



DOW

®

API & EXCIPIENTS SELECTION GUIDE

The Right Ingredients for Your Formulations

High-Quality Ingredients Backed by Supply Reliability

Successful pharmaceutical development depends on ingredients that consistently meet stringent quality, performance, and regulatory requirements. Dow offers high-quality Active Pharmaceutical Ingredients (APIs) and Excipients, supported by scientific experience, robust quality systems, and reliable global supply – helping pharmaceutical and consumer health manufacturers advance formulations from development through commercialization with confidence.

CARBOWAX™ SENTRY™
Polyethylene Glycol (PEG)
& Methoxypolyethylene Glycol (MPEG)

VERSENE™ NA Chelating Agent
(Edetate Disodium)

Propylene Glycol (PG) USP/EP





In a world of uncertainty, *count on Dow.*

Supply you can rely on.

Back-integrated production and global manufacturing capabilities help safeguard supply continuity amid changing industry and geopolitical conditions.

As a global leader in alkoxylation manufacturing, Dow offers reliable supply of pharmaceutical grade CARBOWAX™ SENTRY™ Polyethylene Glycol (PEG) & Methoxypolyethylene Glycol (MPEG), VERSENE™ NA Chelating Agent (Edetate Disodium), and Propylene Glycol (PG) USP/EP supported by vertically integrated manufacturing, quality systems, and regulatory expertise.

Compliance confidence.

Global regulatory experience, accessible documentation, and dedicated support to help you navigate compliance with confidence.

Our APIs and Excipients are manufactured to support the stringent requirements of pharmaceutical and consumer health applications. These products comply with applicable pharmacopeial standards, including the United States Pharmacopeia-National Formulary (USP-NF) requirements, with selected products also meeting the European Pharmacopeia (Ph. Eur.), Japanese Pharmacopeia (JP), Chinese Pharmacopeia (ChP), Food Chemicals Codex (FCC) and other global standards.

Quality starts at the source.

Greater controls from source to solution help ensure the consistency, purity, and quality pharmaceutical manufacturers expect.

Manufacturing Excellence

Dow combines pharmaceutical quality systems with world-scale production capabilities:

- Manufacturing, handling, and storage practices aligned with current Good Manufacturing Practices (cGMP)
- Compliance with IPEC-PQG guidelines for pharmaceutical excipients
- ICH Q7-compliant production for CARBOWAX™ SENTRY™ PEG 3350 and 4000 APIs
- Integrated manufacturing and supply chain capabilities that help ensure long-term supply reliability
- Global inventory management and strategically located distribution assets
- Comprehensive product stewardship and regulatory support

ACTIVE PHARMACEUTICAL INGREDIENTS (APIs)

Reliable APIs for Digestive Health Applications



CARBOWAX™ SENTRY™ PEG 3350 & 4000

CARBOWAX™ SENTRY™ Polyethylene Glycols (PEGs) 3350 and 4000 (Uninhibited) are active pharmaceutical ingredients (APIs) that are highly water soluble and safe to use in multiple dosage forms.

These APIs are a good choice for osmotic laxative formulations and offer mild and effective treatment to relieve constipation. They are also widely used in intestinal lavage formulations to facilitate bowel cleansing prior to medical procedures such as colonoscopies, radiological exams, or gastrointestinal surgery.

Available API Grades

- CARBOWAX™ SENTRY™ PEG 3350 USP Granular (Uninhibited)
- CARBOWAX™ SENTRY™ PEG 3350 USP Powder (Uninhibited)
- CARBOWAX™ SENTRY™ PEG 4000 NF Powder (Uninhibited)

High-Class Product Features

- Mild and effective treatment to relieve constipation
- Consistency in taste and dissolution time
- Dependable fill properties due to flow characteristics
- Consistent bulk density, helping ensure proper volume of product in your bottle or sachet

Advanced Manufacturing

- World scale production facility
- Dedicated manufacturing
- cGMP production, handling and storage
- Complies with ICH Q7 guidelines for APIs
- Polyethylene packaging available for quality preservation, durability, and handling ease

Country/Region	CARBOWAX™ SENTRY™ PEG 3350 (Uninhibited), Granular	CARBOWAX™ SENTRY™ PEG 3350 (Uninhibited), Powder	CARBOWAX™ SENTRY™ PEG 4000 (Uninhibited), Powder
United States	US DMF	US DMF	US DMF
Canada	CEP ¹	CEP ¹	CEP ¹
European Union	CEP ²	CEP ²	CEP ²
China	DMF	DMF	DMF
Japan		DMF	
Korea		DMF	
Thailand			DMF
Technical Dossier: Chemistry, Manufacturing and Control (CMC)	CMC	CMC	CMC

