WATER STORAGE

First, get water inside your home, at work and in your car; then, get equipment for water found outside your home.

- 1 gallon/person/day x 2 weeks for drinking/sanitation
- Increase if ill, pregnant, young/aged, extreme condition
- Containers:
    - Multiple container sizes, mobile and stationary
    - PETE 1 ok, but cracks and then evaporates
    - HDPE 2 thick food grade is best type
        - NEVER 3, 6, 7 or BPA, DEHP, DEHA, PVC
    - Only screw on lids w/rubber gaskets
    - Dark-colored (blue) outside to deter algae growth
- Water: Water from city utilities is great! If not:
    - Treat 1 gallon of water with 1/8 tsp NEW, unscented NOT splashless household liquid bleach
- Storage: As best you can, store water in the:
    - Coldest
    - Darkest
    - Chemical Free (off concrete, away from chemicals)
    - Level and smooth surface
    - Earthquake-proof
- Water doesn't expire—rotate if it makes you feel better.
- Learn to conserve it now to use less later ☺

Find my in-depth water storage presentation a preplady.blogspot.com or email Becky Goodrich at utahpreplady@gmail.com

WATER IN THE HOME PRESENTATION

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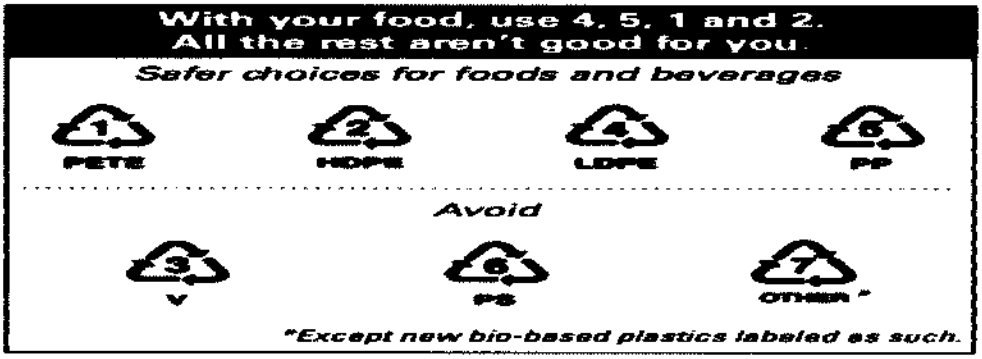
How much water do I need?

https://www.redcross.org/images/MEDIA_CustomProductCatalog/m4440181_Food_and_Water-English.revised_7-09.pdf

- Normal, active person needs at least ½ gallon drinking water daily FEMA/RC or quart of water with no activity DOD; 2 quarts per day to drink, 2 quarts for food prep/sanitation CDC
- 2-week supply of one gallon/person/day RC/DOD/Providentliving.org
- Male needs 3.7L, female needs 2.7L daily, active adults in warm weather need 6+L Auerbach
- Minimize the amount of water your body needs by reducing activity and staying cool.
- Other thoughts: pregnant, nursing, ill, hot weather, pets FEMA. Or use to barter with. ☺

What containers should I use? You need **portable** (short-term) and **stationary** (long-term) water.

- Keep in mind that a gallon of water weighs 8 pounds.
- Use containers that: CDC
  - Discourage contamination (only big enough to dip in, get ladle in, etc.).
  - Have spigot, siphon or small opening for easy and safe access.
  - Sized appropriately for water treatment method used, permanently instructions.
- Use only containers with screw on lids for the best seal.
- Blue colored plastics block algae growth.
- Use only FEMA/RC/Providentliving.org:



