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Growlers:
Best Practices for Retailers, Brewers and Consumers

Today's Topics:

- The Growing Growler Trend
- Growler Filling Methods
- Hygiene and Post-fill Quality
- Container Type and Safety

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The Growing Growler Trend

- More breweries
- More brands
- Rare, limited production
- Packaging limitations
- Space at retail
- Quality, safety, legal considerations

Where to Get a Growler

- Breweries
- Craft-centric bars
- Grocery stores
- Gas stations
- Drug stores
- Growlers-To-Go only business model

Quality Concerns

- Who is packaging your beer
- Nature of beer
- Nature of filling
- Flavor stability
- DBQ basics

Growler Filling Methods

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The Original

Pail a Minute

THE BUCKET BOY

—Milwaukee County Historical Society

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The Free Pour

The Free Pour

- Uncontrolled pouring and foaming
- Oxygen rich environment
- Causing rapid oxidation to the beer
- Growler has to be held and watched by bartender
- Fill height subject to bartender discretion

Tube Filling

3/8” id x 1/2”od

Perfect for inside standard faucet

Tube Filling

Tube Filling

Tube Filling

- Requires proper size tubing
- Controlled pouring with minimal foaming
- Oxygen is displaced by raising beer level
- Hands free filling allows operator to attend to other duties
- Proper fill height made by removal of tube

Beer Gun

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Beer Gun

- Displaces oxygen with CO_2 prior to filling
- Each flavor needs a separate gun
- Operator needs to run the gun during fill
- Proper fill height made by removal of gun

Faucet/Filler

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Faucet/Filler

- Uses same faucet for filling pint and growler
- Requires PET bottle that fits the filler head
- Proper fill height subject to operator

Cascading Filler

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Cascading Filler

- Displace oxygen with CO_2 prior to filling
- Fits multiple bottle styles
- Lines need to be purged and refilled between styles
- Bartender needed to control during filling
- Proper fill height subject to operator

Down Tube Counter Pressure

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Down Tube Counter Pressure

- Displaces oxygen with CO_2 prior to filling
- Fits multiple bottle styles
- Purges lines for style change
- Push a button, hands free filling allows operator to attend to other duties
- CIP part of the manifold

Extended Life Caps

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Extended Life Caps

- Added expense of canisters
- Takes away from convenience
- Safety concerns

Hygiene and Post-fill Quality

Cleanliness

- The inside of the growler should be cleaned in the same manner as any other beer glassware

Beer Clean = Growler Clean

- 3 options for refilling:
  - Rely on the customer to bring in a clean growler
  - Clean growlers as they come in
  - Exchange program – everyone gets a freshly cleaned growler

