

LYCAGEL®

UNLOCKING NATURE'S POTENTIAL

Introducing LYCAGEL® Premix

A ready-to-use, plant-based blend for nutraceutical and pharmaceutical softgel formulations

INTRODUCTION

Gelatin-based softgels have long-standing acceptance across the nutraceutical and pharmaceutical industries due to their safety profile, excellent film-forming properties, mechanical stability and flexible design.

However, gelatin-based softgels exhibit challenges like crosslinking and incompatibility issues with fill ingredients that can shorten softgel shelf life. Meanwhile, rising consumer preference for vegetarian and vegan products is driving demand for more plant-based alternatives.

To meet this challenge, Roquette, a leader in plant-based nutritional and functional ingredients, has developed a ready-to-use, veggie-based softgel blend – LYCAGEL® Premix.

A COMPLETE, PLANT-BASED PREMIX

LYCAGEL® Premix is an easy-to-use and convenient plant-based softgel blend that offers the industry, and consumers, a natural and high-quality alternative to gelatin. Simply add water and glycerol to LYCAGEL® Premix powder to unlock nature's potential.

MARKETS AND APPLICATIONS



Pharmaceuticals
meets EP and USP standards

- OTC
- Rx drug products



Nutraceuticals

- Supplements

KEY BENEFITS

- ✓ Plant-based powder premix
- ✓ Speed to market due to simplified softgel recipe and standardized process conditions, including equipment, temperature and pressure control
- ✓ Improved performance thanks to high thermal and chemical stability, and no cross-linking
- ✓ Adaptable to existing rotary die gelatin softgel manufacturing processes with minor modifications
- ✓ Strong and durable capsules with seal integrity to avoid leaker defects

- ✓ Reproducible and capable of fills in different capsule sizes and shapes
- ✓ Supports non-GMO, Halal, Kosher and clean-label claims

Roquette also offers essential recipe and process information, plus robust, in-depth technical support, both on-site and remotely, to help customers adopt LYCAGEL® Premix with ease.

For more information, visit our Innovation Hub on www.roquette.com/innovation-hub

PERFORMANCE DATA

Capsules were prepared using a pilot scale rotary die softgel encapsulation machine. The machine and feed equipment were modified to accommodate the Roquette starch-based formulation.

PROCESS PARAMETERS

The manufacturing process time when using LYCAGEL® is similar to standard softgels. Being plant-based, LYCAGEL® overcomes temperature limitation challenges experienced with gelatin since it is processed at higher temperatures. This offers manufacturers greater formulation versatility to use multi-ingredient and complex formulations, and the flexibility to include ingredients that require higher processing temperatures, such as pastes or waxes.

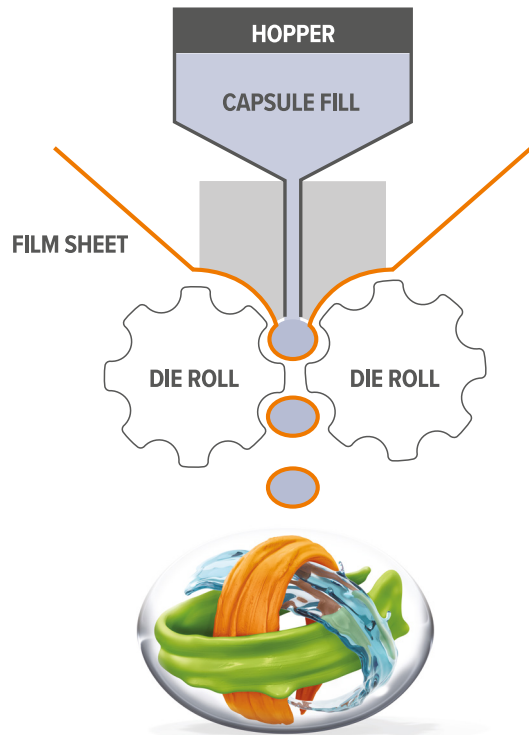


Table 1: Process comparison with standard gelatin soft capsules

	Gel preparation	Encapsulation	Drying parameters
Standard gelatin process	Time: 2h Curing time: 8-12h	Equipment speed: 2-5 rpm	Tumble drying time: 1h30 Tray drying time: 3-4 days Temperature: 20°C (+/-2°C) Relative humidity: <20%
LYCAGEL® process	Time: 2h Curing time: 1-4h	Equipment speed: 2-5 rpm	Tumble drying time: 1h30 Tray drying time: 4-5 days Temperature: 20°C (+/-2°C) Relative humidity: <20%



Table 2: Capsule characteristics

Film thickness	400-800 µm
Rotary die (1)	#10 oval production
Capsule fill (2), (3)	300 mg paraffin oil

- (1) Also demonstrated with #6 and #12 oval and oblong
- (2) Fills are 60-70% compared to gelatin capsules, typical of starch-based soft capsules
- (3) Also successfully encapsulated with stability testing in progress: omega-3 and in combination with vitamin D3

Table 3: Results after drying show desired structural integrity and disintegration, as well as performance stability upon aging:

Properties	Test method	Results at time zero	Results at 6 months, 25°C/60% RH (blisters)	Results at 6 months, 40°C/75% RH (blisters)
Appearance	Visual inspection	<ul style="list-style-type: none"> • Clear and transparent • Absence of leakage • No sticking together 	No change	No change
Hardness test	Texture analyzer	30.9 N	19.1 N	4.1 N
Perforation test	Texture analyzer	4.9 N	2.3 N	1.7 N
Disintegration time	Disintegration apparatus	3 min	5 min	8 min
Water content	Moisture analyzer	6.3 %	5.8 %	18.8 %

Stability data

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

FOR INFORMATION, CONTACT

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PH_NO_LYCAGEL-SS-01.2e.12/2021



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