BASF
We create chemistry

Technical Information
Kollisolv® PEGs

Polyethylene glycol for
pharmaceutical applications

Inspiring Medicines for Better Lives

BASF_Pharma
BASF Pharma Solutions
www.pharma.basf.com

BASF PHARMA SOLUTIONS PRODUCES INNOVATIVE EXCIPIENTS AND ACTIVE INGREDIENTS OF OUTSTANDING **QUALITY AND PERFORMANCE.** WITH A GLOBAL TEAM OF INDUSTRY EXPERTS, BASF SUPPORTS ITS CUSTOMERS IN DEVELOPING EFFICIENT, COST-EFFECTIVE, AND RELIABLE FORMULATIONS.

Table of contents

Introduction

BASF offers a broad portfolio of functional excipients, including our pharmaceutical grade Kollisolv® PEGs (polyethylene glycols).

At BASF, we offer a comprehensive range of solvents, surfactants, and solubilizers. Applicable for both oral and topical formulations, Kollisolv® PEGs are versatile excipients suitable for a diverse range of applications. Whether you are looking for a liquid solvent for solubilizing APIs, or a plasticizer and additive for tablet and softgel coatings, these excipients are ready to work for you. They can also function as solvents or structuring agents for creams, ointments, and suppositories in topical formulations. In addition, Kollisolv® PEGs can be used as chemical intermediates or processing aids during manufacturing.

Low aldehyde liquid Kollisolv® PEGs are frequently utilized as the hydrophilic fill for softgel formulations and as plasticizers for capsule shells. These low aldehyde Kollisolv® PEGs can also be used with sensitive APIs that are susceptible to degradation in presence of aldehydes.

BASF's high-quality Kollisolv® PEGs are reliably produced to meet cGMP standards at our world class production site in Geismar, LA.

Polyethylene glycol portfolio

Kollisolv® PEGs are colorless, almost odorless, and tasteless liquids or white solids at room temperature. These products are manufactured by alkali-catalyzed polymerization of ethylene oxide with subsequent neutralization of the catalyst. The number in the name of the product indicates its average molecular weight.

Structural formula:

Chemical name	Polyethylene glycol
CAS number	25322-68-3

Our portfolio of Kollisolv® PEGs offers assurance of high-quality production in cGMP manufacturing conditions that meet the compendial requirements of USP-NF and Ph. Eur.* At low molecular weights, our Kollisolv® PEGs are present as colorless liquids, and at higher molecular weights these products exist as white semi-solids and solids.

	Liquid	Semi-solid	Solid	USP-NF	Ph. Eur.
Kollisolv® PEG 300 G	●			●	●
Kollisolv® PEG 400 G	●			●	●
Kollisolv® PEG 600	●			●	●
Kollisolv® PEG 1000		●		●	●
Kollisolv® PEG 1450			●	●	
Kollisolv® PEG 3350 USP LAX			●	●	●
Kollisolv® PEG 8000			●	●	●

*Kollisolv® PEGs meet USP-NF and Ph. Eur. monographs under their compendial names "Polyethylene glycol" and "Macrogol," respectively. There is no corresponding Ph. Eur. monograph for Kollisolv® PEG 1450. Kollisolv® PEG 3350 meets the requirements of IPEC GMP for APIs. All other Kollisolv® PEGs meet the requirements of IPEC-PQG GMP for Excipients. Complete pharma documentation available upon request.

Unlike standard grade PEGs with a total aldehyde content of 50 ppm, our low aldehyde Kollisolv® PEGs are restricted to an aldehyde content maximum of 10 ppm and offer assurance of control. With a restricted total aldehyde content to a maximum of 10 ppm, these excipients are especially suited for sensitive APIs and applications, including softgel shells and fills.

	Liquid	Semi-solid	Solid	USP-NF	Ph. Eur.
Kollisolv® PEG 400 LA	●			●	●
Kollisolv® PEG 600 LA	●			●	●

Typical chemical and physical properties

	Kollisolv® PEG 300 G	Kollisolv® PEG 400 G	Kollisolv® PEG 400 LA	Kollisolv® PEG 600	Kollisolv® PEG 600 LA
Appearance	Colorless, almost odorless, and tasteless liquid at room temperature				
Average molecular weight (g/mol)	285 to 315	380 to 420	380 to 420	570 to 630	570 to 630
Melting point (°C)	-15 to -8	4 to 8	4 to 8	15 to 25	15 to 25
Hydroxyl value (mg KOH/g)	340 to 394	264 to 300	264 to 300	178 to 197	178 to 197
Viscosity at 25 °C (mPa·s)	80 to 105	105 to 130	105 to 130	Solid	Solid
Viscosity at 99 °C (mm²/s)	5.4 to 6.4	6.8 to 8.0	6.8 to 8.0	9.9 to 11.3	9.9 to 11.3
Solubility	Very soluble in water and alcohol, practically insoluble in oils and fats				
Total aldehydes			≤ 10 ppm		≤ 10 ppm

	Kollisolv® PEG 1000	Kollisolv® PEG 1450	Kollisolv® PEG 3350 LAX	Kollisolv® PEG 8000
Appearance	White to almost white solid with a waxy or paraffin-like appearance			
Average molecular weight (g/mol)	900 to 1100	1305 to 1595	3015 to 3685	7000 to 9000
Melting point (°C)	35 to 40	42 to 46	53 to 57	55 to 62
Hydroxyl value (mg KOH/g)	107 to 118	70 to 86	30 to 38	12 to 16
Viscosity at 25 °C (mPa.s)	Solid	Solid	Solid	Solid
Viscosity at 99 °C (mm²/s)	16.0 to 19.0	25 to 32	76 to 110	470 to 900
Solubility	Very soluble in water, freely soluble in alcohol, practically insoluble in oil and fats		Very soluble in water, slightly soluble in alcohol, practically insoluble in oils and fats	
Total aldehydes				

Typical properties not to be construed as specification. Kollisolv® PEG specifications available via **RegXcellence®**

Applications

Polyethylene glycols, or macrogols, are mainly used as solubilizers, surfactants, and solvents. As multifunctional ingredients, these excipients play an essential role in various oral and topical formulations.

