

Solnul<sup>®</sup> is a clinically validated prebiotic resistant potato starch (RS2) with  $\geq 60\%$  resistant starch and  $> 63\%$  dietary fibre. Upcycled and naturally occurring, Solnul<sup>®</sup> offers excellent tolerability, a neutral sensory profile, and scientifically researched benefits for gut health, enhanced intestinal barrier function, improved nutrient absorption and metabolic health.



## PRODUCT PROFILE SHEET

### Market Needs and Trends

In the United States and Australia, average resistant starch intake is well below recommended levels—Americans consume around 4 g/day, and Australians 3.4–9.4 g/day, compared to the 20 g/day Suggested Dietary Target in Australia. This significant shortfall, seen globally, is concerning as resistant starch supports gut barrier integrity, digestive health, and metabolic function.

Scientific reviews indicate that RS consumption across Europe is generally low, at 4 g per day largely because common European food processing methods (milling, heating, baking) tend to reduce RS content.

Although EU dietary guidelines encourage eating whole grains and getting plenty of fibre, these recommendations do not specifically address resistant starch<sup>1</sup>.

Solnul<sup>®</sup> offers a practical, effective solution to help reduce this widespread fibre and resistant starch deficit. As a naturally occurring RS2 prebiotic, it may supplement diet or fortify everyday products with relevant levels of resistant starch and without affecting taste, colour, or texture.

### Solnul<sup>®</sup>: The Unsung Hero of Dietary Fibre

Total dietary fibre includes different fibre types that support digestion in different ways—some dissolve in water (soluble fibres), some add bulk (insoluble fibres), and some feed beneficial gut bacteria.

Solnul<sup>®</sup> is technically an insoluble fibre, but it behaves differently: it is fully fermentable water-dispersible and functions as a Resistant Starch Type 2, meaning it is selectively fermented by beneficial microbes.

This makes Solnul<sup>®</sup> a unique prebiotic fibre that bridges the gap between soluble and insoluble fibres, offering gentle digestion with targeted microbiome benefits.

### Product Advantages

- ✓ **ISAPP-Defined Prebiotic**  
According to the International Scientific Association for Probiotics and Prebiotics (ISAPP): "A substrate that is selectively utilised by host microorganisms, conferring a health benefit"
- ✓ **Globally Patented, Resistant Starch Type 2 (RS2)**  
A unique and unmatched Insoluble Fermented Fibre
- ✓ **Unique Profile**  
 $\geq 60\%$  resistant Starch and  $> 63\%$  dietary fibre
- ✓ **Scientifically Proven Gut Health Benefits**
- ✓ **Unmodified, Native Starch**  
No chemical processing
- ✓ **Sustainable**  
Upcycled ingredient from potato
- ✓ **Neutral Taste, Colour & Mouthfeel**  
Making it adaptable and easy to mix with other ingredients
- ✓ **100% Water Dispersible**
- ✓ **Well-Tolerated**
- ✓ **Vegetarian & Vegan**

### Research

Across six peer-reviewed publications<sup>2-7</sup>, Solnul<sup>®</sup> has been shown to deliver a broad spectrum of clinically meaningful benefits—at a low daily dose of 3.5 g. These studies demonstrate increases in **key beneficial bacteria** like *Bifidobacterium* and *Akkermansia*, along with **improvements in stool form, intestinal barrier function, nutrient absorption and histamine reduction**.

A double-blind, placebo-controlled clinical trial enrolled 75 healthy adults to evaluate daily supplementation with 3.5 g or 7 g of Solnul<sup>®</sup> over a 4-week period. The study showed that the 3.5 g dose of Solnul<sup>®</sup> produced a clear prebiotic effect, significantly increasing the abundance of two key beneficial gut bacteria — *Bifidobacterium* and *Akkermansia*— compared to placebo<sup>7</sup>.

