ESHA Research

ESHA Research was established in 1981 as one of the very first nutrition software solutions. Today, ESHA’s suite of nutritional software products, services, and databases are recognized as the industry’s top choice for food and supplement formulation, recipe development, labeling, nutritional analysis, and regulatory compliance.

**ESHA Solutions**
- Genesis R&D® Food Formulation
- Genesis R&D® Supplement Formulation
- Food Processor® Nutrition & Diet Analysis
- Consulting Services

Our mission is to help remove the complexity of product development and regulatory compliance for the food, beverage, and supplement industries through software, services, and nutritional databases.
Genesis R&D Foods

Genesis R&D Foods, first released in 1991, is designed to help users manage processes, overcome industry challenges, and meet federal requirements. Industry professionals use Genesis R&D for quick and accurate nutrient evaluation, virtual product development, nutrition labeling, and regulatory compliance.

• Product Development
• Formulation Analysis
• Menu Analysis
• Reporting
• Regulatory Compliance
Upcoming Webinars

During this webinar, we will provide an overview of the FDA’s ingredient statement requirements and demonstrate how to modify the automatically generated ingredient list in Genesis R&D. We will also discuss best practices and common mistakes.

April 14, 2021 | Genesis R&D Foods 101 – Part 4: Allergens
During this webinar, we will demonstrate how to modify your allergen statement and discuss best practices for compliance when working with the Allergen features in Genesis R&D.

To view archived webinars or sign up to receive notifications, visit: www.esha.com/news-events/webinars
Please Note!

✓ The webinar is being recorded
✓ All webinars available on our website
✓ Submit your questions in the GoToWebinar control panel
✓ We’ll email a copy of the recording and the slides following the webinar
What We’ll Cover Today

- Entering Recipes in Genesis R&D
- Setting Serving Size and RACC
- Reviewing Recipes
- Take a Look at the Label
- Best Practices for Organizing and Documenting your Recipes
- Q&A
Recipes

Working with Recipes is one of the foundational functions of Genesis R&D

• Build Recipes from Ingredients
• Entering serving size
• View analyses in various reports and formats
• Create Nutrition Facts labels
Recipe Analysis

• Enter your supplier ingredients or use ESHA Database items
• Select ingredients that most accurately represent your finished product
• Consider processes in the preparation of the food that might affect the nutritional content of the finished product
• Batch size – any size, large or small
  • Standard batch per your manufacturing
  • Per serving
  • By Percent of ingredients: 100g = 100%

### Nutrition Facts

- 8 servings per container
- **Serving size**: 1 slice (59g)

<table>
<thead>
<tr>
<th>Amount per serving</th>
<th>Calories: 180</th>
<th>% Daily Value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Fat</td>
<td>6g</td>
<td>8%</td>
</tr>
<tr>
<td>Saturated Fat</td>
<td>4g</td>
<td>20%</td>
</tr>
<tr>
<td>Trans Fat</td>
<td>0g</td>
<td></td>
</tr>
<tr>
<td>Cholesterol</td>
<td>25mg</td>
<td>8%</td>
</tr>
<tr>
<td>Sodium</td>
<td>190mg</td>
<td>8%</td>
</tr>
<tr>
<td>Total Carbohydrate</td>
<td>30g</td>
<td>11%</td>
</tr>
<tr>
<td>Dietary Fiber</td>
<td>1g</td>
<td>4%</td>
</tr>
<tr>
<td>Total Sugars</td>
<td>15g</td>
<td></td>
</tr>
<tr>
<td>Includes 14g Added Sugars</td>
<td>28%</td>
<td></td>
</tr>
<tr>
<td>Protein</td>
<td>3g</td>
<td></td>
</tr>
</tbody>
</table>

Vitamin D 0mcg 0%
Calcium 55mg 4%
Iron 2mg 10%
Potassium 1750mg 35%

*The % Daily Value tells you how much a nutrient in a serving of food contributes to a daily diet.
Serving Size & RACC