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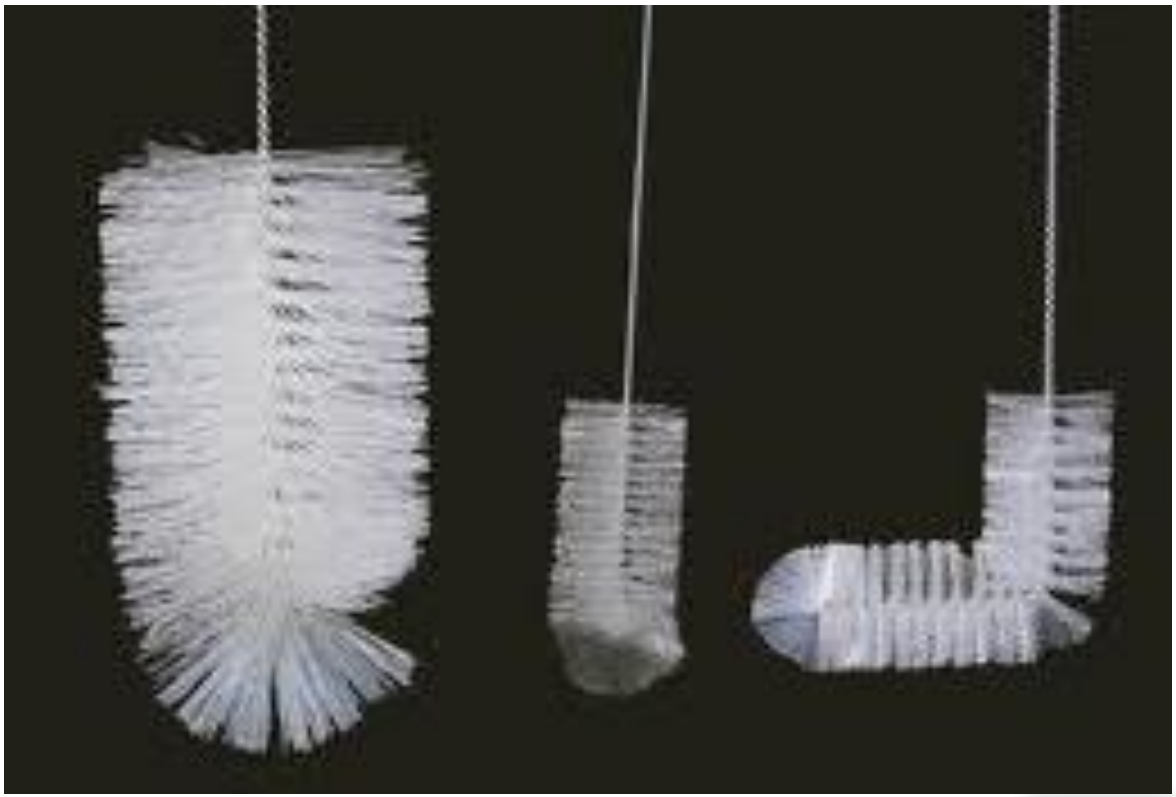
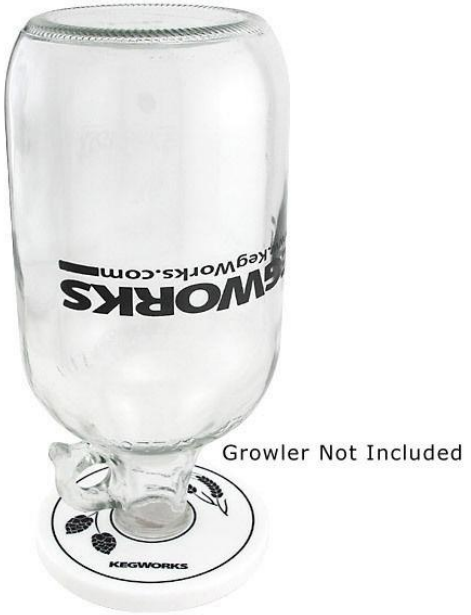
How to Clean a Growler

- Low foam, Non oil-based detergent in warm/hot water
- Scrub with a brush (carboy type)
- Clean the lid



