

LUPULIN POWDER

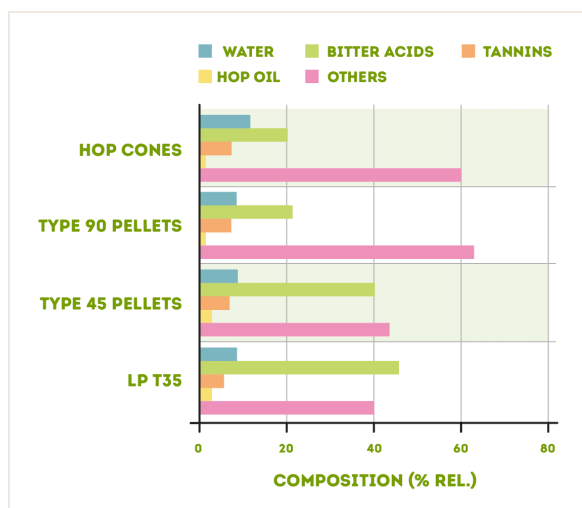
Mechanically purified hop powder.

OVERVIEW

- **Lupulin Powder** is a hop product added to the wort kettle during the boiling process. It contributes to the desired bitterness of a beer as well as its characteristic hop aroma.
- **Lupulin Powder** is suitable for use on the cold side (dry hopping) of the brewing process. It imparts 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 Powder**. Furthermore, beer losses can be reduced.

PROPERTIES	
APPEARANCE	Lupulin Powder is a yellow/green powder.
UTILISATION	Given as an early kettle addition (up to 15min after the boil begins), hop utilization is normally within a range of 30 – 35%. When Lupulin Powder is 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.
FLAVOUR	Lupulin Powder produces flavours in beer indistinguishable from those of leaf hops. Lupulin Powder provides bitterness and aroma to beer. The flavour depends on the variety, quantity and time of addition.
QUALITY	All Ellerslie Australia products are processed in facilities which fulfill internationally recognized quality standards.
PACKAGING	Lupulin Powder is packaged in metallized five-layer foil bags which are then packed in boxes. These are available as 'soft' packs flushed with inert gas (N ₂ and/or CO ₂) at atmospheric pressure. The pack size is 20lb.

QUICK SPECS	
DESCRIPTION	Mechanically purified hop powder
COLOUR	Yellow/green
ALPHA ACIDS	6 – 35%
BETA ACIDS	5 – 20%
HOP OILS	2 – 10 ml/100g
MOISTURE CONTENT	6 – 9%



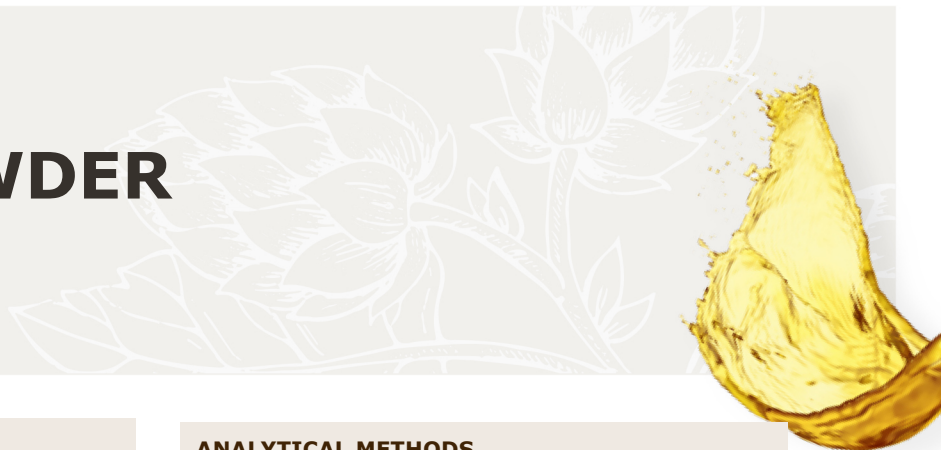
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PRODUCT USE

DOSAGE	<p>The quantity of Lupulin Powder in an addition can be calculated using the alpha acid content of the pellets and an estimated or known utilization.</p> <p>Late kettle additions of Lupulin Powder (Typically 5 – 20 min prior to the end of the boil) reduce alpha acid utilization but increase hop aroma and flavor.</p>
ADDITION	<p>Lupulin Powder can be added directly to the wort kettle or hop dosing vessel. Dry hopping normally involves the addition of Lupulin Powder during secondary fermentation or maturation using various techniques.</p>
STORAGE	<p>Lupulin Powder 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.</p>
BEST BEFORE DATE	<p>Lupulin Powder is stable for five years from the date they were produced/packaged if stored under the recommended conditions.</p>
SAFETY	<p>When handling this product, it is advisable to wear a dust mask. Lupulin Powder is combustible.</p>

ANALYTICAL METHODS

CONCENTRATION OF BITTER SUBSTANCES	<p>Alpha and beta acids can be measured using the following methods:</p> <ul style="list-style-type: none">• HPLC according to Analytica-EBC 7.7 or ASBC Hops-14 with the current ICE standard• spectrophotometric method according to ASBC Hops-6A <p>The lead conductance value can be measured using the following methods:</p> <ul style="list-style-type: none">• Analytica-EBC 7.4 or 7.5• ASBC Hops-6B
CONCENTRATIONS OF HOP OIL	<p>The hop oil concentration can be measured using the following methods:</p> <ul style="list-style-type: none">• Analytica-EBC 7.10• ASBC Hops-13

TECHNICAL SUPPORT

We are pleased to offer assistance and advice on the full range of Ellerslie Australia products:

- Copies of all procedures relevant analytical procedures
- Safety Data Sheets (SDS)
- Assistance with pilot or full-scale brewing trials
- Special analytical services

Disclaimer: The information provided in this document is believed to be correct and valid. However, Ellerslie Australia does not guarantee that the information provided here is complete or accurate and thus assumes no liability for any consequences resulting from its application.

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