  - PET (polyethylene terephthalate), a clear, tough polymer with exceptional gas and moisture barrier properties. There is some concern about leeching of plasticizers used in making PET bottles (stamped with PET on the bottom). FDA says doses are small and happen with prolonged use.
  - HDPE (high density polyethylene): FDA-approved food grade, used in milk, juice and water containers because of excellent protective barrier. Its chemical resistance properties also make it well suited for items such as containers for household chemicals and detergents. Most five gallon food buckets are made from HDPE. Must have "HDPE" stamped on it and coded with"2" in a triangle.
  - LDPE 4 and PP 5 are also food grade plastics that are good for reuse.
  - **DO NOT USE Plastic 3, 6 and 7** or items stating BPA, DEHP, DEHA, PVC or PS.
- Any PET plastic container that previously held food or beverages such water, juice, punch, soda may be used short-term. FEMA/RC/ProvidentLiving.org
  - No cardboard juice or milk containers—leak, not long-term.
  - No milk jugs—milk protein = bacteria growth, get brittle over time. CDC
  - No fruit juice jugs (like milk jugs)—fruit sugars = bacteria growth.
  - No glass—too heavy, breaks.
- Purchase commercially bottled water in non-jug containers, which crack, leak and evaporate in my experience. Keep in original container. FEMA/RC
- Don't use containers previously used for non-food products ProvidentLiving.org or chemicals. CDC Bleach and soap bottles for hygiene only and label them as "non-drinking water."
- Mylar plastic bags in a boxed kit. The metalized bag is filled with water and then placed in a cardboard box, kept from light, limiting any bacteria or algae growth LDSLiving.com
- Multiple sizes for different emergencies.
  - Can buy in 1-, 3- 5-, 55-, 160-, 320-gallon sizes with a siphon or spout
  - Oxfam bucket, jerry can/CDC jerry can, bucket w/lid and spout, clay pots CDC
  - 5-gallon mylar bag to fill with water and a box and toilet paper for sanitation.

- Water pouches contain @ 4 oz. of water that can be stored for 5+ years LDSLiving.com
- Cases of water bottles have heavy-duty cardboard boxes that stack easily and protect the bottles from rupturing CaptainDaves.com

How should I prepare the containers? Before filling with safe water, sanitize the containers: RC/CDC

- Remove the paper or plastic lid liners before washing the lids.
- Sanitize the container with dish soap and water and rinse completely with clean water.
- Disinfect the container by adding a solution made by mixing 1 teaspoon of unscented, liquid, NOT splash-less household 8.25% chlorine bleach in one quart of water (or 1 T bleach to 1 gallon).
    - Bleach must be less than 6 months old since it loses 10% of its strength in that time.
- Cover the container and shake it well so that the solution touches all inside surfaces of the container.
- Wait at least 30 seconds and then pour the sanitizing solution out of the container.
- Let the empty disinfected container air-dry OR rinse the empty container with clean, safe water.

How should I prepare the water?

- If the tap water has been commercially treated from a water utility with chlorine, you do not need to add anything else to the water to keep it clean. FEMA/ProvidentLiving.org/RC
- If your home filter takes out the chlorine or you water comes from a well, add it back in according to the chart below CDC/FEMA/RC
    - Non-chlorinated water **(most municipal water is chlorinated)** should be treated with unscented liquid NOT splash-less household chlorine bleach with 8.25% sodium hypochlorite CDC. Bleach should be less than 6 months old; it loses 10% of its strength every 6 months.

Water	5-6% Bleach, Clear Water	5-6% Bleach, Cloudy Water	8.25% Bleach, Clear Water	8.25% Bleach, Cloudy Water
1 quart	2 drops	4 drops	2 drops	4 drops
1 gallon	8 drops	16 drops	6 drops	12 drops
2 gallons	16 drops	32 drops	12 drops	24 drops
5 gallons	40 drops	80 drops	30 drops	60 drops
55 gallons	4.5 tsp	9 tsp	3.5 tsp	7 tsp

16 drops = 1/4 tsp, 32 drops = 1/2 tsp, 64 drops = 1 tsp

- Fill the bottle to the top with regular tap water or leave 2-3" of room for freezing.
- Tightly close the container using original cap. Be careful not to contaminate the cap by touching the inside with fingers. Place a date on the outside of the container. FEMA/RC

Where do I store the water? Coldest, darkest, driest, oxygenless, flood and earthquake proof.

- Store in the cool and dark. Replace water in 6 months if not commercially bottled. FEMA/RC
- Bottled water should be kept out of direct sunlight EPA/ProvidentLiving.org. To increase the shelf life of translucent containers, group the containers together in dark, plastic bags.
- Bottled water should also be kept away from toxic chemicals, such as cleaning agents, solvents EPA and gasoline, kerosene, pesticides, or similar substances.
- If you have freezer space, store some water in the freezer. Make sure you leave 2-3 inches of space when filling containers because water expands as it freezes. Frozen bottles of water:
    - improve the efficiency of a half empty freezer.
    - protect the food from thawing in the event of a power outage.
- Do not store water containers directly on concrete ProvidentLiving.org since concrete can wick moisture to stored containers very easily USU Extension. A piece of wood, rug or doubled-over cardboard would be satisfactory. Use lockable casters on platforms if you want to move them.
- Do not place your water barrels on treated lumber as they will leach the treatment from the wood. Use a strong untreated wooden piece or plastic pallets. Preparedness.ldswelfare.org
- The floor should be **level** to prevent the containers from tipping over and **smooth** to prevent poking holes in the bottom of the containers.
- Store water where potential leakage wouldn't damage your home. ProvidentLiving.org
- Last resort is outside, covered with dark tarp (or barrel bag $20), on a solid, smooth surface, with space given for freezing. It's better than no water storage at all.

