



Cleaning and Sanitation

One of the principal concerns of manufacturers and bottlers of cream liqueurs is plant cleanliness and hygiene. While distilled spirits and cream liqueurs do have a sterilizing effect, it is important to understand that after emptying a tank, line or filler, some product will remain. From these remains the alcohol can evaporate rapidly and the residue becomes sensitive to micro-organisms. Improper equipment cleaning may compromise the next batch produced.

To maintain product quality and ensure that manufacturing is completely microbiologically sound, the following steps must be taken to clean and sanitize the equipment.

Cleaning

In the food industry, effective plant cleaning is defined as the removal of ingredients, product remains and micro-biological contaminants from process equipment surfaces and their immediate environment.

It is important to clean the equipment itself but also to eliminate any build-up of ingredients and/or product around the processing machinery.

The effectiveness of any cleaning procedure is dependent on four factors:

1. Temperature
2. Mechanical Input
3. Time
4. Cleaning Agent

To maintain cleaning efficiency, any deficiency in one or more of these factors must be counterbalanced by an adjustment in the others: a lower than optimum temperature may be offset by the use of more vigorous mechanical input, perhaps for a longer period of time or with a more concentrated cleaning agent.

But cleaning alone will not guarantee the hygiene of process equipment. Some components of cream liqueurs are not water-soluble and require the use of surface active agents (emulsifiers) in order to remove them.

Sanitation

Sanitation is the treatment of process equipment surfaces with a disinfectant. To be effective, sanitation must follow an adequate cleaning procedure so that product remains do not de-activate sanitizing agents by forming a barrier that prohibits micro-organisms from direct contact with them.

Cleaning & Sanitation Process

It is recommended that equipment is cleaned and sanitized within 24 hours prior to use and immediately after finalizing production or bottling.

Step 1: Initial Rinsing

Rinse for 20-30 seconds with a potable water of good quality (e.g. that is provided for domestic consumption) to remove superficial contamination; allow the water to drain.

Step 2: Alkaline Cleaning

Alkaline cleaning for 20-30 minutes at 78^o C with a caustic cleaning medium to remove all residual product remains. A suitable medium would contain 1% sodium hydroxide along with an emulsifying, surface active, anti-foaming agent and EDTA (for binding calcium).

Step 3: Intermediate Rinsing

Rinse with potable water of good quality to remove all detergent; allow the water to drain.

Step 4: Sanitizing

Sanitizing with a disinfectant for 10-15 minutes, at a temperature of 20-30^o C, should reduce the number of micro-organisms on the equipment surfaces to acceptable levels. Suitable materials include a liquid chlorine solution (at a concentration of 50-100 ppm) or a combination of hydrogen peroxide and peracetic acid at 0.5% (w/w).

Also, neutral alcohol at a strength of 70% volume is a very effective disinfectant. Contact time should be increased to 30 minutes.



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Step 5: Final Rinsing

Rinse for 30-60 seconds with potable water of good bacteriological quality to ensure that the sanitizing agent has been fully removed.

Step 6: Checking the Process

The monitoring of these processes is as important as performing the processes themselves and should include both a visual inspection and micro-biological analysis. Inadequate cleaning and sanitation may result in a reduction in the shelf life of the final product and even a possible risk to the health of the consumer.

Visual Inspection

This step may be performed with an ordinary flash light or an ultra-violet (340-380 nm) light.

- Color variations, greasy residues or thin, hard films are indicative either of inadequate cleaning (step 2), due to deficiencies in detergent strength, temperature or cleaning time and/or inadequate final rinsing (step 5).
- More substantial residues indicate inadequate circulation and/or leaking valves, which could pose a serious threat of contamination.

Microbiological Inspection

Microbiological analysis of the final rinse water should be carried out. Hygienic standards require a total plate count of < 10 cfu per ml. and coliforms to be absent in 0.1 ml.

Process Control

A proper Cleaning In Place (CIP) system will include equipment to measure and record the concentration of detergents with an alarm system to halt the cleaning program whenever too much or too little is present. This will avoid both ineffective cleaning and corrosion caused by excessive concentrations. In addition, the system should monitor the temperature of the process. Water quality should also be subject to regular examination.

Plant Design

The piping system should be designed in such a way as to allow cleaning without removal of these pipes.

Surfaces to be cleaned must be smooth enough to allow the effective removal of dirt at the velocity with which the detergents will pass through the system. For pipelines and all machine surfaces that have contact with the product, stainless steel 316 with a high grade finish is recommended.

It is also recommended to use tanks with spray balls, which have no moving parts, are self draining, relatively easy to maintain and not sensitive to pressure variations.

Adequate cleaning is usually possible only when a turbulent flow at > 0.2 meters per second is achieved, irrespective of pipe diameter and temperature of the solution temperature.

Cleaning and sanitation procedures are always tailor-made activities because they depend on manufacturer-specific equipment, fouling, product type and process design, etc.

Should you require any further information or have additional questions, we are pleased to be of assistance and offer our expertise to make all of your process successful.

