Lupulin Pellets

❖ Overview

• **Lupulin Pellets** are a hop product added to the wort kettle during the boiling process. They contribute to the desired bitterness of a beer as well as its characteristic hop aroma.

• **Lupulin Pellets** are suitable for use on the cold side (dry hopping) of the brewing process. They impart a pronounced hop aroma to beer. Moreover, the high concentrations of alpha acids and hop oil in this product are advantageous for breweries adding large quantities of hops in the whirlpool.

• Through the enrichment of bitter acids and essential oils, transportation and storage costs are lower for **Lupulin Pellets**. Furthermore, beer losses can be reduced.

❖ Specifications

• Description: cylindrical pellets produced from mechanically purified hop powder
• Color*: yellow-green
• Alpha acids*: 6 – 35 %
• Beta acids*: 5 – 20 %
• Hop oil*: 2 – 10 ml/100g
• Moisture content: 6 – 9 %

*dependent on variety and crop year
Properties

• Appearance
Lupulin Pellets are yellow-green pellets, approximately 6 mm x 10 – 15 mm in size (diameter x length).

• Utilization
Given as an early kettle addition (up to 15 min after the boil begins), hop utilization is normally within a range of 30 – 35 %. When Lupulin Pellets are added late in the boil, utilization can decline to 20 % or less, depending on individual process conditions. Both additions can vary depending on the desired intensity and the beer style.

• Flavor
Lupulin Pellets produce flavors in beer indistinguishable from those of leaf hops. Lupulin Pellets provide bitterness and aroma to the beer. The flavor depends on the variety, quantity and time of the addition. For further information, please refer to the hop variety data sheets.

• Quality
All Hopsteiner® products are processed in facilities which fulfill internationally recognized quality standards.

Packaging
Lupulin Pellets are packaged in metallized five-layer foil bags which are then packed in boxes. These are available as ‘soft’ packs flushed with inert gas (N₂ and/or CO₂) at atmospheric pressure. The package size is 20 lb.

Product Use

• Dosage
The quantity of Lupulin Pellets in an addition can be calculated using the alpha acid content of the powder and an estimated or known utilization.
Late kettle additions of Lupulin Pellets (typically 5 – 20 min prior to the end of the boil) reduce alpha acid utilization but increase hop aroma and flavor.

• Addition
Lupulin Pellets can be added directly to the wort kettle or hop dosing vessel.
Dry hopping normally involves the addition of Lupulin Pellets during secondary fermentation or maturation using various techniques.

• Storage
Lupulin Pellets should be stored at low temperatures (< 5 °C or < 41 °F). Pellets in opened foil packs should be used quickly to avoid deterioration of the bitter acids and essential oils.

• Best Before Date
Lupulin Pellets are stable for five years from the date they were produced / packaged if stored under the recommended conditions.

• Safety
When handling this product, it is advisable to wear a dust mask. Lupulin Pellets are combustible.
For full safety information, please refer to the relevant Hopsteiner® safety data sheet.
Analytical Methods

- **Concentration of Bitter Substances**
  Alpha and beta acids can be measured using the following methods:
  - HPLC according to Analytica-EBC 7.7 or ASBC Hops-14 with the current ICE standard
  - Spectrophotometric method according to ASBC Hops-6A

  The lead conductance value can be measured using the following methods:
  - Analytica-EBC 7.4 or 7.5
  - ASBC Hops-6B

- **Concentration of Hop Oil**
  The hop oil concentration can be measured using the following methods:
  - Analytica-EBC 7.10
  - ASBC Hops-13

Technical Support

We are pleased to offer assistance and advice on the full range of Hopsteiner® products:

- copies of all relevant analytical procedures
- Safety Data Sheets (SDS)
- assistance with pilot or full-scale brewing trials
- special analytical services

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