RESiFA™ SUNSPERA

AGC

Catalyst Supports for Organic Synthesis

Catalysts are materials that initiate, control, or increase chemical reactions without being consumed in the process. Catalysts are very important in the chemical process as they optimize throughput and regulate the byproducts of chemical reactions.

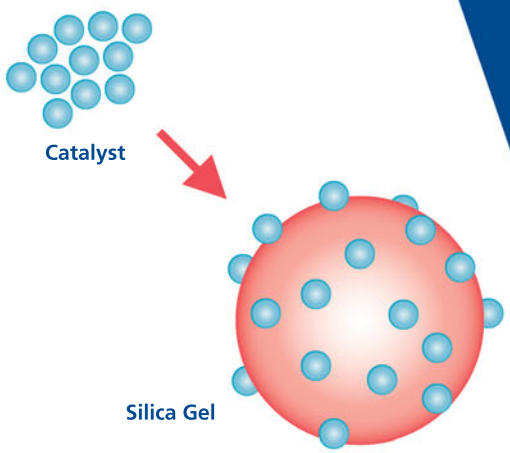
Catalyst Supports play an equally important role in the catalyst process. Catalyst supports are solid materials typically having high surface areas, porosity and are chemically inert. The catalyst supports have two main functions:

- carry/support the catalyst material
- properly distribute the catalyst for optimum chemical reactivity.

Selecting the right catalyst support is important in optimizing the manufacturing process. Several factors need to be considered:

- **Thermal Stability** affects the reaction rate between the catalyst and reacting material
- **Shape and Packing Density** can affect fluid flow rates and processes
- **Particle Strength** of the catalyst carrier needs to withstand catalyst preparation/loading and be able to collapse during polymerization
- **Surface Area and Porosity** directly relate to the reactivity levels of the chemical process and also the properties of the finished product. The higher the surface area, the higher the number of sites for a catalyst to attach, which leads to higher reactivity levels.

SUNSPERA™ silica gels are excellent catalyst supports for organic synthesis because they have high surface areas, high catalyst loading capabilities, and have high particle strength.



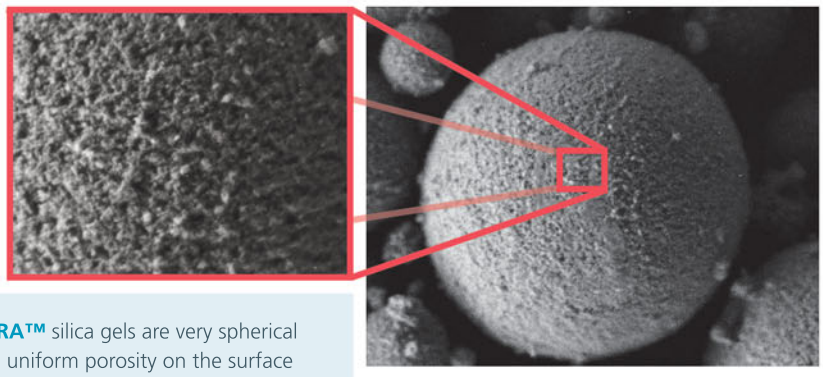
Catalyst Support

Key Attributes

- Spherical shape
- Wide combination of particle size and porosity
  - Particle size range: 3µm - 70µm
  - Pore volume range: 0.7 - 2.3 ml/g
  - High and wide surface area range: 40 - 800 m^2/g
- Uniform porosity throughout particle
- Narrow particle size and pore size distribution

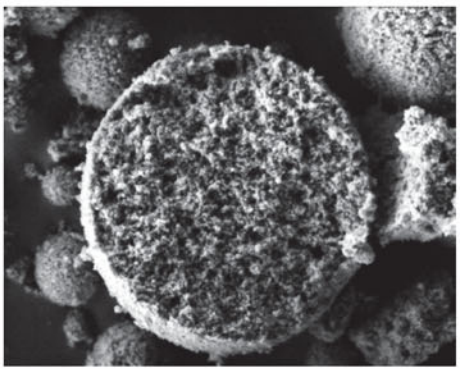
Benefits

- Morphology helps control polymerization reaction
- High loading of catalyst leads to high catalyst activity
- Produces high specific gravity and high bulk density of the polymer
- Improved morphology of finished polymer
- Optimizes production
- Prevents reactor fouling



SUNSPERA™ silica gels are very spherical and have uniform porosity on the surface and throughout the particle.

