

DDS 671-1

**STOWAGE FOR CHEMICAL,
BIOLOGICAL, AND RADIOLOGICAL
DEFENSE OUTFITTING EQUIPMENT
AND MATERIAL**



**DEPARTMENT OF THE NAVY
NAVAL SEA SYSTEMS COMMAND
WASHINGTON, DC 20362-5101**

**DISTRIBUTION AUTHORIZED TO DOD AND DOD CONTRACTORS ONLY;
(CRITICAL TECHNOLOGY) (4 FEB 1987). OTHER REQUESTS SHALL BE
REFERRED TO NAVAL SEA SYSTEMS COMMAND (SEA 09B2).**

DESIGN DATA SHEET
DEPARTMENT OF THE NAVY
NAVAL SEA SYSTEMS COMMAND

DDS 671-1
4 February 1987

STOWAGE FOR CHEMICAL, BIOLOGICAL, AND RADIOLOGICAL DEFENSE OUTFITTING
EQUIPMENT AND MATERIAL

671-1-a. References

- (a) NSTM Chapter 470 - Shipboard BW/CW Defense and Countermeasures
- (b) GSS Section 670 - General Requirements for Stowage
- (c) GSS Section 604 - Locks, Keys, and Tags
- (d) GSS Section 602 - Hull Designating and Marking
- (e) NAVSEA Drawing No. 804-1639213 - Holder, Card
- (f) GSS Section 631 - Painting
- (g) Fed STD 595 - Colors
- (h) Fed Spec TT-E-489 - Enamel, Alkyd, Gloss (for Exterior and Interior Surfaces)
- (i) NSTM Chapter 670 - Stowage, Handling, and Disposal of Hazardous General Use Consumables

671-1-b. Introduction

This design data sheet establishes the stowage criteria for chemical, biological, and radiological defense (CBR-D) outfitting equipment and material onboard surface ships. The criteria apply to new construction ships and to backfits for existing ships.

671-1-c. Abbreviations

CBR-D	-	Chemical, biological, and radiological defense
CPS	-	Collective protection system
CWDE	-	Chemical warfare defense equipment
GQ	-	General quarters
GSS	-	General Specifications for Ships of the United States Navy
HTH	-	High test calcium hypochlorite
NSTM	-	Naval Ships' Technical Manual
2-PAM	-	Pralidoxime (as in pralidoxime chloride)

671-1-d. Equipment material description and allowances

The purpose and function of CBR-D outfitting equipment and material stowed on surface ships are described in reference (a). The shelf life of this equipment and material exceeds four years. Parkas, trousers, and gas mask canisters are packaged in airtight containers to protect the charcoal from humidity. If exposed to air the protection provided by this equipment is degraded. Individual protection equipment is worn or carried by individuals for their own protection. A set for one person comprises a parka, trousers, gas mask, boots, gloves, gas mask canisters, and individual decontamination kit. A haversack will be provided to carry these items of equipment. Medical supplies consist of atropine injectors and 2-PAM chloride. General use protective equipment comprises items required in CBR agent detection and decontamination.

671-1-e. Operational Concept

Stowage of CBR-D outfitting equipment and material must balance control and security of the items against their accessibility in time of need. Stowage options are based on the use of storerooms, lockers at or near the GQ stations, and temporary stowage aids such as shelves or hooks. A flexible approach is needed, to accommodate differences in ship size and configuration, ship manning levels, space availability, weight limits, GQ station functions and locations, and ship missions.

The material and equipment will normally be stowed in secure lockers or CWDE storerooms to protect the inventory from loss and to ensure that the packages of parkas, trousers, and gas mask canisters are not opened until needed. Some parkas, trousers, gas mask canisters, boots, gloves, and training decontamination kits will be used for normal shipboard training and will be stowed in lockers near repair stations or spaces used for training.

The training allowance of parkas, trousers, boots, and gloves will be 25 percent of ship's accommodations. In addition, one set of gas mask canisters per person and one training decontamination kit for every 10 persons shall be provided for training. These items will be replaced when they become ineffective as training aids.

Ready access to equipment at all times is not mandatory. If operational conditions require, individual protection equipment not already stowed at the GQ stations, and atropine and 2-PAM chloride injectors, will be issued to individuals and stowed at their GQ stations. General use protective equipment will be issued and stowed at repair stations and decontamination stations.

When operational conditions again allow, and at the discretion of the commanding officer, CBR-D outfitting material and equipment will be returned from temporary stowage at GQ, repair, and decontamination stations to secure lockers or CWDE storerooms.

671-1-f. Stowage Options

The following stowage options for the individual protection equipment are ranked in order of decreasing preference based on considerations of equipment control, security, and accessibility.

Option 1. A secure locker or lockers at or near each GQ station, with sufficient total volume to accommodate equipment and material used by personnel at that station. The number of lockers shall be kept to a minimum and the use of individual lockers is to be avoided. Temporary stowage aids shall be provided at work stations from which lockers are not directly accessible.

Option 2. A secure locker or lockers at or near GQ stations combined with CWDE storerooms to provide the total required volume without duplication. The number of lockers serving each GQ station shall be kept to a minimum and the use of individual lockers is to be avoided. CWDE storerooms shall be sized and located to serve specific groups of GQ stations or ship organizational groups. Temporary stowage aids shall be provided at work stations from which lockers are not directly accessible.

