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NUTRITION

PLANT-BASED DRINKS

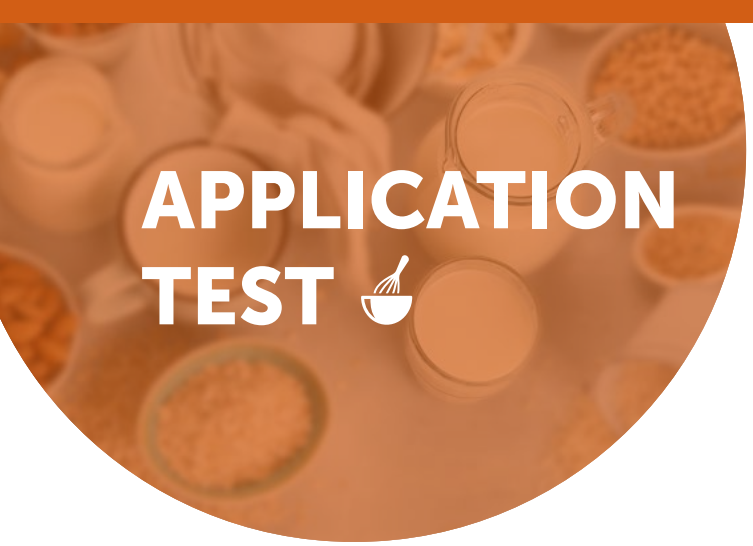
Plant-based drinks such as coconut, almond or soy drinks form a great non-dairy alternative in many people's diets. The popularity of these beverages is stimulated by increased interests in:

- *Environmental responsibility by choosing vegan options*
- *Health consciousness by looking for plant-based substitutes*
- *New ingredients & flavor diversity*

CHALLENGE
Plant-based drinks are oil-in-water emulsions which are intrinsically unstable. The drink has a high tendency to separate in a cream and serum layer because of the poor emulsifying properties of the plant proteins. Additional stabilization is required to prolong the shelf life.

WE KNOW IT'S **MORE THAN PLANT-BASED DRINKS**

- Fine **fat dispersion**
- Extended **product stability**
- Improved **mouthfeel**
- Optimal **viscosity**



APPLICATION TEST

Formulation

Fat (from coconut milk)	3%
Gum	0.3%
Emulsifier	0.5%
Buffer agent (disodium phosphate)	0.2%
Water	96 %

Emulsifiers
MG: mono- and diglycerides
Lactem: lactic acid esters of mono-and diglycerides
Citrem: citric acid esters of mono- and diglycerides
Acetem: acetic acid esters of mono- and diglycerides
Datem: diacetyl tartaric acid esters of mono- and diglycerides

Results

Stability test (20°C) Combination of Gellan, Locust bean & Guar gum

- **0 months** — No emulsifier
- **1 month** — Radiamuls Acetem 2134K
- **3 months** — Radiamuls Lactem 2951K
- **6 months** — Radiamuls MG 2918K
- **≥ 9 months** — Radiamuls Datem 2004K, Radiamuls Citrem 2932K

Stability test (20°C) Combination of Xanthan & Gellan

- **0 months** — No emulsifier
- **3 months** — Radiamuls MG 2918K, Radiamuls Citrem 2932K
- **≥ 9 months** — Radiamuls Datem 2004K

Conclusion

Radiamuls Citrem 2932K and Datem 2004K contribute to a stable plant-based drink whilst displaying a similar mouthfeel to milk. The emulsifiers facilitate emulsification of the vegetable fat during production by displacing the interfacial plant proteins. Uniform fine fat globules will contribute to the desired creamy mouthfeel and emulsion stability.

OUR **SOLUTIONS**

- **Citric acid esters of mono- and diglycerides**
  Radiamuls Citrem 2932K
- **Diacetyl tartaric acid esters of mono- and diglycerides**
  Radiamuls Datem 2004K & 2005K
- **Mono- and diglycerides**
  Radiamuls MG 2918K

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