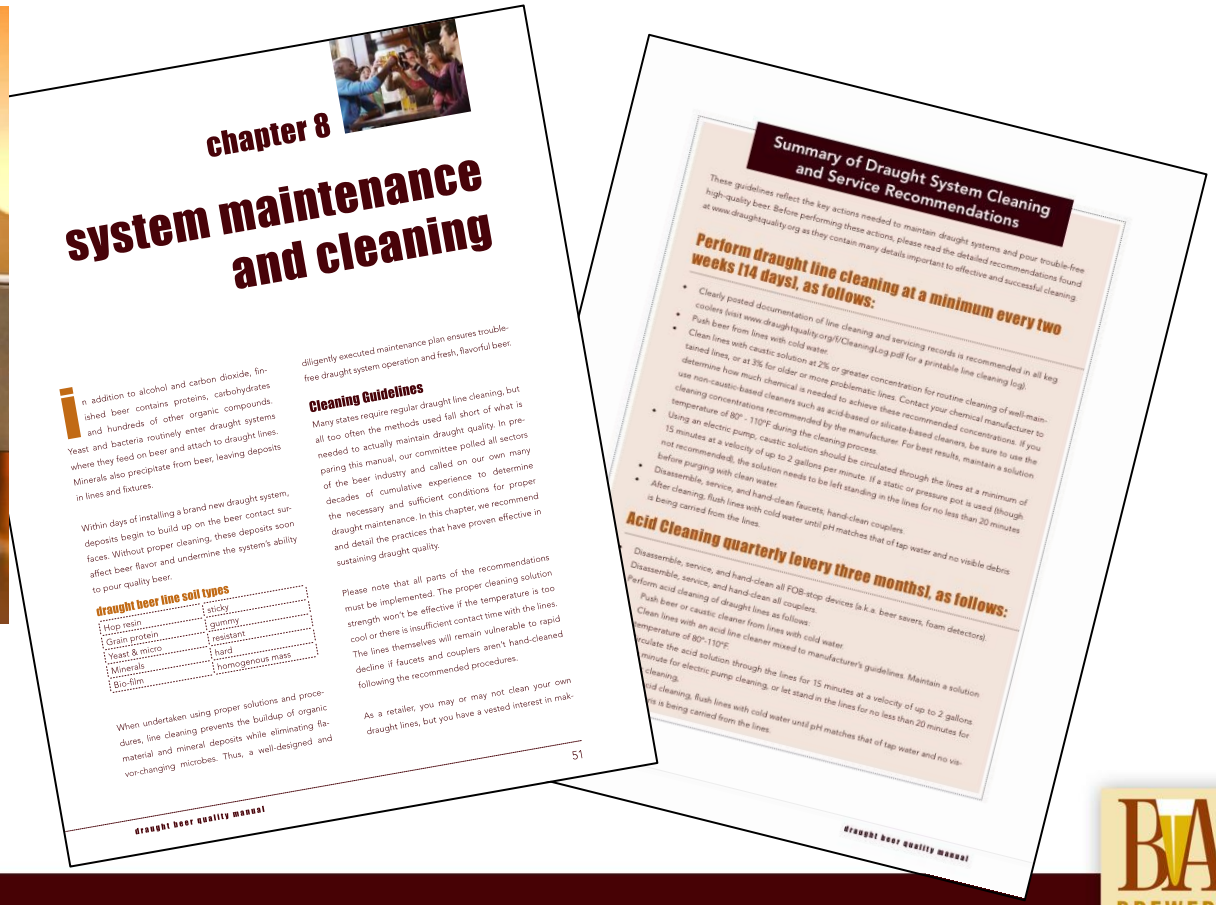
How to Clean a Growler

- Cold rinse
- Warm/hot sanitize with appropriate chemical
- Rack dry inverted



System Cleanliness

A clean draught system is paramount



chapter 8

system maintenance and cleaning

In addition to alcohol and carbon dioxide, finished beer contains proteins, carbohydrates and hundreds of other organic compounds. Yeast and bacteria routinely enter draught systems where they feed on beer and attach to draught lines. Minerals also precipitate from beer, leaving deposits in lines and fixtures.

Within days of installing a brand new draught system, deposits begin to build up on the beer contact surfaces. Without proper cleaning, these deposits soon affect beer flavor and undermine the system's ability to pour quality beer.

draught beer line soil types

Hop resin	sticky
Grain protein	gummy
Yeast & micro	resistant
Minerals	hard
Bio-film	homogenous mass

When undertaken using proper solutions and procedures, line cleaning prevents the buildup of organic material and mineral deposits while eliminating flavor-changing microbes. Thus, a well-designed and diligently executed maintenance plan ensures trouble-free draught system operation and fresh, flavorful beer.

Cleaning Guidelines

Many states require regular draught line cleaning, but all too often the methods used fall short of what is needed to actually maintain draught quality. In preparing this manual, our committee polled all sectors of the beer industry and called on our own many decades of cumulative experience to determine the necessary and sufficient conditions for proper draught maintenance. In this chapter, we recommend and detail the practices that have proven effective in sustaining draught quality.