To the best of our knowledge, the information and recommendations contained in this letter are accurate. However, we do not guarantee the accuracy of such information and recommendation. We disclaim any liability whatsoever arising from the use of information supplied by us and from the application of formulas, examples and recommendations described in this letter.

Creamy Creation can provide you with further technical and/or market information, customized to your creative ideas, targeted consumers and flavor specifications. For more information:



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Handling Cream Liqueur Concentrates

Description

A cream liqueur concentrate is a liquid dairy product containing alcohol. It can be used as a base for producing your own cream liqueur by adding ingredients like sugar, alcohol, distillates, flavors and colors. Cream liqueurs should contain enough alcohol and/or solids to be microbiologically safe, so no pasteurization or homogenization is needed.

Premix

The best way to proceed is to make a premix of all the ingredients to be added. Please note that sugars will become insoluble when the alcohol or sugar content in the premix is too high. Therefore, only a premix which is a clear solution, not cloudy, should be used.

Emulsion

An emulsion is a mixture of two or more liquids that are normally not mixable (e.g. oil & water, salad dressings). As the industry leader in emulsion technology, we will assist you in producing a cream liqueur with excellent stability and optimal shelf life. It is important to note that the emulsion of the product can be destabilized by an incorrect addition of alcohol and it is sensitive to pH deviations.

- The alcohol content of the premix should not exceed 50% by volume.
- The pH of the premix should be the same as the product (+/- 0.2 pH unit). The pH of the mix can be adjusted by the addition of a diluted acid solution (e.g. 8 % lactic acid solution) or a diluted caustic solution (e.g. 8% sodium hydroxide solution).

Mixing

Add the pH-corrected premix to the cream liqueur concentrate while gently stirring. Never add the cream liqueur concentrate to the premix! The premix should be added in such a way that it is dispersed immediately into the product. This minimizes the negative effects caused by differences in alcohol concentration.

The advised rate of addition depends on the alcohol content and the mixing equipment (indication: max. 90 litres per minute).

The mixing speed should be high enough to ensure sufficient mixing, but avoid air-incorporation. If a vortex forms, slow down the speed of your mixer!

Additionally, it is advised to use equipment that is completely constructed of stainless steel quality 304 or 316 with a finishing grade of 2.



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Cleaning and Sanitation

Detailed advice can be given on request.

Packaging and Storage

To avoid destabilization, the product must always be stored in a cool and dark place. It's recommended to store the product between 5° and 20°C and protected from (direct) sunlight. Store the product in the original, closed, non-returnable, single-use containers. Or, use stainless steel 304/316 finishing grade 2 storage tanks, well sealed, cleaned and disinfected according to standard operating procedures under good manufacturing and hygienic conditions.

Always keep batches separate.

Shelf Life

The product has an unavoidable natural, limited shelf life of twelve (12) months. Variables such as time, temperature, light, air, storage, transport, processing and packaging can cause changes in the organoleptic and physical condition, including color, of the product. Consequently, a watery layer at the bottom, creaming and/or sediment may form. Therefore, we advise our customers to process the product as soon as possible after delivery (preferably within one (1) month).

Liability

While we can offer advice regarding mixing and blending of the final product, once additional ingredients are added to the concentrate, we are not liable for any effect these added ingredients have on the product.

We strongly advise you to begin your own stability testing of the final products as soon as possible in the product development process. This is to ensure the ingredients you plan to use will not have a negative effect on the stability of the final product.

Finally

As every product and every production facility is different, these general instructions may not be specific enough. At your request, Creamy Creation can provide additional technical information and support to you before your first production or at any time during our partnership.

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Blending & Handling Instructions

Cream Liqueur Concentrate 820285_TT/821338_TOTE

Description

Cream Liqueur Concentrate is a liquid dairy product containing alcohol. More specifically, it is a stable emulsion of cream and alcohol. An emulsion is the combination of two liquids which naturally do not mix (e.g. water and oil). In the case of cream liqueur, the cream and alcohol.

Cream Liqueur Concentrate can be used as a base for producing your own cream liqueur by adding ingredients like sugar, alcohol, flavors, and colors. Cream liqueurs should contain enough alcohol and/or solids to be microbiologically safe, so no pasteurization or homogenization is needed.

Kosher

Both Creamy Creation and Black Button Distilling are OU Kosher operations. Kosher Certifications can be provided upon request.

Storage

Concentrate

It is recommended to store the cream liqueur concentrate between 5 and 25°C (41 – 77 °F), protected from (direct) sunlight. For long term (1+ month) storage of the concentrate, it is recommended to use stainless steel 304/316 finishing grade 2 storage tanks, well closed, cleaned and disinfected according to standard operating procedures under good manufacturing and hygiene practicing conditions.

Finished Product

It is recommended to store the finished product between 5 and 25°C (41 – 77 °F), protected from (direct) sunlight. It is recommended to bottle the finished product as soon as possible (within 1 month). To prevent oxidation, we advise using a dark or opaque bottle. For long term (1+ month) storage of the finished product, it is recommended to use stainless steel 304/316 finishing grade 2 storage tanks, well closed, cleaned and disinfected according to standard operating procedures under good manufacturing and hygiene practicing conditions.

