

Ships' Safety Bulletin



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Watch That Gas Build Up

Sailors were staging a 55-gallon drum for transfer by helo to a supply ship when the lid blew off and flew 50 feet across a flight deck. Luckily, there were no injuries, and no equipment was damaged. The cause of this incident was hydrogen-gas build up inside the drum.

Packing and shipping all types of batteries are strictly controlled processes. Follow the procedures in section 2.8 of NSTM 313 (Portable Storage and Dry Batteries) for packaging and containerizing wet-cell batteries. Use Appendix L of the Environmental and Natural Resources Program Manual (OpNavInst 5090.1B), with change 2, dated 9 September 1999, for disposal guidance. OpNavInst 5090.1B, with change 2, takes precedence over all other Navy directives and manuals for disposal of hazardous material. When packaging wet-cell batteries for shipment while underway, use an 18-gauge steel, 55-gallon drum (NSN 8110-00-823-8121). Put a used hazmat form (OpNav 5100/18) on the side of the drum, with the special instructions necessary to avoid an incident like the one mentioned earlier.

If you're on the receiving end of containerized wet-cell batteries marked for disposal, you must vent the container periodically to prevent any gas build up. Remember that expended batteries still may produce hydrogen gas.

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Is Your Galley Griddle Electrically Safe?

More and more fleet Sailors are finding out what it feels like to be shocked by 450 volts of alternating current while removing and cleaning grease traps on griddles. All this pain could be avoided if everyone would tag out the equipment first.

If your griddle was made with exposed wires above the drip pan, the PMS inspection interval is monthly. If your griddle was made with encased wires above the drip pan, the PMS inspection interval is semi-annual. We recommend you consult the manufacturer's technical manual to determine which type of application you have.

MIP series 6532 dated July 1999 covers electric ranges and griddles. For your protection, we recommend you follow these tips:

- Inspect galley grease traps on electric griddles for exposed wiring.
- Ensure PMS is done at the required intervals.
- Tag out griddles when cleaning the grease-trap area. This should be part of the standard operating procedures.

Food-warming trays on galley serving lines also continue to be a problem. When you maintain or replace the heating elements of these units, make sure you replace the sheet-metal-cover panel on the bottom. This cover panel prevents contact with the wiring harness and control elements of food-warming trays. We recommend you periodically inspect and do maintenance on these trays to

protect people from this 115-volt shock hazard.

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What's Wrong With the Other Half?

Of the more than 30 ships I have surveyed in the past year, only about half met the spill-contingency requirements of OpNavInst 5100.19C and OpNavInst 5090.1B. Here are some of the discrepancies I find:

- The ship doesn't have a plan.
- The ship has a plan, but no one knows who is responsible for maintaining it.
- The ship has a plan, but no one knows where it is.
- The ship has a plan, but it's not up to date.
- The plan only lists the Navy on-scene commander (NOSC) for the ship's home port, instead of all the areas where the ship usually operates or deploys.

If you need help preparing a complete plan, refer to OpNavInst 5100.19C, with change 2, Appendix B3-A, and OpNavInst 5090.1B, with change 2, sections 19-9.2.4, 19-9.2.10, and 19-14.10 M.

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SPRU Is for You, Too!

Before you get too comfortable with your shore-power stations and their related cable runs, take a look at this top 10 list of common deficiencies we find during safety surveys:

- Pilot lights don't work.
- Shore-power-receptacle-access-cover interlock is out of commission.
- Cables are overloaded.
- Camlock connectors are lying on the deck in water.
- Personnel are walking on energized cables.
- Cables aren't long enough to support tidal changes.

- Personnel aren't doing insulation-resistance checks on shore-power-receptacle terminals.
- Shunt-trip coil on shore-power breaker is out of commission.
- Personnel aren't doing phase-rotation and orientation checks on each shore-power cable.
- Shore-power stations aren't roped off, and "Danger High Voltage" signs aren't in place.

The weight of the cables, test procedures, working-party supervision, public works interface, and length of cable runs provide a challenge for everyone rigging and unrigging shore power. The EOSS procedure for shore power rigging and unrigging (SPRU) is an invaluable tool; however, it doesn't tell you how many people are required to heave a shore-power cable. Operational risk management (ORM) can answer what seems to be obvious when planning to rig and unrig shore-power cables.

Each time you rig or unrig these cables, use SPRU exactly as it's written and make sure you have the applicable MRCs. It's equally important for supervisors to identify the hazards, assess them, and implement control measures to ensure everyone's safety. Otherwise, you could end up submitting a mishap report.

