

# HOP OIL TYPE NOBLE



**Hop Oil - Type NOBLE** is produced from conventional hop extracts which are subsequently fractionated by means of CO<sub>2</sub> extraction to enrich or decrease the concentration of specific aroma components.

**Hop Oil - Type NOBLE** has been specifically developed for additions prior to filtration. This product can completely or partially replace late hop additions in the brewhouse while still imparting a typical "late hop" aroma to the beer.

Hop oil recovery is considerably higher compared to conventional hopping methods, as the aroma compounds are not lost due to evaporation in the brewhouse.



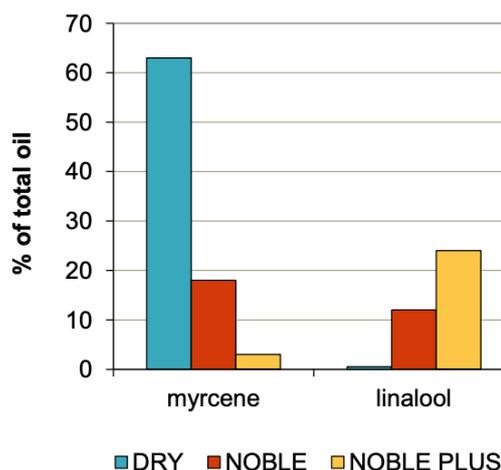
## PROPERTIES

<b>APPEARANCE</b>	<b>Hop Oil - Type NOBLE</b> is a nearly colourless, clear liquid, containing hop essential oils.
<b>UTILISATION</b>	<b>Hop Oil - Type NOBLE</b> contains fewer volatile hop components and therefore excellent recovery rates are possible. Depending on the time of addition, the recovery rate for hop oil can be as high as 95%.
<b>FLAVOUR</b>	<p><b>Hop Oil - Type NOBLE</b> contains a lower amount of the undesirable volatile hydrocarbon fraction, resulting in a more subtle and pleasant hop aroma. Depending on the quantity added and the type of beer, <b>Hop Oil - Type NOBLE</b> can impart floral, spicy and citrusy notes to beer.</p> <p>In addition, <b>Hop Oil - Type Noble</b> has little influence on the sensory bitterness of beer.</p> <p>It is suitable for use in beers brewed with conventional hop products as well as light stable beers to impart a more typical "late hop" character.</p>
<b>QUALITY</b>	All Ellerslie Australia products are processed in facilities which fulfil internationally recognised quality standards.
<b>PACKAGING</b>	<p><b>Hop Oil - Type NOBLE</b> is normally packaged in aluminium bottles of various sizes.</p> <p><b>Hop Oil - Type NOBLE</b> is supplied as a 1:100 dilution in propylene glycol (recommended). Other dilutions, packaging or pure hop oils may be available on request.</p>

## QUICK SPECS

<b>DESCRIPTION</b>	Pure hop oils diluted in propylene glycol, resulting in a product diluted to 1:100	
<b>KEY COMPOUNDS*</b>	Linalool	1000 ppm (± 50ppm)
<b>SPECIFIC RATIOS</b>	Linalool/myrcene	> 0.5
	Linalool/caryophyllene	> 4
	Linalool/humulene	> 1
	Linalool/farnesene	> 10
<b>VISCOSITY</b>	approx. 46 mPas at 25°C (77°F)	
<b>DENSITY</b>	approx. 1.0g/ml at 20°C (68° F)	

## COMPARISON OF HOP OIL PRODUCTS



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## PRODUCT USE

<b>DOSAGE</b>	<p><b>Hop Oil - Type NOBLE</b> is supplied as a 1:100 dilution in propylene glycol. The quantity of the hop oil addition is determined by the brewer and depends on the time and point of the addition.</p> <p>The hop oil dosage should be based on the desired concentration of linalool in the beer which typically ranges from 20µg/l to 100µg/l. These concentrations are intended for orientation only; actual additions will depend on the quality and intensity of the aroma desired.</p> <p>Trials performed by injecting oil into filtered beer (bright beer) with a microliter syringe are helpful for determining the quantity of hop oil required.</p> <p><b>Dosage example for a 1:100 dilution of hop oil based on a yield of 90%*:</b></p> <ul style="list-style-type: none"><li>• 2.2 ml/hl results in 20µg/l linalool in beer</li><li>• 11.1 ml/hl results in 100µg/l in beer</li></ul> <p>*can vary from brewery to brewery</p>
<b>ADDITION</b>	<p><b>Hop Oil - Type NOBLE</b> can be added at different stages on the cold side of beer production, typically prior to filtration. For the highest possible yield, a direct addition into the beer stream prior to filtration is recommended. This enables the hop oils to dissolve in the beer without changing their flavour.</p> <p>Shake bottle well before use.</p>
<b>STORAGE</b>	<p><b>Hop Oil - Type NOBLE</b> should be stored at temperatures &lt; 10°C (50°F) in screw-top aluminium bottles. If aluminium bottles are not used, exposure to light must be avoided.</p>
<b>BEST BEFORE DATE</b>	<p><b>Hop Oil - Type NOBLE</b> is stable two years from the date it was produced / packaged if stored under the recommended conditions. Packaging can be opened once per week for a period up to 1 month.</p>

## ANALYTICAL METHODS

<b>AROMA COMPOUNDS</b>	<p>Individual hop oil compounds can be analysed by means of gas chromatography techniques using the following methods:</p> <ul style="list-style-type: none"><li>• Analytica-EBC 7.12</li><li>• ASBC Hops-17</li></ul>
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## SAFETY

Any product coming into contact with the skin should be immediately washed off with soap and water. If **Hop Oil - Type NOBLE** gets into the eyes, flush with copious amounts of water until clear and seek medical attention.

For full safety information, please refer to the relevant Ellerslie Australia safety data sheet.

## 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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