Low-molecular-weight liquid polyethylene glycols are excellent solvents for numerous substances that do not readily dissolve in water. They are widely used as solvents and solubilizing agents for active substances and excipients in liquid and semi-solid preparations. They can also be used as plasticizers in tablets, capsule shells, and film coatings.

High-molecular-weight Kollisolv® PEGs can be used to adjust the viscosity of liquid pharmaceutical formulations and stabilize their preparation. The addition of high-molecular-weight Kollisolv® PEGs to topical semi-solids and rectal and vaginal suppositories improves formulation robustness.

Low-aldehyde Kollisolv® PEGs are especially suited for sensitive APIs and as fill formulations of soft gelatin capsules. These low aldehyde PEGs include measures in the manufacturing process to both minimize aldehyde formation in the product and ensure that the product meets a tighter specification of 10 ppm total aldehydes. Kollisolv® PEG 400 LA and 600 LA offer ease during development and dissolution testing by minimizing cross-linking of capsule shells relative to standard pharmacopoeia grades. These excipients can be used as a carrier for dissolved or suspended drugs, on their own, or with an added crystallization inhibitor.

When used for topical applications, solid and liquid Kollisolv® PEGs can be combined to form water-soluble bases for ointments, suppositories, and ovula. Mixtures of high- and low-molecular-weight Kollisolv® PEG can be varied to tune the viscosity and spreadability of these formulations. Low-molecular-weight Kollisolv® PEGs can be used as humectants to retain moisture and prevent drying of topical formulations.

Tablets, liquids, and suspensions

Kollisolv® PEGs can be used in tablet applications as a component of the core or coating. They can also serve as lubricants in the processing of a tablet. In tablet core applications, solid Kollisolv® PEGs can be used as a binder or additive. Solid and semi-solid Kollisolv® PEGs can be used in coating applications as a plasticizer and film former.

Liquid and semi-solid Kollisolv® PEGs can be used in oral liquids and suspensions as solvents and suspension aids.

Typical applications	Tablet binding or coating	Liquid formulation	Processing aids
Kollisolv® PEG 300 G	●	●	
Kollisolv® PEG 400 G	●	●	●
Kollisolv® PEG 400 LA		●	
Kollisolv® PEG 600		●	
Kollisolv® PEG 600 LA		●	
Kollisolv® PEG 1000		●	
Kollisolv® PEG 1450	●		●
Kollisolv® 3350 USP LAX	●		●
Kollisolv® PEG 8000	●		●

Softgels

BASF offers a range of liquid Kollisolv® PEGs and other complementary products for softgel applications. From solubility enhancement to crystallization inhibition, these products make for easier softgel formulation with greater predictability and reliability.

BASF solubilizers such as Kolliphor® RH 40 (Ph. Eur.: macrogolglycerol hydroxystearate; USP-NF: polyoxyl 40 hydrogenated castor oil), Kolliphor® EL (Ph. Eur.: macrogolglycerol ricinoleate, USP-NF: polyoxyl 35 castor oil), or Kolliphor® HS 15 (Ph. Eur.: macrogol 15 hydroxystearate; USP-NF: polyoxyl 15 hydroxystearate) can be used in combination with liquid Kollisolv® PEGs to increase the solubilization capacity, allowing for the enhanced dissolution of challenging APIs.

Crystallization inhibitors such as Kollidon® VA 64 (Ph. Eur., USP-NF: copovidone), Kollidon® 30 (Ph. Eur., USP-NF: povidone), and Kollidon® 12 PF (Ph. Eur., USP-NF: povidone) can be used with liquid Kollisolv® PEGs to prevent drug recrystallization. These crystallization inhibitors form homogenous blends at common processing and filling temperatures, and provide an additional benefit of increasing fill viscosity. This increased fill viscosity allows for more consistent filling and lower weight variance between softgels capsules. Blends of Kollisolv® PEGs with Kollidon® crystallization inhibitors are stable at room temperature up to 40% concentration by weight.

Kollisolv® PEG 400 LA and Kollisolv® PEG 600 LA are recommended as fills and shell plasticizers for softgel capsules. These low aldehyde, nitrogen purged Kollisolv® PEGs restrict total aldehyde content to a maximum of 10 ppm, providing greater softgel stability.

Figure 1. Solubility of Kollidon® VA 64 in Kollisolv® PEG 300, 400, and 600 at room temperature.

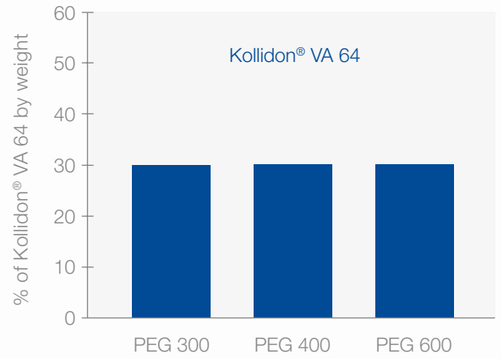


Figure 2. Solubility of Kollidon® 30 in Kollisolv® PEG 300, 400, and 600 at room temperature.

