SimPure™ RF 92260
Soluble Rice Flour
A label-friendly maltodextrin alternative

CLEAN LABEL CONFERENCE

May 24-25 2022

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Introducing SimPure™ RF 92260

Ingredient declaration

Product details & functionality

Application testing

Key takeaways

Introducing SimPure™ RF 92260

- **A label-friendly maltodextrin alternative,** which can replace 10 DE maltodextrin at a 1:1 ratio in a broad range of applications
- **Soluble rice flour** is a simple, recognizable ingredient with positive consumer perception
- **Target applications** include (but are not limited to):

Beverages   Convenience   Sauces/Dressings   Dairy   Bakery   Snacks   Flavors

- **GRAS** by the U.S. Food and Drug Administration (FDA)
- **Successfully scaled up** for commercial quantities
- **Patents pending** on ingredient production & food applications
- *Target commercialization date is Q3 2022, sample and commercial quantities available now*

Ingredient declaration

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Labeling

Ingredient declaration is "Soluble Rice Flour"

- Multiple botanical sources were evaluated; soluble rice flour selected due to consumer familiarity & positive label perception of rice

- Customer will determine finished product labeling & claims

Label perception was tested among 100 recruited grocery shoppers

- Positive / negative ingredient perception gauged from sample ingredient declaration review*

- Net rating of soluble rice flour: +12%
  Maltodextrin net rating: -34%
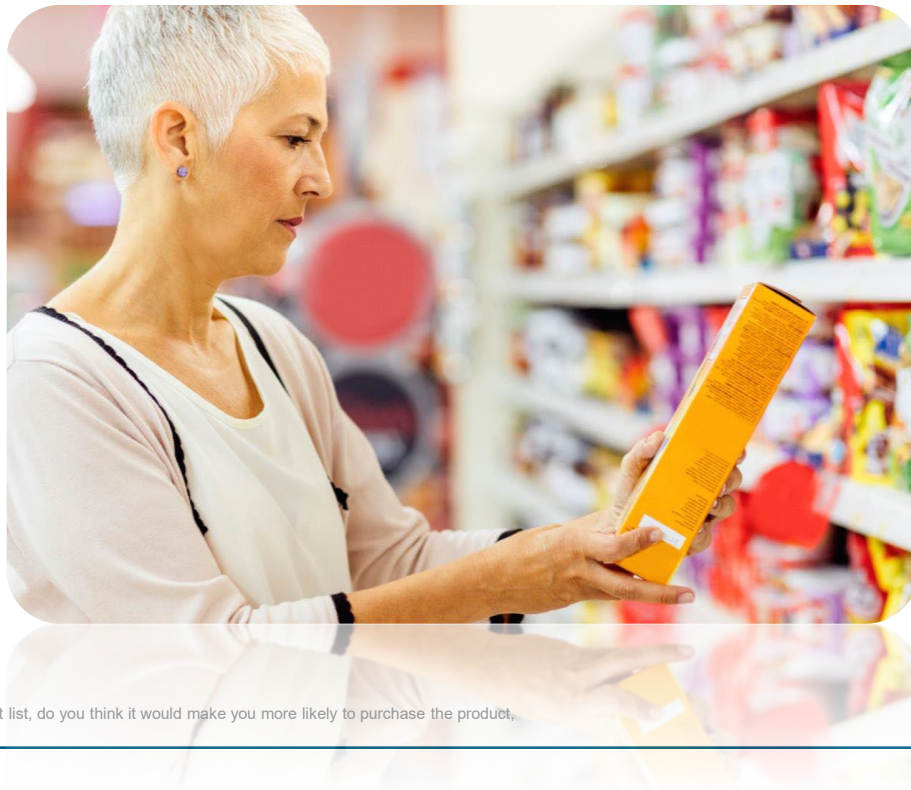
*Q: If you were doing your grocery shopping and noticed the following ingredients on a food or beverage ingredient list, do you think it would make you more likely to purchase the product, less likely to purchase the product, or would it make no difference in your decision?

Product details & functionality

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Label-friendly maltodextrin alternative

Developing a label-friendly alternate to maltodextrin that allows for a 1:1 formulation conversion

CUSTOMER'S SUCCESS CRITERIA:	Fails Expectations	Meets Expectations
Ingredient declaration perception	▲	●
Viscosity		▲●
Solubility	●	▲
Bulking functionality		▲●
Sensory/Taste		▲●

▲ 10 DE Maltodextrin

● SimPure™ RF 92260

SimPure™ Soluble Rice Flour composition and solubility

Typical values per 100 g

Carbohydrate	Lipids	Protein	Dietary fiber	Ash
86.7	0.7	7	1.3	1.5

- Primarily composed of carbohydrates
- Minor levels of proteins, lipids, and fiber, which influence functionality