Option 3. A CWDE storeroom or storerooms combined with temporary stowage facilities at GQ stations.

In general, the relative importance of Option 1 increases with ship size and manning. It is to be used for all amphibious ships, aircraft carriers, and other large ships unless space availability or other considerations become overriding.

In table I, equipment for more than 100 percent of the ship's accommodations is specified. Some items have an additional 5 to 25 percent to be used for training purposes; these items shall be stowed in training equipment lockers. Amphibious ships require 225 percent of several items, including the 25 percent training allotment. The additional 100 percent shall be stowed in CWDE storerooms.

671-1-g. Specific requirements

- 671-1-g.1. Secure stowage shall be provided for the equipment and materials listed in tables I and II in lockers at or near GQ stations or in CWDE storerooms.
- 671-1-g.2. In ships without CPS, a CWDE storeroom or locker shall be provided in each area of the ship served by a repair station. In ships with CPS, a CWDE storeroom or locker shall be provided in each CPS total protection zone. (For backfit installations this is a goal, not a mandatory requirement.)
- 671-1-g.3. Temporary stowage shall be provided for individual protection equipment at GQ stations and for general use protection equipment at repair stations and decontamination stations unless the equipment is permanently stowed there.
- 671-1-g.4. Atropine injectors and 2-PAM chloride shall be stowed in medical supply lockers in the medical department.
- 671-1-g.5. Stowage aids shall conform to the requirements of reference (b). The stowage aids shall not damage the packages of the equipment or material.

- 671-1-g.6. Lockers for individual protection equipment located outside secure spaces shall be secured by means of locks. Lockers located inside secure spaces require only tamper seals.
- 671-1-g.7. Locks for storerooms and lockers shall conform to the requirements of reference (c).
- 671-1-g.8. Storerooms shall be identified as specified in reference (d).
- 671-1-g.9. Stowage lockers, training equipment lockers, and temporary stowage shall be identified by label plates as specified in reference (d). Card holders for individualized stowage, if applicable, shall be in accordance with reference (e).
- 671-1-g.10. CBR-D outfitting equipment and materials shall not be stowed in areas of high humidity or high temperature, or where their package material may be breached.
- 671-1-g.11. Lockers for CBR-D equipment stowage shall be painted the same color as the compartment or passageway in which they are located and shall have black lettering. Lockers for training equipment shall have yellow surfaces with black lettering. Surface treatments and painting shall be in accordance with reference (f). Paint shall be in accordance with references (g) and (h).
- 671-1-g.12. HTH requires special stowage as outlined in reference (i).

TABLE I. Stowage allowance for CBR-D equipment and materials
by ship type. 1/

Item	Amphibious ships	Surface combatant ships	Aircraft carriers	Battle group support ships
<u>Individual protection equipment</u>				
Parka 2/	225	125	125	125
Trousers 2/	225	125	125	125
Mask	105	105	105	105
Boots 2/	225	125	125	125
Gloves 2/	225	125	125	125
Canister	210	210	210	210
Kit, M258A1 decon	105	105	105	105
Haversack, CW	105	105	105	105
<u>Medical supplies</u>				
Atropine, injectors	300	300	300	300
Chloride, 2-PAM	200	200	200	200
<u>General use protective equipment</u>				
Kit, M256 detector	(- - - - - 10 per repair party - - - - -)			
Kit, M58A1 trng decon	10	10	10	10
Kit, M256 training	(- - - - - Two per ship - - - - -)			
Chemical agent monitor	(- - - - - One per decon station - - - - -)			
Detector Paper, M9	(- - - - One roll per 12 accommodations - - -)			
Detector paper, M9	(- - - - One roll per 12 accommodations - - -)			
Water test kit chemical agent (M272)	(- - - - One box per 200 accommodations - - -)			

1/ Values tabulated are percents of the larger of ship's accommodations or SMD quantities, except as noted.

2/ Allowance includes 25 percent of the larger of accommodations or SMD for training purposes.

TABLE II. Package description of CBR defense outfitting equipment and material.

Item	Unit basis	Volume (cubic ft) <u>1/</u>	Weight pounds <u>1/</u>	Number of sizes <u>2/</u>
Parka	each (bag)	0.1	1.44	3
Trousers	each (bag)	.1	1.81	3
Boots	each (bag)	.2	1.63	2
Gloves	each (bag)	.2	.31	3
Gas mask <u>3/</u>	each (case)	.36	5.0	1
Gas mask canister	each (can)	.03	.8	NA
MCU-2/P mask w/canister	each (box)	.48	6.4	3
Atropine, injectors	box of 24	.37	5	NA
Chloride, 2-PAM	box of 24	.44	6.5	NA
Kit, M256 detector	each (box)	4.0	46	NA
Kit, M258A1 decon	each (box)	.2	3.2	NA
Kits, M256 training	each (box)	4.0	46	NA
Chemical agent monitor	each (box)	.53	8.6	NA
M9 detector paper, roll	each (bag)	.02	.56	NA
Water test kit, chemical agent (M272)	box of 24	1.0	50	NA
Haversack, CW	each (bag)	.270 <u>4/</u>	3.0 <u>4/</u>	NA

1/ Volume and weight are for the largest sizes, if applicable.

2/ NA means not applicable.

3/ Includes volume required for stowage of personal decontamination kit.

4/ Estimated.