



ECVET documents – English -

1.0 Malt, reception and storage

1.1 Milling

1.2 Mashing

1.3 Lautering

1.4 Boiling

1.5 Cooling

1.6 Fermentation

1.7 Filtration

1.8 Bottling

1.9 Dispensing

2.0 The Making of Beer



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EQF- and NQF Level: 4

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| Titel of the Unit: | | Malt reception and - storage | |
|---|--|---|--|
| Reference to the qualification: | | Brewer and Maltster | |
| Description of the Unit: Malt reception, transport and storage | | | |
| Knowledge | | Skills | |
| <p>He/she is able to:</p> <ul style="list-style-type: none"> list various means of transport and adapt the conditions for storage according to malt quality in regard of building and climatic factors of the warehouse. | | <p>He/she:</p> <ul style="list-style-type: none"> receives the malt, checks quality and documents it, transports it carefully to appropriate facilities for storage. | |
| | | Competence | |
| | | <p>He/she:</p> <ul style="list-style-type: none"> receives the malt and stores it in a way that the malt's quality is kept until the brewing process starts. | |
| Assessment of learning outcomes: For detailed assessment please see Memorandum of Understanding / Learning Agreement | | | |
| Basis: Lehrplanrichtlinien für die Berufsschule des BAYERISCHEN STAATSMINISTERIUM FÜR UNTERRICHT UND KULTUS to be applied from term 2007/08 | | | |
| Developed by: Robert Pawelczak, Staatliche Berufsschule Main-Spessart Translated into English: Students of English Abi+ programme, Staatliche Berufsschule Main-Spessart / proofed by Henry Evans | | | |



