

四氢异构酒花浸膏

Tetra Iso-Extract

概述 OVERVIEW

四氢异构酒花浸膏是一种由二氧化碳酒花浸膏萃取的四氢异 α -酸钾盐纯水溶液。
Tetra Iso-Extract (Tetra) is a pure, aqueous solution of the potassium salts of tetrahydro iso-alpha acids derived from CO₂ hop extract.

当作为发酵后替代部分常规苦味产品使用时，四氢异构酒花浸膏能显著增强啤酒泡沫。
Tetra greatly enhances beer foam when used as a post-fermentation replacement for a portion of conventional bittering products.

当作为唯一苦味来源、或与其他光稳定酒花产品配合使用时，四氢异构酒花浸膏可有效防止啤酒产生日光臭。
Tetra provides protection against lightstruck flavor when used as the sole source for bitterness or in combination with other light stable hop products.

规格 SPECIFICATIONS

简述 Short description:	光稳定型水溶性酒花浸膏，具有强烈的苦味和泡沫稳定性。 light-stable, aqueous hop extract with intense bitterness and foam-stabilizing properties
α -酸 Alpha acids:	未检出 below detection limit
异 α -酸 Iso-alpha acids:	未检出 below detection limit
还原异 α -酸 Rho iso-alpha acids:	9.0 \pm 0.5 % (w/w) HPLC 10.0 \pm 0.5 % (w/w) Spectro
酸碱度 pH:	9.5 \pm 1.0
密度 Density:	ca. 1.02g/ml (20°C)
黏性 Viscosity:	<2-6 mPas (20°C/68°F)

性能 PACKAGING

外观 Appearance

四氢异构酒花浸膏是一种均质、澄清的琥珀色水溶液。
Tetra is a homogeneous, clear aqueous solution that is amber in color.

风味 Flavor

与异 α -酸相比，四氢异构酒花浸膏能提供1.0至1.3倍的感官苦度。实际苦度强度主要取决于苦味单位的添加量及啤酒类型，因此必须通过前期测试，确定目标苦味单位数量，以获得正确的感官苦度水平。
Tetra provides 1.0 to 1.3 times the sensory bitterness compared to that achieved with iso-alpha acids. The actual intensity of bitterness depends primarily on the quantity of bittering units and the type of beer. Therefore, the target number of bittering units must be determined in preliminary tests in order to achieve the correct level of sensory bitterness.

利用率 Utilization


根据成品啤酒的高效液相色谱(HPLC)分析结果，四氢异构酒花浸膏的利用率在60-80%之间，具体取决于添加时机和效率。实际利用率会因各啤酒厂的设备和工艺条件差异而有所不同。
Based on HPLC analysis of the finished beer, utilization of Tetra is 60 - 80 %, depending on the timing and efficiency of the addition. Actual utilization will vary from brewery to brewery due to differences in equipment and process conditions.

光稳定性 Light Stability

四氢异构酒花浸膏仅在完全不含 α -酸和异 α -酸的情况下，才能有效防止日光臭的产生。本产品可与任何斯丹纳光稳定产品配合使用，以实现光稳定性。
Tetra only provides protection against lightstruck flavor in the complete absence of alpha acids and iso-alpha acids. Tetra can be used in conjunction with any Hopsteiner® light stable product to achieve light stability.

泡沫稳定性 Foam Stability

四氢异构酒花浸膏能同时提升泡沫持久性和挂杯性。当成品啤酒中四氢异 α -酸含量达到2-3mg/l时，即可明显改善啤酒泡沫性能。

Tetra only provides protection against lightstruck flavor in the complete absence of alpha acids and iso-alpha acids. Tetra can be used in conjunction with any Hopsteiner  light stable product to achieve light stability.

质量 Quality

所有斯丹纳产品均在符合国际认证质量标准的生产设施中加工制造，并配备完善的残留物监控体系。

All Hopsteiner products are processed in facilities which fulfill internationally recognized quality standards. A monitoring system for residues is in place.

包装规格 PACKAGING

本产品采用标准包装规格，也可以根据客户要求提供其它规格。

Our products are delivered in their respective recommended standard packaging. Alternatives may be possible upon customer request.

美国(US)与德国(DE)加工厂的包装规格如下：

Standard packages of our processing plants in the USA (US) and Germany (DE) are:

- 罐装 Canister : 20 kg (US / DE)
- 壶装 Jug : 10 kg (US)
- 桶装 Pail : 20 kg (US)

产品使用 USAGE

四氢异构酒花浸膏通常作为发酵后添加剂使用，并在最终过滤步骤前添加。

Tetra is typically used as a post-fermentation addition and prior to the final step in filtration.