The study also led to meaningful improvements in bowel function, with participants experiencing fewer constipation-related and diarrhoea-related bowel movements, effectively normalising stool form. The 7 g dose showed similar trends, particularly in improving diarrhoea-associated stool types, though microbiome shifts were slightly less pronounced.

Both doses were safe and well tolerated, with no serious adverse events. Overall, the findings confirm that Solnul<sup>®</sup> meets international criteria for a prebiotic at just 3.5 g/day, supporting beneficial microbiome shifts and healthier bowel patterns<sup>7</sup>.

Post-hoc analysis of the clinical trial evaluated whether Solnul<sup>®</sup> could influence antioxidant levels in the body. The study found that Solnul<sup>®</sup> significantly increased serum levels of the antioxidant vitamins all-trans retinol (vitamin A) and  $\alpha$ -tocopherol (vitamin E), demonstrating improved absorption of these fat-soluble antioxidants<sup>3</sup>.

Solnul<sup>®</sup> also increased levels of CoQ10, while leaving markers of oxidative stress unchanged—indicating enhanced antioxidant status without signs of oxidative strain. Increases in *Akkermansia*, a gut bacterium linked to intestinal barrier health, were positively correlated with increases in vitamin A, suggesting that Solnul<sup>®</sup> may support better nutrient absorption through improved gut function<sup>3</sup>.

Other specialised publications<sup>4-6</sup> from the same clinical trial highlighted that Solnul<sup>®</sup> significantly enhanced choline availability and supported healthy sphingomyelin production (a fat-based molecule that forms part of the structure of nearly every cell membrane in the body) without the cardiovascular risks typically associated with choline metabolism<sup>4</sup>.

Solnul<sup>®</sup> could also positively shift fatty acid and bile acid profiles in ways associated with improved metabolic regulation<sup>5</sup>. Furthermore, Solnul<sup>®</sup> could reduce circulating histamine primarily by strengthening intestinal barrier function, offering a promising nutritional approach for individuals sensitive to histamine or experiencing gut-related discomfort<sup>6</sup>.

A sixth publication demonstrated that Solnul<sup>®</sup> produced meaningful shifts in specific gut bacteria that were correlated with improvements in common digestive discomforts, such as bloating, belching, constipation, and general feelings of being unwell<sup>7</sup>. This research also revealed that individuals experienced digestive benefits depending on how their microbiome responded.

Together, these studies confirm the role of Solnul<sup>®</sup> as an effective prebiotic ingredient that may help normalise mitochondrial function and amino acid balance, preserve collagen integrity, reduce circulating histamine and decrease acetylated polyamines, leading to microbiome balance, gut barrier integrity, metabolism, and nutrient absorption.

## Certifications

Solnul<sup>®</sup> is produced in a **BRC AA+** certified facility, representing the highest level of achievement within the globally recognised BRCGS food-safety program. Furthermore, Solnul<sup>®</sup> demonstrates robust upcycling credentials and is approved as a FODMAP ingredient, Gluten-Free Certified, Glyphosate-Free, Non-GMO Verified, and Kosher. Together, these certifications reinforce Solnul<sup>®</sup>'s commitment to safety, quality, and sustainability ensuring a responsible ingredient backed by industry-leading operational excellence.



## Sustainability

Solnul<sup>®</sup> is a 100% upcycled ingredient and officially Upcycled Certified<sup>®</sup> (the first global third-party certification for upcycled foods and ingredients) meaning that it is produced according to strict industry standards for sustainability and circular resource use. Solnul<sup>®</sup> is made entirely from potato processing by-products that would otherwise not go to human consumption.



