

LIGHT STABLE AROMA EXTRACT



OVERVIEW

- **Light Stable Aroma Extract (LSAE)** is an enriched hop oil product derived from CO2 hop extract.
- **LSAE** is light stable and free of hop bitter acids
- **LSAE** can be added early to the wort kettle as an antifoam agent. If added late in the boil, this product imparts a distinct hop aroma to the beer.
- **LSAE** does not contribute to the sensory bitterness of beer.

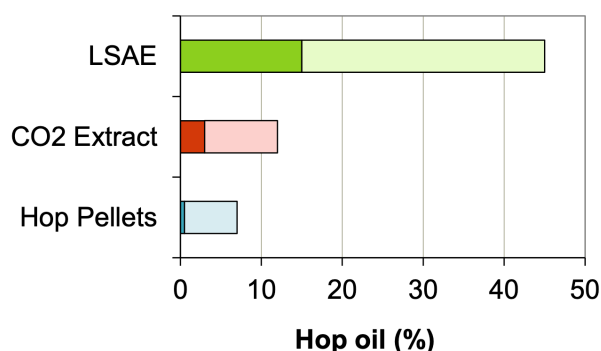


PROPERTIES	
APPEARANCE	LSAE is a dark brown, semisolid or moderately viscous paste which becomes fluid when warmed.
UTILISATION	Actual utilisation will vary from brewery to brewery due to differences in equipment and process conditions.
FLAVOUR	LSAE provides hop aroma when added to the kettle. Late kettle additions enhance the hop character of the finished beer.
LIGHT STABILITY	LSAE only provides protection against lightstruck flavour in the complete absence of alpha acids. LSAE can be used in conjunction with any Ellerslie Australia light stable product to achieve light stability.
QUALITY	All Ellerslie Australia products are processed in facilities which fulfill internationally recognised quality standards.
PACKAGING	LSAE can be packaged in cans and pails according to customer requirements: Cans: 0.5 to 4 kg (USA) 0.5 to 4.2 kg (Germany) Pails: 4 to 20 kg (USA only) Drums: 50 and 200 kg

QUICK SPECS	
DESCRIPTION	Dark brown, semisolid extract containing hop essential oils and waxes
ISO-ALPHA ACIDS	Below detection limit
ALPHA ACIDS	Below detection limit
BETA ACIDS*	< 20%
PH	7.5 - 8.0
HOP OIL*	15 - 45%
VISCOSITY	35 - 50 mPas at 50°C (122°F)
DENSITY	1.0 g/ml at 20°C (68 °F)

*dependent on variety and crop year

COMPARISON OF HOP OIL CONCENTRATIONS IN HOP PRODUCTS



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PRODUCT USE

LSAE is typically added to the wort kettle to achieve a characteristic hop aroma. An early addition suppresses foam formation at the beginning of wort boiling.

DOSAGE

Actual dosage of **LSAE** will depend on the extract analysis (hop oil content), time of the addition and the desired intensity of the hop aroma.

Example: (hop oil content of 30%)
Add 6.7 g/hl **LSAE** towards the end of the boil. This corresponds to a hop oil addition of 2.0 g/hl

ADDITION

Pre-warming cans of **LSAE** is not necessary. Suspending punctured cans in the boiling wort will ensure that all of the extract is completely flushed out into the kettle.

If **LSAE** is added by means of automatic dosing units, it should be warmed to 45°C (113°F) and gently mixed to ensure perfect dosing.

FOR LIGHT STABLE BEER

For maximum protection against lightstruck flavor, it is essential that no other sources of non-reduced iso-alpha acids are inadvertently introduced into the wort or beer. Therefore, the following must be carefully implemented:

- Exclusive use of light stable hop products throughout the entire process.
- Avoid contamination through equipment surfaces previously in contact with regular iso-alpha acids.
- Never pitch wort with yeast that has been in contact with regular alpha and iso-alpha acids.

STORAGE

LSAE should be stored in sealed containers at temperatures < 10°C (50°F). Opened containers should be used within a few days.

BEST BEFORE DATE

LSAE is stable for six years from the date it was produced/packaged if stored under the right conditions.

PRODUCT USE

SAFETY

LSAE should be handled like regular CO₂ hop extract. Any product coming into contact with the skin should be washed off immediately with soap and water or an appropriate hand cleanser.

If **LSAE** 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.

ANALYTICAL METHODS

CONCENTRATION OF HOP OIL

The hop oil concentration can be measured using the following methods:

- Analytica - EBC 7.10
- ASBC Hops - 13

CONCENTRATION OF BETA ACIDS

Beta acids (as well as iso-alpha acids and alpha acids) can be measured using the following methods:

- HPLC according to Analytica-EBC 7.8 or ASBC Hops-16 with the current ICS and ICE standards.

TECHNICAL SUPPORT

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

- Copies of all 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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