

What Liquids Should Be Removed From My Cottage Over Winter?

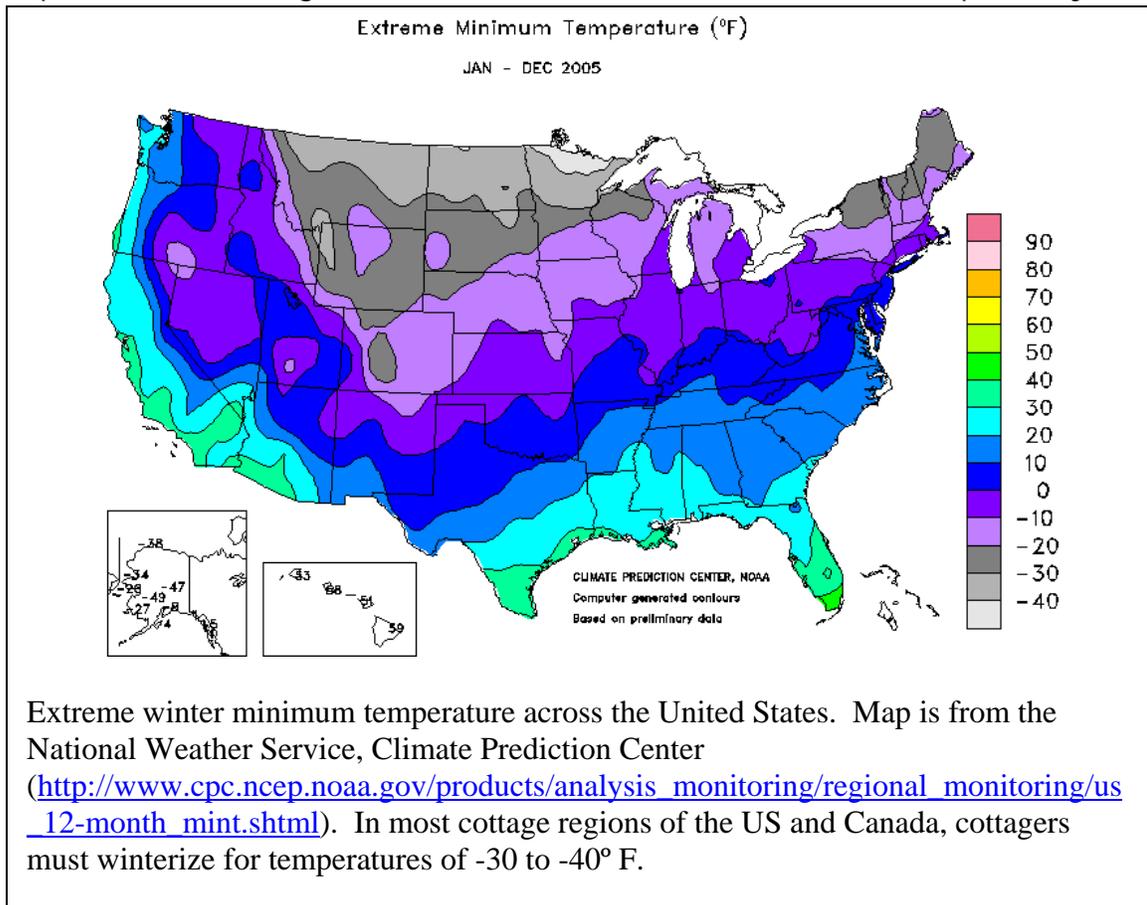
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Part of the winterization ritual is ridding the cottage of liquids that will freeze, break, and/or be destroyed over the winter. The decision is in two parts. First, if your cottage is in an area prone to break-ins and vandalism, you may want to remove liquids simply because they can create an attractive nuisance or big clean-up mess when used or strewn around by interlopers. For this reason, you may wish to remove or hide liquor and all other liquids, regardless of whether they will freeze, break, and create a mess. Second, if you decide to leave some of these liquids, you need to determine which of them can be left safely and which will be found all over the floor or cupboard next spring.

The map below shows the extreme minimum temperature you need to prepare for in various areas of the US. In most of cottage country, minimum temperatures will range from 0° to -40° F. Your kitchen freezer is probably



only about a temperature of 0°F, so anything that would freeze in your freezer will freeze in your cottage over the winter.

Freezing itself is really no big problem for many liquids because they generally contract as they cool and they are preserved in the cold. Therefore, if you leave screw caps on solvents slightly loosened, the container will not be unduly stressed as gasoline, mineral spirits, turpentine, alcohol, etc., contract. The same is true for oils, including cooking oils- they should be fine over winter, and, in fact will be preserved by the cold.

Problems arise, however, if a liquid is mostly water, because water has very special (and problematic) properties. Whereas, most liquids take up less space as they cool, water contracts only down to about 40°F and then takes up more and more space as it gets colder and colder. Because of this unique property, ice floats on cold water, which is a good thing or else lakes would freeze from the bottom up. This can also be a bad thing, since freezing liquids containing water will tend to expand as they freeze and break containers in which they are stored. The force created by expanding ice can be quite phenomenal and can break glass, plastic (remember how brittle plastic gets in the cold), metal containers. This becomes a big mess when they thaw in the spring and can cause a great deal of damage and clean-up.

Therefore, a couple of things are clear. First, solvents are usually no problem because they just contract as they cool. Oils are also fine to leave because most oils contain very little or no water. Just make sure that containers are not so full that there is no air to expand as the liquid contracts, that the container has some means of taking in a bit of air, or that it is strong enough to withstand the suction created as the liquid decreases in volume. Second, your main problem is to determine which liquids contain enough water that they might cause a problem. For example, distilled liquors like vodka and whiskey contain in the neighborhood of 40% alcohol so they will not freeze solid except at temperatures more extreme than your cottage is likely to see. This is because alcohol decreases the freezing point of water. Liquids with salt in them, unless they are heavy brines, will usually freeze but may form a slushy liquid that may not break a container. Liquids with lots of sugar in them, like syrup, need to get very cold in order to freeze so are usually safe to leave. Materials that decrease the freezing point and thus make water hard to freeze include battery acid, lye, alcohol, glycol-based antifreezes, various salts (although seawater freezes at about 30° F), acetone and other water soluble solvents, and sugar (although it takes about ½ cup of sugar dissolved in 1 cup of water to decrease the freezing point to 25°).

A list of things that are likely to freeze and break during winter in cottage country is shown below. Things listed in the "won't freeze and break" column are unlikely to make a big mess but may be altered or ruined by prolonged freezing.

Will freeze and could break	Won't freeze and break
"lite" almost everything Beer Bottled or canned water Canned goods Carbonated beverages Distilled water Food in jars Fruit juice Ketchup Mustard Salad dressing Tonic water Vanilla extract Vinegar Wine	Alcohol Cooking oil Cough medicine Distilled beverages (e.g., vodka, whiskey) Drain cleaner Gasoline Heavy syrup Honey Moisturizing lotions Most cleaning products Most deodorants Most mouth washes Motor oil Nail polish remover Paint thinner Shampoos, conditioners, and other liquid soaps (they may separate, though) Soy sauce (regular, not the light sauce) Sun block

If you are unsure of a particular liquid and want to leave it over winter, you can take any of several precautions to minimize risks.

- Make sure that there is air "headspace" in all bottles
- Do not screw lids on completely but tighten them fully, then back them off 1/8th of a turn
- Place bottles and containers in a dishpan or other leak-proof tub that will keep liquids contained should they break during winter
- Place them in a basement or crawl space (i.e., underground)