Please note that all parts of the recommendations must be implemented. The proper cleaning solution strength won't be effective if the temperature is too cool or there is insufficient contact time with the lines. The lines themselves will remain vulnerable to rapid decline if faucets and couplers aren't hand-cleaned following the recommended procedures.

As a retailer, you may or may not clean your own draught lines, but you have a vested interest in mak-

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draught beer quality manual

Summary of Draught System Cleaning and Service Recommendations

These guidelines reflect the key actions needed to maintain draught systems and pour trouble-free high-quality beer. Before performing these actions, please read the detailed recommendations found at www.draughtquality.org as they contain many details important to effective and successful cleaning

Perform draught line cleaning at a minimum every two weeks [14 days], as follows:

- Clearly posted documentation of line cleaning and servicing records is recommended in all keg coolers (visit www.draughtquality.org/l/CleaningLog.pdf for a printable line cleaning log).
- Push beer from lines with cold water.
- Clean lines with caustic solution at 2% or greater concentration for routine cleaning of well-maintained lines, or at 3% for older or more problematic lines. Contact your chemical manufacturer to determine how much chemical is needed to achieve these recommended concentrations. If you use non-caustic-based cleaners such as acid-based or silicate-based cleaners, be sure to use the cleaning concentrations recommended by the manufacturer. For best results, maintain a solution temperature of 80° - 110°F during the cleaning process.
- Using an electric pump, caustic solution should be circulated through the lines at a minimum of 15 minutes at a velocity of up to 2 gallons per minute. If a static or pressure pot is used (though not recommended), the solution needs to be left standing in the lines for no less than 20 minutes before purging with clean water.
- Disassemble, service, and hand-clean faucets; hand-clean couplers.
- After cleaning, flush lines with cold water until pH matches that of tap water and no visible debris is being carried from the lines.

Acid Cleaning quarterly [every three months], as follows:

Disassemble, service, and hand-clean all FOB-stop devices (a.k.a. beer savers, foam detectors).
Perform acid cleaning of draught lines as follows:
Push beer or caustic cleaner from lines with cold water.
Clean lines with an acid line cleaner mixed to manufacturer's guidelines. Maintain a solution temperature of 80°-110°F.
Circulate the acid solution through the lines for 15 minutes at a velocity of up to 2 gallons minute for electric pump cleaning, or let stand in the lines for no less than 20 minutes for cleaning.
Acid cleaning, flush lines with cold water until pH matches that of tap water and no visible is being carried from the lines.

draught beer quality manual

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System Cleanliness

- Clean every two weeks
  - Caustic chemical solution at 80-110F
    - 2% solution, 3% for old or problem lines
  - Recirculate with an electric cleaning pump 15 minutes
- Disassemble and clean faucet at every cleaning
- Scrub Coupler at every cleaning
- Quarterly
  - Acid line cleaner – descaling
  - Disassemble and detail FOBs
  - Disassemble and detail couplers

Filling Device Cleanliness

- Filling tubes should be cleaned with caustic and sanitized on the same cleaning cycle as the draught system.
- Vinyl fill tubes should not be stored long term in sanitizer as it will absorb sanitizer flavors
- Rinse before use

Filling Device Cleanliness

- Counter-pressure fillers should be treated as a separate draught system and cleaned by the same guidelines
- Some systems may have more restrictive cleaning recommendations

Post-Fill Quality

- Numerous potential off-flavors depending on:
  - Fill method
  - Growler type
  - Growler cleanliness
  - Storage conditions

Post-Fill Quality

Lightstruck/Skunky

- Choose the right container
- Store out of direct sunlight/flourescent light

Post-Fill Quality

Contamination

- Sour, vinegar, butter flavors from infection with lactobacillus, acetobacter, pediococcus
- Insure cleanliness of growler filler, growler and draught system
  - Insure compliance with BA recommendations of pump cleaning, caustic strength, etc.
  - Some growlers are harder to visually inspect, i.e., ceramic
- Allow cleaned growlers to dry; don't seal and store wet