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Flangehead Sez: What Part of Highly Flammable Don't You Understand?

When I was a young fireman, I had to paint the main-engine turbines. After grabbing my unlabeled coffee can full of highly flammable, oil-based, white paint, I went to work—completing two sides of the fire triangle. The air supplied the oxygen, and the paint vapors supplied the fuel. All I needed was a little heat to complete the equation.

As I neared the top half of the high-pressure (HP) turbine, I put my paintbrush near the nozzle block. That's where the 1,200-psi, 900-degree-F, main steam enters the turbine. Suddenly, I heard a "whoof," and part of the turbine lagging, along with my paintbrush, burst into flames. My heart raced as the fire grew.

I frantically began huffing and puffing, trying to blow out the flames on my paintbrush. At the same time, I tried to smother the flames on the lagging with a rag. It took several seconds, but I was able to extinguish the small blaze before it got out of control.

“So, what makes a substance highly flammable?” you ask. Category I flammables and combustibles include material with a flashpoint below 200 degrees F and all aerosols. Flashpoint—what’s that? The flashpoint is the lowest temperature at which a flammable substance gives off enough vapor to form an ignitable mixture with the air around it. When you get this ignitable mixture close enough to something hot, such as steam piping, or the main-engine nozzle block, the vapor will flash into flame. The fire point is the temperature at which sufficient vapors are present above the surface of the substance to sustain combustion upon ignition. As you can see, I learned this lesson the hard way.

Here are some examples of improperly stowed highly flammable items I routinely find in machinery rooms during safety surveys:

Never-Dull. This metal polish material gives off flammable vapors and presents an explosion hazard.

Aerosol cans (spray paint, lubricating oils, and cleaners). These spray cans are pressurized, and the contents are highly flammable. When exposed to high heat, the cans will explode. All aerosols are category I flammables, regardless of the contents, and must be kept away from heat sources such as steam lines, electrical panels, and exhaust systems at all times.

Paint and primer. I find paint and primer in all areas of machinery spaces. I also find paint in various types of improper, unlabeled containers, such as coffee cans or cut-off soda cans.

It’s OK to use some highly flammable (category I) materials in machinery spaces. Items such as paint, metal polish and penetrating oil can be checked out from hazmat-issue rooms for daily maintenance or repair, but they must be returned by the end of the day.

Stowage of highly flammable material in the machinery room is strictly prohibited, even in hazmat lockers located in the machinery space (according to NSTM 670, Stowage, Handling and Disposal of Hazardous General Use Consumables, Section 4,

and OpNavInst 5100.19C, Chapters C23 and D).

The temperatures in many machinery rooms can climb over 100 degrees F. Some of the equipment and systems operate at considerably higher temperatures. Accordingly, you must be careful when using highly flammable materials in machinery rooms. These materials should not be left unattended in lockers or angle irons. Never place them close to a heat source. Take it from this flangehead, if you find highly flammable materials not in use, get them out of your space and back where they belong.

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Photoluminescent Labels Assigned NSNs

There’s good news for anyone looking for 3M shipboard photoluminescent/retro-reflective labels. They’re available from the Defense Industrial Supply Center Philadelphia (DSCP).

Working with 3M, officials at DSCP have negotiated a long-term agreement to provide these products. A national stock number (NSN) has been assigned to each label. The objective is to provide lower prices, customer satisfaction, multiple ordering methods, and faster delivery, direct from the contractor.

If you would like a catalog that lists the new NSNs, or if you have questions, contact Herman Myers at (215) 737-4533 (DSN 444), e-mail: hmyers@dscp.dla.mil. Another point of contact is Mary Jane Angelopoulos at (215) 737-4418 (DSN 444), e-mail: mangelopoulos@dscp.dla.mil. You also can order catalogs (paper or CD-ROM) from Chick Opel at 3M traffic control, (800) 686-9207, e-mail: copel@mmm.com.

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Shelf Life of M-291 Kits Extended

The shelf life of M-291 kits made by Rohm and Haas Company before 1992 has been extended to 10 years from the manufacturing date. These kits, which can be identified by the letters “RHA” in the

first three positions of the lot number, will now begin to expire on Jan. 31, 2001.

Kits manufactured by Pine Bluff Arsenal still have the five-year shelf-life period. Once these kits get close to expiring, testing will be done to determine whether or not the shelf life can be extended.

