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| Approved By: | Philip Woodnutt |



## Technical Data Sheet

### Voss Kveik Dehydrated Yeast

#### Product Description

**Voss (Ragnar) Dehydrated Yeast** is developed by WHC Lab.

Elevate your brewing to new heights with our Norwegian Voss Kveik yeast, a true gem among the farmhouse Kveik strains and an ode to the brewing traditions of Norway in the Voss region. This yeast strain is a legend in the making for its fast fermentation speed and ability to withstand high temperatures. Reduced chilling across the brewery operations and shorter conditioning/fermentation times can contribute to increased savings and higher sustainability practices.

Voss Kveik is more than a yeast strain; it's a game-changer. Its exceptional thermotolerance allows you to push the brewing and distilling envelope, reaching temperatures as high as 40°C, a unique feature that opens up a world of possibilities for flavor experimentation. When you do, the result is a symphony of orange and citrus esters, creating a vibrant and unforgettable taste experience that sets your brews apart. Reducing the temperature produces a much cleaner flavour profile that suits or beer styles making it a great strain for nearly all beer styles.

Voss Kveik isn't just for the adventurous; it's perfect for high-gravity brewing as well, with a remarkable ABV tolerance and fermentation speed. From farmhouse ales to experimental IPAs and stouts, Voss Kveik brings a touch of Norwegian magic to your brewery.

#### Guidelines

Oxygenation and/or rehydration may not be needed for generation 0 but may be beneficial. It should be noted that Voss (Ragnar) Dehydrated Yeast may be needed to be pitched at a higher temperature range than other brewery yeast. It is recommended that the temperature of the wort exceeds 30°C [86°F] but no greater than 40°C [104°F]. It should also be noted that Voss may require a low pitching rate with other yeast products. The pitch rate is between 30-100g/hl of wort. It is recommended to have a pitch rate of at least 30g per hl of wort for a standard gravity brew (1.045).

The intended fermentation temperature range is 30°C to 40°C [86°F to 104°F].

#### Ingredient Declaration

|                  |                                       |
|------------------|---------------------------------------|
| Yeast            | 98.8% to 99.2%                        |
| Emulsifier E491* | 0.8% to 1.2% (*Sorbitan Monostearate) |

#### Technical Specification

|                          |                                 |
|--------------------------|---------------------------------|
| Yeast Strain             | <i>Saccharomyces cerevisiae</i> |
| Dosage                   | 30-100g/hl                      |
| Fermentation Temperature | 30°C to 40°C<br>86°F to 104°F   |
| ABV Tolerance            | 14%                             |
| Nitrogen Demand          | Very High                       |
| Attenuation              | 76% to 80%                      |
| Flocculation             | Medium                          |
| Weight                   | 0.5 kg                          |

#### Physical, Chemical and Microbiological properties

| Parameter                     | Unit of Measure | Value  | Specification Value      |
|-------------------------------|-----------------|--|--------------------------|
| Appearance                    | -               | Fine granules<br>(typically 3mm particle size) | -                        |
| Powder flow characteristics   | -               | Free flowing granules                          | -                        |
| Odor                          | -               | Weak characteristic yeast smell                | Typical                  |
| Color                         | -               | Light brown/beige                              | Light brown/beige        |
| Solubility                    | -               | Miscible in water & ethanol solutions          | -                        |
| Dry matter                    | %               | 95.4   | > 92                     |
| Moisture                      | %               | 4 to 6   | < 8                      |
| Total Yeast Plate Count       | Cfu/g           | 1.3 x 10 <sup>10</sup>                         | >10 <sup>10</sup>        |
| Direct Live Cell Count        | Cells/g         | 1.9 x 10 <sup>10</sup>                         | > 1.9 x 10 <sup>10</sup> |
| Lactic Acid Bacteria          | Cfu/g           | < 10   | < 10 <sup>3</sup>        |
| Acetic Acid Bacteria          | Cfu/g           | < 10   | < 10 <sup>4</sup>        |
| Wild Yeasts                   | Cfu/g           | < 10   | < 10 <sup>5</sup>        |
| Moulds                        | Cfu/g           | < 10   | < 10 <sup>2</sup>        |
| Coliforms                     | Cfu/g           | < 10   | < 10 <sup>2</sup>        |
| <i>Escherichia coli</i>       | Cfu/g           | Absent in 1 g                                  | Absent in 1 g            |
| <i>Staphylococcus aureus</i>  | Cfu/g           | Absent in 1 g                                  | Absent in 1 g            |
| <i>Salmonella spp</i>         | Cfu/g           | Absent in 25 g                                 | Absent in 25 g           |
| <i>Listeria monocytogenes</i> | Cfu/g           | Absent in 25 g                                 | Absent in 25 g           |

#### Allergens\*

Voss Dehydrated Yeast does not contain added allergens.

\*EU Regulation 1169/2011 (Food Information Regulations) (Annex II)

#### GMO

Voss (Ragnar) Dehydrated Yeast does not contain genetically modified organisms or materials.