Post-Fill Quality

Carbonation Loss

- Changes mouthfeel, aroma and flavor
- Highly dependent upon fill method
  - Counter-pressure fill is preferred
- Cool water rinse minimizes foaming
- Consume promptly – within 24-72 hours of filling
  - Testing shows noticeable carbonation loss and mouthfeel change within 24 hours of filling

Post-Fill Quality

Sanitizer

- Chlorine or iodine aromas and flavors
- Do not overuse sanitizer
- Allow growler to drip-dry, never fill while still wet with sanitizer
- Cool water rinse

Post-Fill Quality

Oxidation

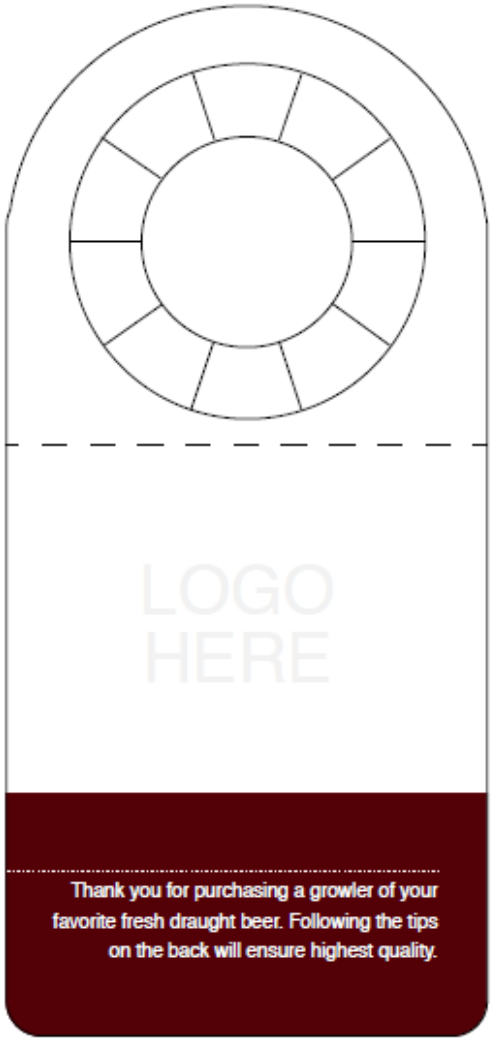
- Paper, Cardboard aromas and flavors
- Highly dependent upon fill method
  - Pre-evacuation is preferred
- Store cold – heat accelerates oxidation
- Consume promptly – within 24-72 hours of filling
    - Testing shows noticeable oxidation characteristics within 72hrs of filling