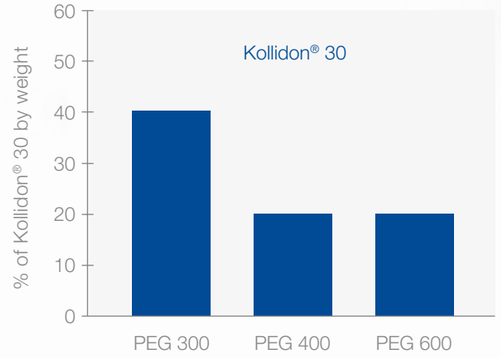
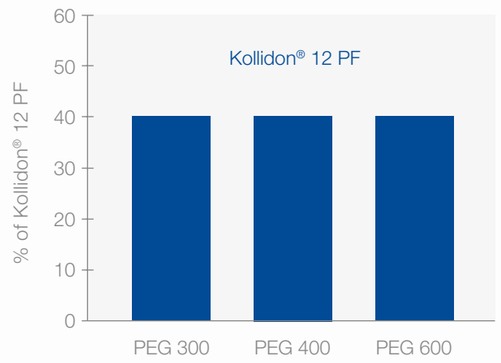


Figure 3. Solubility of Kollidon® 12 PF in Kollisolv® PEG 300, 400, and 600 at room temperature.



Advancements in increased temperature control for softgel encapsulation machines provide opportunities to use fills with greater crystallization inhibitor concentration. Use of common processing temperatures of 40 or 60 °C leads to as much as 80% reduction in fill viscosity. This gives significant advantages by increasing processing speed with lower flow resistance of fills and increasing softgel shelf stability with greater crystallization inhibitor content when using liquid Kollisolv® PEGs with Kollidon® crystallization inhibitors.

Figure 4. Viscosity vs. concentration of Kollidon® VA 64 in Kollisolv® PEG 300 at 25, 40 and 60 °C.

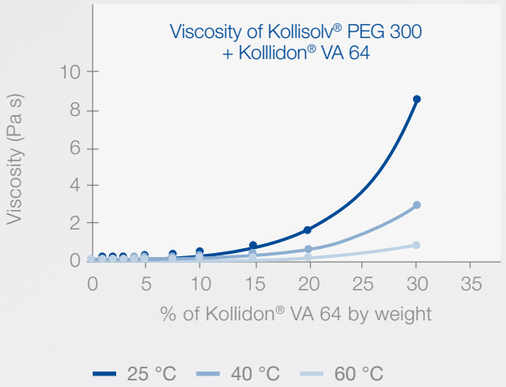
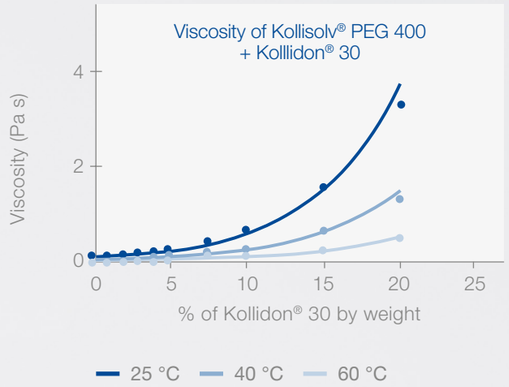
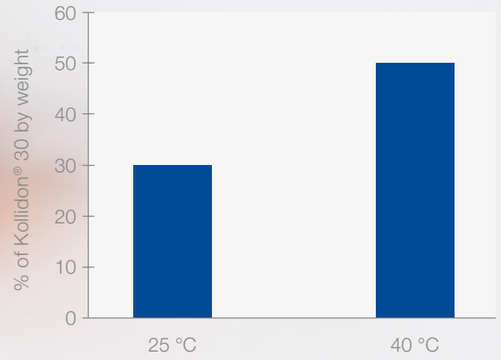


Figure 5. Viscosity vs. concentration of Kollidon® 30 in Kollisolv® PEG 400 at 25, 40 and 60 °C.



Furthermore, higher processing temperatures of 40 and 60 °C can allow for the incorporation of increased crystallization inhibitor content, sometimes as high as 30% more by weight (Figure 6).

Figure 6. Kollidon® 30 crystallization inhibitor loading in Kollisolv® PEG 400 as a function of temperature.



Ensuring softgel performance with low aldehyde Kollisolv® PEGs

Softgels are oral formulations that are composed of a pharmaceutical grade shell which encapsulates the liquid fill. Shell-fill compatibility requires the strategic selection of excipients to minimize degradation byproducts known to be harmful for softgel stability. To ensure capsule integrity and dissolution reproducibility, the fill must be compatible with the shell, and neither prematurely rupture the shell nor restrict release of the active post-delivery.

Aldehydes are a common concern in softgels, especially soft gelatin capsules, where chemical crosslinking of the gelatin peptide backbone will cause insoluble films or pellicles that disrupt dissolution testing. The consequence of crosslinking is often an altered dissolution behavior of the capsule, one that will fail dissolution testing in vitro. While this crosslinking does not always translate to failure in vivo, where enzymes can cleave the peptide backbone, the USP <711> recommends a two-tiered dissolution investigation when in vitro dissolution failure arises from crosslinking. The complicated testing protocol includes pH-dependent enzyme selection and, as elaborated in USP <1094>, additional testing on the compatibility of any surfactants included in the medium. These additional tests require cumbersome method development and validation, lengthening the time and complexity of going to market.

