavy cold-weather clothing creates the unexpected situation where heat exhaustion becomes a real possibility for soldiers working hard, even in cold weather. The added insulation and decreased ventilation of NBC protective clothing can result in heavy sweating and wetting of the clothing during hard work, eventually degrading cold protection.

Minimizing Effects of Cold on NBC Operations:

1. Practice integrating NBC protective clothing with cold weather clothing. Some adjustments to procedure will be required.
 - a. Generally, the BDO is worn outside the cold weather clothing, therefore, it may be necessary to remove insulating clothing layers before putting the BDO on to prevent overheating.
 - b. It may be necessary to add additional clothing layers over the BDO after it is donned, if changes in weather or activity warrant additional warmth. However, any garment worn over the BDO will become contaminated during chemical exposure and will have to be discarded and replaced with new issue clothing (leader should anticipate this by having replacement clothing supplies on hand).
 - c. Vapor barrier boots or issue overboots are authorized replacements for chemical protective boots.
 - d. Chemical protective gloves are worn underneath cold weather gloves and/or mittens. Individuals whose tasks require a high degree of manual dexterity may be unable to wear cold weather gloves or mittens over the rubber gloves. In this case, polypropylene glove liners worn beneath the protective gloves may provide some protection from the cold for brief periods.
2. Using the protective mask during cold weather requires some procedural modification.
 - a. **Before deploying**, rivet heads inside the mask should be covered with adhesive tape to prevent contact frostbite. M3/M4 winterization kits should be installed on chemical protective masks when temperatures are below 23°F (-5°C). This kit contains an ice particle prefilter fitted over inlet valves to prevent frost from accumulating on the inlet caps. It also includes two inlet valves and two nose cup valves of a softer rubber, which do not become hard and brittle in the cold.
 - b. When it is cold, the protective mask should be donned normally. However, clearing the mask by the usual procedure of quickly exhaling maximally will fog the lens. Instead, exhale steadily and slowly.
 - c. The M6A2 hood should not cover the mask voice meter outlet valve when the temperature is below freezing. The hood voice meter outlet valve assembly cover should be pulled open below the voice meter outlet valve assembly cover to allow moisture to escape.
 - d. To prevent the outlet valve from freezing and sticking to the seat, lift the outlet valve cover and rotate the disc while exhaling.
 - e. In extreme cold weather (0°F), mask carriers must be worn under the parka to keep the mask warm and flexible enough to provide an adequate seal. Practice donning the mask when the carrier is worn under the parka.
 - f. **CAUTION!** Do not adjust the harness straps on the mask too tight. This will reduce blood flow to the skin of the head and face and can cause frostbite.
 - g. The mask should be wiped thoroughly dry after use to remove condensation, which could freeze inside.
3. Protect nerve agent antidote and anticonvulsant auto injectors from freezing.
 - a. Auto injectors should not be carried in the external pocket on the BDO when the temperature is below freezing. Place them in an inner pocket where body heat will keep them warm. A string should be tied to the auto injector, and threaded through the outer layers of clothing and tied to an outside pocket or belt. The auto injector can be rapidly extracted from within the clothing by pulling the string (practice this).
 - b. Frozen auto injectors are still useable after being thawed if they do not appear broken or cracked.