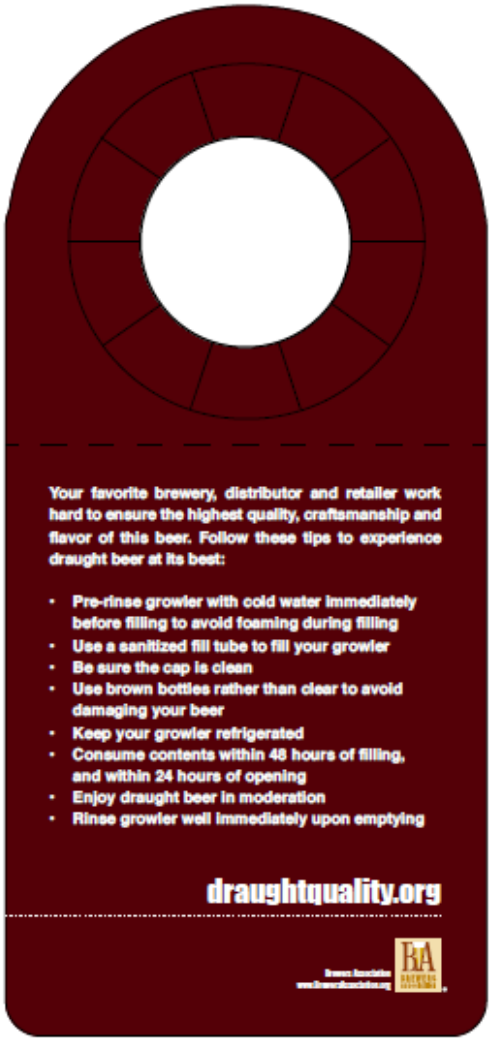
Post-Fill Quality

Consume in one sitting

- Oxidation and Carbonation loss will rapidly damage the beer after opening
- Growlers are meant for sharing!
- Enjoy responsibly!

Post-Fill Quality





Container Type and Safety

Growler Types

Glass:

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Growler Types

Ceramic:

Growler Types

Plastic:

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Growler Types

Stainless Steel:

Growler Types

Others…

Paper

Aluminum

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Closures

Safety

The types of containers and closures can lead to or prevent potential safety concerns.

Filled growlers can shatter or explode if allowed to warm or freeze, especially if they are overfilled. The internal pressure of a filled growler warmed to room temperature (68F) or in a hot car (90F) may be as high as 2.0 atm (29 psi) or 3.7 atm (52 psig) respectively. (Example assumes a growler filled to 99% of capacity with beer at 38F containing 2.5 volumes CO2, and then sealed).

2.7 Vols/Vol, 5% ABV, at a 95% fill			
	Temperature	PSIG	BARG
Refrigerated	38	13.1	0.90
Cool	50	20.3	1.40
Room Temp	68	32.4	2.23
Hot Day	100	57.5	3.96
Car	120	74.2	5.12

Safety

Only use growler containers specifically designed for packaged carbonated beer, and ask the container supplier to verify that the pressure rating is equal to or greater than the pressure from carbonation in the beer being filled.

Many containers currently in use are not designed for carbonated beverages.

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Safety

If filling by counter-pressure, know the pressure rating of the system used and ensure the system includes shielding between the growler being filled and people nearby in case of failure

Safety

Do not overfill a growler. Always leave 5% headspace or fill to the manufacturers recommended fill line if one is shown.

2.7 Vols/Vol, 5% ABV			
	Temperature	PSIG at 95%	PSIG at 99%
Refrigerated	38	13.0	13.0
Cool	50	20.3	20.4
Room Temp	68	32.4	33.2
Hot Day	100	57.5	60
Car	120	74.2	78.4

Safety

The closures that keep the best seal my be more of a safety risk

For growlers with threaded screw-on closures, consider using plastic rather than metal closures; plastic closures may vent more readily if over pressurization occurs; if using metal closures you may wish to discuss this issue with your supplier.