¹ Guidance Document: Use of Certificate of Sustainability (CEP) as supporting information in Drug Submissions (11.1)

² Based on information received from regulatory authorities and trade associations, the following countries accept CEPs, some with conditions: Albania, Algeria, Australia, Azerbaijan, Canada, Georgia, Ghana, Israel, Kyrgyzstan, Malaysia, Moldova, Morocco, New Zealand, Saudi Arabia, Singapore, South Africa, Tunisia, and Uzbekistan. CEPs are also accepted (with conditions) by the Taiwan Food and Drug Administration. Please note that this is not an exhaustive list.

EXCIPIENTS

Functional Ingredients for Enhanced Drug Performance

Dow excipients support effective drug delivery by improving solubility, stability, manufacturability, and patient experience across liquid, semi-solid, and solid dosage forms.

Our excipient portfolio includes:

Product	Supplied Form	INCI' Name	CAS
CARBOWAX™ SENTRY™ Polyethylene Glycol (PEG)			
300 NF, Macrogol 300 Ph. Eur. (Low aldehyde grade available)	Liquid	PEG-6	25322-68-3
400 NF, Macrogol 400 Ph. Eur. (Low aldehyde grade available)	Liquid	PEG-8	
540 Blend (PEG 300/PEG 1450)	Fused Solid	PEG 6 & PEG 32	
600 NF, Macrogol 600 Ph. Eur. (Low aldehyde grade available)	Semi-Solid	PEG-12	
1000 NF	Fused Solid	PEG-20	
1450 NF	Flake	PEG-32	
1500 NF, Macrogol 1500 Ph. Eur.	Flake	PEG-32	
3350 USP, Macrogol 3350 Ph. Eur.	Granular, Powder, Flake	PEG-75	
4000 NF, Macrogol 4000 Ph. Eur.	Granular, Powder, Flake	PEG-90	
4600 NF	Granular	PEG-100	
8000 NF, Macrogol 8000 Ph. Eur.	Granular, Powder, Flake	PEG-180	
CARBOWAX™ SENTRY™ Methoxypolyethylene Glycol (MPEG)			
350 NF	Liquid	Methoxy PEG-7	9004-74-4
550 NF	Liquid	Methoxy PEG-11	
VERSENE™ NA Chelating Agent			
Edetate Disodium	Crystals	Disodium EDTA	6381-92-6
Propylene Glycol (PG)			
Propylene Glycol	Liquid	Propylene Glycol	57-55-6

¹ International Nomenclature Cosmetic Ingredient

CARBOWAX™ SENTRY™ PEGs & MPEGs

Versatility Across Dosage Forms

CARBOWAX™ SENTRY™ Polyethylene Glycols (PEGs) and Methoxypolyethylene Glycols (MPEGs) are highly versatile excipients used in liquid, semi-solid, and solid pharmaceutical formulations. Available in a broad range of molecular weights and physical forms, they enable formulators to optimize viscosity, melting point, dissolution behavior, and drug release characteristics.

Product Range

PEG Grades: 300, 400, 540 Blend, 600, 1000, 1450, 1500, 3350, 4000, 4600, 8000

MPEG Grades: 350, 550

Low Aldehyde Grades Available: PEG 300, 400, and 600

Why Choose Low Aldehyde?

Low aldehyde grades may be the right choice if you're having issues with API stability or aldehyde-induced cross-linking in gel cap applications. Some APIs are also susceptible to hydrolytic or oxidative degradation — leading to decreased therapeutic effect and poor long-term stability of the finished product. Our CARBOWAX™ SENTRY™ PEG low aldehyde grades offer strict specifications on peroxide and aldehyde levels, improved short- and long-term stability of both the gel cap gelatin shell and APIs, as well as uniform dissolution and drug release profiles.

Applications

Liquid & Semi-Solid Formulations

PEGs can improve the solubility of poorly water-soluble active ingredients in syrups, suspensions, elixirs, creams, and lotions.

