



DOW

# Dow excipients for consumer health and pharmaceuticals

CARBOWAX™ SENTRY™ Polyethylene Glycols (PEGs), CARBOWAX™ SENTRY™ Methoxypolyethylene Glycols (MPEGs), and VERSENE™ NA Edetate Disodium are among the most versatile excipients produced to meet the requirements of the consumer health and pharmaceutical industry. Our products have been successfully used in over-the-counter and pharmaceutical formulations to impart enhanced solvency, lubricity, hygroscopicity, stability and other important functional properties.

## Liquid and semisolid drug delivery

### CARBOWAX™ SENTRY™ Polyethylene Glycols

In ointments and creams, CARBOWAX™ SENTRY™ PEGs make excellent water-soluble bases as they spread easily and evenly over the skin. They are superior to traditional hydrophobic carrier as they effectively incorporate active ingredients. Due to their affinity for water, CARBOWAX™ SENTRY™ PEGs are frequently used as emollient and humectant in creams and lotions. As solubilizers and wetting agents, CARBOWAX™ SENTRY™ PEGs have successfully been used to increase solubility of poorly soluble active ingredients in liquid oral dosage form such as syrups, suspensions, and elixirs. The different molecular weights of CARBOWAX™ SENTRY™ PEGs offers blending flexibility to achieve the required properties of the finished products.

### VERSENE™ NA Edetate Disodium

VERSENE™ NA Edetate Disodium is useful as product preservative and antioxidant. Color and flavor of syrups, elixirs, and other pharmaceutical liquid and semisolid formulations can be protected with as little as 0.1% of Dow chelating agent. VERSENE™ NA Edetate Disodium also offers antifungal and antimicrobial properties at low concentration levels.

## Solid drug delivery

### CARBOWAX™ SENTRY™ Polyethylene Glycols

CARBOWAX™ SENTRY™ PEGs provide multiple benefits in solid dosage forms. They can act as both binders and fillers with added lubrication properties. They function effectively as plasticizers for tablet coating, providing good hardness, water solubility and lubricity. Lower molecular weight CARBOWAX™ SENTRY™ PEGs (300 through 1450) have been used extensively in soft gelatin capsules (softgels), providing enhanced solubilization of the active ingredient and improve stability of the gelatin shell. Higher molecular weight CARBOWAX™ SENTRY™ PEGs (3350 through 8000) improve performance in both hot melt and wet granulation techniques leading to a more uniform particle size distribution, reduced fines concentration, enhanced tablet hardness and improved lubrication.

Products in our innovation pipeline such as **XUS Developmental Poloxamer 188** and **XUS Developmental Poloxamer 407** offer a wide range of applications in liquid, semisolid and solid dosage forms.



Liquid oral dose



Ointment/lotion/cream



Solid oral dose



Softgels

Products	CTFA (a)/INCI (b)nomenclature	Main application				Supplied form	Packaging
		Liquid oral dose	Ointment/ lotion	Solid oral dose	Softgels		
<b>CARBOWAX™ SENTRY™ PEGs</b>							
300	PEG-6	•		•	•	Liquid	Bulk, Drum, IBC
400	PEG-8	•	•	•	•	Liquid	Bulk, Drum, IBC
540 Blend	PEG-6 (and) PEG-32			•		Fused solid	Bulk, Drum
600	PEG-12	•		•	•	Liquid	Bulk, Drum, IBC
1000	PEG-20			•		Fused solid	Bulk, Drum
1450	PEG-32			•		Molten, flake	Bulk (Molten), Bag, Drum
3350	PEG-75	•		•	•	Granular, flake, powder	Bag, FIBC
4000	PEG-90		•		•	Molten, flake, powder	Bag, FIBC
4600	PEG-100		•			Flake	Bag
8000	PEG-180		•			Granular, flake, powder	Bag, FIBC
<b>CARBOWAX™ SENTRY™ MPEGs</b>							
350	PEG-6 Methyl Ether		•			Liquid	Bulk, Drum
550	Methoxy PEG-10		•			Liquid	Bulk, Drum
<b>VERSENE™ Chelants</b>							
NA Edetate Disodium	Disodium EDTA	•	•		•	Crystals	Drum
<b>Products in pipeline</b>							
XUS Developmental Poloxamer 188 (c)	Poloxamer 188	•	•	•	•	Molten, flake/prill	Bulk (Molten), Drum, Bag
XUS Developmental Poloxamer 407 (c)	Poloxamer 407	•	•	•	•	Molten, flake/prill	Bulk (Molten), Drum, Bag

(a) Cosmetic, Toiletry and Fragrance Association

(b) International Nomenclature Cosmetic Ingredient

(c) Products in the pipeline – projected commercialization 2024/2025



## Innovation

Dow has been developing innovative solutions for more than 125 years and our innovation is evidenced in our quest for new products, increased processing efficiency, in-depth support for quality requirements, and tailored supply chain solutions. You can depend on us for the science, technology and knowhow you need to support your innovations.

## Performance

The performance of CARBOWAX™ SENTRY™ PEGs, MPEGs and VERSENE™ NA Edetate Disodium has been proven over decades of use in pharmaceuticals. They are used widely as excipients in solid, semi solid, and liquid oral dosage forms – ointments, creams, lotions, solutions, emulsions, suspensions, tablets, hard and soft capsules, and more.

## Flexibility

With CARBOWAX™ SENTRY™ PEGs, MPEGs and VERSENE™ NA Edetate Disodium, we can help you find the ideal products for your application. The products are available in a wide range of viscosities and melting points for formulating flexibility. Flexibility is further enhanced by multiple product forms including liquids, powder, granular and flake materials. By choosing a suitable product grade, or blending products, you can achieve the desired balance of water solubility, hygroscopicity, vapor pressure, melting or freezing range, and viscosity.

## Quality

Whether you are concerned about consistent performance or managing quality across your supply chain, Dow support you with an exceptional commitment to quality. We were the first U.S. producer of PEGs and MPEGs with manufacturing facilities registered to the ISO 9001 quality standard. That heritage continues as we maintain our current registration to ISO 9001 and our total commitment to providing quality products, quality service and quality support.

## Compliance and Commitment to cGMP on a World-Scale Production Platform

CARBOWAX™ SENTRY™ PEGs, MPEGs and VERSENE™ NA Edetate Disodium comply with the stringent regulatory requirements for pharmaceutical applications. Our excipients comply with the United States Pharmacopeia / National Formulary (USP/NF) monographs. Select CARBOWAX™ SENTRY™ PEGs comply with the European Pharmacopoeia (Ph. Eur.) requirements for Macrogols. VERSENE™ NA meets the requirements for European Pharmacopoeia, Japanese Pharmacopoeia, and British Pharmacopoeia, though this may entail additional cost for certification. The manufacturing, handling, and storage of CARBOWAX™ SENTRY™ PEGs, MPEGs and VERSENE™ NA Edetate Disodium comply with all appropriate cGMP in our world-scale facilities and meet the most current international Pharmaceutical Excipients Council (IPEC) Guide for Bulk Pharmaceutical Excipients.



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