How long can I store water?

- The FDA has not established a shelf life for bottled water EPA but should be indefinite RC if kept in the proper environment (dark, cold, etc.) EPA and depending on original water quality.
- Rotation serves as an additional precaution against bacteria or viruses growing in containers that may not have been properly cleaned and disinfected.
    - Stored tap water should be rotated every 6 months. RC
    - Prepackaged bottled water should be rotated by date on bottle. RC
    - Self-serve bottled water should be rotated once a year, as long as the water treatment process includes ozonation. RC

Where can I find Water Inside the Home?

- If you know your water will go out: CaptainDaves.com
    - Put 2-3 heavy-duty plastic trash bags (without post-consumer recycled content) inside each other. Then fill inside w/water. You can use a trash can to give structure to the bags.
    - Fill large, clean containers and cover so you can use the water for drinking and cooking.
    - Tubs hold @ 65 gallons. Fill your cleaned tub almost to the top. While you probably won't want to drink this water, it can be used to flush toilets, wash hands, dishes, clothes, etc.
        - WaterBob (10 ml LLDPE 100 gallons, 16 weeks, 1 for $30) or the Aquapod kit (4 ml LLDPE 65 gallons, 8 weeks, 1/$25 or 3/$40), The Reservoir $23, all with siphons.
- After a disaster, close the water valve to the outside of your home ASAP. This will:
    - Prevent contaminated water from entering your house.
    - Prevent good water from running out as pressure to the entire system drops.
- If your tap water is safe to drink (per authorities), so is the water in pipes and water tank. CDC
- Access water remaining in pipes Epiccenter.com after closing the valve to the outside of home.
    - Open a faucet on highest floor to let air into the system = no vacuum created. CDC
    - Open a faucet at the lowest level with a clean container or hose under it.
    - You can repeat this procedure for both hot and cold systems. CaptainDaves.com
- Water drained from an upright hot water tank. A typical water heater holds 30-60 gallons of water. A yearly draining of the tank avoids settled particles. Secure heater first CO Extension
    - Turn off the gas/electric supply to tank to prevent heater from operating without water.
    - Let water heater cool before draining so it does not scald you. NationalTerrorAlert.com
    - Open the drain at the bottom of the tank. Place clean containers under drain. RC
    - Close the water intake valve into the tank (the faucet at the top of the tank).
    - You may need to turn on a hot water faucet elsewhere to alleviate vacuum.
    - Allow sediment to settle or discard the first few gallons if they contain rust or sediment CO Extension or just boil and use it for hygiene purposes.
    - Reopen the water valve and let the tank fill with water once emergency is over.
    - Have professional turn on gas/electricity only AFTER the previous step is done.
- Water (5 gal) dipped from the flush tank (not bowl) of toilet. RC says no. Everyone else says:
    - Purify water before using.
    - Do not use chemically treated "blue" water.
- Never drink from radiators or waterbeds CDC since there is algaecide in it; double size waterbed holds 200 gal for hygiene and sanitation only.
- Water from a swimming pool MAY be used for hygiene purposes only. If consumed, this water can cause diarrhea, even permanent kidney damage, from chlorine contact. Epiccenter.com
    - Being able to use pool or spa water depends on who and what has been in it, if it's been maintained, what chemicals have been used. Research the best way to maintain your pool so the water could be filtered and disinfected in an emergency. http://www.lowes.com/projects/other-activities/swimming-pool-maintenance/project
    - "Pool, toilet tank and spa water should be considered your supply of last resort. Pool or spa water should be used only if it is first boiled (disinfecting chlorine bleach is probably not an adequate safeguard by itself). Don't forget to strain the water through a piece of clean cloth before treating." Stanford.edu
- Water used to cook food should be retained and used again. CaptainDaves.com
- Use water from canned vegetables to cook with.
- Use juice from canned fruits to sweeten other foods (oatmeal, pancakes, muffins).
- Melt ice cubes from freezer or scrape inside of freezer for the build-up on the sides of your freezer and melt. If electricity is out, use drain at bottom of freezer as ice inside melts.
- Use water from washing hands, clothes and dishes to flush toilets/plants. CaptainDaves.com