PEGs function as:

- Solubilizers
- Wetting agents
- Emollients
- Humectants
- Water-soluble ointment bases

Solid Oral Dosage Forms

Higher molecular weight grades can improve granulation performance, tablet hardness, and lubrication characteristics.

PEGs support:

- Tablet binding
- Granulation
- Lubrication
- Tablet coating
- Controlled-release formulations
- Soft gelatin capsule systems



Recommendations by Application

Application	Description	Recommended Product
Tableting	CARBOWAX™ SENTRY™ PEGs are versatile excipients for tablet formulations, providing binding, lubricity, and coating plasticization benefits. Their broad molecular weight range offers formulation flexibility to help optimize tablet performance, processing efficiency, coating characteristics, and dissolution profiles.	CARBOWAX™ SENTRY™ PEG 3350 – 8000
Capsules	Soft Gelatin Capsules – CARBOWAX™ SENTRY™ liquid PEGs are widely used in soft gelatin capsule formulations as water-miscible fill vehicles, solvents/co-solvents, and solubilizers. Their broad compatibility and solubilization capabilities can help formulators incorporate challenging active ingredients while offering flexibility in fill formulation design.	Softgels: CARBOWAX™ SENTRY™ PEG 300–600 (including low aldehyde grades)
	Hard Capsules – CARBOWAX™ SENTRY™ PEGs can also be utilized in liquid, semisolid, and melt-fill hard capsule formulations. By selecting the appropriate grade or blend of grades, formulators can tailor viscosity, processing characteristics, and dosage form performance to meet specific product requirements.	Hard capsules: CARBOWAX™ SENTRY™ PEG 3350 – 8000
Granulation	CARBOWAX™ SENTRY™ PEGs have been used in pharmaceutical granulation technologies for decades. They can function as melttable binders and granulation aids, helping promote particle agglomeration without the need for solvent removal or drying. They can help improve particle size distribution, reduce fines, enhance tablet hardness, and contribute to lubricity. By selecting the appropriate grade or blend of grades, formulators can achieve the desired balance of granulation performance and final dosage-form properties.	CARBOWAX™ SENTRY™ PEG 3350 – 8000
Topicals	CARBOWAX™ SENTRY™ PEGs and MPEGs are versatile ingredients for topical formulations, serving as water-miscible bases, vehicles, humectants, and consistency modifiers. By selecting or blending grades, formulators can achieve the desired balance of spreadability, washability, viscosity, and formulation aesthetics while tailoring product performance for creams, ointments, gels, and other topical dosage forms.	Ready-to-Use: CARBOWAX™ SENTRY™ PEG 540 Blend Tailored blend of CARBOWAX™ SENTRY™ PEG 300–8000 and CARBOWAX™ SENTRY™ MPEG 350 & 550
Liquid Dosage Forms	CARBOWAX™ SENTRY™ liquid PEGs are widely used in pharmaceutical liquid dosage forms as water-miscible solvents, solubilizers, and non-alcoholic vehicles. They can help formulators incorporate challenging active ingredients while providing formulation flexibility across a variety of applications, including oral liquids, nasal sprays, ophthalmic drops, and otic preparations.	CARBOWAX™ SENTRY™ PEG 300 – 600
Suppositories	CARBOWAX™ SENTRY™ PEGs are widely used as water-soluble suppository bases. By selecting or blending grades of different molecular weights, formulators can tailor firmness, handling characteristics, dissolution behavior, and drug release performance to meet specific formulation objectives.	Base: CARBOWAX™ SENTRY™ PEG 1000 Fine tune with CARBOWAX™ SENTRY™ PEG 3350 – 4600



A Trusted Solubilizer

CARBOWAX™ SENTRY™ PEGs have demonstrated the ability to enhance the solubility of many poorly water-soluble active ingredients, supporting improved formulation flexibility and bioavailability.