Unfortunately, aldehydes are often common to chemistries typically seen in softgel formulations, including polyethylene glycols. While general compendial requirements do not differentiate aldehyde restrictions for softgel applications, our Kollisolv® PEG 400 LA and Kollisolv® 600 LA are offered with strict limits of 10 ppm maximum of total aldehyde, and are well-suited for softgel formulations needs.

To study the effect of degradation byproducts, particularly aldehydes, on softgel performance, five lots of polyethylene glycol 400 (PEG 400) of varying grades and storage conditions were selected for testing (Table 1). Two fresh lots of Kollisolv® PEG 400 LA were evaluated, as well as one Kollisolv® PEG 400 LA at the 2-year retest. A compendial grade of PEG 400 that met Ph. Eur. and USP monographs was included, as well as a standard, non-pharmacopoeia PEG 400. The standard grade PEG 400 was a forced-aged compendial PEG 400 sample, stressed through aging at 60 °C for 9 days and 80 °C for 7 days.

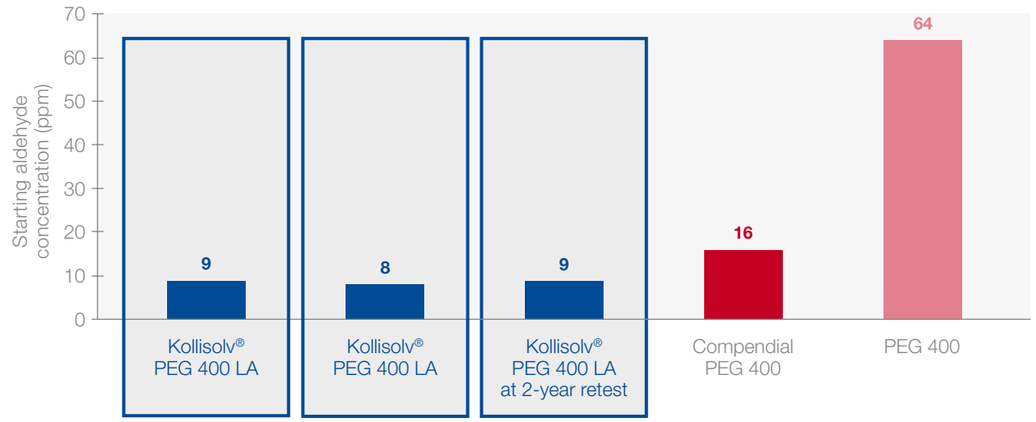
Table 1. PEG 400 samples for softgel formulations.

Sample #	Material	Age to retest	Grade
1	Kollisolv® PEG 400 LA	Fresh*	Low aldehyde (Ph. Eur., USP)
2	Kollisolv® PEG 400 LA	Fresh*	Low aldehyde (Ph. Eur., USP)
3	Kollisolv® PEG 400 LA	At 2-year retest	Low aldehyde (Ph. Eur., USP)
4	Compendial PEG 400		Compendial (Ph. Eur., USP)
5	PEG 400		Standard

*Samples 1 and 2 represented two different freshly opened lots.

The starting aldehyde levels for each sample was determined by an in-house R&D method (Figure 7). Kollisolv® PEG 400 LA had the lowest aldehyde concentration, under 10 ppm, with no difference between fresh and at 2-year retest. The compendial PEG 400 sample had an aldehyde concentration almost two-fold higher than Kollisolv® PEG 400 LA. Standard PEG 400 was nearly six-fold higher.

Figure 7. Starting aldehyde levels for each grade of PEG 400.

