Solubilization

Poorly soluble drugs are one of the major challenges pharmaceutical manufacturers are facing. BASF offers a wide range of highly effective solubilization excipients and has an unparalleled understanding of the corresponding process technologies. This makes us the leading partner in resolving bioavailability and solubility challenges by unlocking the full potential of your API.

This unique combination enables you to achieve effective solubilization and bioavailability in various dosage forms – from solid dispersions to lipid-based drug delivery systems. Moreover, we are a highly successful pioneer in the application of hot-melt extrusion technology in pharmaceutical production – helping you to achieve effectiveness.

Solid dispersions

Functionality	Product	Description	Process				Monograph title*/Chemical name
			Physical mixing	Melt granulation	Spray drying	HME**	
Solubility enhancement	Soluplus®	Polymer designed for amorphous solid dispersions (ASDs), specifically to increase solubility and bioavailability of poorly water soluble drugs. Ideal for hot melt extrusion and spray drying.	■	■	■	■	Polyvinyl caprolactam – polyvinyl acetate – polyethylene glycol graft copolymer
	Kolliphor® RH 40	Nonionic solubilizer.	■	■	■	■	Ph.Eur.: Macrogolglycerol hydroxystearate; USP/NF: Polyoxyl 40 hydrogenated castor oil
	Kolliphor® HS 15	Nonionic solubilizer.	■	■	■	■	Ph.Eur.: Macrogol 15 hydroxystearate; USP/NF: Polyoxyl 15 hydroxystearate
	Kolliphor® EL	Nonionic solubilizer.	■	■	■	■	Ph.Eur.: Macrogolglycerol ricinoleate; USP/NF: Polyoxyl 35 castor oil; JPE: Polyoxyl 35 castor oil
	Kolliphor® ELP	Purified Kolliphor® EL, especially for sensitive active ingredients.	■	■	■	■	Ph.Eur.: Macrogolglycerol ricinoleate 35; USP/NF: Polyoxyl 35 castor oil
	Kolliphor® SLS	Ionic solubilizer and emulsifier.	■	■	■	■	Ph.Eur.: Sodium laurilsulfate; USP/NF, JP: Sodium lauryl sulfate
	Kolliphor® P 188 Geismar	Polymeric solubilizer, emulsifier and plasticizer.	■	■	■	■	Ph.Eur., USP/NF: Poloxamer 188; JPE: Polyoxyethylene (160) polyoxypropylene (30) glycol
	Kolliphor® P 338 Geismar	Polymeric solubilizer, emulsifier and plasticizer.	■	■	■	■	Ph.Eur., USP/NF: Poloxamer 338
	Kolliphor® P 407 Geismar	Polymeric solubilizer, emulsifier and plasticizer.	■	■	■	■	Ph.Eur., USP/NF: Poloxamer 407; JPE: Polyoxyethylene (196) polyoxypropylene (67) glycol
	Kolliphor® PS 20	Nonionic solubilizer, emulsifier and co-emulsifier.	■	■	■	■	Ph.Eur., USP/NF: Polysorbate 20
	Kolliphor® PS 60	Nonionic solubilizer, emulsifier and co-emulsifier.	■	■	■	■	Ph.Eur., USP/NF, JPE: Polysorbate 60
	Kolliphor® PS 80	Nonionic solubilizer, emulsifier and co-emulsifier.	■	■	■	■	Ph.Eur., USP/NF: Polysorbate 80
	Kollidon® 12 PF P Kollidon® 17 PF P	Endotoxin controlled – low molecular weight povidone for solubilization, stabilization and crystallization inhibition.	■	■	■	■	Ph.Eur., USP/NF, JP: Povidone
	Kollidon® 25 P Kollidon® 30[Δ] P	Medium-molecular weight Povidone for solubilization, dispersion and oral liquid and oral semi-solid formulations crystallization inhibition.	■		■	■	Ph.Eur., USP/NF, JP: Povidone
	Kollidon® 90 F P	High-molecular weight Povidone for solubilization, dispersion and crystallization inhibition.	■		■	■	Ph.Eur., USP/NF, JP: Povidone