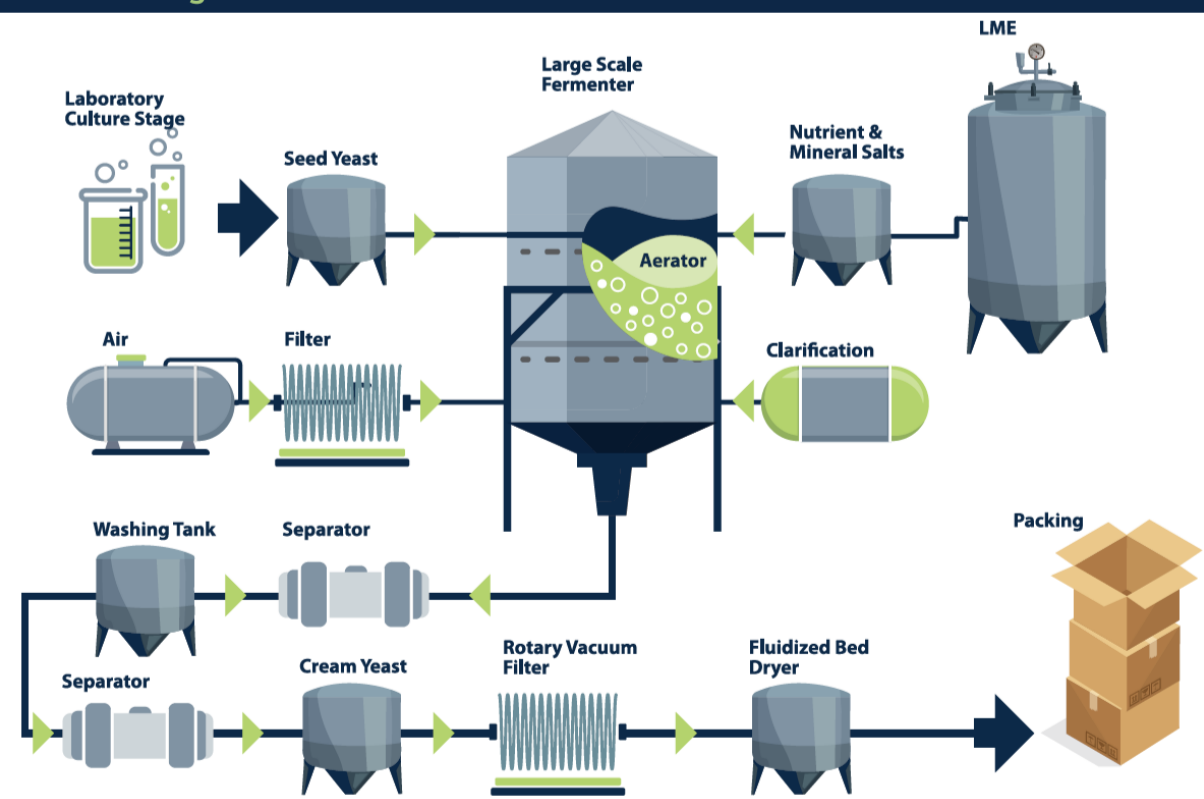
#### Packaging

Voss (Ragnar) Dehydrated Yeast is available in 500g vacuum-packed silver foil packs. This material complies with relevant food-contact legislation, including, EU Regulation 1935/2004 (materials intended for contact with food), EU Regulation 1245/2020 (plastic materials intended for contact with food), EU Regulation 2023/2006 (GMP for materials intended for contact with food), and FDA CFR 21 (174-179) (USA).

#### Storage and Handling

|                     |  |
|---------------------|--|
| Storage Conditions: | Store at cool to ambient temperatures (ideally 5°C to 15°C or 41°F to 59°F), dry, and well-ventilated environment.   |
| Shelf life:         | 3 years from date of production, if vacuum seal is not broken, and if stored as outlined above.  |
| Handling:           | Once opened, re-seal to keep out air and water. For best results, store re-sealed packs in a refrigerator (0°C to 10°C or 32°F to 50°F) and use promptly. Please note expiry date on packs prior to opening.<br><br><b>When added to water or a water solution, Voss Dehydrated Yeast releases CO<sub>2</sub>, especially on substrates high in sugars or starch. Ensure adequate ventilation to keep levels below advised exposure limits.</b><br><b>Please request a Material Safety Data Sheet/MSDS for further advice.</b> |

#### Manufacturing Chart



#### Flavour Chart

| Dark fruit | Clean | Tropical Fruit | Banana | Green Apple | Citrus | Candy  | Grassy | Bubblegum |
|------------|-------|----------------|--------|-------------|--------|--------|--------|-----------|
|            |       |                |        |             |        |        |        |           |
| MEDIUM     | LOW   | HIGH           | MEDIUM | HIGH        | HIGH   | MEDIUM | MEDIUM | LOW       |

#### Beer Styles

**Amber Ale, Brown Ales, Double IPAs, Imperial Stouts, IPAs, NEIPAs, Pale Ales, Porters, Red Ales, Stouts, West Coast IPAs**

If you have any questions or concerns about our product please contact us at [lab@whclab.com](mailto:lab@whclab.com)