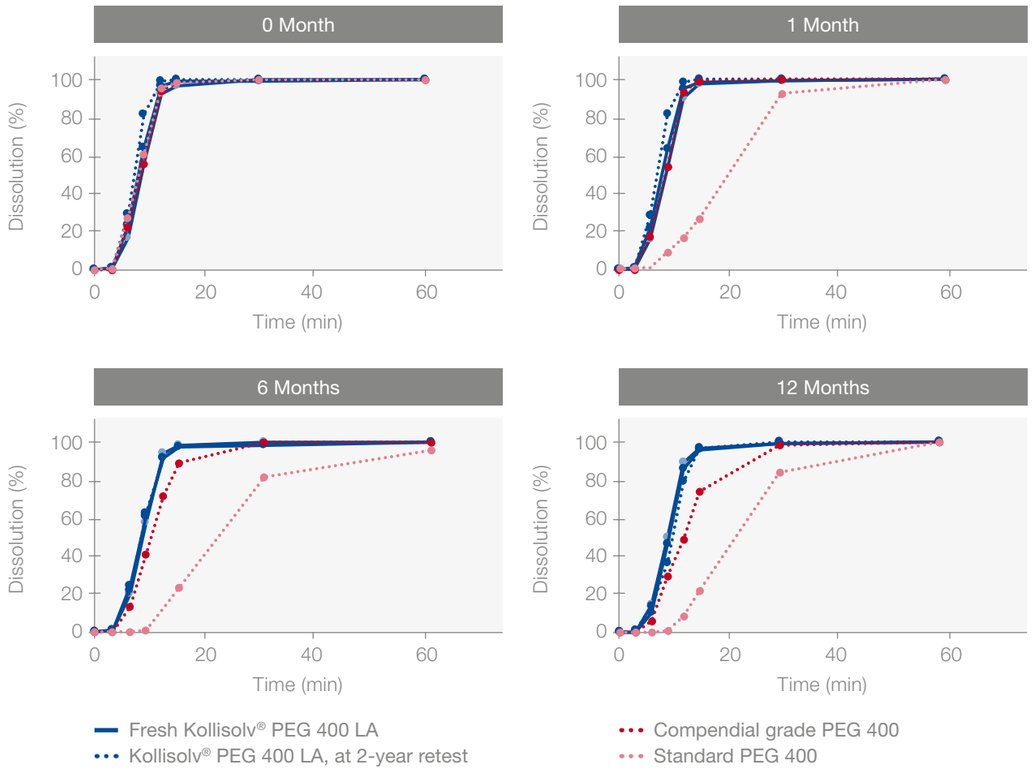


Brilliant Blue, serving as a model active pharmaceutical ingredient (API), was formulated at equal parts in the five PEG 400 samples. After the formulations were filled into softgel capsules using lab-scale filling equipment, the capsules were then stored at ambient (25 °C, 60% RH) and accelerated (40 °C, 75% RH) conditions for a 12-month period. In vitro dissolution of the softgel capsules was performed to evaluate the effect of aldehyde content on dissolution.

When stored at ambient conditions, the softgel capsules composed of Kollisolv® PEG 400 LA demonstrated superior stability over compendial and standard PEG 400 (Fig. 8). Over the course of 12 months, the softgels filled with fresh and 2-year Kollisolv® PEG 400 LA showed a stable release profile with no evidence of crosslinking or change in dissolution. **The equivalence of performance with product age, fresh and at two years, demonstrates the stability of Kollisolv® PEG 400 LA and reliability of performance.**

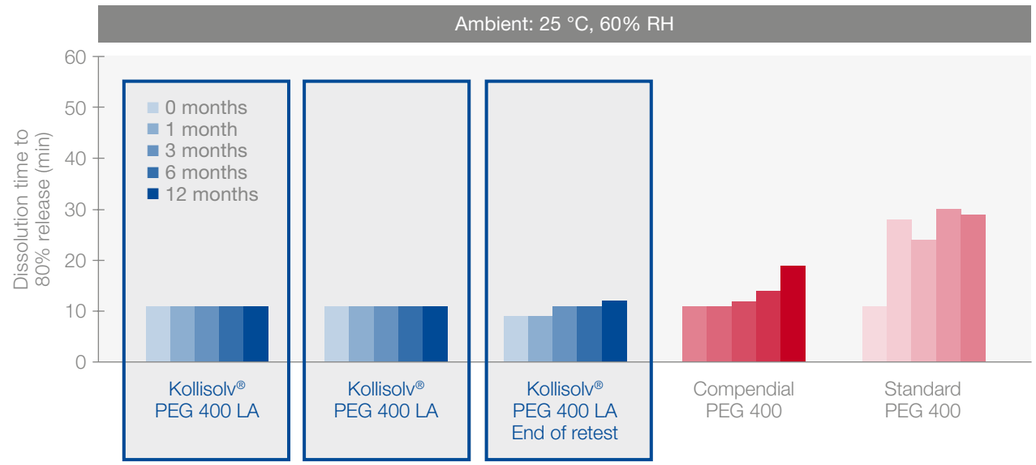
In contrast, the softgel consisting of compendial PEG 400 increasingly delayed dissolution, with significant changes in dissolution evident by month 6. To an exaggerated degree, the softgel containing standard PEG 400 showed retarded dissolution and evidence of near-immediate crosslinking within the first month.

Figure 8. Dissolution of softgels stored at ambient (25 °C, 60% RH) conditions over a 12-month period.



The dissolution time to release 80% of the loaded Brilliant Blue was captured for each sample (Fig. 9). Softgels containing Kollisolv® PEG 400 LA demonstrated an equivalent dissolution time over the full 12 months under ambient conditions; while even the compendial grade PEG 400 containing softgels exhibited delayed dissolution within 6 months.

Figure 9. Dissolution time (until 80% release) of softgels stored at ambient (25 °C, 60% RH) conditions, taken as the time in minutes.



In accordance with USP<711>, formulations made with the compendial PEG 400 would require proof of gelatin crosslinking via spectroscopic methods and complicated dissolution tests. Comparatively, formulations that consisted of Kollisolv® PEG 400 LA would not require further investigation regarding crosslinking or dissolution.

Even under stressed aging in accelerated storage conditions, softgels consisting of Kollisolv® PEG 400 LA within the full 2-year retest period exhibited equivalent performance, demonstrating stability of the product within its shelf-life. Under accelerated storage, dissolution of capsules of fresh and retest-aged Kollisolv® PEG 400 LA remained equivalent through 3 months (Fig. 10).

In contrast, compendial PEG 400 mirrored the failure of standard, non-pharmacopoeia PEG 400, and both products showed immediately delayed dissolution within the first month, failing due to crosslinking of soft gelatin capsules. **In this case, even meeting Ph. Eur. and USP standards for a pharmaceutical excipient did not impart stability over a non-pharmaceutical grade of PEG 400.**

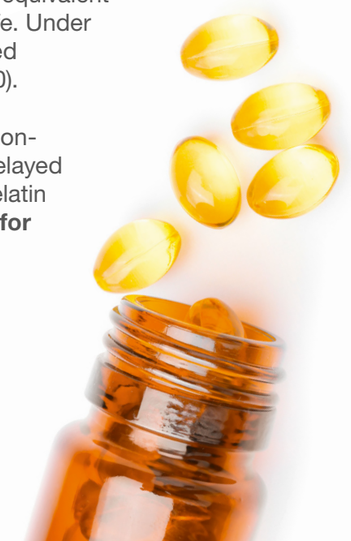


Figure 10. Dissolution of softgels stored at accelerated (40 °C, 75% RH) conditions over a 6-month period.

