

THE ULTIMATE **PERFORMANCE** STARCH

PURITY GUM® Ultra starch



Double your beverage emulsion oil load —
and experience **greater productivity**

Whether you're developing a new formulation or reformulating an existing product, PURITY GUM® Ultra starch is the solution that defines new levels of productivity in the manufacturing of beverage emulsions. Enjoy savings and sustainability benefits throughout the process — from production to warehousing and shipping.





PURITY GUM® Ultra starch RAISES THE BAR

The Challenge To Stabilise High Oil Load Beverage Emulsions

The main limitation of conventional emulsifiers in stabilising higher oil loads is that higher oil loads require a greater amount of emulsifier, which causes too high of a viscosity in processing. As a result, typical oil loads for beverage emulsions are less than 15%.

Another limitation is that emulsions are thermodynamically unstable; increasing oil load and reducing the emulsifier level makes the emulsions much more difficult to stabilise.

PURITY GUM® Ultra starch uses a patented technology that optimises the molecular structure of the starch, making it a powerful emulsifier with two to three times the emulsifying power of conventional beverage emulsifiers. It is capable of doubling the oil load, which in turn double manufacturing throughput, dramatically reducing processing costs.

Unique performance, powerful results

PURITY GUM® Ultra starch is a revolutionary new emulsion technology that consistently outperforms other emulsifiers.

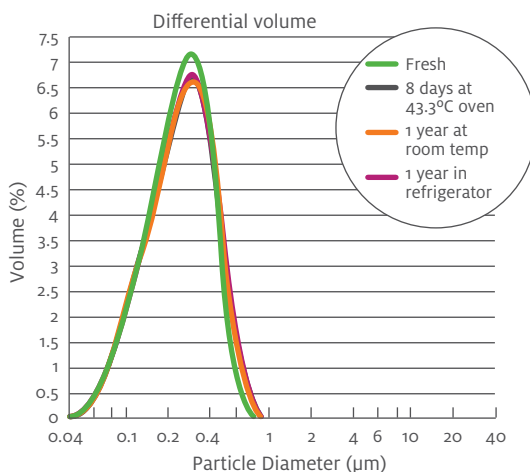
- Excellent performance in high oil load (up to 24%)
- Functional in delivering flavours, actives, nutrients and oil soluble ingredients into a broad range of applications
- Superior emulsification in weighted and non-weighted systems
- Produces equivalent beverage turbidity to other conventional OSA starch and gum arabic at lower cost in use
- Can eliminate or reduce time-consuming processing steps
- Stable at a broad pH range (2.5 to 8.0)

PERFORMANCE AT DIFFERENT RATIOS

| OIL : STARCH RATIO | EMULSION | EMULSION | EMULSION | BEVERAGE |
|-----------------------|--------------------------|--------------------------------|-----------|-----------|
| | Particle size (fresh) | Particle size (57°C/1 day)* | Viscosity | Turbidity |
| | Mean, µm | Mean, µm | cps | NTU |
| 24 : 4 | 0.210 | 0.254 | 70 | 216 |
| 24 : 5 | 0.214 | 0.260 | 316 | 225 |
| 24 : 6 | 0.227 | 0.272 | 796 | 227 |

*Stress test corresponding to six-month shelf life

EXCELLENT EMULSION STABILITY AT ALL AGEING CONDITIONS (24% OIL LOAD)

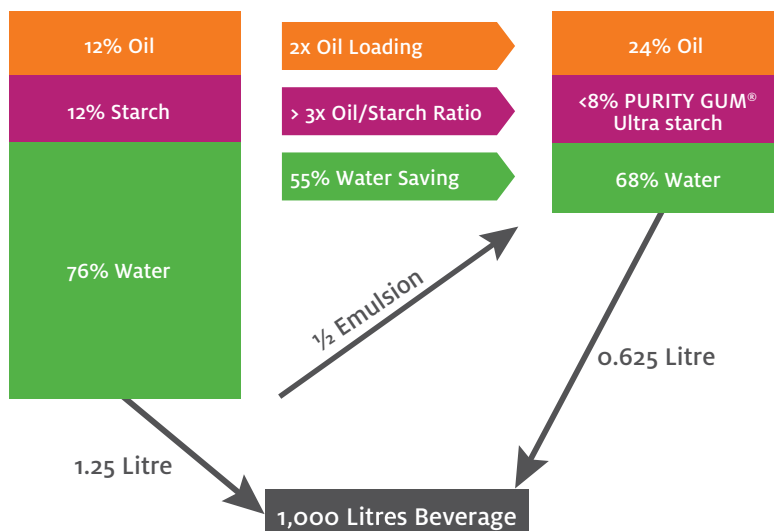


1 day at 57°C is equivalent to 8 days at 43.3°C, and both correspond to about 6 months at ambient temperature.

Emulsification in beverage production

Concentrated emulsions are typically produced in bulk quantity and shipped to bottlers to produce the final beverages, where the emulsions are added to beverage syrup typically containing water and corn syrup. This practice saves companies from shipping more water than necessary, allowing their operation to be more efficient and sustainable. Therefore, a desirable emulsifier needs to deliver both flavour (colour) and turbidity effectively, and maximise the oil load and minimise water usage in emulsion concentrates.

ULTIMATE PERFORMING STARCH FOR ULTIMATE PROCESS SAVING



OIL LOAD EMULSION COMPARISONS

| PRODUCT | REGULAR OIL LOAD (12%) | | HIGH OIL LOAD (24%) | |
|--------------------------|------------------------|------------------------|-----------------------------|------------------------|
| | EMULSIFIER % | OIL : EMULSIFIER RATIO | EMULSIFIER % | OIL : EMULSIFIER RATIO |
| PURITY GUM® Ultra starch | 4 | 3 : 1 | 8 | 3 : 1 |
| CONVENTIONAL OSA STARCH | 12 | 1 : 1 | Viscosity too high at 24:24 | 1 : 1 |
| GUM ACACIA | 18 | 1 : 1.5 | Viscosity too high at 24:36 | NA |

Only PURITY GUM® Ultra starch allows you to create emulsions at exceptionally high oil loads without failing.

COUNT ON PURITY GUM® Ultra starch FOR INCREASED EFFICIENCY

PURITY GUM® Ultra starch significantly enhances manufacturing productivity, potentially reduces capital expenditure, and reduces environmental impact

- Reduced variable manufacturing costs, lower warehouse costs, reduced shipping weights
- Greater asset utilisation, potentially postponing capital expenditure in concentrate emulsion production
- Reduced carbon footprint aligning with modern corporate sustainability initiatives



REINVENTING THE PROCESS CHAIN

CONVENTIONAL
OSA STARCH

12:12

GUM ACACIA

18:12



PURITY GUM® Ultra starch

8:24



PURITY GUM® Ultra starch delivers savings throughout the supply chain — from ingredient inventory through manufacturing and warehousing and on through shipping to the finished beverage. It also leads to savings in energy and natural resources, potentially reducing your carbon footprint.



Ingredion®

GET STARTED TODAY

Ready for unprecedented productivity?

Ask our experts about PURITY GUM® Ultra starch

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