Rice Milk: A clean label alternative to dairy, soy, and almond.
Hill Pharma Inc. (HPI), is a company devoted to improving the health of both people and the earth.

HPI’s proprietary, earth-friendly technology allows us to produce ingredients the way nature intended.

Our signature ingredients are – Ortiva® Rice Proteins, Pisiva® Pea Proteins, Hemptiva® Hemp Protein and Magou-V™ Monk Fruit Sweetener made from organic and Non-GMO raw materials.

Our newest ingredient - Ortiva® Rice Milk is formulated to mimic dairy milk from a protein and flavor perspective.
Rice as a Raw Material

Rice Bran (8-9%)
- Fiber-rich
- Vitamins
- Minerals
- Antioxidants

Rice Germ (1-2%)
- Phytochemicals
- Proteins
- Vitamins

Hull (20%)
- Inedible part
- Industrial uses

Rice Kernel (70%)
- Carbohydrates
- Some Proteins
- Vitamin B
Process Flow Chart

1. Receive Raw Materials
2. Organic Rice
3. PCP: Material Testing & Acceptance
4. Cleaning
5. Soaking and Grinding
6. Horizontal Filter
7. Liquid Filter Screen
8. Protein level adjusted to 9% or 20%
9. Hold Tank
10. Homogenizer
11. Sterilization
12. Drying
13. Packaging (Rice Milk)
14. QA Release of Finished Product
15. Warehouse/Shipping

Additional Notes:
- TINTED AREA INDICATES PRIMARY PATHOGEN CONTROL AREA
- GRAY AREA INDICATES PREVENTIVE CONTROL POINT (PCP)
- PCP: Metal Detector
  Fe < 1.5mm, SUS < 2.0mm, Non-Fe < 2.0mm
- PCP: 356°F 10 secs at set flow
- Magnet
New Clean Label Opportunity

Rice milk

- Cost effective
- Shelf stable up to 18 months
- Clean label
- Formulated to mimic dairy milk
  - Typically 8-10% protein with formulas up to 20% Protein. 1-2% Fat.
  - Can be used in yogurt, cheese, ice cream, coffee creamer and beverage formulations.
  - Other rice milks in the market contain rice syrup solids, maltodextrin, flavors, calcium carbonate, rice flour, fats, sugars, gums, titanium dioxide, stabilizers, etc.
  - Rice milk is also a heat and acid solution tolerant ingredient.
  - The ingredient label for Hill Pharma’s rice milk is simply - rice.
Rice in its natural state without added ‘stuff’ is readily digestible, vegan, nutritious and hypoallergenic.

Liquid rice milk currently retails for $10.24/gallon and powdered rice milk retails for $13.61/lb. (reconstitutes to $6.80/gallon). HPI’s Non-GMO spray dried rice milk costs $1.70/lb. and makes 1 gallon of rice milk. HPI’s rice milk offers formulators a 400% cost reduction as well as a clean label.

Rice milk is also a heat and acid solution tolerant ingredient.
Rise of Dairy-Free Milks: With concerns over lactose intolerance, allergens as well as antibiotic and hormone use, consumers are steadily reducing dairy consumption. The global dairy alternatives market was $11.90 billion in 2017 & is expected to reach $21.7 billion by 2022. According to Market Trends, American household penetration of dairy-free beverages has doubled in five years, with almond milk now accounting for almost 70 percent of sales. Rice milk sales were $140 million in 2016. The U.S. Census Bureau reports non-dairy alternatives will increase 108% between 2014 and 2022. The problem with dairy-free milks is they can lack the protein content of dairy. Manufacturers are boosting protein content by adding plant-based proteins.

Source: www.graedviewresearch.com

Key dates

1. Mid-1970s
   Sales of soft drinks surpass milk as the nation's No. 1 beverage.

2. 1985
   USDA recommends low-fat dairy to reduce fat intake.

3. 1990s
   Consumers object to use of rBGH in milk production.

4. 2016
   Wisconsin produces 30 billion pounds of milk, a milestone.

