



PHARMACEUTICAL INGREDIENTS | EMEA



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# SYLOID® Silica Excipients



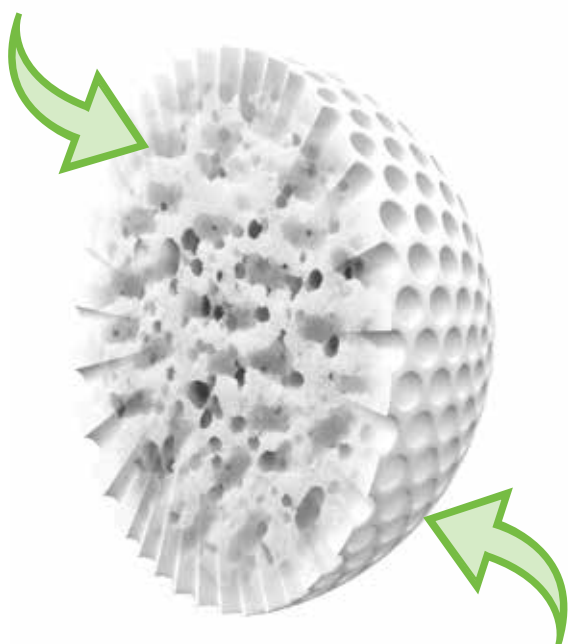
**Univar Solutions is proud to offer Grace SYLOID® Silica excipients proven to deliver efficiency and performance in many pharmaceutical and nutraceutical applications.**

SYLOID® silica's unique, innovative design combines adsorption capacity, particle size, density, and internal surface area to provide multifunctional benefits or optimize an application. This helps minimize the number of excipients used and the complexity of formulations while expediting manufacturing, ultimately improving the efficacy of the final dosage form.

**SYLOID® Silicas are used in a wide range of applications offering benefits such as:**

- Improved flow properties
- Enhanced moisture protection
- Superior carrier for oily APIs and nutraceutical extracts
- Anti-sticking and anti-tacking agent for film coatings
- Pore-former for sublingual and effervescent tablets

**Internal Surface Area**



**External Surface Area**

**SYLOID® Mesoporous Silica: Multifunctional Excipients**

Experienced formulators know that silica excipients are more than inactive ingredients or processing aids. They can offer formulation value and improve profitability.

Grace's SYLOID® FP and SYLOID® XDP silica excipients are strategic drug development tools in today's challenging pharmaceutical industry with its demands for improved formulations, bringing new drugs to market faster, and technological advances.

The right excipient can substantially impact manufacturing efficiency, dissolution, therapeutic effectiveness, and stability of the final dosage form. The wrong choice can put supply security, stability, and new drug performance at risk. Choosing the right excipient early in the process helps reduce time to market and improves the chance of commercializing an NCE / NBE or generic APIs.

**Solving Formulation Challenges with Innovative Particle Design**

SYLOID® FP silica's unique, innovative design combines adsorption capacity, particle size, density, and internal surface area to provide multifunctional benefits or optimize an application. This helps minimize the number of excipients used and the complexity of formulations while expediting manufacturing, ultimately improving the efficacy of the final dosage form. And, Grace's accredited quality and manufacturing certifications offer peace-of-mind.

For varying relative humidity conditions, SYLOID® silicas can improve flow properties for direct compression and prevent valve blockage. Plus, SYLOID® silica's greater density creates less dust for easier GMP compliance and more compact storage. Our manufacturing process creates particles with highly defined pore structures, resulting in an internal porosity that can be modified to deliver outstanding adsorption, porosity, particle size distribution, and greater internal surface area for functionality.

**SYLOID® Silicas are Used in a Wide Range of Applications**

- Moisture protection
- Reduction of electrostatic charging/flow improvement
- Moisture-Assisted Dry Granulation (MADG)
- Liquisolid formulations
- Oil absorption in lipid-based technologies (SEDDS)

## Not All Silicas are Created Equally

Grace's SYLOID® silicas have been trusted solutions for drug formulations for decades. We offer an extensive portfolio of products and services to support pharmaceutical manufacturing including intermediates and custom chemical synthesis, purification and process optimization, and drug delivery solutions. Grace's R&D experts and experienced technical teams collaborate with customers to optimize products for specific applications.

Grace's global manufacturing sites assure quality through REACH, ISO 9001 certifications, and a LEAN

Six Sigma® culture of continuous improvement. We offer traceability and supply chain custody and meet the specific test requirements published in the latest editions of the United States Pharmacopeia-National Formulary (USP-NF) for Silicon Dioxide, Japanese Pharmaceutical Excipients (JPE) for Hydrated Silicon Dioxide and the European Pharmacopeia (EP) for Colloidal Hydrated Silica. Grace was the first company to commercialize silica in 1921 and the first to receive EXCiPACT® GMP-certification for quality management of a manufacturing facility of pharmaceutical excipients.

