Beverage Formulation Guide

Premium MSM solutions for functional beverage innovation

Designed for **beverage product developers, application scientists, and innovation managers** creating differentiated functional beverage platforms with OptiMSM®.



MSM for multifunctional beverage innovation

Backed by extensive clinical research, MSM is a sulfur-containing compound that supports joint health, muscle recovery, and beauty from within. OptiMSM® delivers a trusted, highly purified source of MSM for functional beverages.



Functional beverages are evolving

Consumers increasingly look to functional beverages for benefits that complement everyday wellness and active lifestyles. OptiMSM® gives beverage developers a versatile, multi-functional, science-backed ingredient for creating differentiated products across multiple benefit platforms.

Mobility + Healthy Aging — Create daily wellness beverages that support healthy joints, mobility, comfort, and continued movement throughout life.

Active Nutrition + Recovery — Bring a trusted MSM story to performance beverages, recovery drinks, protein shakes, and powdered drink mixes designed for active consumers.

Beauty From Within — Develop beauty beverages supporting healthy skin, with complementary benefits for hair and nails, through a source of sulfur associated with the body's structural proteins.

Why OptiMSM®

The Gold Standard in MSM

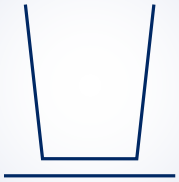
- GRAS non-objection letter
- 99.9%+ purity
- Premium, highly purified MSM
- Proprietary multi-stage distillation
- Reliable batch-to-batch consistency
- Backed by safety and human clinical research
- Manufactured in the USA from globally sourced materials
- Global technical, quality, and regulatory support

Formulation Success Starts Here

OptiMSM®

A practical selection framework for beverage R&D and innovation teams.

Select the right OptiMSM® ingredient



Application	Recommended form	Primary benefit
Functional waters	Flakes or Microprill 0.1%	RTD friendly sensory profile
Energy RTDs	Flakes or Microprill 0.1%	RTD friendly sensory profile
Hydration products	Flakes or Microprill 0.1%	RTD friendly sensory profile
Protein shakes/Drinks	Flakes, Microprill 0.1% or Microprill 0.5%	SiO2 less noticeable due to non-clear matrix
Meal replacements	Flakes, Microprill 0.1% or Microprill 0.5%	SiO2 less noticeable due to non-clear matrix
RTM powdered mixes	Flakes, Microprill 0.1% or Microprill 0.5%	Flake for total dissolution Microprill for good flowability

Processing Stability

OptiMSM® is extremely stable in both acid and alkaline formulations. It is also heat stable, while no thermal degradation will occur some minor sublimation (solid to gas phase transition) may occur at higher temperatures and may need to be considered depending on specific formulation and processing steps.

As with any functional ingredient, all finished beverage formulations should be evaluated and confirmed through real-time and accelerated shelf-life testing of the final beverage matrix. MSM is compatible with a wide range of packaging formats including cans, bottles and tetra packs.

Solubility Considerations

OptiMSM® Microprills and Flakes are water-soluble and generally easy to formulate into beverages. Solubility depends on temperature and the ratio of total solids to liquid, decreasing as temperatures drop. This is especially important when developing highly concentrated products, such as one-shot beverages.

OptiMSM® is available as Flakes, containing no silicon dioxide, or as Microprills with 0.1% or 0.5% silicon dioxide. Silicon dioxide enhances flowability but is not water-soluble and may cause slight turbidity, which should be considered when evaluating final product aesthetics.

pH Stability

OptiMSM® has been shown to be compatible across a broad range of beverage pH systems, including those commonly used in hydration, energy, wellness, and meal replacement beverages.

OptiMSM® is well suited for acidic formulations, which may be desirable for microbial control and for citrus flavored final formulations. All finished beverage product formulation shelf life should be determined and verified through specific finished matrix shelf life, flavor, color and aroma accelerated and real-time stability testing.

Sensory Considerations

OptiMSM® is generally beverage compatible with a slightly bitter taste. This is usually easily masked in full volume (1–3 grams in 250 ml or 8-floz) RTD formulations. Highly concentrated beverages such as one-shots (25–30ml or 1-fl oz) may find that flavor impact becomes more challenging, but can be overcome with a vanillin-based bittermasker and and citrus based flavors are good candidates for taste masking.

Trusted by leading nutrition brands worldwide

Balchem technical and commercial teams can support ingredient selection, prototype guidance, formulation troubleshooting and commercialization planning.

Learn more at **optimsm.com**

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