

## OVERVIEW

- **Salvo™** is derived from CO<sub>2</sub> hop extract and contains predominantly hop essential oils and beta acids.
- **Salvo™** can be added early to the wort kettle as an antifoam agent. If added late in the boil, this product imparts a distinct variety specific hop aroma to the beer.
- **Salvo™** can help suppress microbial infections due to the presence of beta acids.
- **Salvo™** has little to no sensorial bitterness.

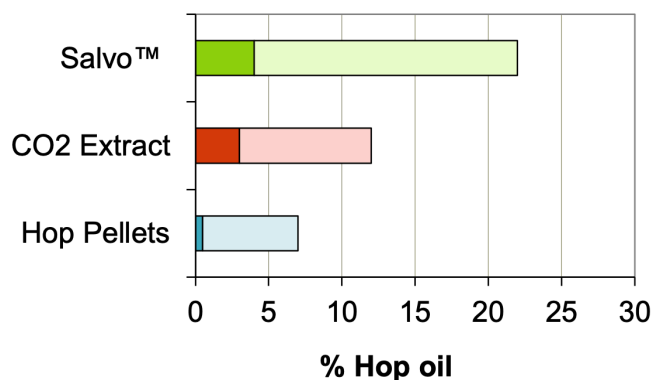


PROPERTIES	
APPEARANCE	<b>Salvo™</b> is a yellow-brown, semisolid or moderately viscous paste which becomes fluid when warmed.
UTILISATION	Actual utilisation will vary from brewery to brewery due to differences in equipment and process conditions.
FLAVOUR	<b>Salvo™</b> delivers impactful variety specific flavour when added to the kettle/whirlpool. Late additions impart a typical "late hop" aroma to the finished beer.  Residual iso-alpha and alpha acids might contribute slightly to beer bitterness, depending on quantity added.
QUALITY	All Ellerslie Australia products are processed in facilities which fulfill internationally recognised quality standards.
PACKAGING	<b>Salvo™</b> is packaged in cans: Cans: 0.5 to 4kg

QUICK SPECS	
DESCRIPTION	A yellow-brown, semisolid extract containing β-acids, hop essential oils and waxes
ISO-ALPHA ACIDS	0.2 - 2.9%
ALPHA ACIDS	0.2 - 1.2%
BETA ACIDS*	24 - 55%
HOP OIL*	4 - 22%
VISCOSITY	30 - 100 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 CONCENTRATION IN HOP PRODUCTS



## PRODUCT USE

**Salvo™** is typically added in the brewhouse. An early addition can help to prevent over-boiling of the wort. Good recovery of aroma substances can be achieved when added late to the boil or into the whirlpool.

<b>DOSAGE</b>	<p>Actual dosage of <b>Salvo™</b> will depend on the extract analysis, the time of the addition and the desired intensity of hop aroma.</p> <p>Example: (hop oil content of 15%)</p> <p>Add 13.4 g/hl <b>Salvo™</b> toward the end of the boil. This corresponds to a hop oil addition of 2.0 g/hl.</p>
<b>ADDITION</b>	<p>If <b>Salvo™</b> is added manually, it should be warmed to 75°C (167°F) and gently mixed to ensure perfect dosing.</p>
<b>STORAGE</b>	<p><b>Salvo™</b> should be stored in sealed containers at temperatures &lt; 10°C (50°F). If measuring out smaller amounts for each brew, make sure extract is thoroughly mixed to evenly disperse the hop oil. Cover containers being filled, label, and store in refrigerator or freezer until needed. Open container should be sealed up or used within 6 months.</p>
<b>BEST BEFORE DATE</b>	<p><b>Salvo™</b> is stable for six years from the date it was produced / packaged if stored under the recommended conditions.</p>
<b>SAFETY</b>	<p><b>Salvo™</b> should be handled like regular CO2 extract. Any product coming into contact with the skin should be immediately washed off with soap and water or an appropriate hand cleanser. If <b>Salvo™</b> gets into the eyes, flush with copious amounts of water until clear and seek medical attention.</p> <p>For full safety information, please refer to the relevant Ellerslie Australia safety data sheet.</p>

## ANALYTICAL METHODS

<b>CONCENTRATION OF BETA ACIDS</b>	<p>Beta acids (as well as iso-alpha acids and alpha acids) can be measured using the following methods:</p> <ul style="list-style-type: none"> <li>HPLC according to Analytica-EBC 7.8 or ASBC Hops-16 with the current ICS and ICE standards.</li> </ul>
<b>CONCENTRATIONS OF HOP OIL</b>	<p>The hop oil concentration can be measured using the following methods:</p> <ul style="list-style-type: none"> <li>Analytica-EBC 7.10</li> <li>ASBC Hops-13</li> </ul>

## TECH 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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