THRACIAN MALT

Methodology and Best Practices
Why do we need a foamy head?

- For a long lasting, positive aroma.
- For a reduction of the negative aromas due to extremely volatile off-flavors.

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Step 1 Foam Creation

PHYSICS:

- Dissolved gases such as CO_2 and N_2 are primarily responsible for foam creation after the decompression and serving of the beer.
- Correct serving from trained personnel is required.
- High CO_2 content leads to better foam creation.
- Low CO_2 content leads to poor foam or no foam creation at all!
- Usual CO_2 content: 5-6 g/l.

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Step 2 Foam Stability

TECHNOLOGY & BEER INGREDIENTS:

- Use of serving glasses that are clean, free of detergents, etc.
- Use of “foam friendly” technology for beer production.
- Use of foam-enhancing ingredients.

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Foam Positive Ingredients

MALT INGREDIENTS: **F.B.A. THRACIAN MALT**

- The malt from modern two-raw barley varieties typically dissolves easily and has low levels of β-Glucans.
- Whereas low β-Glucan content is beneficial for the brewing process (lautertun, filter), at the same time β-Glucans are foam-enhancing substances.
- By using special malts such as **Thracian F.B.A.** or other Caramel Pils malt types, which have a β-Glucan content of 400-600 mg/l (congress mash), with a controlled dosing of ~3-5% of the total malt quantity, it is possible to significantly increase foam stability.

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Foam Positive Ingredients

HOPS INGREDIENTS:

- Isomerized hop product: TETRA ISO α Hops.
- Non-isomerized hops: Dry hopping.
- In general, hops ingredients are mostly foam enhancing; it is expected that beers with high IBU values should feature better foam stability.

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Foam Positive Ingredients

ADDITIVES:

- Foam Stabilizing Agents such as Propylenglycol-alginates or others increase foam stability up to 15%. Under normal circumstances the application of proper technology and procedures should bring the foam stability to a satisfactory level; therefore, the use of additives should be viewed as a “last resort”…

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Foam Enhancing Technology

CIP & TANK HYGIENE:

- Since all kind of detergents and disinfectant influence the surface tension, it is very important to have extremely well cleaned tanks before filling in wort or beer. It is a myth that detergents that contain H_2O_2 and Peracetic Acid don't influence foam and antioxidative behavior!
- CIP (Clean-In-Place) should include acid cleaning in order to avoid remnant beer deposits on tank surfaces. Badly cleaned tanks or tanks with beer stone surfaces trap detergents, which have a negative effect on foam stability.

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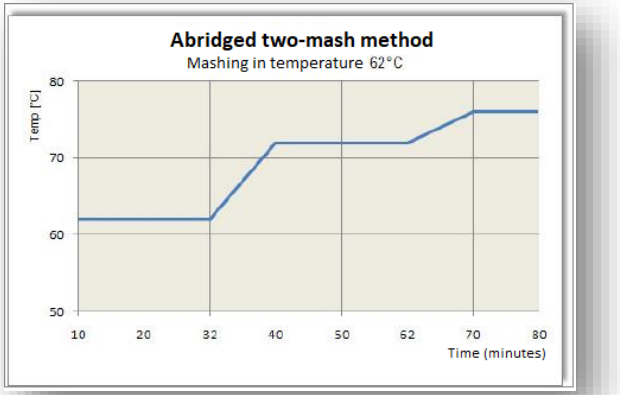
Foam Enhancing Technology

MASHING:

- Today's malts dissolve easily and feature high enzyme content.
- Due to the high degree of protein modification, the proteolytic rest should be moderate in duration (~5 min at 58°C should be enough).
- Mash programs without protein rest with a mashing-in temperature of 60°-62°C are common.



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Foam Enhancing Technology

WORT BOILING:

The latest boiling technology in combination with the modern malting barley varieties enable a short (60 min.) and gentle wort boiling with evaporation rates of 4-6%. The advantages are:

- Energy savings.
- Less thermal stress → better taste stability.
- Moderate wort boiling leads to more dissolved midsize protein molecules → better foam stability.
- Observing parameters: DMS & DMS-P < 80 ppb/l beer, remaining coagulable protein after boiling ~20-30mg/l wort.

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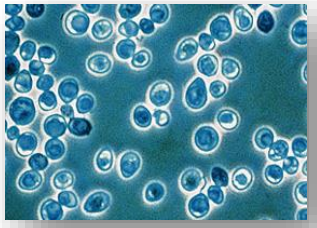
Foam Enhancing Technology

FERMENTATION:

It is well known that a quick and vital fermentation leads to good foam results. In relation to that, we should focus on the following parameters:

- Yeast vitality and yeast viability.
- Moderate pitching yeast quantity ~ 12-18 mio cell/ml.
- Regulation of the wort pH to ~ 5,2-5,4 after boiling.
- Zn^{2+} content of the wort ~ 0,15 mg/l.
- FAN content of the wort ~ 180 mg/l.



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Foam Enhancing Technology

BEER CO_2 :

- Naturally occurring CO_2 during fermentation dissolves easily and leads to much smaller foam bubble size ⇒ better foam stability, comparing to late carbonated beer with CO_2 gas.

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Foam Enhancing Technology

FILTRATION/STABILIZATION:

- Sterile Filtration removes midsize protein molecules and α & β-Glucan → negative for foam stability.
- Protein Stabilization with Silica Gel or Silica Sol may be necessary for the optimal look of our beer, but → negative for foam stability. In combination with PVPP, each brewer should try to find the balance between proper stabilization and foam stability.
- Using of Proteolytic Enzymes (papainase) for beer stabilization should be carried out carefully with the exact effective application time, followed by the immediate pasteurization of the enzymes. A longer application time or ineffective pasteurization will destroy the foam stability!

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Foam Enhancing Technology

FILLING AND PASTEURIZATION:

- Detergents such as Caustic Soda (NaOH) should not be present in beer containers such as bottles or kegs after the washing machine. Bottles or kegs with beer remnants will have bad foam stability (i.e., they will impact the surface tension).

  → Phenolphthalein Test

- Filtered beer contains active enzymes. Some of them, such as proteolytic enzymes for example, are active after filling and will convert the molecular length of proteins during a longer period ~4-6 months, pending on the storage temperature. Pasteurization (Flash or Tunnel) deactivates all enzymes.

  → Positive for the long-term foam stability

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Foam Measurement Methods

NIBEM METHOD

ROSS & CLARK METHOD

FOAM COMPARATOR

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FOAM COMPARATOR