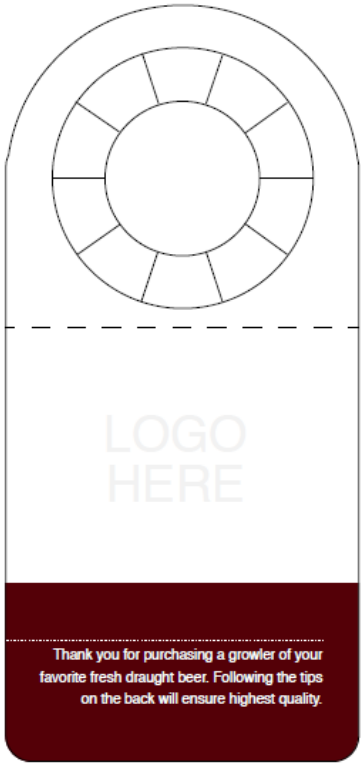
Safety

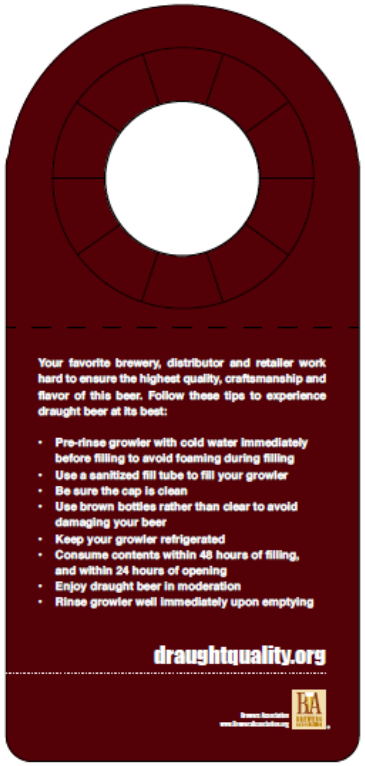
Visually inspect every growler before filling. Do not fill glass or ceramic growlers with cracks or chips, those which have been engraved, or older growlers with pitted or unsmooth glass surfaces, as the pressure strength of these growlers will be significantly reduced.

Getting It Right

Brewers Association Facts About Growlers

- Draught Quality Manual
- Draught Quality Manual (Retailer Version)
- Keep raising the bar





Brewers Association Facts about Growlers
http://www.draughtquality.org

Brewers Association Facts About Growlers

Growler use by consumers and retailers is becoming an increasingly popularway to bring the retail draught beer experience home or to transport rare or small production beers. The important decision to fill and use growlers must be made with an eye towards safety, delivering quality draught beer and compliance with all state and local regulations. The following best practices will help brewers, wholesalers, retailers, and consumers avoid many potential pitfalls and ensure the highest quality growler experience possible.

Growler Containers

Growlers have evolved from simple galvanized pails with lids of yore to today's many container options including glass, stainless steel, ceramic, and a variety of plastics. Dark brown glass or opaque materials such as stainless steel or ceramic will protect beer best from "skunking" caused by light; clear glass will not protect beer from light. No matter what kind of container is used, consumers and filling establishments must be aware that all filled growlers are pressurized containers. The growler container used must be able to withstand the pressures exerted by carbonated beer as well as the growler filling method.