5. 2017
   Bottled water becomes America's No. 1 beverage.

Source: U.S. Department of Agriculture; U.S. Census Bureau
Rice vs Dairy

Nutritional Information

Advantages of using rice:

- Clean label attributes:
  - Ingredient can be listed as non-GMO or Organic rice milk
  - No allergen declaration
  - Vegan
- Neutral flavor profile, slightly sweet
- Heat stable proteins with a good Amino Acid Profile
- Low fat content
- Easily digested, (no lactose)
- Cost effective dairy alternative

<table>
<thead>
<tr>
<th>8 fl. oz. sample</th>
<th>Calories</th>
<th>Carbohydrates (Total)</th>
<th>Fat (Total)</th>
<th>Protein</th>
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</thead>
<tbody>
<tr>
<td>Cow's Milk (Whole)</td>
<td>150</td>
<td>12g</td>
<td>8g</td>
<td>8g</td>
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<tr>
<td>Cow's Milk (1%)</td>
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<td>12g</td>
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<td>8g</td>
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<tr>
<td>Cow's Milk (Skim)</td>
<td>80</td>
<td>12g</td>
<td>0g</td>
<td>8g</td>
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<tr>
<td>Rice Milk (Unsweetened)</td>
<td>60</td>
<td>10g</td>
<td>2g</td>
<td>9g</td>
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</tbody>
</table>
Rice vs Soy

Nutritional Information

Advantages of using rice:
- Clean label attributes:
  - Ingredient can be listed as non-GMO or Organic rice milk
  - No allergen declaration
  - Also Vegan
- Neutral flavor profile
- Heat stable proteins, Good Amino Acid profile
- Lower fat content
- No anti-nutritional or estrogen factors that are associated with soy

<table>
<thead>
<tr>
<th>8 fl. oz. sample</th>
<th>Calories</th>
<th>Carbohydrates (Total)</th>
<th>Fat (Total)</th>
<th>Protein</th>
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</thead>
<tbody>
<tr>
<td>Soy Milk (Unsweetened)</td>
<td>100</td>
<td>5g</td>
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<td>10g</td>
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<tr>
<td>Rice Milk (Unsweetened)</td>
<td>60</td>
<td>10g</td>
<td>2g</td>
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Rice vs Almond

Nutritional Information

Advantages of using rice:

- Clean label attributes:
  - Ingredient can be listed as non-GMO or Organic rice milk
  - No allergen declaration
  - Also Vegan
- Neutral flavor profile
- Heat stable proteins
- Lower fat content
- Lower cost

<table>
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<tr>
<th></th>
<th>8 fl. oz. sample</th>
<th>Calories</th>
<th>Carbohydrates (Total)</th>
<th>Fat (Total)</th>
<th>Protein</th>
</tr>
</thead>
<tbody>
<tr>
<td>Almond Milk (Unsweetened)</td>
<td>60</td>
<td>4g</td>
<td>4.5g</td>
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<tr>
<td>Rice Milk (Unsweetened)</td>
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<td>10g</td>
<td>2g</td>
<td>9g</td>
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</table>
Rice Milk Powder Recipes

**Rice Milk**
- ½ cup Rice Milk Powder
- 3 ½ cup Water

**Rice Yogurt**
- 10% Rice Milk Powder
- 10% Non-fat Milk Powder
- 8% Cane sugar
- 1% Whey protein
- 0.15% Pectin
- 0.3 Instant agar
- 1u/5kg (0.075g/1000g) Plant Yeast

**Rice Ice Cream**
- 1 cup Rice Milk Powder,
- 9 ½ tbsp Cane sugar
- ½ cup Caramel
- ¼ cup Milk Tea Powder
- 6 ½ tbsp Sugar Esters
Rice Milk: Use in smoothies, protein drinks, meal replacement drinks, pudding, etc. (Largest new market possibilities?)
The earth is a gift of which we are stewards. This is at the heart of our guiding principles. We invite you to join us in our stewardship...

QUESTIONS?
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