If you require new M-291 kits, order them, using NSN 6850-01-276-1905. The unit of issue is BX (box of 20 kits) for \$250. For more information on this topic, refer to NavSurfWarCen ShipSysEngSta Philadelphia, PA message DTG R171800Z Jun 99. This message is available from your ISIC or the Naval Safety Center point of contact.

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Putting the Coverall Confusion To Rest

Can these coveralls be used in fire and main-machinery rooms? Do they replace the fire-retardant coveralls? Those are some of the questions we're hearing about the newly authorized, blue, cotton coveralls, which you can purchase at the Navy Exchange.

These new coveralls are not fire-retardant, and they are not authorized for wear in fire or main-machinery rooms. For more guidance on what clothing is authorized while lighting boilers or standing watches in fire and main-machinery rooms, refer to NSTM 221 (Boilers, Advance Change Notice 3/A), note 221-4.1, and OpNavInst 5100.19C (NavOSH Program Manual for Forces Afloat), with change 2, paragraphs B1201 through B1204.

To find stock numbers and the various sizes of fire-retardant coveralls available, refer to the Allowance Equipage List 2-80044201, which lists 17 different sizes. The Naval Clothing and Textile Research Facility provided this name and ordering information for the only authorized commercial vendor you can use if the coveralls aren't available through the supply system:

Company: Red Cap Industries
Style No: CCH2NV
Sizes/Cost: S-XL, \$39.75
 XXL and XXXL, \$47.70
Phone: (800) 733-5271
Fax: (800) 877-8329
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Do You Have a Handle on It?

A Sailor stands under a hatch watching a compressed-gas cylinder being lifted. The rigging lets go, and the bottle drops and breaks his foot. Another Sailor injures his back while moving gas bottles from a flight deck to stowage racks.

For these shipmates and others who may not know it, there's such a thing as a gas-cylinder-handling bag. It's adjustable to cylinder sizes from 9 to 14 inches in diameter and is designed to lift gas bottles and flasks horizontally or vertically. Carrying straps allow up to four people to handle a cylinder, and there's a single lift point for hoist or crane operations. The bag resists acids, chemicals, saltwater corrosion, mold, and mildew, and it floats in the water.

Although the 350-pound-capacity bags aren't available through the supply system, an IMA with the proper equipment can make them for you. NavSea Drawing No. 803-5959260 gives specific instructions on how to make them. One possible supplier is Custom Containers LLC, Rt. 28, P.O. Box 399, Springfield, WV 26763, phone (877) 549-9466, fax (304) 492-5219, e-mail thedolphingrp@citlink.net. The prices are \$995 each if you order one or two bags, \$895 if you order three or four, and \$795 if you order five or more. They come in red and tan while supplies last.

Most ships now have PMS coverage on the gas-cylinder-handling bags. The MRC was included in FR 2-99 released in April 1999. It includes an inspection of the bag before and after each use. The MRC appears on MIP 5736/001-49. The MRC is

a situational requirement (R-3) and states that personnel should inspect the straps and hoisting loop for tears, frayed threads, broken stitches, cuts, burns, acid damage, abrasions, punctures, snags, and tensile breaks. Also inspect the bag for worn areas, tears, cuts, and broken stitches. Other requirements are to inspect the buckles for deformation or cracks and ensure they fasten securely.

For more information on the long-standing problem of dropped gas bottles and procurement of the handling bags, refer to NavSea letter 9572 Ser 03W2/20 dated 27 Jun 1997, which was distributed to surface, air and submarine type commands.

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Making PPE Readily Available to All Hands

Wander through any shipboard working space and you'll likely find people not using personal protective equipment (PPE). Their excuses vary as much as the jobs they're doing, but it all comes down to access. People simply won't use safety equipment unless it's readily available when they need it.

Many commands make safety equipment a standard part of checking out equipment and tools. PPE is also an integral part of maintenance, and every MRC lists required PPE. But what about those times you didn't plan a tour of the main spaces where double hearing protection is required, or you didn't realize someone was grinding in an area you needed to pass through. What did you do then?

Shipmates aboard USS *Oldendorf* (DD 972) have found a solution to this problem. They call it a "Safety Mart." Commonly used PPE (does not include items requiring strict control, such as respirators and electrical gloves) is placed in a cabinet installed just outside the messdecks on the beverage line—the area of the ship with the most traffic. Modification and installation were simple. The

Safety Mart consists of a built-in cabinet with shelves for goggles, eye shields, foam hearing protection, circumaural muffs ("Mickey Mouse" ears), and gloves for use by all hands.

This innovation does not excuse crew members or work centers from ordering and maintaining their own PPE. But it does make life much more simple for the average worker who "doesn't have time" to put safety first.