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EQF- and NQF Level: 4

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| Titel of the Unit: | Milling | |
|---|---|---|
| Reference to the qualification: | Brewer and Maltster | |
| Description of the Unit: Milling the malt which is needed for the brewing process and analysing the crushed malt | | |
| Knowledge | Skills | Competence |
| <p>He/she is able to:</p> <ul style="list-style-type: none"> describe the different milling systems and adapts the quality of the crushed malt according to the system used in the brewery | <p>He/she is able to:</p> <ul style="list-style-type: none"> mill the malt and maintain the facilities according to safety rules on the workplace and analyses finally the milling result. | <p>He/she is able to:</p> <ul style="list-style-type: none"> react professionally by changing the composition of the crushed malt in case of having received different malt qualities. |
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| Titel of the Unit: | | Mashing process | |
|---|--|---|--|
| Reference to the qualification: | | Brewer and Maltster | |
| Description of the Unit: Mixing the strike water and the grist load and rests | | | |
| Description of the Unit: Mixing the strike water and the grist load and rests | | | |
| Knowledge | | Skills | Competence |
| <p>He/she is able to:</p> <ul style="list-style-type: none"> understand the aim of the mashing process know the effect of the temperature, time and ph- scale on the mashing process. | | <p>He/she is able to:</p> <ul style="list-style-type: none"> decide in relation to malt quality, type of beer and brew house equipment a suitable mashing method or creates a new mash recipe. | <p>He/she is able to:</p> <ul style="list-style-type: none"> set up times, temperatures, amounts of water and grist for the mashing process for the beer type and reacts to recurring problems. |
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| Titel of the Unit: | | Lautering | |
|--|--|---|--|
| Reference to the qualification: | | Brewer and Maltster | |
| Description of the Unit: Separation of spent grains and liquid wort | | | |
| Knowledge | | Skills | |
| <p>He/she is able to:</p> <ul style="list-style-type: none"> explain how different lauter systems work and name their advantages/disadvantages. | | <p>He/she is able to:</p> <ul style="list-style-type: none"> prepare the brewing system for lautering the wort, can transfer the mash utilizing various lauter systems, handle the usual parameters and ultimately gain the wort needed. remove the spent grains from the lautering system and clean the equipment. | |
| | | Competence | |
| | | <p>He/she:</p> <ul style="list-style-type: none"> sticks to the economical and ecological requirements given by the company. has the ability to carry out and document quality securing checks. evaluates the results and is able to develop improvements if necessary on his/her own. | |
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| Titel of the Unit: | Wort boiling | |
|---|---|---|
| Reference to the qualification: | Brewer and Maltster | |
| Description of the Unit: Boiling of wort to evaporate water, undesired volatile aroma components and isomerisate α -acids by using different boiling systems | | |
| Knowledge | Skills | Competence |
| <p>He/she is able to:</p> <ul style="list-style-type: none"> explain the process of wort boiling evaluate the demands of quality of whole hops and hop products used for beer production choose the right boiling system and boiling parameters under technological aspects. | <p>He/she is able to:</p> <ul style="list-style-type: none"> analyse and discuss the quality of hops and record the results of hop analytics set and control process parameters, according to the chemical and physical processes during wort boiling optimise the process of wort boiling by calculating the amount and time of hopping and the brew house yield based on given or self created quality criteria. | <p>He/she is able to:</p> <ul style="list-style-type: none"> analyse the boiling system regarding its efficiency under economical and ecological aspects collecting data of the wort boiling process systematically, including saving the data and has the ability to handle them with reliability. |
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| Titel of the Unit: | Wort cooling | |
|--|---|--|
| Reference to the qualification: | Brewer and Maltster | |
| Description of the Unit: Cooling and clearing the wort and supplying the appropriate yeast | | |
| Knowledge | Skills | Competence |
| <p>He/she is able to:</p> <ul style="list-style-type: none"> • apply various systems to clarify and cool the wort, considering scientific basics and the actual compound of the wort. | <p>He/she:</p> <ul style="list-style-type: none"> • operates and cleans the wort cooling system. • selects the suitable yeast strain and handles the complete yeast management. | <p>He/she:</p> <ul style="list-style-type: none"> • respects the hygiene requirements especially when working with yeast. • informs the co-workers about hygiene requirements. |
| Assessment of learning outcomes: For detailed assessment please see Memorandum of Understanding / Learning Agreement | | |
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| Titel of the Unit: | Fermentation and Maturing | |
|--|---|---|
| Reference to the qualification: | Brewer and Maltster | |
| Description of the Unit: influencing of fermentation and maturing by temperature, time, amount of yeast and technical facilities | | |
| Knowledge | Skills | Competence |
| <p>He/she is able to:</p> <ul style="list-style-type: none"> describe the typical fermentation of a beertype and knows the reasons the consequences of a unnormal fermentation process. | <p>He/she:</p> <ul style="list-style-type: none"> is able to control the fermentation- and maturingprocess by controlling the company's parameters and the beertype. judges the fermentation and maturing process with sensory inspections and chemical-technical controlls and sets the time to harvest the yeast and the end of maturing. cleans and disinfects the fermentation and storage facilities. | <p>He/she is able to:</p> <ul style="list-style-type: none"> heed worksecurity when handling with detergent and disinfectant and the health protection at work in a carbon dioxide atmosphere. |
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|--|--|---|
| Titel of the Unit: | Filtration | |
| Reference to the qualification: | Brewer and Maltster | |
| Description of the Unit: perform the filtration of beer and take arrangements to improve the storability of beer | | |
| Knowledge | Skills | Competence |
| <p>He/she is able to:</p> <ul style="list-style-type: none"> use his/her knowledge about the physical regularities and the structure and the functionality of a filtration plant. | <p>He/she is able to:</p> <ul style="list-style-type: none"> plan the filtration and stabilisation of beer and choose from suitable filtering mediums and means, calculate their amount and perform the filtration. | <p>He/she is able to:</p> <ul style="list-style-type: none"> react professionally in case of problems during filtration and decides about the end of filtration. |
| Assessment of learning outcomes: For detailed assessment please see Memorandum of Understanding / Learning Agreement | | |
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| Titel of the Unit: | | Beverage bottling | |
|--|--|--|--|
| Reference to the qualification: | | Brewer and Maltster | |
| Description of the Unit: pre- postpare of the bottling line, to make a flawless bottling process possible | | | |
| Knowledge | | Skills | |
| <p>He/she:</p> <ul style="list-style-type: none"> knows the tasks, construction and function of specific machines and is able to calculate its working parameters. dedudes the legal guidelines for the elements of marking signs or labels. | | <p>He/she:</p> <ul style="list-style-type: none"> prepares the machines, bottles beverages and checks the marks of the pachages. takes samples during the bottling process and evaluates them. | |
| | | Competence | |
| | | <p>He/she:</p> <ul style="list-style-type: none"> knows how important the compliance of working rules in the bottling area is for working security, health security and hygiene. | |
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| Titel of the Unit: | Beverage dispensing | |
|--|--|--|
| Reference to the qualification: | Brewer and Maltster | |
| Description of the Unit: knowledge of legal basis of beverage dispensing, functionality and risk potential of dispensing equipment | | |
| Knowledge | Skills | Competence |
| <p>He/she is able to:</p> <ul style="list-style-type: none"> name the legal specifications of dispensing equipment and describe the functionality of them. | <p>He/she is able to:</p> <ul style="list-style-type: none"> store beverages properly setting up the beverage dispenser in the right way and use it after legal advices tap a proper beer for the satisfaction of the customer. | <p>He/she is able to:</p> <ul style="list-style-type: none"> create a hazard management and knows how to remove upcoming errors advise the user to take care of sanitary criteria. |
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|---|---|---|--|
| Titel of the Unit: | The Making of Beer | | |
| Reference to the qualification: | Brewer and Maltster | | |
| Description of the Unit: Reception of malt, milling, producing the mash, lautering the wort, wort cooling, pitching the yeast, fermentation and maturing the green beer, filtration and filling of the beer in appropriate containers, respecting food laws and regulations | | | |
| for labelling Knowledge | Skills | Competence | |
| <ul style="list-style-type: none"> • He/She can list transport systems and suggest storage conditions for stockage. • He/she can describe different milling systems and adjust the grist composition to the facilities of the brewery. • He/She can name goals and procedures of the mashing process and can depict, how the factors temperature, time and pH value affect the mashing. • He/She can explain differet lautering systems and assess their pros and cons. • He/She can explain the process of wort boiling and express the demands on hops and hop products for the beer production. He/she chooses suitable procedures for wort boiling on technological and technical aspects. | <ul style="list-style-type: none"> • He/She handles malt deliveries, controls and documents the quality. He/She transports the malt with consideration by the help of transportation systems which he is able to alter due to climatic and structural conditions. • He/She handles the milling process and maintains the Mill considering of health and safety legislation and checks the quality of the crushed malt. • He/She decides relative to; malt quality, choice of beer type and brewing system about a suitable mashing treatment. • He/She prepares the systems for the lautering process. He/She is aware of the necessary parameters, collects the lautered wort, removes the spent grains and cleans the | <ul style="list-style-type: none"> • He/She accepts and stores the malt so that the quality remains until the beginning of the brewing process. • He/She reacts to varying malt qualities and changes the milling setup. • He/She sets times, temperatures and water volumes and grind needed for the brewing process. • He/She is able to react accordingly to problems as they may occur. • He/She is able to maintain the economic an ecological requirements. He/she executes quality control. • He/She documents testing results, discusses them and tries to find a variety of possible solutions to match the requirements. • He/She analyses heating systems and rates them under economic | |