Photograph of Particle Surface



Photograph of Cross section

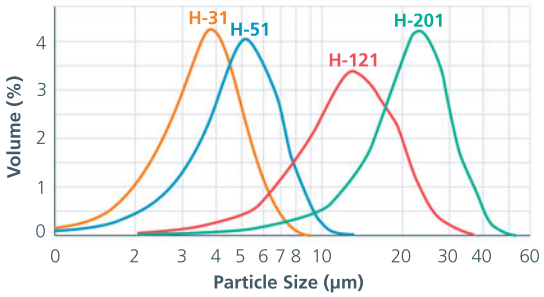
SUNSPERA Product Selection Guide

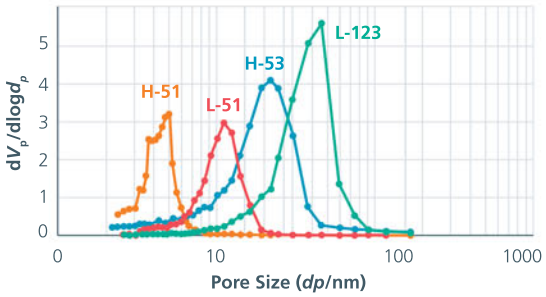
For Organic Synthesis of Organic Compounds

Grade	H-31	H-51	H-121	H-201	D-50-60A	D-100-60A	D-150-60A
Mean particle size (µm)	3	5	12	20	50	100	150
Specific surface area (m^2/g)	800	800	800	800	700	700	700
Pore volume (ml/g)	0.9	0.9	0.9	0.9	1.15	1.15	1.15
Pore diameter (nm)	4.5	4.5	4.5	4.5	6.5	6.5	6.5
Oil absoption capacity (ml/100g)	150	150	150	150	-	-	-

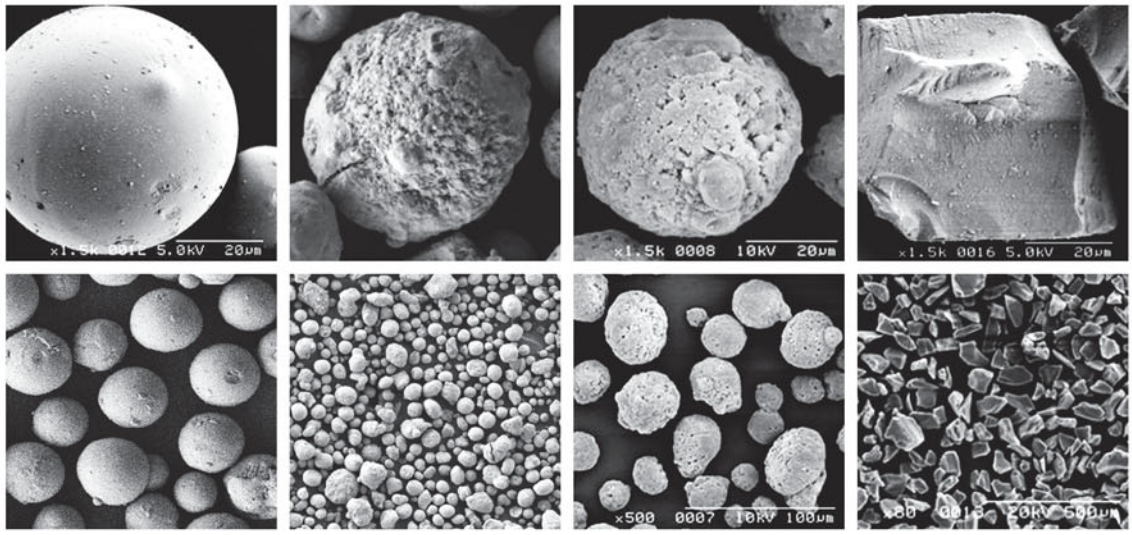
Other grades with different particle sizes and larger pore sizes are available.

Pore Size & Particle Size Distribution





SUNSPERA M.S. GEL D-50-60A	Competitive Spherical Silica	Conventional Spray-dried	Conventional Irregular Silica



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