Safety Tips for Small Propane Bottles

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Putting a lid on portable propane bottles protects the threads and can help reduce the risk of accidental fire.

We've reported on the need for proper propane installation, including vented lockers and leak detectors ("Some Propane Dos and Don'ts," *PS* February 2014), but we've not taken a close look at small bottles. All it takes is about two ounces on the average size boat to cause an explosion, so these bottles deserve careful attention.

Propane is about 50 percent heavier than air, so it tends to settle to the lowest reaches of the boat. If the leak is on the countertop and there is some ventilation, most of the gas will mix with ambient air and leave the cabin before it gets chance to settle. If you have bottles larger than 1 pound (typical barbecue bottles are 20 pounds) install a leak detection system with sensors at a low point in the cabin, linked to a fail-safe solenoid located at the tank.

Do not store cylinders—even small bottles—below decks or in lockers that vent below decks. Do not store small bottles in the propane locker; that space is only for the bottles that are installed there and nothing else. If you're lucky, the boat has a vented locker for portable gasoline tanks. Otherwise, keep the bottles on deck, typically in tubes (see "Pint-sized Propane Locker," *Practical Sailor*, June, 2006). Do not store them attached the appliance below decks.

Do not store propane cylinders in your house or garage. The local fire code generally limits you to two 1-pound bottles in the house, attached garage, or detached garage. Larger bottles are not permitted, including the grill parked in the garage in front of your car. It should be outside, either under a cover or in an open-sided shed. Do not store over 120F; on-deck storage containers should be white. Don't keep cylinders in your car.

Do not refill disposable propane cylinders. Commercial refilling or transport across state lines carries a $500,000 fine and/five years in prison. If that doesn't concern you, consider the consequences—burning to death, which sadly has happened.

There are refilling systems, but small bottles do not have an over-fill prevention device, making them vulnerable to over pressurization in the summer heat. You'll find instructions online, but given that some fail on the first fill, it's just a really bad idea to try refilling. https://www.youtube.com/watch?v=g2_GhyAw3vM

Caps

We like protecting the threads with brass screw-on storage caps. Or rather, we learned this habit after our field failures. If lightly lubricated, they keep moisture out of the valve area, prevent corrosion of the cylinder threads and valve, and reduce the probability of a valve leak. Will they contain a leak? Probably. Securely tightened, with a good gasket, they will almost certainly slow the leak sufficiently that it will dissipate long before anything bad can happen. Many brands are available at some hardware stores, big box stores, and several online retail sites for about $2 a piece.

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Drew Frye, Practical Sailor's technical editor, has used his background in chemistry and engineering to help guide Practical Sailor toward some of the most important topics covered during the past 10 years. His in-depth reporting on everything from anchors to safety tethers to fuel additives have netted multiple awards from Boating Writers International. With more than three decades of experience as a refinery engineer and a sailor, he has a knack for discovering money-saving "home-brew" products or "hacks" that make boating affordable for almost anyone. He has conducted dozens of tests for Practical Sailor and published over 200 articles on sailing equipment. His rigorous testing has prompted the improvement and introduction of several marine products that might not exist without his input. His book "Rigging Modern Anchors" has won wide praise for introducing the use of modern materials and novel techniques to solve an array of anchoring challenges.