

Rho-Extract

Rho-Extract is prepared from CO₂ hop extract and can be used as a complete replacement for normal kettle extract. It contains reduced (*Rho*) isomerised alpha acids (in their potassium salt form), beta acids and hop oils. *Rho-Extract* is light stable and gives substantial protection against light-struck flavors when used as the sole source of hop-derived bittering. It provides utilization improvements similar to other pre-isomerized kettle products.

Specifications:

Description: A golden to amber, semi-fluid syrup or paste.

Rho-Iso- α -acids: Approx. 40 % (depending on varieties)

Iso- α -acids: < 0.3 %

α -acids: < 0.1 %

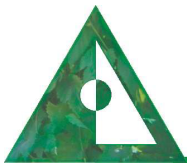
β -acids: 12 – 35 % (depending on variety)

Hop oils: 2 – 10 % (depending on variety)

Density: 1.05 – 1.10 g/mL

Quality:

All Aromatrix Flora products are produced in plants accredited to internationally accepted quality standards.



AROMATRIX FLORA PVT. LTD.

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Product Use:

We recommend that *Rho*-Extract be used in the kettle as a complete replacement for hops, hop pellets or standard hop extracts. Based on HPLC analysis, utilization of *rho*-iso- α -acids in beer can be 50 – 75 %. Trials have also shown that hop oil retention is significantly enhanced when *Rho*-Extract is added late in the kettle boil. Unlike all other reduced products added post-fermentation, the flavor characteristics of *Rho*-Extract are similar to those of normal CO₂ extract. The presence of both β -acids and hop oils in the kettle results in a more rounded, fuller flavor and the reduced Iso- α is said to produce a ‘softer’ bitterness than normal Iso-alpha acid.

➤ Dosage

Determination of the dosing rate is of course based on the anticipated utilization but must take account of the fact that reduced (*rho*) iso- α -acids are inherently about 30 % less bitter than are normal iso- α -acids. Addition to the kettle should also be based on the *rho*-iso- α -acids concentration in the *Rho*-Extract and calculated on the presumption that the utilization is likely to be at least 50 % better than that achieved with normal CO₂ hop extracts. Actual utilization will vary from brewery to brewery depending on plant and process conditions.

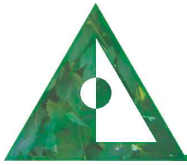
➤ Addition

Rho-Extract may be added at any time during wort boiling. However, for imparting “late hop” character, a substantial portion of the *Rho*-Extract should be added between 15 and 5 minutes before kettle cast. If the *Rho*-Extract is used in cans, it does not need to be warmed prior to use. However, should *Rho*-Extract be used in automatic dosing units, it should first be warmed to about 55 °C (131 °F) and then thoroughly mixed to ensure perfect dosing.

➤ Light Stability

For maximum protection against “Light-struck” flavors, it is essential that no other sources of non-reduced iso-a-acids be inadvertently introduced into the wort or beer. Therefore, be sure to:

- Avoid contamination from equipment surfaces that have been in contact with normal iso- α -acids.
- Never pitch wort with yeast that has been in contact with normal α - and iso- α -acids.



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Packaging:

Standardisation of the *rho*-Iso- α -acid content can be achieved by adjusting the weight of extract in each container. *Rho*-Extract is packaged in cans of 0.5 to 1 kg. Non-returnable bulk containers are available in size of 200 kg. For convenience of use, customers may have their extract packed in cans to any desired content of *rho*-iso- α -acids per container (e.g. 400 g *rho*-iso-a per can). (Recommended).

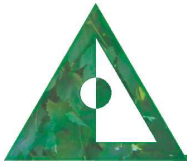
Containers meet all food industry packaging regulations. When bulk containers are supplied for automatic dosing units, viscosity analysis maybe provided on request. All internal surfaces of containers are lined with a food grade coating.

Storage and Best-Before Recommendation:

Rho-Extract should be stored in sealed containers at $< 10\text{ }^{\circ}\text{C}$ ($50\text{ }^{\circ}\text{F}$). Opened containers should be used within a few days. *Rho*-Extract is stable 2 years from date of production under the recommended storage conditions.

Safety:

Rho-Extract is derived from a natural material and may be safely handled using routine precautions to avoid contact with skin and, particularly, eyes. Any material coming into contact with the skin should be washed off with soap and water or proprietary hand cleansers. If *Rho*-Extract gets into the eyes, irrigate thoroughly with water until clear and seek medical attention. For further information please see the relevant Aromatrix Flora Material Safety Data Sheet (MSDS) from our web site.



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Analytical Methods:

The following methods of analysis are recommended for *Rho*-Extract:

- ❖ *Rho*-iso- α -acids, β -acids and residual α -acids can be measured by any of the following methods:
 - By HPLC, using the current ICS & ICE standards, according to the EBC 7.8 method

- ❖ Hop oil concentration can be measured by:
 - EBC 7.10
 - ASBC Hops-13

Technical Support:

We will be pleased to offer help and advice on the use of *Rho*-Extract in brewing.