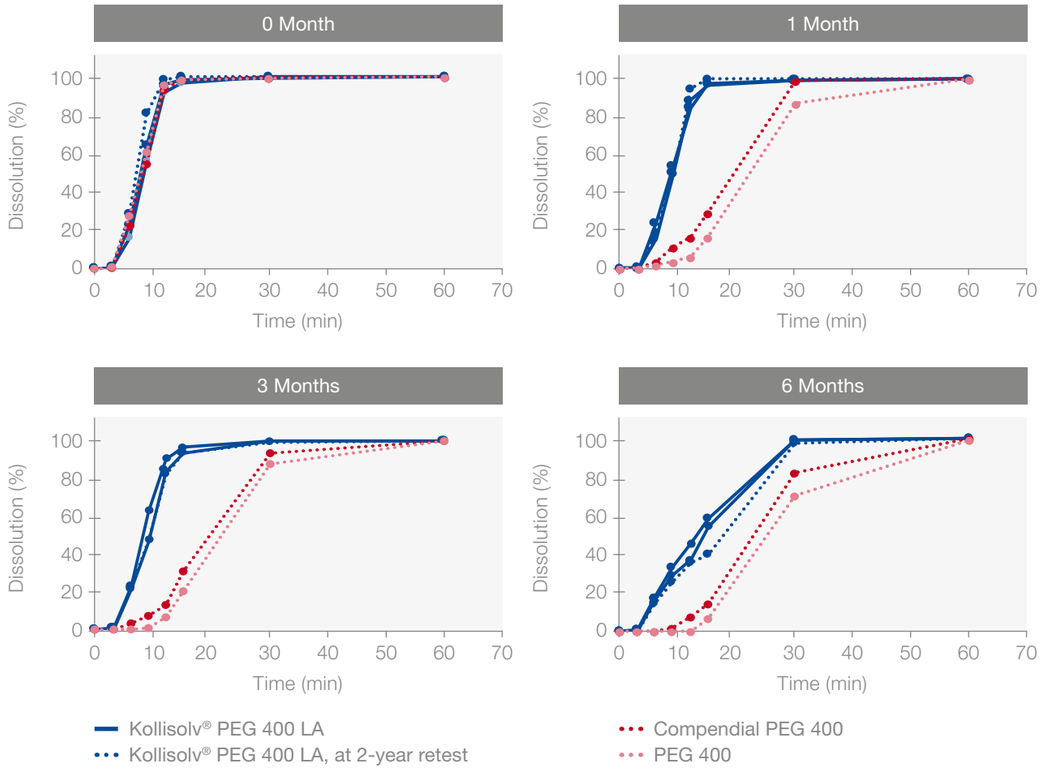
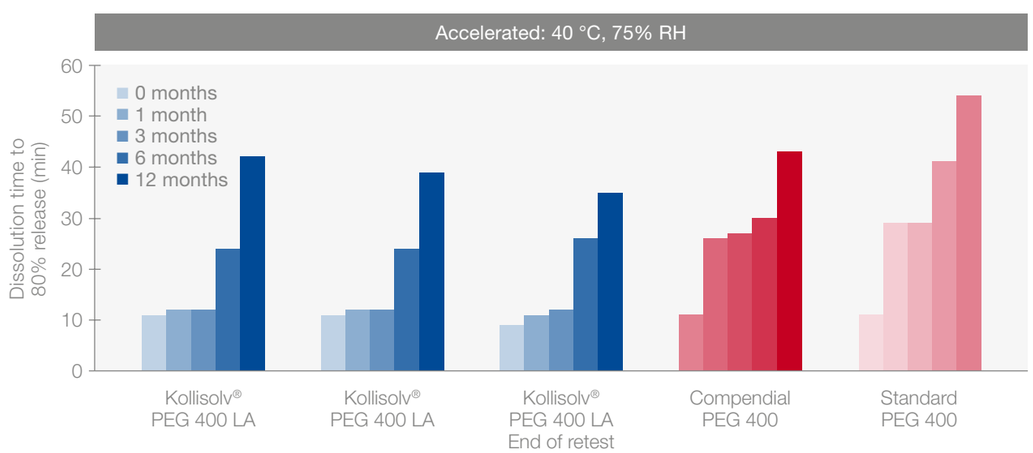


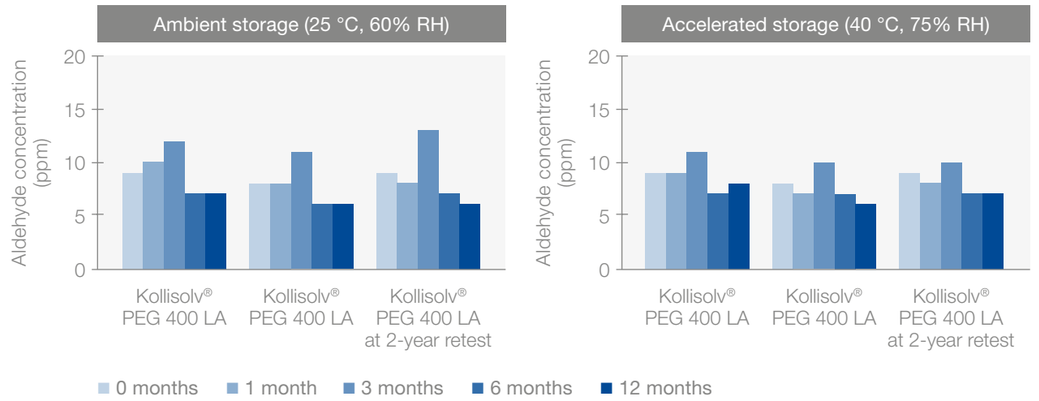
Figure 11. Dissolution time (until 80% release) of softgels stored at ambient (40 °C, 75% RH) conditions, taken as the time in minutes.