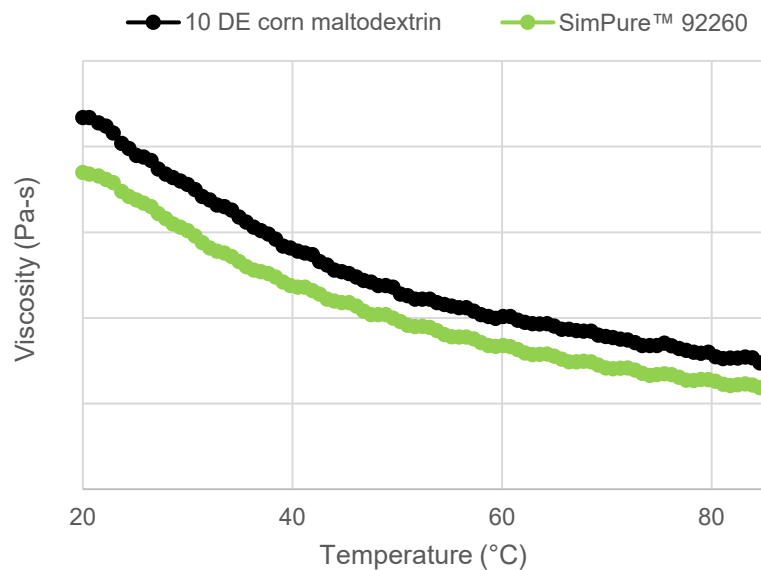| Ingredient	Solubility (%)
10 DE common corn maltodextrin	100
SimPure™ RF 92260	85-90%

- Soluble rice flour's solubility is slightly lower than that of common corn maltodextrins
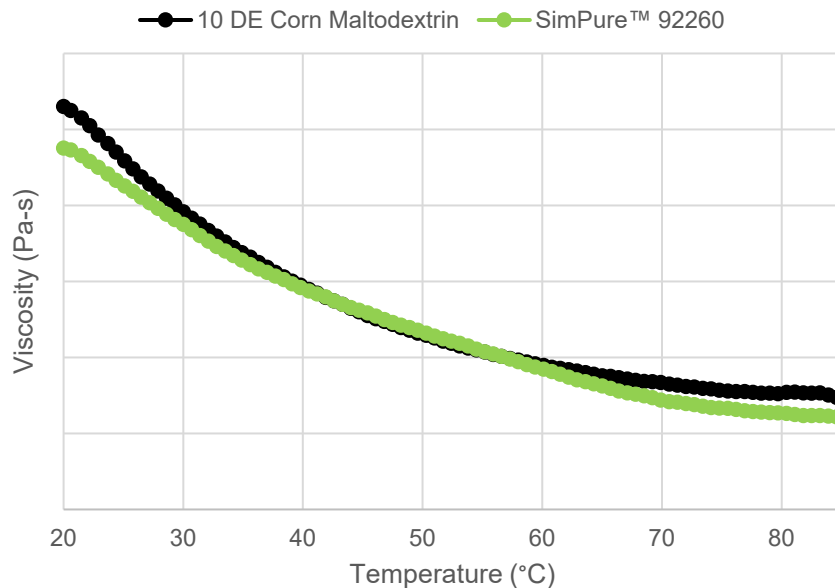
Viscosity

Soluble rice flour viscosity is similar to 10 DE common corn maltodextrin at typical usage in food applications

10% dry solids

25% dry solids

Applications testing

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Food applications functionality

SimPure™ RF 92260 has been studied in several food applications, including:

- Salad dressings

- Powdered beverage formulations

- Instant sauce mixes

- Prepared sauces

- Seasonings

- Cereal and snack coatings

- Flavors

No-Sugar-Added Chocolate Milk Powder *

Featuring SimPure™ soluble rice flour

- A label-friendly bulking agent
- SimPure™ RF 92260 prototypes had higher perceived creaminess
- Viscosity was similar to that of control
- Final products had similar color and appearance
- Gen-2 development underway to enhance performance in clear beverages

INGREDIENTS: Sweet Whey, **Cocoa Processed With Alkali**, **Soluble Rice Flour**, **Salt**, Natural Flavors, **Xanthan Gum**, **Stevia Sweetener**.

Cargill ingredients are in **bold.**

ALLERGEN STATEMENT: Contains Dairy (Milk).

Manufactured in a facility that uses: Wheat, Egg, Soy, Peanuts, Tree Nuts, Fin Fish, Crustacea and Sesame.