Growler Container Cleanliness

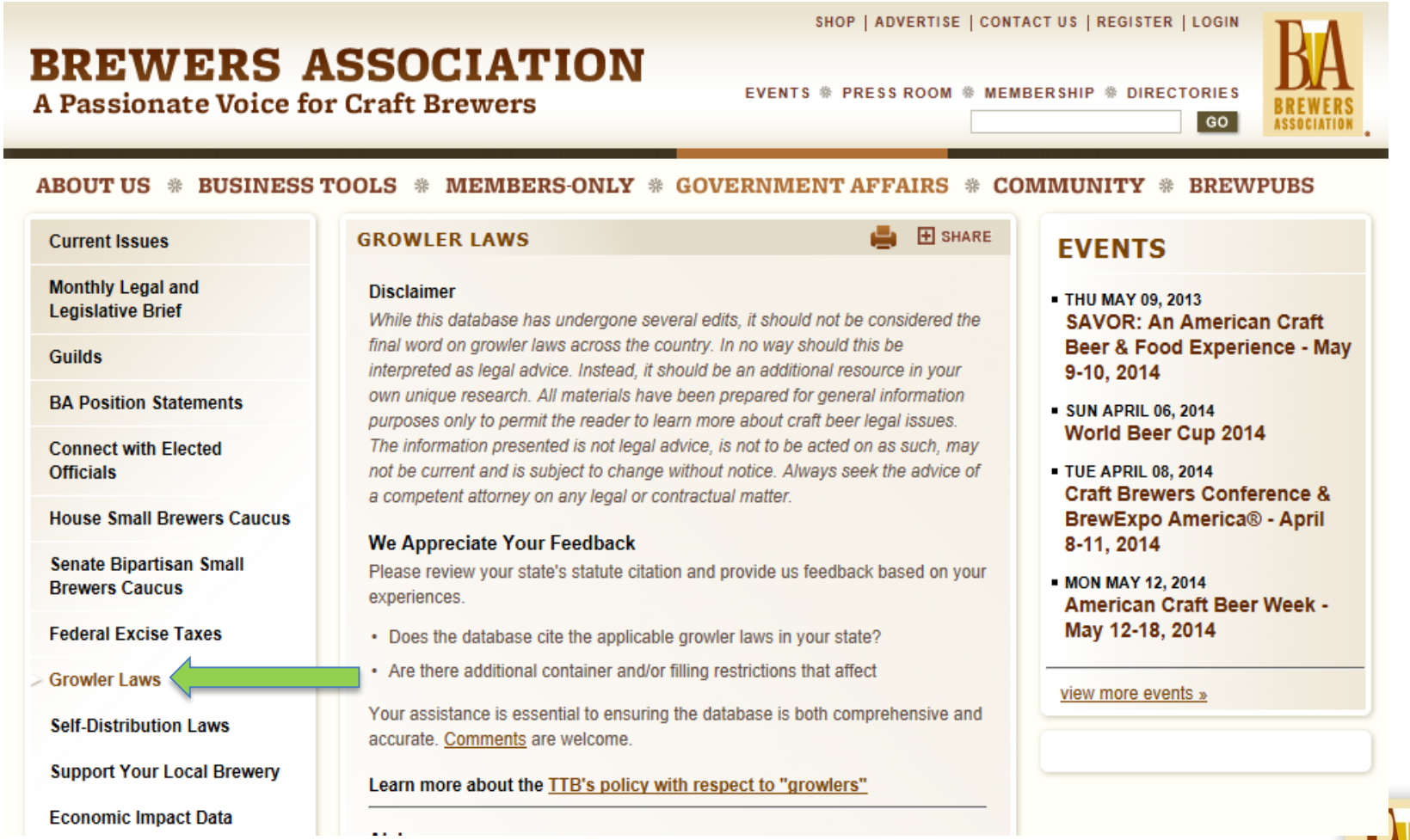
- Retailers are ultimately responsible for ensuring a sanitary "beer clean" container is filled. Consumers also have a responsibility to maintain and care for growlers they own. Growler cleaning concepts mirror those outlined in the glassware cleaning section of the Brewers Association Draught Beer Quality Manual.
- Detergents should not be fat- or oil-based.
- Proper detergent ratios should be used to ensure thorough cleaning as well as to avoid residual chemical aromas.
- The use of a large carboy-type brush can be used to assist in cleaning; however brushes with exposed metal on any brush part should not be used to clean ceramic or glass growlers.

Safety Notes For Retailers & Consumers

Filled growlers can shatter or explode if allowed to warm or freeze, especially if they are overfilled. The internal pressure of a filled growler warmed to room temperature (68F) or in a hot car (90F) may be as high as 2.0 atm (29 psi) or 3.7 atm (52 psig) respectively. (Example assumes a growler filled to 99% of capacity with beer at 38F containing 2.5 volumes CO2, and then sealed). Brewers Association recommends:

- only use growler containers specifically designed for packaged carbonated beer, and ask the container supplier to verify that the pressure rating is equal to or greater than the pressure from carbonation in the beer being filled. Many containers currently in use are not designed for carbonated beverages.
- If filling by counter-pressure, know the pressure rating of the system used and ensure the system includes shielding between the growler being filled and people nearby in case of failure
- do not overfill a growler. Always leave 5% headspace or fill to the manufacturers recommended fill line if one is shown.
- for growlers with threaded screw-on closures, consider using plastic rather than metal closures; plastic closures may vent more readily if over pressurization occurs; if using metal closures you may wish to discuss this issue with your supplier.
- keep filled growlers cold and dark, and never allow a filled growler to warm or to freeze, due to potentially hazardous shattering.
- visually inspect every growler before filling. Do not fill glass or ceramic growlers with cracks or chips, those which have been engraved, or older growlers with pitted or unsmooth glass surfaces, as the pressure strength of these growlers will be significantly reduced.

State by State Regulations
www.brewersassociation.org



Questions?