Under accelerated conditions, Kollisolv® PEG 400 LA offered improved stability of the dissolution profile. Regardless of age, the three Kollisolv® PEG LA samples demonstrated an equivalent dissolution time over 3 months, suggesting stability studies under these conditions is feasible through 3 months (Fig. 11). In contrast, both compendial and standard, non-pharmacopoeia grades of PEG 400 exhibited delayed dissolution immediately, failing accelerated stability studies under these conditions.

Aldehyde content within the softgels was determined at time points within both storage conditions. As softgel fills, Kollisolv® PEG 400 LA samples demonstrated minimal changes in the aldehyde content over a 2-year retest period. Evaluation of the aldehyde content showed that storage condition did not significantly impact the total aldehyde amount present in the softgel fill. Ultimately, Kollisolv® PEG 400 LA did not develop aldehyde content over time when formulated in softgels, whether fresh or at retest, under ambient or accelerated storage (Fig. 12).

Figure 12. Aldehyde development of Kollisolv® PEG 400 LA in softgels, over 12 months at under ambient and accelerated storage.



In summary, Kollisolv® PEG 400 LA outperformed compendial PEG 400. The dissolution profiles from softgels at both ambient and accelerated storage conditions reflected a predilection towards Kollisolv® PEG 400 LA, with stable release seen for longer than from compendial PEG 400. When using Kollisolv® PEG 400 LA as the softgel fill, aldehydes did not develop over time at either ambient or accelerated storage conditions. Rather, the source and quality of the products had the greatest effect on the aldehyde levels. Fresh and at-retest Kollisolv® PEG 400 LA samples offered a 50% reduction in starting average aldehyde content in comparison to compendial grade PEG 400. The repeatable and stable dissolution profiles seen for Kollisolv® PEG 400 LA bring the advantages of rapid development and ease of qualification.

Topicals

When used for topical applications, solid and liquid Kollisolv® PEGs can be combined to form water-soluble bases for ointments, suppositories, and ovula. Low-molecular-weight Kollisolv® PEGs can be used as solvents, conditioners, adhesion promoters, and humectants. These products, like Kollisolv® PEG 300, Kollisolv® PEG 400, and Kollisolv® PEG 1000, promote ease of application, softening on contact with skin, and localization of active delivery. High-molecular-weight Kollisolv® PEGs can be used as structuring agents and thickeners to increase the viscosity of formulations. These include Kollisolv® PEG 1450, Kollisolv® PEG 3350, and Kollisolv® PEG 8000.

Hydrophilic ointment formulation

Kollisolv® PEG ointments can be used as an alternative to traditional petrolatum-based ointment formulations. By pairing different amounts of high- and low-molecular-weight chains, PEG ointments can be tuned for desirable rheological profiles and sensory.

Phase	Ingredient	Chemical name	Wt%
A	Kollisolv® PEG 400 G	Polyethylene glycol 400	50
	Kollisolv® PEG 3350*	Polyethylene glycol 3350	30
	Kollisolv® PG	Propylene glycol	20

Procedure

1. Prepare phase A by weighing ingredients into an appropriately sized beaker.
2. Heat the mixture to 60 °C and continue heating until the mixture has completely melted. Try to minimize the heating time as much as possible.
3. Once all the components have melted, place phase A underneath an overhead mixer. Stir at a low shear rate until cooled to room temperature.

*Kollisolv® PEG 3350 is commercially available only in the USA and Canada as an excipient.

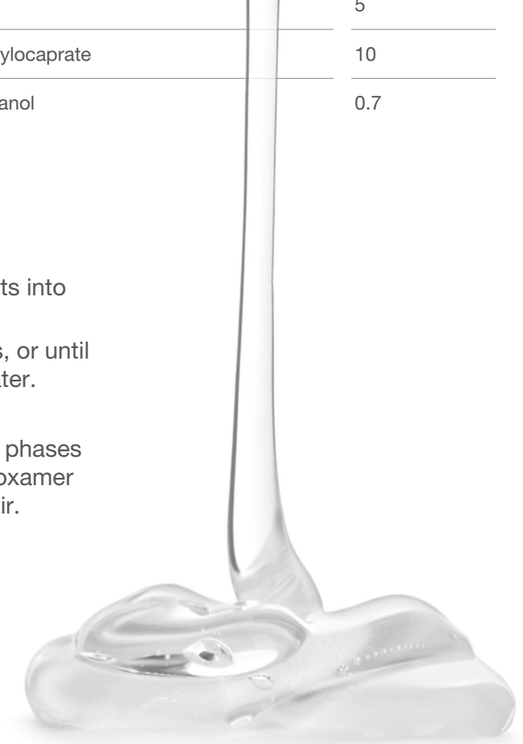
Emulgel formulation

At concentrations above 15%, poloxamers 188 and 407 can be used to make gels and viscous emulsions by both emulsifying and forming phases and networks via the hydrophobic and hydrophilic interactions; these hydrophobic and hydrophilic interactions are driven by the PPO and PEO segments of the polymer, respectively. Kollisolv® PEGs are compatible with poloxamers and can be used to form robust gels and emulgels.