Functionality	Product	Technology: Physical mixing	Technology: Melt granulation	Technology: Spray drying	Technology: HME**	Description	Monograph title*/Chemical name
Matrices	Soluplus®	■	■	■	■	Polymer designed for amorphous solid dispersions (ASDs), specifically to increase solubility and bioavailability of poorly water soluble drugs. Ideal for hot melt extrusion and spray drying.	Polyvinyl caprolactam – polyvinyl acetate – polyethylene glycol graft copolymer
	Kollidon® VA 64		■	■	■	Copolymer designed for creation of amorphous solid dispersions (ASDs) – instant release matrix, solubilizer, crystallization inhibitor. High solubility in organic solvents, high acceptability in solid oral doses. Ideal and commonly used in HME and spray drying.	Ph.Eur., USP/NF: Copovidone; JPE: Copolyvidone
	Kollidon® SR		■	■	■	Controlled release matrix. May be blended with water soluble polymers to tailor release.	80% Polyvinyl acetate and 19% povidone, 0.8% lauryl sulfate & 0.2% silica
	Kollidon® 12 PF **P** Kollidon® 17 PF **P**		■	■	■	Endotoxin controlled – low molecular weight povidone for solubilization, stabilization and crystallization inhibition.	Ph.Eur., USP/NF, JP: Povidone
	Kollidon® 25 **P**		■	■	■	For instant release matrices including solubilization and crystallization inhibition.	Ph.Eur., USP/NF, JP: Povidone
	Kollidon® 30[Δ] **P**			■		For instant release matrices including solubilization and crystallization inhibition. Suitable for spray drying.	Ph.Eur., USP/NF, JP: Povidone

P Packed in PeroXeal® packaging **Δ** PeroXeal® only implemented for Kollidon® 30 origin Germany RSPO (Roundtable on Sustainable Palm Oil) certified *Monograph references were updated at time of printing, please visit us online for the latest status **Hot melt extrusion

Solutions & gels

Functionality	Product	Description	Monograph title*/Chemical name
Solubilizers & surfactants	Soluplus®	Polymer specifically designed to increase solubility and bioavailability of poorly soluble drugs.	Polyvinyl caprolactam – polyvinyl acetate – polyethylene glycol graft copolymer
	Kolliphor® RH 40	Nonionic solubilizer and emulsifier.	Ph.Eur.: Macrogolglycerol hydroxystearate; USP/NF: Polyoxyl 40 hydrogenated castor oil
	Kolliphor® HS 15	Nonionic solubilizer and emulsifier. Particularly suitable for parenteral applications.	Ph.Eur.: Macrogol 15 hydroxystearate; USP/NF: Polyoxyl 15 hydroxystearate
	Kolliphor® EL	Nonionic solubilizer and emulsifier.	Ph.Eur.: Macrogolglycerol ricinoleate; USP/NF: Polyoxyl 35 castor oil; polyoxyl 35 castor oil
	Kolliphor® ELP	Purified Kolliphor® EL, especially for sensitive active ingredients to improve their stability. Particularly suitable for parenteral applications.	Ph.Eur.: Macrogolglycerol ricinoleate; USP/NF: Polyoxyl 35 castor oil
	Kolliphor® SLS	Ionic solubilizer and emulsifier.	Ph.Eur.: Sodium laurilsulfate; USP/NF, JP: Sodium lauryl sulfate
	Kolliphor® P 188 Geismar	Polymeric solubilizer, emulsifier and plasticizer.	Ph.Eur., USP/NF, JP: Poloxamer 188; JPE: Polyoxyethylene (160) polyoxylpropylene (30) glycol
	Kolliphor® P 338 Geismar	Polymeric solubilizer, emulsifier and plasticizer.	Ph.Eur., USP/NF, JPE: Poloxamer 338
	Kolliphor® P 407 Geismar	Polymeric solubilizer, emulsifier and plasticizer.	Ph.Eur., USP/NF, JPE: Poloxamer 407; JPE: Polyoxyethylene (196) polyoxypropylene (67) glycol
	Kolliphor® PS 20	Nonionic solubilizer, emulsifier and co-emulsifier.	Ph.Eur., USP/NF: Polysorbate 20
	Kolliphor® PS 60	Nonionic solubilizer, emulsifier and co-emulsifier.	Ph.Eur., USP/NF, JPE: Polysorbate 60
	Kolliphor® PS 80	Nonionic solubilizer, emulsifier and co-emulsifier.	Ph.Eur., USP/NF: Polysorbate 80
Crystallization inhibitor	Kollidon® 12 PF P Kollidon® 17 PF P	Low-molecular weight povidone that is endotoxin controlled. Crystallization inhibitor and stabilizer in injectables and opthalmic products.	Ph.Eur., USP/NF, JP: Povidone
	Kollidon® 25 P Kollidon® 30[Δ] P	Medium-molecular weight povidone used as a solubilizing agent, dispersant and crystallization inhibitor.	Ph.Eur., USP/NF, JP: Povidone
	Kollidon® 90 F P	High-molecular weight povidone used as a solubilizing agent, dispersant and crystallization inhibitor.	Ph.Eur., USP/NF, JP: Povidone
	Kollidon® VA 64	Copolymer designed for creation of amorphous solid dispersions (ASDs) – instant release matrix, solubilizer, crystallization inhibitor. High solubility in organic solvents, high acceptability in solid oral doses.	Ph.Eur., USP/NF: Copovidone; JEP: Copolyvidone
	Soluplus®	Solubilizing agent, crystallization inhibitor, stabilizer.	Polyvinyl caprolactam – polyvinyl acetate – polyethylene glycol graft copolymer