光稳定啤酒制备要点 For Light Stable Beer

为确保防日光臭效果最佳，须避免在麦汁或啤酒中混入任何来源的非还原异 α -酸，需特别注意：

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:

- 全程仅使用光稳定酒花产品
exclusive use of light stable hop products throughout the entire process.
- 避免接触曾与常规异 α -酸接触过的设备表面
avoid contamination through equipment surfaces previously in contact with regular iso-alpha acids.
- 禁止使用接触过常规 α -酸/异 α -酸的酵母菌种
never pitch wort with yeast that has been in contact with regular alpha and iso-alpha acids.

添加量 Dosage

需根据预估/已知利用率、和目标啤酒苦度来确定添加量。需注意：四氢异构酒花浸膏的感官苦度，约为传统酒花产品异 α -酸的1.0-1.3倍。具体添加量需通过啤酒厂试验确定。

Dosage is based on the product concentration, an estimated or known utilization and the desired intensity of bitterness in the beer. The fact that the perceived bitterness of Tetra is about 1.0 to 1.3 times the bitterness of iso-alpha acids derived from conventional hop products must be taken into consideration. The correct dosage of Tetra must be determined through trials at the brewery.

添加方法 Application

建议将四氢异构酒花浸膏以原液（未稀释）形式添加至啤酒流中心，添加量至少应覆盖输送总量的70%。需使用精确的高压计量泵，在能够确保充分混合的位置、将产品注入啤酒流中。四氢异构酒花浸膏可在常温下添加。如需稀释，请务必先将四氢异构酒花浸膏加入去离子水中，并使用氢氧化钾（KOH）或碳酸钾（K₂CO₃）将pH调节至8.5-9.5。建议在商业化应用前进行实验室规模测试。如果产品要在几天内分次使用，建议在包装容器顶部空间填充氮气（不可使用二氧化碳）。

We recommend adding Tetra at full strength (undiluted) into the center of the beer stream for at least 70 % of the total volume being transferred. An accurate, high pressure dosing pump is required to add the product into the beer stream at a point where vigorous mixing is assured. Tetra can be added at ambient temperatures. If dilution is necessary, always add Tetra to demineralized water first and adjust the pH to 8.5 - 9.5 using either potassium hydroxide (KOH) or potassium carbonate (K₂CO₃). Laboratory scale testing is recommended prior to commercial use. If containers are used over several days, it is recommended that the headspace be flushed with nitrogen (CO₂ is not suitable).

清洁建议 Cleaning Recommendation

请勿让四氢异构酒花浸膏在低温条件下滞留于加料管路中。应使用温热的弱碱性去离子水、或乙醇冲洗管路和计量泵进行清洁。

Tetra should not be left in dosing lines at low temperatures. Lines and dosing pumps should be flushed with warm, slightly alkaline, demineralized water or ethanol for purposes of cleaning.

存储 Storage

建议在5-25°C（41-77°F）存储（未启封）。

The recommended storage temperature in the original unopened packaging is 5-25°C（41-77°F）.

如需长期储存，10-20°C（50-68°F）为理想温度范围。

For prolonged storage, a temperature of 10-20°C（50-68°F）is ideal.

最佳使用时间 Best Before Date

在建议的储藏条件下，最佳使用时间为生产/包装日期后至少两年。

Under the recommended storage conditions, the shelf life from the date of production/ packaging is at least 2 years.

安全性 Safety

确保工作场所通风良好，并佩戴个人防护装备。避免接触眼睛和皮肤，请勿吸入蒸汽或粉尘。更详尽的安全资料请参考斯丹纳产品安全数据表。

Ensure good ventilation of the workplace and wear personal protective equipment. Avoid contact with eyes and skin. Do not inhale vapors or dusts. For full safety information, please refer to the relevant Hopsteiner safety data sheet.

分析方法 ANALYTICAL METHODS

使用ASBC（美国酿造协会）和Analytica-EBC（欧洲酿造协会）等国际权威机构颁布的最新标准方法进行检测。

International approved methods listed in committees such as ASBC or Analytica-EBC using current standards are applied.

产品分析 Product analytics

苦味物质含量 Concentration of bitter substances

- Analytica-EBC 7.9 (HPLC)
- ASBC Hops-18 (Spectro)

啤酒分析 Beer analytics

啤酒中还原异 α -酸含量 Concentration of reduced iso-alpha acids in beer

- Analytica-EBC 9.47 (HPLC)

注意事项：当使用较高剂量的四氢异构酒花浸膏时，可能需要调整啤酒苦味值的标准计算公式（Analytica-EBC 9.8或ASBC Beer-23A），因为这些公式会导致计算结果偏低。

The standard formula for calculating bitter units in beer (Analytica-EBC 9.8 or ASBC Beer-23A) may need to be adjusted as it results in too low values when using higher amounts of Tetra.

泡沫稳定性及挂杯测试：

Foam stability and Cling test:

- NIBEM Cling
- NIBEM-T Meter
- Pour Test
- Ross & Clark
- Steinfurth Foam Stability Tester

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