CARBOWAX™ SENTRY™ PEGs Solubility Guide

Therapeutic Categories	API	Solubility in Water	Solubility in PEG	Molecular Weight	Solubility Improvement Factor
Analgesics	Acetaminophen	Sparingly soluble	Freely soluble	PEG 600	x400 ¹
	Ibuprofen	Practically soluble	Freely soluble	PEG 600	x3,600 ¹
	Ketoprofen	Sparingly soluble	Very soluble	PEG 400	x800 ²
Cardiovascular agents	Fenofibrate	Practically soluble	Very slightly soluble	PEG 400 PEG 600	x400 ³ x500 ³
	Atorvastatin Calcium	Practically soluble	Freely soluble	PEG 300 PEG 400 PEG 600	x3,700 ⁴ x2,200 ⁴ x1,600 ⁴
	Felodipine	Practically soluble	Slightly soluble	PEG 400	x70 ⁵
	Nifedipine	Practically soluble	Slightly soluble	PEG 400	x550 ⁶
Antifungal	Itraconazole	Practically soluble	Very slightly soluble	PEG 400	x1,7000 ⁷
Anesthetic	Benzocaine	Very slightly soluble	Freely soluble	PEG 400 PEG 600	x800 ⁸ x780 ⁸
	Lidocaine	Soluble	Freely soluble	PEG 300 PEG 400 PEG 600	x6 ⁸
Blood glucose regulators	Glipizide	Practically soluble	Very slightly soluble	PEG 400	x500 ⁹
Gastrointestinal agents	Mesalazine	Practically soluble	Slightly soluble	PEG 400	x70 ¹⁰

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³ Patel, T.; Patel, L. D.; Suhagia, B. N.; Soni, T.; Patel, T. Formulation of Fenofibrate Liquisolid Tablets Using Central Composite Design. Curr. Drug Deliv. 2014, 11, 11–23.

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⁸ Verma, S. K.; Davis, V. M.; Barner, B. A. CARBOWAX™ PEGs in Pharmaceuticals Drug Solubility in PEGs and PEG-Water Solutions; Internal Report - CRI 1998000210; 11/18/1998.

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¹⁰ Moradi, M.; Rahimpour, E.; Hemmati, S.; Martinez, F.; Barzegar-Jalali, M.; Jouyban, A. Solubility of Mesalazine in Polyethylene Glycol 400 + Water Mixtures at Different Temperatures. J. ol. Liq. 2020, 314, 113546.

VERSENE™ NA Chelating Agent

Stability Protection for Pharmaceutical Formulations

VERSENE™ NA Chelating Agent is a partially neutralized salt of EDTA or Edetate Disodium that helps safeguard formulation quality by binding trace metal ions that can affect potency, performance, appearance, flavor, and product stability. By controlling metal-catalyzed reactions, VERSENE™ NA Chelating Agent supports formulation performance from manufacturing through shelf life.

Three Ways VERSENE™ NA Chelating Agent Protects Formulations

Antioxidant Protection

Trace metal ions can accelerate oxidation in sensitive formulations. VERSENE™ NA Chelating Agent helps minimize the impact of metal-catalyzed degradation, supporting product appearance, performance, and stability while helping reduce color changes, off-odors, and emulsion instability.

Antimicrobial Booster

VERSENE™ NA Chelating Agent is widely used to enhance the performance of preservative systems in pharmaceutical formulations. Through its metal-chelating capability, it can support preservative effectiveness in selected formulations by reducing the availability of metal ions that influence microbial cell integrity, helping formulators achieve robust and stable products.

Vitamin Stabilizer

VERSENE™ NA Chelating Agent helps support the stability of metal-sensitive vitamin formulations by reducing the impact of trace metal ions on degradation pathways. It is particularly valuable in formulations containing vitamin B12 and iron, where metal-catalyzed instability can affect product quality over time.

Typical Applications

VERSENE™ NA Chelating Agent is used in a wide range of pharmaceutical and nutritional formulations to help manage metal-catalyzed degradation pathways and support long-term product quality including:

Ocular Care and Nasal Spray Products

In ophthalmic and nasal formulations, VERSENE™ NA Chelating Agent can support preservative performance and help control trace metals that may affect clarity, stability, or product appearance over time.

Syrups and Elixirs

In oral liquid formulations, VERSENE™ NA Chelating Agent helps protect sensitive ingredients from metal-catalyzed degradation, supporting the retention of color, flavor, and overall product quality throughout shelf life.

Creams and Ointments

VERSENE™ NA Chelating Agent is used in topical formulations to help reduce the effects of metal-catalyzed oxidation and support the stability of sensitive ingredients in creams, lotions, and ointments.

API Preservative

Many active pharmaceutical ingredients are susceptible to degradation pathways influenced by trace metal ions. VERSENE™ NA Chelating Agent helps manage these effects through effective metal chelation, preventing potency loss, supporting formulation stability and product performance.