Functionality	Product	Description	Monograph title*/Chemical name
Solvents	Kollisolv® PG	Solvent for oral and topical applications.	Ph.Eur., USP/NF, JP, FCC: Propylene glycol
	Kollisolv® PEG 300	Solvent for oral and topical applications.	Ph.Eur.: Macrogols; USP/NF: Polyethylene glycol, JPE: Macrogol 300; FCC: Polyethylene glycols
	Kollisolv® PEG 300 G	Solvent for oral and topical applications.	Ph.Eur.: Macrogols; USP/NF: Polyethylene glycol
	Kollisolv® PEG 400	Solvent for oral and topical applications.	Ph.Eur.: Macrogols; USP/NF: Polyethylene glycol; JP: Macrogol 400; FCC: Polyethylene glycols
	Kollisolv® PEG 400 G	Solvent for oral and topical applications.	Ph.Eur.: Macrogols; USP/NF: Polyethylene glycol
	Kollisolv® P 124 Geismar	Solvent for APIs, dispersing agent for liquid dispersions, stabilizer and co-emulsifier in semi-solid formulations.	Ph.Eur., USP/NF, JPE: Polyoxyethylene (20) polyoxypropylene (20) glycol
	Kollisolv® GTA	Commonly used, both semi-hydrophilic and semi-hydrophobic solvent.	Ph.Eur., USP/NF: Triacetin
	Kollisolv® PYR	Solvent for injectables and oral formulations for animal health.	Ph.Eur.: Pyrrolidone
	Kollisolv® MCT 70	Solubilizer for lipophilic drugs.	Ph.Eur.: Triglycerides, medium-chain, USP/NF: Medium-chain triglycerides
Viscosity enhancers	Kollidon® 90 F P	Enhances viscosity. Soluble in water and many organic solvents	Ph.Eur., USP/NF, JP: Povidone
	Kolliphor® P 407 Geismar	Enhances viscosity. Thermoreversible gelling effect.	Ph.Eur., USP/NF, Poloxamer 407; JPE: Polyoxyethylene (196) polyoxypropylene (67) glycol
Gel formers	Kolliphor® P 407 Geismar	Enhances viscosity. Thermoreversible gelling effect.	Ph.Eur., USP/NF, Poloxamer 407; JPE: Polyoxyethylene (196) polyoxylpropylene (67) glycol
	Kolliphor® P 188 Geismar	Enhances viscosity. Thermoreversible gelling effect.	Ph.Eur., USP/NF, JP: Poloxamer 188; JPE: Polyoxyethylene (160) polyoxylpropylene (30) glycol
	Kolliphor® P 338 Geismar	Enhances viscosity. Thermoreversible gelling effect.	Ph.Eur., USP/NF, Poloxamer 338

