

Vegetarian Softgel Solution: Unlocking Nature’s Potential

PRODUCT OVERVIEW

LYCAGEL® Flex is a plant-based, plasticizer-free premix for high-performance softgel capsules. The innovative and versatile technology provides the freedom to select the optimal plasticizer for a wide variety of formulations while adapting easily to existing standard equipment and processes.

LYCAGEL® Flex represents the ultimate solution for manufacturers seeking a high-quality, vegetarian alternative to gelatin. Versatile, efficient, and easy to use, LYCAGEL® Flex offers countless opportunities to work with specialized capsule fills and process parameters for nutraceutical and pharmaceutical formulations and complies with both EP and USP standards.

PERFORMANCE DATA

Capsules were prepared using a pilot scale, rotary die softgel encapsulation process. LYCAGEL® Flex performance data supports reliable scale-up and capsule performance potential to meet consumer preferences and formulation versatility.

Process parameters

The LYCAGEL® Flex softgel capsule manufacturing process time is equivalent to gelatin. LYCAGEL® Flex offers manufacturers greater formulation utility to use plasticizer combinations and ratios, multi-ingredient and complex formulations, and the flexibility to include the ingredients that require higher processing temperatures, such as pastes or waxes.

The power of flexibility
LYCAGEL® Flex
Plasticizer
Water

Table 1: Process comparison with standard gelatin soft capsules

	Gel preparation	Encapsulation	Drying parameters
Standard gelatin process	Cooking time: 2h* Degassing time: >1h Maturation time: 2-12h	Equipment speed: 2-5 rpm	Tumble drying time: 1h30 Tray drying time: 3-4 days Temperature: 20°C (+/-2°C) Relative humidity: <20%
LYCAGEL® Flex process	Cooking time: 2h* Degassing time: 1-5 min Maturation time: N/A	Equipment speed: 2-5 rpm	Tumble drying time: 1h30 Tray drying time: 3-5 days Temperature: 20°C (+/-2°C) Relative humidity: <20%

*Function of batch size



CAPSULE PERFORMANCE

Roquette’s LYCAGEL® Flex technology enables the development of high-quality softgel capsules with advanced performance characteristics, including excellent film-forming properties, easy drying with no stickiness, and low viscosity as a component.

LYCAGEL® Flex is also adaptable to your brand, with a range of different capsules with advanced performance characteristics, including various capsule shapes and sizes.

Table 2: LYCAGEL® Flex softgel capsule performance and characteristics

Parameter	Target capsule characteristics	LYCAGEL® Flex capsule characteristics
Capsule appearance	Clear, shiny capsules No leakage No sticking	Conforms
Disintegration time	<15 mins	5-10 mins No crosslinking = no significant increase in disintegration time during storage
Fill materials' compatibility	Compatible and stable with variety of fill materials	Successfully manufactured with medium chain triglycerides (MCT) and paraffin oils, fish oil, algae oil, pastes, waxes, emulsions, SMEDDS and PEG
Moisture content	8-10% moisture content after drying	Conforms
Storage stability	Stability evident at different timepoints	Tested in blisters and bottles

STABILITY DATA

Additional stability data are available and confirm that LYCAGEL® Flex softgel capsules meet the target product profile and requirements with the fill materials encapsulated, as presented above.

THE COMPLETE SOLUTION

As an innovation partner and leader in plant-based nutritional and functional ingredients, Roquette offers our customers a complete solution, including:

- Materials for pilot scale
- Technical data package detailing formulation, equipment, and processing know-how
- Remote or on-site technical scale-up support

APPLICATIONS



Pharmaceuticals

- OTC
- Rx drug products

meets EP and USP standards



Nutraceuticals

- Supplements

FOR INFORMATION

Please visit our Pharma Virtual Lab at www.roquette.com/innovation-hub/pharma

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