Vitamins and Nutritional Products

VERSENE™ NA Chelating Agent helps support the stability of vitamin and nutritional formulations by reducing the impact of trace metal ions on sensitive ingredients. This versatile chelating agent can be incorporated into a wide range of product formats to help maintain quality throughout manufacturing and storage.

Propylene Glycol (PG) USP/EP

An Excipient for Liquid and Semi-Solid Formulations

Dow offers one of the highest purity propylene glycols available in the marketplace — with a specified purity of 99.8 percent or greater, non-detectable MEG/DEG contents.

This excipient is widely used as a solvent, co-solvent, carrier, humectant, and viscosity modifier that can be used in a broad range of pharmaceutical and consumer health applications.

Dow's Propylene Glycol USP/EP offers excellent versatility and functionality in pharmaceutical excipient applications as a:

- Solvent and extractant for a wide range of active ingredients, such as corticosteroids, phenol derivatives, barbiturates, vitamins A and D, most alkaloids and many local anesthetics
- Humectant for promoting moisture retention in topical ointments
- Coupling agent
- Plasticizer in aqueous film coating formulations
- Emulsion stabilizer
- Dispersant
- Viscosity modifier

Common Applications

- Oral liquid formulations
- Topical creams and ointments
- Oral care products
- Nasal formulations
- Consumer health products
- Pharmaceutical processing applications



Propylene Glycol USP/EP Solubility Guide

Material	% Solubility	Material	% Solubility
Drugs and medicinals		Antiseptics	
Acetanilide	2.09	Camphor	9.80
Acetarsone	0.52	Calcium Sulfocarbolate	>30.00*
Acetophenetidine	2.10	Chlorothymol	70.00
Alion	4.37	Hexylresorcinol	>80.00*
Antipyrine	>55.00	Menthol	>50.00
Caffeine	0.77	Merthiolate	>29.00
Chloral Hydrate	>89.00	Metaphen	<0.27
Ethyl Carbamate	>57.00	Salol	10.50
Glycine	<0.45	Thymol	>50.00
Hexamethylenetetramine	11.22	Trichloro-tert-butanol	>60.00
o-Hydroxybenzyl Alcohol	44.10	Zinc Sulfocarbolate	>39.00
Paraldehyde	x	Vitamins and hormones	
Pepsin	<0.08	Estradiol (mg per cc)	0.50
Phenobarbital	>49.00	Ascorbic Acid	8.16
(Luminal Sodium)		Calcium Pantothenate	2.04
Resorcinol	55.70	Nicotinic Acid	0.88
Sodium Bismuth Thioglycolate	9.40	Pyridoxine Hydrochloric	2.73
Sodium Iodobismuthite	6.00	Riboflavin	<0.006
Sulfadiazine	0.30	Thiamine Hydrochloride	5.14
Sulfanilamide	7.25	Vitamin A (12% in oil)	Insol.
Sulfapyridine	0.50	Organic substances	
Sulfathiazole	1.71	Acacia Gum	<0.16
Terpin Hydrate	18.20	Calcium	<0.07
Urea	22.20	Glycerophosphate	
Local anesthetics		Cetyle Alcohol	0.23
Benzocaine	12.20	Pectin	Insol.
Benzyl Alcohol	x	Phenothiazine (Purified)	<1.15
Diothane	5.00	Sodium Citrate	0.23
Salicyl Alcohol (Saligenin)	4.00	Tannic Acid	>45.20
Inorganic substances			
Cupric Oxide	Insol.		
Ferric Oxide	Insol.		

* Viscosity of solutions prevented further additions of solid; > = Greater Than; Insol. = Not soluble; x = Miscible or soluble in all proportions = Less Than

The Dow Chemical Company logo, featuring the word "DOW" in white, bold, sans-serif capital letters inside a red diamond shape. A registered trademark symbol (®) is located to the right of the diamond.

Contact Us

Contact us to discuss your API and Excipient needs.



Request a sample today!



About Dow

Dow (NYSE: DOW) is one of the world's leading materials science companies, serving customers in high-growth markets such as packaging, infrastructure, mobility and consumer applications. Our global breadth, asset integration and scale, customer-focused innovation and leading business positions enable us to achieve profitable growth and help deliver a sustainable future. We operate manufacturing sites in 29 countries and employed approximately 34,600 people as of year-end 2025. Dow delivered sales of approximately \$40 billion in 2025. References to Dow or the Company mean Dow Inc. and its subsidiaries. Learn more about us at www.dow.com.

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