

Pharma Solutions

DOSAGE FORMS

Liquid and Semi-Solid Applications



Liquid and semi-solid drug formulations are particularly important for under-served pediatric and geriatric patients. The formulation experts at DuPont Nutrition & Biosciences can help design a liquid or semi-solid application utilizing a broad portfolio of specialized excipient solutions.

Enabling Technologies

Avicel® RC-591 and Avicel® CL-611 are effective suspending agents for pharmaceutical dosage forms, offering superior suspending capability with long shelf-life stability.

ETHOCEL™ ethylcellulose is a hydrophobic polymer that can be used as a barrier coating for moisture protection, taste-masking or sustained released on suspended particles.

Aquacoat® ECD is an aqueous dispersion of ethylcellulose.

Gelcarin® and Viscarin® are carrageenans from natural sources which offer specific gelling, thickening, stabilizing properties and superior mouth feel.

Protanal® and Manuacol® sodium alginates have a unique combination of properties, providing thickening, gelling,

stabilizing functionalities to liquid and semi-solid dosage forms.

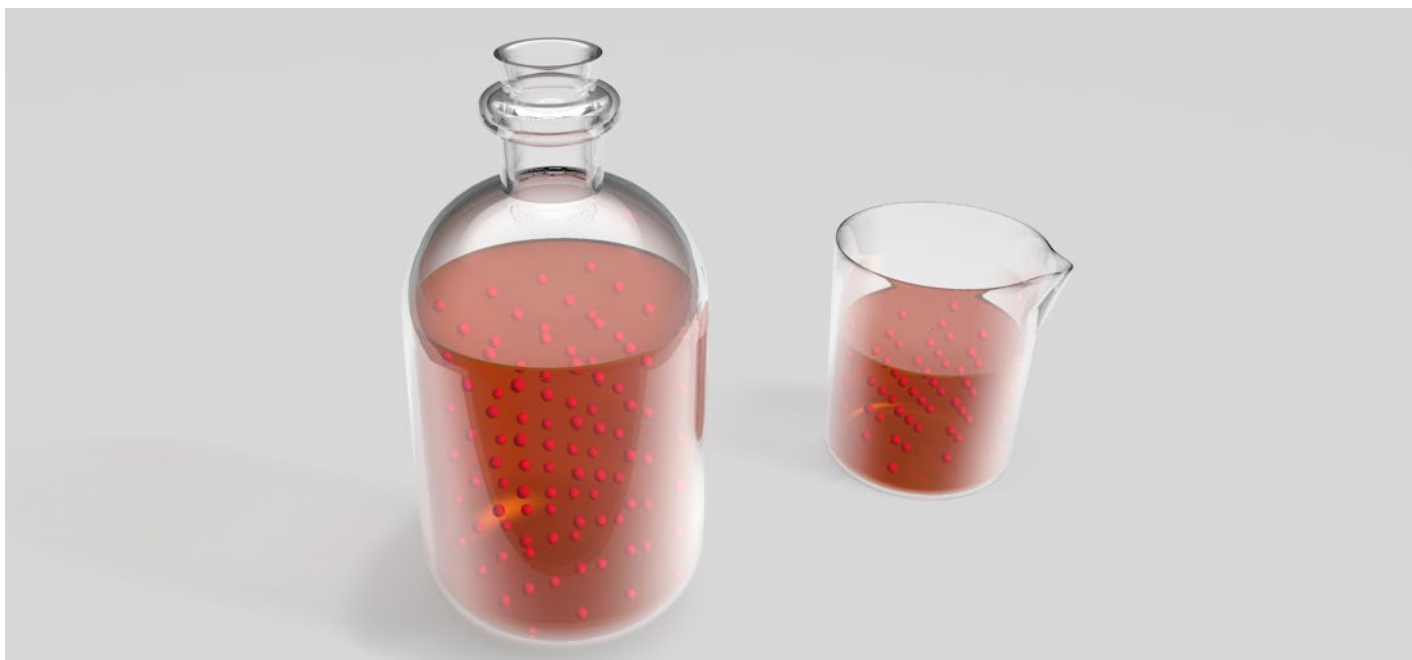
METHOCEL™ water-soluble cellulose ethers are used in liquid formulations because they are excellent thickeners, improve emulsion stability, suspend solids, lubricate and retain moisture. The protective colloid action and emulsifying properties of METHOCEL™ also benefit many liquid formulations.

WALOCEL™ C polymers can control the rheological (flow) properties in a variety of liquid dosage forms. Whenever viscosity control, suspension stabilization, water absorption or water retention is required, WALOCEL™ C is an excellent choice.

AMBERLITE™ and **DUOLITE™** ion exchange resins offer a unique solution to control the release of active pharmaceutical ingredients and improve drug stabilization in liquid suspensions.

Product Recommendations*

Benefits	Recommended Products
Rheology, Suspending, Emulsification	<p>METHOCEL™ A4M PRM, K4M PRM, E4M PRM to modify the rheology and to stabilize emulsions by reducing surface tension and by thickening the aqueous phase</p> <p>WALOCEL™ C30 PA / GA, C 700 PA / GA, 2400 PA / GA or 2400 GA07 to modify the rheology of aqueous phases</p> <p>Avicel® RC-591 and Avicel® CL-611 are thixotropic and excellent structured vehicle former</p> <p>Alginates: Protanal® CR8133, Protana®l CR8233, Manucof® LKX</p> <p>Carragenan: Gelcarin® and Viscarin®</p>
Ointment Base	<p>METHOCEL™ A4M PRM, K4M PRM, E4M PRM to contribute film-forming and secondary-thickening properties, improving sensory characteristics</p>
Modified Release	<p>AMBERLITE™ IRP69, DUOLITE™ AP143 to control the API release</p> <p>Aquacoat® ECD-30 as an aqueous based, modified-release coating agent for suspended multiparticulates</p> <p>ETHOCEL™ Std 4, 7 and 10 as modified release coating polymers for taste masking and sustained release in suspended multiparticulates</p>



Nutrition & Biosciences

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