Phase	Ingredient	Chemical name	Wt%
A	Kolliphor® P 407	Poloxamer 407	18
	Water	Water	41.3
B	Ethanol	Ethanol	10
	Kollisolv® PEG 400 G	Polyethylene glycol 400	15
	Glycerin	Glycerin	5
C	Kollicream® 3 C	Cocoyl caprylocaprate	10
	Phenoxyethanol	Phenoxyethanol	0.7

Procedure

1. Prepare phases A and B by weighing ingredients into appropriately sized beakers.
2. Leave phase A refrigerated at 5 °C for 24 hours, or until all the Kolliphor® P 407 has dissolved in the water.
3. Separately mix phase B under low shear.
4. Add phase B to phase A. Then add phase C to phases A + B. Mix under low shear slowly until the poloxamer has gelled, being careful not to mix in excess air.



Suppository formulation

Suppositories allow formulators to accurately deliver active ingredients through an alternative route. Kollisolv® PEG suppositories are ideal for the formulation of suppository matrices, offering a melting temperature range within physiologically relevant conditions and compatibility with hydrophilic drugs.

Phase	Ingredient	Chemical name	Wt%
A	Kollisolv® PEG 300 G	Polyethylene glycol 300	60
	Kollisolv® PEG 8000	Polyethylene glycol 3350	40

Procedure

1. Prepare phase A by weighing ingredients into an appropriately sized beaker.
2. Heat the mixture to 60 °C and continue heating until the mixture has completely melted. Try to minimize the heating time as much as possible.
3. Once all the components have melted, place phase A underneath an overhead mixer. Stir at a low shear rate until thoroughly mixed.
4. Remove heat and allow mixture to cool to 40 °C. Carefully pour mixture into suppository molds and allow to cool to room temperature.

Product details and key benefits

Product details	Kollisolv® PEGs
Regulatory	USP-NF, Ph. Eur.
Manufacturing site	Geismar, Louisiana (USA)
Manufacturing process	Synthetic
Re-test period	24 months
Certified*	Kosher, Halal
Handling	Please refer to the individual Material Safety Data sheet (MSDS) for instructions on safe and proper handling and disposal.
Safety data sheet	Safety data sheets are available on request and are sent with every consignment.
Retest date and storage conditions	Please refer to Quality & Regulatory Product Information (QRPI).
Specification	For current specification, please speak to your local BASF sales or technical representative.
Regulatory status	Please refer to Quality & Regulatory Product Information (QRPI).

Key benefits

Supply reliability & consistent quality	Kollisolv® PEGs are manufactured in a GMP compliant facility in the U.S. ensuring: ■ Consistent quality and safety ■ Reliable, vertically integrated supply
Sustainability	BASF is a proud member of the Pharmaceutical Supply Chain Initiative (PSCI), whose vision is to establish and promote responsible practices that will continuously improve human rights, health, safety, and environmentally sustainable outcomes for supply chains worldwide.
Technical service	■ World class expertise in excipient chemistry ■ Formulation guidance with **ZoomLab**™
BASF Virtual Pharma Assistants	■ Regulatory documentation available in **RegXcellence®** ■ Product details available via **MyProductWorld** ■ Full pharma regulatory documentation and submission support

*Kollisolv® PEG 1000, 1450, and 3350 USP LAX are solely certified Kosher

Product and sample article numbers

	Product article number	Sample article number
Kollisolv® PEG 300 G	50382492	50424114
Kollisolv® PEG 400 G	50382498	50424228
Kollisolv® PEG 400 LA	50382500	50784432
Kollisolv® PEG 600	50382522	50424245
Kollisolv® PEG 600 LA	50382526	50784433
Kollisolv® PEG 1000	50382472	50424070
Kollisolv® PEG 1450	50382473	50614587
Kollisolv® PEG 3350 USP LAX*	50382494	50424224
Kollisolv® PEG 8000	50382621	50424250

*Kollisolv® PEG 3350 USP LAX (Macrogol 3350) is an active pharmaceutical ingredient (API) with an individual monograph in the USP for which BASF holds a US type II DMF and CEP.

ZoomLab™ – Your virtual formulation assistant

- Eliminate trial and error by instantly optimizing and predicting your next starting formulation
- Explore a robust knowledge base of active ingredients, excipients, and formulations
- Create personalized development projects while maintaining drug chemistry confidentiality

Predict your next drug's starting formulation instantly

RegXcellence® – Your virtual quality & regulatory assistant

- Instantly download standard quality and regulatory documents
- Find comprehensive compliance information and request customized documentation
- Stay in compliance with automated change notifications

Make quality and regulatory compliance a breeze

MyProductWorld – Your virtual product assistant

- Find your favorite excipient and active ingredients, browse comprehensive product information, request 3rd party audit reports, and more
- Request and track samples, order products, and more via your personalized user profile

Find pharma grade excipients and API solutions faster

Register for free at info-mypharma.basf.com and meet your 24/7 Virtual Pharma Assistants today!

We create chemistry

For more information visit us at
www.pharma.basf.com

For sample requests contact us at
pharma-solutions@basf.com

If you have any further questions or need additional support, please contact your BASF representative.