- Reference Amounts Customarily Consumed
- 21 CFR 101.12
- Updated for 2016 labeling
- Identify the RACC Product Category that best describes your product
- Use the RACC as the basis to determine your serving size
- Your serving size may or may not exactly match the RACC
Adjustments

• Fine-tune analyses
• Moisture Adjustment
  • Loss or Target
• Nutrient Override
  • From lab analysis or known factors
Nutrient Calculator

Assists in converting nutrients from one unit to another

- Carbohydrates, Carbohydrates (Available)
- U.S. Dietary Fiber fields
- Vitamin A
- Vitamin B3/Niacin, Tryptophan
- Vitamin D
- Vitamin E
- Folate/Folic Acid
- Salt, Sodium
Available Carbohydrates

- Available Carbohydrates is used to report Carbohydrates on EU and Mexico Labels
- Available Carbohydrates = Total Carbohydrates – Total Dietary Fiber
- ESHA Database items report Available Carbohydrates if the Total Dietary Fiber field is populated
  - FDA 2016 Dietary Fiber definition affects the reporting of Total Dietary Fiber
  - If a food or ingredient only reports Dietary Fiber (2016) per the 2016 definition and Total Dietary Fiber cannot be determined, then the Total Dietary Fiber field is blank
- When entering ingredients in your Genesis R&D, use the Nutrient Calculator tool to populate the Available Carbohydrates field
Dietary Fiber

**Total Dietary Fiber**
- Used for general entry of dietary fiber
- Used to calculate Available Carbohydrates
- Used on labels that are not U.S. 2016

**Dietary Fiber (2016)**
- Used specifically for U.S. 2016 label per FDA beneficial dietary fiber definition

<table>
<thead>
<tr>
<th>Nutrients</th>
<th>Value</th>
<th>% DV*</th>
<th>Override</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbohydrates (g)</td>
<td>43.80</td>
<td>15.93</td>
<td></td>
</tr>
<tr>
<td>Carbohydrate (Available) (g)</td>
<td>42.09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Starch (g)</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Dietary Fiber (g)</td>
<td>1.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Soluble Fiber (g)</td>
<td>0.51</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Insoluble Fiber (g)</td>
<td>0.82</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dietary Fiber (2016) (g)</td>
<td>1.71</td>
<td>6.10</td>
<td></td>
</tr>
<tr>
<td>Soluble Fiber (2016) (g)</td>
<td>0.51</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insoluble Fiber (2016) (g)</td>
<td>0.82</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-digestible Carbohydrate (g)</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soluble Non-digestible Carbohydrate (g)</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insoluble Non-digestible Carbohydrate (g)</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Sugars (g)</td>
<td>5.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Added Sugar (g)</td>
<td>5.62</td>
<td>11.24</td>
<td></td>
</tr>
</tbody>
</table>
Check Data

• Use as part of your standard review of Recipes
• Compares estimated/calculated values to data as entered
• Does not indicate compliance or non-compliance, but serves as helpful feedback
Review the Spreadsheet Report

- Complete and correct entry of Ingredients contributes to accurate and compliant recipe analysis and labels. Review the Spreadsheet report for ALL recipes to ensure that required information is reported.
- Identify missing values (indicated by dashes) and populate the nutrient field(s) in the **Ingredient record** to fill in the blanks.
Nutrients to View

- Sets of nutrients pertinent to your reports or needed for labels
- Genesis R&D includes several predetermined sets of nutrients
- Create as many new sets as you need
- Switch between the sets at any time
Groups in Genesis R&D

- Help organize data
- Select from existing Groups or create your own
- Can assign an ingredient or a recipe to multiple Groups
- MyPreferences: to always assign new items to Group(s)
**Nutrition Facts**

12 servings per container
Serving Size: 2 slices (56g)