*Not a low-calorie food

Nutrition Facts

1 serving per container

Serving size	1 package (11g)

Amount per serving

Calories	35

	% Daily Value*
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 100mg	4%
Total Carbohydrate 8g	3%
Dietary Fiber 1g	4%
Total Sugars 4g	
Includes 0g Added Sugars	0%
Protein 1g	
Vitamin D 0mcg	0%
Calcium 30mg	2%
Iron 1.3mg	8%
Potassium 240mg	6%

* The %Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.
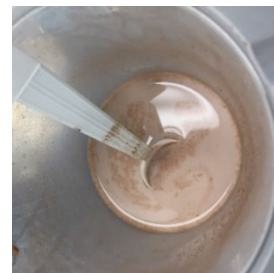
Control
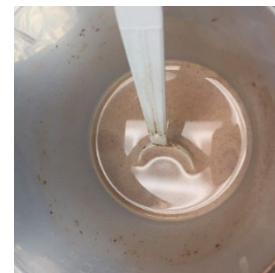
SimPure™ RF 92260

Reduced-sugar Granola, Bars

Featuring SimPure™ soluble rice flour

- Soluble rice flour has been used successfully in reduced sugar/zero sugar granola & bars
- Functions as a binder to hold the clusters together; provides binding to the bar
- No impact on sensory characteristics
- Processing similar to full-sugar products

Salad Dressing

Featuring SimPure™ soluble rice flour
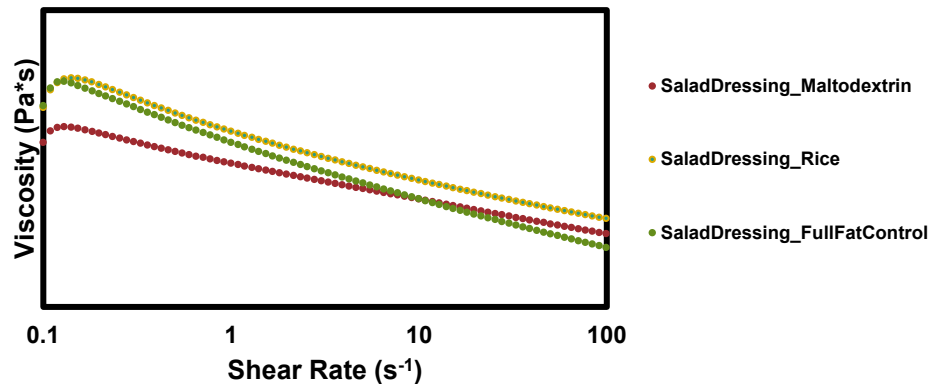

Full-fat control
(35% Oil)

Reduced-fat control
with **Maltodextrin**

Reduced-fat dressing
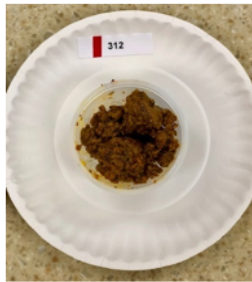with **SimPure™ RF92260**

Salad Dressing Viscosity Shear Rate Dependence at 4 ^{O}C

- **SaladDressing_Maltodextrin**
- **SaladDressing_Rice**
- **SaladDressing_FullFatControl**

Viscosity (Pa*s)

Shear Rate (s^{-1})

0.1   1   10   100

Taco Seasoning

Featuring SimPure™ soluble rice flour

- Testing shows no impact on sensory characteristics

Attributes	Taco Seasoned Ground Beef with Maltodextrin	Taco Seasoned Ground Beef with Soluble Rice Flour
Overall Appearance	6.9[a]	6.7[a]
Overall Color	6.8[a]	6.4[a]
Overall Liking	6.3[a]	6.1[a]
Overall Flavor	6.4[a]	6.4[a]
Saltiness	6.4[a]	6.2[a]
Strength of Seasoning	6.4[a]	6.4[a]
Juiciness	6.6[a]	6.5[a]
Overall Texture	6.3[a]	6.1[a]

Means with different lower-case letters (a, b) indicated significant difference at p <0.05. (Numbers are bolded).

9 Point Hedonic Scale used: 1 dislike extremely, 2 dislike very much, 3 dislike moderately, 4 dislike slightly, 5 neither like nor dislike, 6 like slightly, 7 like moderately, 8 like very much, 9 like extremely.

Flavor systems

- Soluble rice flour can be used as a flavor carrier
- Provides similar flavor loading capacity as maltodextrin
- Works well in both spray dried and extruded flavors

Key Takeaways

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Key takeaways

- Soluble Rice flour is a label friendly 1:1 replacement for maltodextrin

  - It has high solubility

  - Similar viscosity to maltodextrin

  - Neutral flavor

  - Enhances creaminess and provides body in the finished product

  - Works well in a broad range of applications

  - US FDA GRAS

  - Net positive label perception by consumers

  - Commercial availability targeted for Q3 2022