

Malt shelf life

Malt, from barley and other cereals, used for brewing is an extremely stable ingredient with a relatively long shelf life, ensuring its quality over a long period. However, such shelf life is not inherent to the type of ingredient, but rather to its storage conditions.

The correct storage of malt, as well as the storage of any other raw material used in brewing, is extremely important and should not be neglected by the brewer or those responsible. Poor malt storage can lead to loss of raw material, as well as impacting the quality of the final beer and even bring risk to the consumer's health. Therefore, some storage procedures and parameters must be followed and maintained to ensure the quality and safety of the malt. Here, in this brief text, some points about its storage will be discussed, as well as its quality during this period.



What are the control parameters during malt storage?

Well, as stated earlier, malt is an extremely stable ingredient. And much of this stability is due to the fact that its moisture content is low (around 5% by mass) at the end of its production. This low moisture keeps its parameters unchanged (extract yield, diastatic power, colour and others) as well as slowing down aging reactions. Hence the importance of keeping malt low in moisture.

So, for a good and correct storage, the main control parameters are humidity,

temperature, sunlight exposure, and pest control of the storage location. Basically, controlling these parameters will guarantee the quality of the malt during this period and avoid insect and fungal issues.

Malt is an extremely hygroscopic ingredient, so it should be kept in a dry area with good air circulation, preventing moisture from rising. When in bags, keep them sealed without exposure to the atmosphere and ensure they are on pallets in a safe distance from the wall and floor to maintain good air circulation, avoiding humid points. When in silos, ensure there is no infiltration.

The malt temperature must be controlled and kept constant, preferably below 20°C. Avoid exposure to sunlight, which can lead to a temperature increase. Also, avoid places with large temperature changes in order to prevent condensation, which will lead to moisture increase.

Both moisture and temperature increase can lead to the appearance of insects, leading to loss of raw material, mold, leading to the appearance of unwanted off-flavours in the final beer, and acceleration of enzymatic or non-enzymatic reactions, leading to the appearance of compounds responsible for the aroma of "stale beer".

Also, and not least, malt should be stored in a clean place with pest control and regular cleaning. We know that handling malt generates dust, and this can attract pests (insects, rodents, etc.). So, nothing is better than keeping the storage place always clean.



Does the quality of malt change during storage?

Some studies have shown that, when properly stored, the quality of base malt (pilsen, pale ale and others) remains unchanged for a long period. Both changes in its parameters and aroma, as well as aging reactions are minimal.

Specialty malts tend to maintain their quality parameters, but flavour decrease over a shorter period. Thus, its storage should be for a shorter period when compared to base malt.

The malt aging reactions that affect beer production and should be minimized are, in general, lipid oxidation, both enzymatic and non-enzymatic, leading to the production of compounds responsible for the aroma of "stale beer", such as for example trans-2-nonenal, the compound responsible for the off-flavour of cardboard in the final beer.

Brewers seeking greater sensory stability for their beers after bottling are already trying to minimize the impact of these aging reactions throughout the brewing process. Therefore, they should also be concerned about the storage conditions of their malt.

How long can I store malt?

Ensuring the requirements described above, base and specialty malt can be stored for up to 2 years from its production without significant loss of quality and chit malts for up to 1 year.

And crushed malt?

Many brewers, especially homebrewers, ask me if there is any negative impact on storing crushed malt for a period before using it. The short answer is "yes", but it really depends on storage time as well as storage conditions.

Crushed malt, with its interior exposed, tends to increase moisture much faster than whole malt and has a much greater contact with oxygen present in the atmosphere. Thus, oxidation reactions and enzymatic reactions occur at a faster rate changing the parameters of the malt and producing compounds responsible for the aroma of "stale beer", as well as its precursors which, during the beer production or storage of the final beer, will be converted to these unwanted compounds.

Thus, for home brewers, when it is not possible to grind the malt right before production or the day before, I recommend storing the crushed malt in a dry place, without exposure to light and in a suitable air-free and well-sealed package for up to 1 month after grinding. Following this, the impact on the freshness of the final beer will be minimal. For professional brewers, who need a good sensory stability for their product, I recommend grinding it before use, or at most 1 week before.

Thank you.

Well, thanks for reading it and if you have any questions, please contact our team of experts.

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