## Product Range

Ingredient	Active Content	Grade	Mesh Size
Solnul <sup>®</sup> (Resistant Potato Starch)	≥60% Resistant Starch >63% Dietary Fibre	100% Water Dispersible Powder	100 Mesh

## Product Applications

### Dietary Supplements

- Powdered drink mixes / ready-to-mix formulas
- Protein shakes & meal replacements
- Fibre blends
- Sports nutrition
- Hydration formulas
- Greens powders
- Shots / gels

### Functional Foods & Beverages

- Snack bars / bites
- Better-for-you snacking
- Coatings & seasonings
- Cereal & overnight oats

**Please note:** Solnul<sup>®</sup> is not soluble but water dispersible.

Temperature threshold: <60C



## Product Dosage

The clinically supported effective dose for Solnul<sup>®</sup> is 3.5 g per day. This low dose has been clinically shown to:

- Produce a prebiotic effect
- Increase abundance of *Bifidobacterium* and *Akkermansia*
- Promote bowel regularity.
- Significantly decrease histamine, a marker of inflammation
- Enhance intestinal barrier function.
- Significantly decrease collagen breakdown metabolites, which may support collagen integrity
- Reduce serum free fatty acids levels, a marker of insulin sensitivity
- Increase absorption of key nutrients, vitamin A, E and choline.
- Exhibit excellent tolerance.

## Approved Health Claims

### • Nutrition Claims (Fibre)

A mention of fibre is considered a nutrition claim, which must comply with the conditions mentioned in the Annex "Nutrition claims and conditions applying to them" of Regulation (EC) No 1924/2006, listing two nutrition claims related to fibre as follows:

**Fibre-related nutrition claims** must comply with Regulation (EC) No 1924/2006. A claim that a product is a "source of fibre" may only be made where the product contains at least 3 g of fibre per 100 g or 1.5 g of fibre per 100 kcal.

A claim that a product is "high in fibre" may only be made where it contains at least 6 g of fibre per 100 g or 3 g of fibre per 100 kcal.

Solnul<sup>®</sup> contains more than 63% total dietary fibre and may be used in the above fibre nutrition claims provided that the finished product meets the required conditions of use.

### • Nutrition Claims (Resistant Starch)

There is one health claim authorised for resistant starch as listed in the Annex of Commission Regulation (EU) No 432/2012 establishing a list of permitted health claims made on foods, other than those referring to the reduction of disease risk and to children's development and health.

**Claim: Replacing digestible starches with resistant starch in a meal contributes to a reduction in the blood glucose rise after that meal.**

The claim may be used only for food in which digestible starch has been replaced by resistant starch so that the final content of resistant starch is at least **14 % of total starch**.

Solnul<sup>®</sup> contains  $\geq 60\%$  Resistant Starch Type 2 and can be used in the above resistant starch nutrition claim provided that it complies with the conditions of use regarding the resistant starch content of the finished product.

## About



Solnul<sup>®</sup> is developed and commercialised by MSP Starch Products Inc., a Canadian company based in Carberry, Manitoba. MSP Starch Products Inc. is the innovator behind Solnul<sup>®</sup>, an upcycled, whole-food resistant starch ingredient derived from potato processing streams. The company focuses on scientifically validated prebiotic solutions aimed at gut health, microbiome modulation, and metabolic wellness.

### References

1. *Carbohydrates in human nutrition*, <https://www.fao.org/4/w8079e/w8079e0g.htm>, (FAO Food and Nutrition Paper - 66), Report of a Joint FAO/WHO Expert Consultation, Rome, 14-18 April 1997
2. J R Bush, et al. (2023), Consumption of Solnul Resistant Potato Starch Produces a Prebiotic Effect in a Randomized, Placebo-Controlled Clinical Trial, MDPI
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4. J R Bush, J Han & D R Goodlett (2025), Resistant Potato Starch Supplementation Increases the Serum Levels of Choline and Sphingomyelins Without Affecting Trimethylamine Oxide Levels, MDPI
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6. J R Bush, et al. (2023), Resistant potato starch supplementation reduces serum histamine levels in healthy adults with links to attenuated intestinal permeability, Journal of Functional Foods
7. J R Bush & M J Alfa (2024), Consumption of resistant potato starch produces changes in gut microbiota that correlate with improvements in abnormal bowel symptoms: a secondary analysis of a clinical trial, Springer