Emulsions & micro emulsions, SEDDS, SMEDDS, SNEEDS

Functionality	Product	Description	Monograph title*/Chemical name
Emulsifiers/ Solubilizers	Kolliphor® RH 40	Nonionic solubilizer. High acceptability in SEDDS formulations.	Ph.Eur.: Macrogolglycerol hydroxystearate; USP/NF: Polyoxyl 40 hydrogenated castor oil
	Kolliphor® HS 15	Nonionic solubilizer in paste form used in combination with a matrix polymer.	Ph.Eur.: Macrogol 15 hydroxystearate; USP/NF: Polyoxyl 15 hydroxystearate
	Kolliphor® EL	Nonionic solubilizer. High acceptability in SEDDS formulations.	Ph.Eur.: Macrogolglycerol ricinoleate; USP/NF: Polyoxyl 35 castor oil; polyoxyl 35 castor oil
	Kolliphor® ELP	Purified Kolliphor® EL, especially for sensitive active ingredients to improve their stability.	Ph.Eur.: Macrogolglycerol ricinoleate; USP/NF: Polyoxyl 35 castor oil
	Kolliphor® SLS	Ionic solubilizer and emulsifier.	Ph.Eur.: Sodium laurilsulfate; USP/NF, JP: Sodium lauryl sulfate
	Kolliphor® P 188 Geismar	Polymeric solubilizer, emulsifier and plasticizer.	Ph.Eur., USP/NF, JP: Poloxamer 188; JPE: Polyoxyethylene (160) polyoxylpropylene (30) glycol
	Kolliphor® P 338 Geismar	Polymeric solubilizer, emulsifier and plasticizer.	Ph.Eur., USP/NF, JP: Poloxamer 338
	Kolliphor® P 407 Geismar	Polymeric solubilizer, emulsifier and plasticizer.	Ph.Eur., USP/NF, Poloxamer 407; JPE: Polyoxyethylene (196) polyoxylpropylene (67) glycol
	Kolliphor® PS 20	Nonionic solubilizer, emulsifier and co-emulsifier.	Ph.Eur., USP/NF: Polysorbate 20
	Kolliphor® PS 60	Nonionic solubilizer, emulsifier and co-emulsifier.	Ph.Eur., USP/NF, JPE: Polysorbate 60
	Kolliphor® PS 80	Nonionic solubilizer, emulsifier and co-emulsifier.	Ph.Eur., USP/NF: Polysorbate 80
	Kolliphor® P 124 Geismar	High acceptability in SEDDS formulations.	Ph.Eur., USP/NF: Poloxamer 124; JPE: Polyoxyethylene (20) polyoxylpropylene (20) glycol
Solvents	Kollisolv® PG	Solvent for oral and topical applications.	Ph.Eur., USP/NF, JP, FCC: Propylene glycol
	Kollisolv® PEG 300	Solvent for oral and topical applications.	Ph.Eur.: Macrogols; USP/NF: Polyethylene glycol, JPE: Macrogol 300; FCC: Polyethylene glycols
	Kollisolv® PEG 300 G	Solvent for oral and topical applications.	Ph.Eur.: Macrogols; USP/NF: Polyethylene glycol
	Kollisolv® PEG 400	Solvent for oral and topical applications.	Ph.Eur.: Macrogols; USP/NF: Polyethylene glycol; JP: Macrogol 400; FCC: Polyethylene glycols
	Kollisolv® PEG 400 G	Solvent for oral and topical applications.	Ph.Eur.: Macrogols; USP/NF: Polyethylene glycol
	Kollisolv® P 124 Geismar	Solvent for APIs, dispersing agent for liquid dispersions, stabilizer and co-emulsifier in semi-solid formulations.	Ph.Eur., USP/NF, JPE: Polyoxyethylene (20) polyoxypropylene (20) glycol
	Kollisolv® GTA	Commonly used, both semi-hydrophilic and semi-hydrophobic solvent.	Ph.Eur., USP/NF: Triacetin
	Kollisolv® PYR	Solvent for injectables and oral formulations for animal health.	Ph.Eur.: Pyrrolidone