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New Life Preserver, Same Old Stock Number

The new Mk-1 life preserver has a nylon zipper instead of snaps, expanded pockets for the dye marker and strobe light, and a redesigned opening to fit both existing and new inflators. About the only things still the same are the stock number and PMS requirements.

Users can thank ComNavSeaSysCom for the newly designed Mk-1 preservers. You also can thank them for a chemical-pill auto-inflator, which has been evaluated aboard surface ships. The new inflator is an approved alternative to the existing auto-inflator, and it costs a lot less, too—\$25 per copy, as opposed to \$112. The new auto-inflator also can be used more than once. Another advantage is that it doesn't use an explosive charge to actuate the CO₂ cylinder.

The chemical-pill auto-inflator assembly (TNIC 1HM 0099-LL-H53 7707) consists of the inflator with two gaskets. The cap nut (NSN 5310-01-030-9217) and the CO₂ cylinder (NSN 4220-00-543-6693) that are used with the existing auto inflators are to be used with the chemical-pill model. Chemical pills (TNIC 1HM 0099-LL-H53 7708) are available in packs of 10 at a cost of approximately \$7. You can purchase the assembly and pills directly from the manufacturer under GSA contract as follows:

Lifesaving Systems Corp.
2200 Elsberry Rd.
Appollo Beach, FL 33572-2289
Phone: (813) 645-2748
Fax: (813) 645-2768
Inflator Kit: GSA Part No. 470
Replacement Tablets: GSA Part No. 471

Items are shipped within ConUS via UPS ground transportation at no extra cost. However, shipments to FPO addresses or OConUS are subject to freight charges.

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"Mickey Mouse" Ears: Wear 'Em and Take Care of 'Em

Many daily operations in the Navy subject people to elevated noise levels for long periods of time. One of the health effects derived from this exposure is a slowly progressive inner-ear hearing loss. In most cases, this noise-induced hearing loss is irreversible. You can avoid this problem by wearing hearing protection anytime you're in a noise-hazardous area.

One of the most popular forms of hearing protection is the circumaural muff, otherwise known as "Mickey Mouse" ears. These muffs consist of two cups or dome-shaped devices attached with a padded headband, which protects the entire ear. The ear cups are made of a hard plastic shell, with a foam-cell material on the inside and pliable seals where the cups meet the head. "Mickey Mouse" ears are designed to be worn by themselves or with earplugs, depending on the decibel level of noise you are exposed to.

Although popular, "Mickey Mouse" ears also are greatly abused and neglected. You can find them lying in the sun, under a truck seat, stuffed in a desk drawer, or hanging from a steam pipe. A single person or an entire division may use the same rotational pool of "Mickey Mouse" ears, with some people trying to secure exclusive use by carving or painting the outer shell with initials or designs. These practices, while creative, tend to weaken the

protective shell and speed the deterioration of the foam padding and insulation that provide comfort and noise protection.

As part of the Navy's hearing-conservation program, supervisors and safety petty officers should regularly inspect all PPE, including "Mickey Mouse" ears. The headband should be smooth, without any sharp edges, and it shouldn't be bent. The ear pads should be soft and pliable. The foam-lining inner shells should be intact and pliable.

Unless you work in a place where every piece of equipment is less than a month old, you'll undoubtedly find "Mickey Mouse" ears that do not meet these requirements. When that happens, do you ignore the problem, replace the entire ears, or install rebuilding kits? If you're smart, you choose the last alternative. A new pair of ears costs \$10 to \$20, while rebuilding kits cost less than \$4 each. The kits usually come in two-piece replacement ear pads (NSN 4240-00-979-4040) and acoustical sponges (NSN 5965-00-674-5379), and are available through the supply system.

The process of installing the new kits is simple; the key is not to force any part. First, remove the old padding and insulation. Next, wash the shell and headband, using a mild soap and water. Dry the pieces with a soft cloth. Now, install the ear pads by fitting one side of the pad lip onto the shell and work it around, much as you would a bicycle tire. Do not put the insulating foam in first, or you'll cause finger-hole damage to it. When installing the foam, make sure you place it correctly inside the domes, with the longer sides of the foam parallel to the longer sides of the ear domes.

When weighing whether to rebuild or completely replace "Mickey Mouse" ears, keep in mind it takes only three to five minutes to replace both the pads and the foam inserts. The more important point to remember, however, is to do one or the other. You can't replace hearing loss. Take the first line of defense now by making sure your hearing-protection devices work and wear them every time you go into a noise-hazardous area.

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