## SYLOID® FP/F Excipients for Solving Multiple Manufacturing and Formulation Challenges

### SYLOID® AL-1FP Silicas for Moisture Control

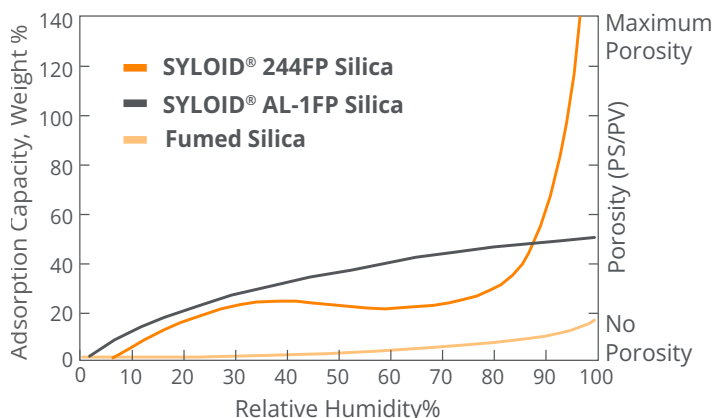
Controls trace amounts of moisture and moisture transfer from the surrounding environment which can degrade APIs or cause reactions that negatively impact drugs or decrease shelf life.

#### Stabilizer/Protectant

- Protects moisture-sensitive APIs/ANIs
- Helps ensure long-term product storage stability
- Improves physical and chemical stability of moisture sensitive blends for tablets and capsules

#### Desiccant/Drying Agent

- Can keep packaged final dosage forms below critical relative humidities for sensitive ingredients
- Adsorbs liquids that exude during compression



For more details on corresponding nutraceutical excipients please refer to our dedicated nutra-brochure or contact your local Grace sales representative.

### SYLOID® 244 FP/F A Multifunctional Excipient

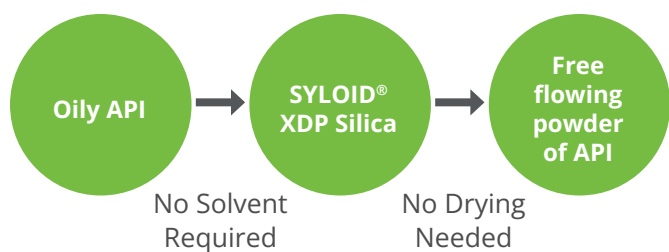
To address these challenges associated with moisture and blend flow in pharmaceutical and nutritional ingredients, Grace designed the specialized multifunctional, mesoporous excipient SYLOID® 244 FP/F. The uniquely designed mesoporous structure provides access to the large internal surface area which defines its performances:

- Improves flow for standard and challenging formulations
- Less dust, reduced potential for cross contamination
- Less bulky, easier to handle and store
- Reduces downtime from static buildup
- Eliminates or reduces need for sieving prior to use
- Improves glidant properties and homogeneity
- Increases tablet hardness at lower compression force
- Decreases friability, capping, and lamination
- Acts as an anti-static agent and reduces API/ANI loss
- Facilitates wetting to aid in disintegration and dispersion
- Improves flavor retention and oxidative stability
- Improves mouthfeel of medicated chewing gums

#### For Film Coatings

- Substitute talc
- Prevents segregation, stabilizes suspensions
- Prevents sticking – anti-tacking agent

# SYLOID® XDP Silica for Oily Actives and Lipid-based Delivery Systems



Liquid SEDDS can be transformed to a solid powder which provides an equivalent API release by loading on to SYLOID® XDP silica.

- Optimized for oily actives and lipid-based delivery systems
- Provides for better flowability and content uniformity
- Transformation of liquid formulations into stable solids
- Offers a better release of drugs from SEDDS tablets without compromising other tablets parameters
- Meets test requirements in global monograph

## SYLOID® XDP Silica for Oily Actives

SYLOID® XDP silicas are engineered with specific pore size and adsorption/desorption capacity that creates the ideal carrier for lipids. The combination of density and capacity delivers the highest load of drug or lipid delivery system in a given volume such as a tablet or capsule

## Choose the right product for your application

	Glilidant	Anti-caking	Anti-electrostatic charging	Moisture Protection	Tablet hardness	Suspension aid	Flavor absorption	Carrier	Drug Delivery (BAE)
SYLOID® 244 FP Multifunctional excipientst	•	•	•	•	•	•	•	(•) <sup>1</sup>	
SYLOID® 72FP Flow-improvement Anti-caking	•	•							
SYLOID® AL-1 FP Moisture protection				•					
SYLOID® XDP 3050 Carrier for liquisolid applications (tablets)								•	
SYLOID® XDP 3150 Carrier for liquisolid applications (granules)								•	

<sup>1</sup> can be used as a carrier in some cases



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