Functionality	Product	Description	Monograph title*/Chemical name
Lipids	Kollisolv® MCT 70	Solubilizer for lipophilic drugs.	Ph.Eur.: Triglycerides, medium-chain, USP/NF: Medium-chain triglycerides
Co-solvents	Kollisolv® PEG 300	Solvent for oral and topical applications.	Ph.Eur.: Macrogols; USP/NF: Polyethylene glycol, JPE: Macrogol 300; FCC: Polyethylene glycols
	Kollisolv® PEG 300 G	Solvent for oral and topical applications.	Ph.Eur.: Macrogols; USP/NF: Polyethylene glycol
	Kollisolv® PEG 400	Solvent for oral and topical applications.	Ph.Eur.: Macrogols; USP/NF: Polyethylene glycol; JP: Macrogol 400; FCC: Polyethylene glycols
	Kollisolv® PEG 400 G	Solvent for oral and topical applications.	Ph.Eur.: Macrogols; USP/NF: Polyethylene glycol
	Kollisolv® P 124 Geismar	Solvent for APIs, dispersing agent for liquid dispersions, stabilizer and co-emulsifier in semi-solid formulations.	Ph.Eur., USP/NF, JPE: Polyoxyethylene (20) polyoxypropylene (20) glycol
	Kollisolv® GTA	Commonly used solvent.	Ph.Eur., USP/NF: Triacetin
	Kollisolv® PYR	Solvent for injectables and oral formulations for animal health.	Ph.Eur.: Pyrrolidone

Suspensions

Functionality	Product	Description	Process			Monograph title*/Chemical name
			Physical mixing, e.g. wet granulation	Melt granulation	Spray drying	
Reduction of sedimentation	Kollidon® CL-M	Reduces sedimentation by steric effects. Unsoluble.		■		Ph.Eur., USP/NF, JP: Crospovidone type B
	Kolliphor® P 407 Geismar	Thickening agent and gel former, as a co-emulsifier and viscosity enhancer in creams and liquid emulsions. Also stabilizes topically and orally administered suspensions and is used in tooth-pastes, gargles and mouthwashes. Used in sustained release formulations.	■	■	■	Ph.Eur., USP/NF, Poloxamer 407; JPE: Polyoxyethylene (196) polyoxylpropylene (67) glycol
	Kollidon® 90 F **P**	Reduces sedimentation by viscosity enhancement. Soluble in water and many organic solvents.	■		■	Ph.Eur., USP/NF, JP: Povidone
Redispersing agent	Kollidon® CL-M	Sedimentation inhibitor in suspensions.		■		Ph.Eur., USP/NF, JP: Crospovidone type B
	Kollidon® 90 F **P**	Reduces sedimentation by viscosity enhancement. Soluble in water and many organic solvents.	■		■	Ph.Eur., USP/NF, JP: Povidone
	Kolliphor® HS 15	Nonionic solubilizer in paste form used in combination with a matrix polymer.	■	■	■	Ph.Eur.: Macrogol 15 hydroxystearate; USP/NF: Polyoxyl 15 hydroxystearate
	Kollidon® 12 PF **P** Kollidon® 17 PF **P**	Low-molecular weight povidone that is endotoxin controlled. Crystallization inhibitor and stabilizer in injectables and opthalmic products.	■	■	■	Ph.Eur., USP/NF, JP: Povidone

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