



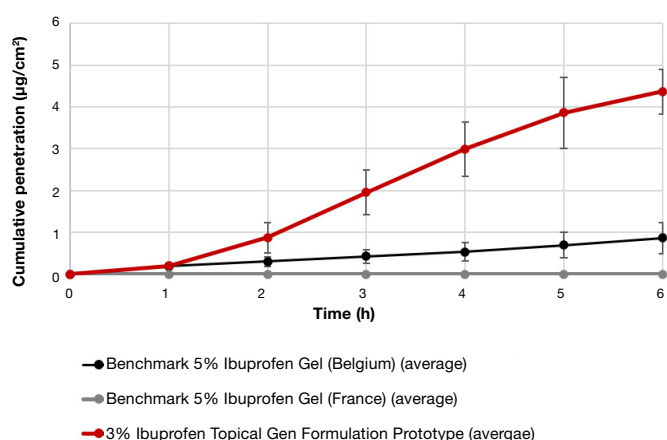
Advancing API Permeability in Topical Formulations

Topical formulation containing CARBOWAX™ SENTRY™ PEG 400 enhances API delivery and accelerates permeation

In a six-hour diffusion study, the DOW/UNIVAR formulation showed the highest release rate among the formulations presented. The study highlights how comparative screening can identify promising formulations and expose stability or uniformity challenges early in development.

Ibuprofen Topical Gel Prototype vs. Benchmarks

Formulation Value



- **Accelerated permeation**

Reaches benchmark-level penetration in one-third of the application time.

- **Higher delivery**

Approximately fivefold greater penetration after six hours.

- **Lower active loading**

Performance demonstrated with 3 wt% ibuprofen versus a 5 wt% benchmark.

Formulation

Category	Ingredient/Trade Name	Wt %	Function
Active	Ibuprofen	3.00	Active
Excipient	Propylene Glycol	20.00	Solubilizer/Penetration Enhancer
Excipient	CARBOWAX™ SENTRY™ Polyethylene Glycol (PEG) 400	20.00	Penetration Enhancer
Excipient	Isopropyl Alcohol 70% v/v	20.00	Solubilizer
Excipient	HEADCEL Hydroxypropyl Methylcellulose (HPMC) 15000	1.30	Thickener
Excipient	Sodium Carbonate	0 to 0.70	pH Adjustment
Excipient	Purified Water	35.00	Solubilizer

A topical formulation based on CARBOWAX™ SENTRY™ PEG 400 significantly enhances transdermal penetration of ibuprofen despite a lower active concentration.

Turn API delivery into a formulation advantage

Connect with Dow to explore CARBOWAX™ SENTRY™ PEG 400 in your next topical formulation.

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