



TotallyNaturalSolutions®
hop aromas & flavours to inspire

HopShot® – Late Hop Flavour

HopShot® is a flowable, natural 100% hop extract prepared from hop cones or pellets by innovative extraction and distillation methods. HopShot® consists of hop oil components in a soluble carrier.

HopShot® provides an easy to use, reproducible method of adding hop flavour to beer without the need to remove spent hop and associated beer losses! An addition of HopShot® gives a 'late hop' flavour as if pellets were added to the beer in kettle or whirlpool at flame out. HopShot® delivers flavours characteristic of the specific variety of hops from which it is prepared. The extract can also enhance pleasant existing flavours and mask some off-flavours in the beer.

Light stable

All products are free of iso and alpha acids and can be used with any beer packaging type.

Fully soluble

HopShot® utilisation is 80% if used in pre fermentation and up to 100% if dosed direct to bright beer.

Easy handling

Flowable, soluble hop oil extract provided as a standardised solution for dosing into bright beer.

Natural, clean label

100% extract from hops by physical processes.

Hop Varieties

Totally Natural Solutions offers a comprehensive range of hop extracts from main growing regions in Europe, New Zealand and the USA.

Popular examples include:

Product Name	Character	Typical Dose Rate	Suggested Beer Style
HopShot® Taiheke	Grapefruit, citrus, floral	10ml/hl	Classic Pale Ale
HopShot® Limonata	Lemon, fresh, hoppy	10ml/hl	Refreshing Craft Dry hop lager
HopShot® Citrulicious	Intense, citrus, fruity	20ml/hl	West Coast IPA
HopShot® Chinook	Piney, citrus fruity	20ml/hl	IPA, DIPa
HopShot® Moutere	Tropical fruits	15ml/hl	NEIPA

We also offer a range of late hop HopShot® as fractions of hop oils using our proprietary

Product Name	Character	Typical Dose Rate	Suggested Beer Style
HopShot® IPA	Green, hoppy, intense	10ml/hl	IPA
HopShot® Lager	Citrus, fresh, floral	10ml/hl	Lager
HopShot® Citrussy	Clean, citrus, fruity	15ml/hl	Lager, IPA
HopShot® Spicy	Spicy, woody	15ml/hl	Ale, IPA
HopShot® Floral	Classic, floral, fresh	10ml/hl	Lager

Product Specifications

Description: water white solution, can be hazy

Odour: characteristic of named hop variety

Specific gravity (20°C) 1.030 – 1.040

Flash point: >90°C (194°F)

Product use

The HopShot® extracts are used to replace or reduce the charge of hop pellets used in late hopping. As such they improve beer consistency, reduce microbial risks and reduce beer loss through absorption onto the hop leafy material.

The extracts are 100% hop and are used strategically.

Late Stage Differentiation

The products can be used to differentiate from a single wort stream or to add layers of aroma and flavour to an existing product.

Premiumisation

Small additions of HopShot® to an existing beer can add a premium hop aroma, enhancing the existing beer to a new height.

Pivoting and New Product Development

Development times are dramatically reduced as benchtop evaluations can provide indicative beer character. TNS can support NPD work.

Cost Reduction

Improved utilisation will reduce the cost in use and realise no beer loss when using HopShot®

HopShot® are fully soluble in beer and are intended for addition to fined or filtered beers. They can be dosed into finished beer without the need for subsequent filtration, with gentle mixing required for maximum effect. The optimum way of dosing HopShot® products is with an in-line dosing system into the beer stream on transfer to the bright beer tank or racking vessel.

HopShot® can also be added direct into the finishing vessel prior to transferring the beer, where the transfer provides mixing. For dosing direct to casks, we recommend doing so either during the racking process or into the full cask. HopShot® should be added separately from cask finings.

Product Development

Trials to determine the concentration required for balanced beer aroma and flavour effect should start with initial dose rate of 10ml/hl of HopShot®.

This can be dosed to a bottle of beer using a pipette at a rate of 0.1 µL/ml bottle volume (i.e for a 330 ml bottle dose 33 µl). Chill the beer to normal drinking temperature and add the required volume of HopShot® into the beer. Re-cap the bottle, inverting to mix and then chill for minimum 2 hours before tasting.

Dose rate

Typical dose rates are in the range of 5 – 40 ml/hl (0.05 – 0.4 ml/l). Dependent on base beer style and desired effect. Dose rate can be altered within this range. A good starting dose is 10ml/hl equivalent. (Note 1ml is equivalent to 10ppm)

Calculation example

	<i>Equivalent</i>	<i>Equivalent</i>	Dose rate	Addition rate
36 gallon barrel	<i>288 pints</i>	<i>163 litres</i>	10ml per hl	16.5 ml per barrel
9 gallon cask	<i>72 pints</i>	<i>41 litres</i>	10ml per hl	4ml per cask

Bench top trials can be viewed at our website www.totallynaturalsolutions.com

Packaging

Standard packaging for HopShot® is a 1 litre or a 5 litre aluminium flask, or 20lt steel lacquered drums.

Small pack, 15ml and 100ml bottles are available on our webshop.

Storage and shelf life

HopShot® are stable in unopened containers for at least 12 months in the packaging supplied and should be stored at 5 - 25°C. Once opened they should ideally be used within 3 months.

Regulatory

HopShot® are made using clean label technologies, without solvent residues or chemical reagents. In the European Union they may be classified as natural hop flavouring or hop extract according to the flavouring legislation (EU1334/2008EC).

In the USA, HopShot® is classified as a natural extractive, since essential oils, oleoresins and natural extractives (including distillates) from hops are GRAS for their intended use (21.C.F.R. § 582.20)

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With our **KNOWLEDGE** and **PASSION** we create **INNOVATION**
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