| | | |
|--|---|---|
| <ul style="list-style-type: none"> • He/She develops different combinations for wort clarification and cooling considering natural scientific foundations and wort composition. • He/She describes the course of fermentation typical for the brand of beer and is able to list causes and consequences of an abnormal course of fermentation. • He/she can express knowledge of physical principles as well as structure and functioning of filtration systems. • He/she can explain purpose, structure and functioning of particular facilities and estimate operating parameters. • He/she recaps legal guidelines for elements of identification. • He/she can list legal requirements and common practices for dispensing equipment and describe the functionality of the different types of equipment. | <p>lautering system.</p> <ul style="list-style-type: none"> • He/She checks and documents the quality of the hops. He/She decides through consideration of physical and chemical process parameters about a suitable wort boiling / kettle treatment and optimizes the process taking into account intended quality criteria. • He/She handles and cleans the wort cooling systems. • He/She decides about the strain of yeast appropriate to the intended style of beer and pitches the yeast into the wort. • He/She controls the fermentation and maturing process. • He/She inspects the fermentation results through sensory and chemical/technical tests and decides whether the beer is ready for consumption. • He/She schedules the filtration and stabilisation. He/She chooses suitable filtration tools and conducts the process. • He/She is able to prepare the bottling line, fill up beverages and take samples to proof the quality. • He/She can store beverages, install dispensing equipment and serve drinks professionally. | <p>and ecologic aspects.</p> <ul style="list-style-type: none"> • He/She goes systematically through the the collected data of wort boiling , saves the results and takes care of the data. • He/She follows the special hygienic and cleanliness requirements when working with yeast, also reminding his co-workers to do so. • He/She is aware of the importance of personal safety standards concerning chemical/CO2 usage and the use of personal protective equipment (PPE). • He/She knows how to solve possible problems during the filtration process and when to end the procedure. • He/She is aware of the importance of safety, hygienic and health standards in bottling lines/stations. • He/She is able to compile a hazard analysis furthermore recognizing and correcting areas of concern. |
|--|---|---|

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