SOLVAY

THE NATURAL ALTERNATIVE TO VANILLA BEANS EXTRACT &/OR SYNTHETIC VANILLIN

Natural & Clean Label are among the top requirements that come when speaking about Food Consumers trends. Solvay offers the reliable universal natural solution that can meet natural regulations around the globe while mitigating key concerns about taste, competitiveness & reliability of sourcing.

RHOVANIL® NATURAL, THE MARKET-LEADING UNIVERSAL NATURAL VANILLIN SOLUTION

A SUSTAINABLE TECHNOLOGY:

Bio-sourced ferulic acid from rice  Bioconverted by fermentation  NON GMO

SWITCH FROM A SYNTHETIC VANILLIN TO A NATURAL SOLUTION

The simple & efficient substitute to secure your business with a limited investment & the same genuine vanillin top note

- SAME DOSAGE 1:1 switch, no reformulation cost, same top note profile
- SAME LABELING : Same « vanillin» labeling possibility - Or Opportunity to showcase ‘Natural flavour’ on your packaging ▶ Chart on back of this document
- SAME REGULATORY COMPLIANCE
- SAME QUALITY AND PERFORMANCE RELIABILITY
- A MARGINAL COST-IN-USE IMPACT in the final product (due to the small amount of natural vanillin inside)

PROTECT YOUR BUSINESS FROM VANILLA BEAN EXTRACT QUALITY & PRICE FLUCTUATIONS

The reliable natural source at an affordable price

- RELIABILITY OF SUPPLY: Secured sourcing of raw material, less sensitive to weather and crop fluctuation risk
- COMPETITIVE & STABLE PRICING : Traded on a regulated market compared to beans
- QUALITY & TASTE CONSISTENCY:
  - High consistent quality due to a fully mastered bioconversion process
  - High consistent taste profile thanks to a perfect consistency, ensuring Brand preservation
  - Similar organoleptic profiles :

Sensory evaluation performed by a trained panel-Solvay Vanil’Expert Center

A SUSTAINABLE TECHNOLOGY:

NATURAL Caramel Buttery Phenolic
Bio-sourced ferulic acid from rice Bioconverted by fermentation NON GMO

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**EU REGULATIONS (EC 1334/2008)**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Vanillin source</th>
<th>Eugenol</th>
<th>Curcumin</th>
<th>Catechol</th>
<th>Lignin</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Natural raw material</td>
<td>Vanilla bean</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>2. Traditional process*</td>
<td>Ferulic acid from rice bran</td>
<td>✔️</td>
<td>✔️</td>
<td>❌</td>
<td>❌</td>
</tr>
<tr>
<td>3. Final substance present in nature</td>
<td></td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
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</tbody>
</table>

Natural flavouring substance

**LABELING IN EUROPE: NATURAL FLAVOURING/ FLAVOUR/ VANILLA FLAVOUR/VANILLIN**

*Authorized traditional food preparation processes highlighted in Annex II of EC 1334/2008 include extraction, distillation, fermentation, microbiological processes, heating, cooking, baking, frying (up to 240°C at atmospheric pressure) and pressure cooking (up to 120°C).*

**US REGULATIONS FDA 21 CFR 101.22 & TTB (ALCOHOL AND TOBACCO TAX AND TRADE BUREAU)**

<table>
<thead>
<tr>
<th>FDA</th>
<th>1. Natural raw material</th>
<th>2. Allowed natural process**</th>
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<td>&quot;Ex-ferulic vanillin made by bioconversion has been determined to be a natural process resulting in a natural product.&quot;</td>
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**LABELING IN THE US: VANILLIN/ VANILLIN DERIVED BY A NATURAL PROCESS**

**FOCUS ON INNOVATIVE NATURAL VANILLIN BASED SOLUTIONS**

- REPLACE VANillin OR VANILLA BEAN EXTRACT IN DEMANDING FOOD APPLICATIONS
- BENEFIT FROM FUNCTIONS SUCH AS MASKING OFF NOTES AND MOUTHFEEL EFFECT

Based on **RHOVANIL’ NATURAL**

Cost-effective alternative

Consistent taste performance matching the bean extracts profile

Contact our Team to know more about the most appropriate solutions for your challenges: product.info@solvay.com

www.safevanillin.com