DATE: 2024-2025
Arena Code: AS10690/KIM-PEG 4000 PH

Technical Data Sheet

PEG 4000(Pharmaceutical grade)

Polyethylene Glycol 4000

Polyethylene glycols (PEGs) are condensation polymers of ethylene oxide and water with the general formula H(OCH2CH2)nOH. They are the most commercially important type of polyether.
The low molecular weight compounds up to 700 are colorless, odorless viscous liquids with a freezing point from -10˚C (diethylene glycol), while polymerized compounds with higher molecular weight than 1,000 are wax like solids with melting point up to 67˚C. While PEGs with different molecular weights find use in different applications and have different physical properties (e.g. viscosity) due to chain length effects, their chemical properties are nearly identical.
The numbers that are often included in the names of PEGs indicate their average molecular weights, e.g. a PEG with n=9 would have an average molecular weight of approximately 400 and would be labeled PEG 400. Most PEGs include molecules with a distribution of molecular weights, i.e. they are polydisperse.
PEGs are soluble in water and most organic solvents.

Application:

Polyethylene glycols are non-toxic, odorless, neutral, lubricating, nonvolatile and nonirritating and are used in a variety of pharmaceuticals and in medications as a solvent, dispersing agent, ointment and suppository bases, vehicle, and tablet excipient.

Test	Standard	Reference
Description	practically odorless and tasteless, white, waxy, plastic material having a consistency similar to beeswax, or as creamy white flakes, beads, or powders	USP42-NF37
Solubility	freely soluble in water, soluble in acetone, alcohol, chloroform ,ethylene glycol monomethyl ether, ethyl acetate and in toluene; insoluble in ether and in hexane	USP42-NF37
Completeness and Color of Solution, 5g/50ml of water	Slightly Hazy	USP42-NF37
Viscosity @ 98.9±0.3˚C, Cst	110-158	USP42-NF37
pH, 5% Solution in Water	4.5-7.5	USP42-NF37
Residue on ignition	Max 0.1	USP42-NF37
Assay (Average Molecular Weight), g/mol	3600-4400	USP42-NF37
Residual solvents, ppm	Defined as Organic volatile Chemicals	USP42-NF37
Ethylene Oxide & 1,4-Dioxane, µg/g	Max 10 (for each of them)	USP42-NF37

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