Shelf Life

The Cream Liqueur Concentrate has a natural limited shelf life of twelve (12) months if stored as mentioned above. However, the influence of time, temperature, light and air may impact the physical and organoleptic properties of the product. A slight watery layer at the bottom, creaming or sediment may form. With respect to this we advise handling the product as soon as possible after delivery, but within six (6) months at the latest.

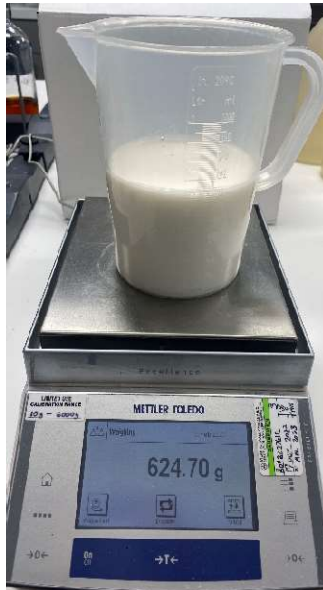
If the handling and storage guidelines disclosed in this statement are followed, you can expect a shelf life of 1 year for your finished product.

We strongly advise you to begin your own stability testing of the final product as soon as possible in the product development process. This is to ensure the ingredients you plan to use will not have a negative effect on the stability of the final product. For stability testing we recommend using [Bev Source](https://www.bevsource.com): (866) 934-4412 or info@bevsource.com

Formulation

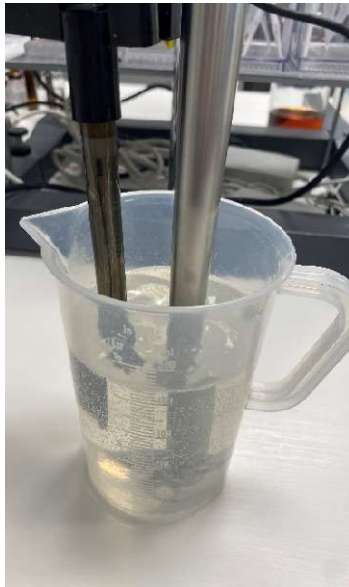
- An application formula is available upon request.
- The suggested alcohol range for the finished product is between 13.0-18.0% ABV.
- The suggested sugar range is between 160-225 g/l.
- The photos below show the benchtop scale blending of a cream liqueur.

Step 1



Step 2-4

Premix contains water, sugar, alcohol, and flavors. pH probe inserted while mixing for pH correction.



Step 5



Blending Instructions

1. Measure the amount of Cream Liqueur Concentrate needed in a vessel large enough to hold the total batch size quantity. Set aside.
2. In a separate vessel, mix the water and sugar until dissolved.
3. Add the alcohol, flavors, colors, and any additional ingredients into the water/sugar solution from step 2. This is your premix.
4. Slowly adjust the pH of the premix to 7.0 (+/0.2 pH unit).
 - a. Note that changing the pH is an exothermic reaction and you need the premix to be at room temperature before it is mixed into the cream liqueur concentrate.
 - b. pH adjustments are not linear and small adjustments can make a large difference. Clients are highly encouraged to do benchtop trials and write Standard Operating Procedures to make this process easier for future repeatable batches.
 - c. Small batches are sensitive to pH adjustments. For benchtop samples, add caustic solution slowly with only a few drops at a time.
5. While stirring, slowly add the pH-corrected premix into the Cream Liqueur Concentrate.
*** Do not add the Cream Liqueur Concentrate to the premix! ***

Important considerations during blending

- The alcohol content of the premix should not exceed 50% by volume.
- The pH of the premix should be the same as the concentrate (+/0.2 pH unit). Failure to accurately pH adjust the premix will cause the product to curdle. Once curdling has occurred all impacted product must be discarded.
- To raise the pH of your premix, use a diluted caustic solution (8% sodium hydroxide).
- To lower the pH of your premix, use a diluted acid solution (8 % phosphoric acid).
- The mixing speed should be high enough to ensure sufficient mixing but avoid air incorporation. If a vortex forms, slow down the speed of your mixer!
- It is advised to use equipment that is completely constructed of stainless-steel quality 304 or 316 with a finishing grade of 2.

Equipment Recommendations

- pH meter:
 - Manufacturer: VWR
 - Model: SB70P
- scale:
 - Manufacturer: Mettler Toledo
 - Model: XS6002S
- mixer:
 - Manufacturer: IKA
 - Model: EURO-ST 20 HS D S001
- Chemical reagents can be purchased from VWR

[FAQ](#)

Commercialization

Labeling requirements

TTB formula #

COLA

Q: What will happen to my product if stored above 25°C (77°F)?

A: If the product is stored in a closed container and no alcohol can evaporate, the physical stability of the product will hold up. If the product is stored above 25°C (77°F) the flavor stability can start to degrade and off notes may be detected.

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