<table>
<thead>
<tr>
<th>Amount per serving</th>
<th>Calories</th>
<th>% Daily Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>210</td>
<td></td>
</tr>
<tr>
<td>Total Fat g</td>
<td>2 g</td>
<td>3%</td>
</tr>
<tr>
<td>Saturated Fat g</td>
<td>0.5 g</td>
<td>3%</td>
</tr>
<tr>
<td>Trans Fat g</td>
<td>1 g</td>
<td>5%</td>
</tr>
<tr>
<td>Cholesterol mg</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Sodium mg</td>
<td>250</td>
<td>10%</td>
</tr>
<tr>
<td>Total Carbohydrate g</td>
<td>47 g</td>
<td>10%</td>
</tr>
<tr>
<td>Dietary Fiber g</td>
<td>2 g</td>
<td>8%</td>
</tr>
<tr>
<td>Sugars g</td>
<td>13 g</td>
<td>0%</td>
</tr>
<tr>
<td>Added Sugars g</td>
<td>10 g</td>
<td>0%</td>
</tr>
<tr>
<td>Protein g</td>
<td>4 g</td>
<td>0%</td>
</tr>
</tbody>
</table>

**INGREDIENTS:** Water, All Purpose Unbleached Flour (Wheat Flour, Malted Barley Flour, Niacin (Vitamin B3), Iron, Thiamin (Vitamin B1), Riboflavin (Vitamin B2), Folic Acid), Sugar, Yeast, Salt.

Contains Wheat.

**Spreadsheet: Bread**

<table>
<thead>
<tr>
<th>Item Name</th>
<th>Quantity</th>
<th>Measure</th>
<th>Cals (kcal)</th>
<th>SatCals (kcal)</th>
<th>Fat (g)</th>
<th>SatFat (g)</th>
<th>TransFat (g)</th>
<th>PolyFat (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bread</td>
<td>1 Serving</td>
<td>205.89</td>
<td>0.81</td>
<td>0.59</td>
<td>0.09</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>flour, all purpose, white, unbleached, enriched</td>
<td>49.265 Gram</td>
<td>179.32</td>
<td>0.69</td>
<td>0.48</td>
<td>0.08</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Water</td>
<td>84.4121 Gram</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>sugar, white, granulated</td>
<td>5.63029 Gram</td>
<td>21.79</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>yeast, bakers, active, dry</td>
<td>1.4075 Gram</td>
<td>4.57</td>
<td>0.13</td>
<td>0.11</td>
<td>0.01</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>salt, table</td>
<td>0.042227 Gram</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Best Practices for Documentation

• Take a snapshot in time
• Keep records of final recipe, analysis, and label used on packaging
  • Recipe
  • Spreadsheet with minimum of label nutrients – additional may be desirable
  • Label
• Use Groups to save and sort versions of Recipes
• Print to pdf in Genesis R&D to capture records
• Save pdf and attach to your Recipe
Audit Trail

• Turned off by default
• When enabled and a file is saved, records the date and user that made the save
• Useful piece of documentation as Ingredients and Recipes are modified
• Comment box to enter additional notes
Genesis R&D Training - Online

2-day Professional Training
This 2-day training session covers the fundamentals of the Genesis R&D Food program: creating ingredients, building recipes/formulas, nutrition analysis and reporting, labeling, and best practices. In addition, this session covers a comprehensive regulatory review.

1-day Advanced Training
This session covers advanced topics such as Advanced Labels, PDCAAS (protein digestibility score), range formulas, international labels, and much more. This session also covers a comprehensive regulatory review.

<table>
<thead>
<tr>
<th>2-day Professional Dates</th>
<th>1-day Advanced Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>February 23-24, 2021</td>
<td>February 25, 2021</td>
</tr>
<tr>
<td>March 23-24, 2021</td>
<td>March 26, 2021</td>
</tr>
<tr>
<td><strong>April 20-21 – USDA Focused</strong></td>
<td>n/a</td>
</tr>
<tr>
<td>May 11-12, 2021</td>
<td>May 13, 2021</td>
</tr>
</tbody>
</table>

Contact training@esha.com with any questions or to inquire about personalized training for your organization. See the Training Schedule at: https://esha.com/news-events/training-schedule/
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