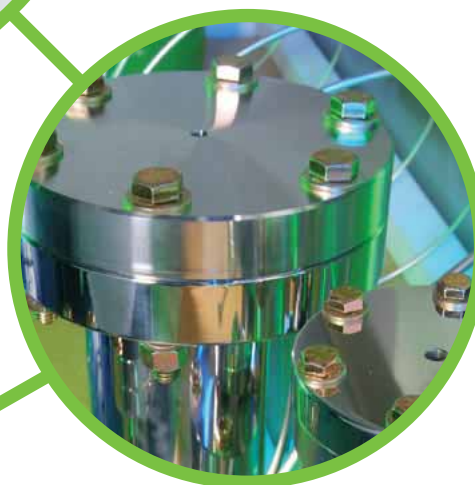
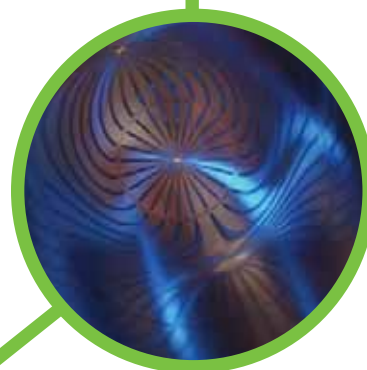
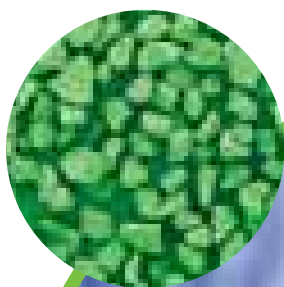
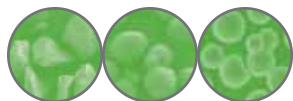


Davisil® Chromatographic Silica
Product Selection Guide



GRACE



Higher Performance

Davisil[®] silica's chemical and structural properties are optimized for chromatographic performance. Tight control of these properties from raw material to finished product distinguishes Davisil[®] silica from the competition.*

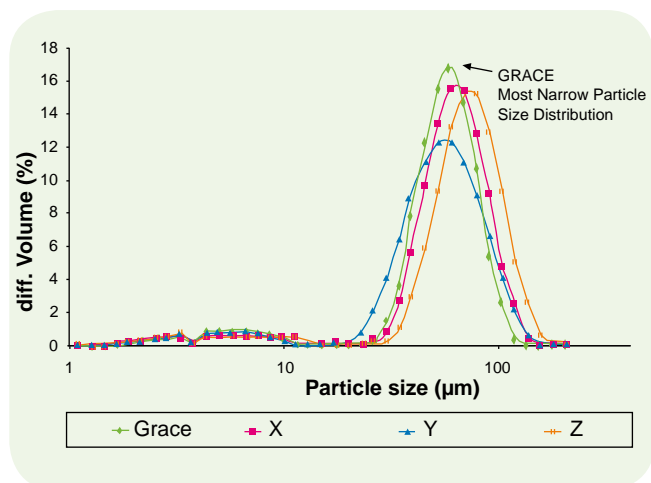
High surface area for increased loading capacity.

Company	Surface Area	Bulk Density	Surface Area of 1L Column
Grace	550m ² /g	420g/l	231,000m ² /L
X	515m ² /g	430g/l	221,450m ² /L
Y	460m ² /g	430g/l	197,800m ² /L
Z	450m ² /g	450g/l	189,000m ² /L

High purity silica to reduce unwanted interactions and contamination.

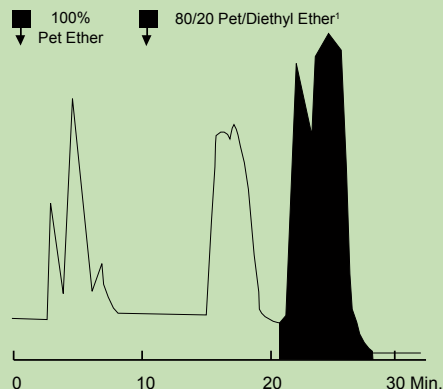
Company	Mg	Ca
Grace	25ppm	19ppm
X	27ppm	207ppm
Y	119ppm	793ppm
Z	212ppm	1775ppm

Tight particle size distribution to optimize efficiency and pressure drop.



*All comparative data generated on chromatographic silica labeled 60Å, 40-63µm.

Synthetic Intermediate Purification



Sample: 1g reaction products
Column: 50 x 500mm
Column Packing: Davisil[®] LC60Å 20-45µm
Mobile Phase: See chromatogram
Flow Rate: 175ml/min (535cm/hr)
Detection: OD 254nm

Davisil[®] silica purification of a schiff base from a crude reaction mixture containing aldehyde, amine and other by-products. The good separation and loading capacity shown at the pilot scale allowed scale-up to a 300mm diameter column producing over 90g of purified product per run.

Unmatched Technical Support

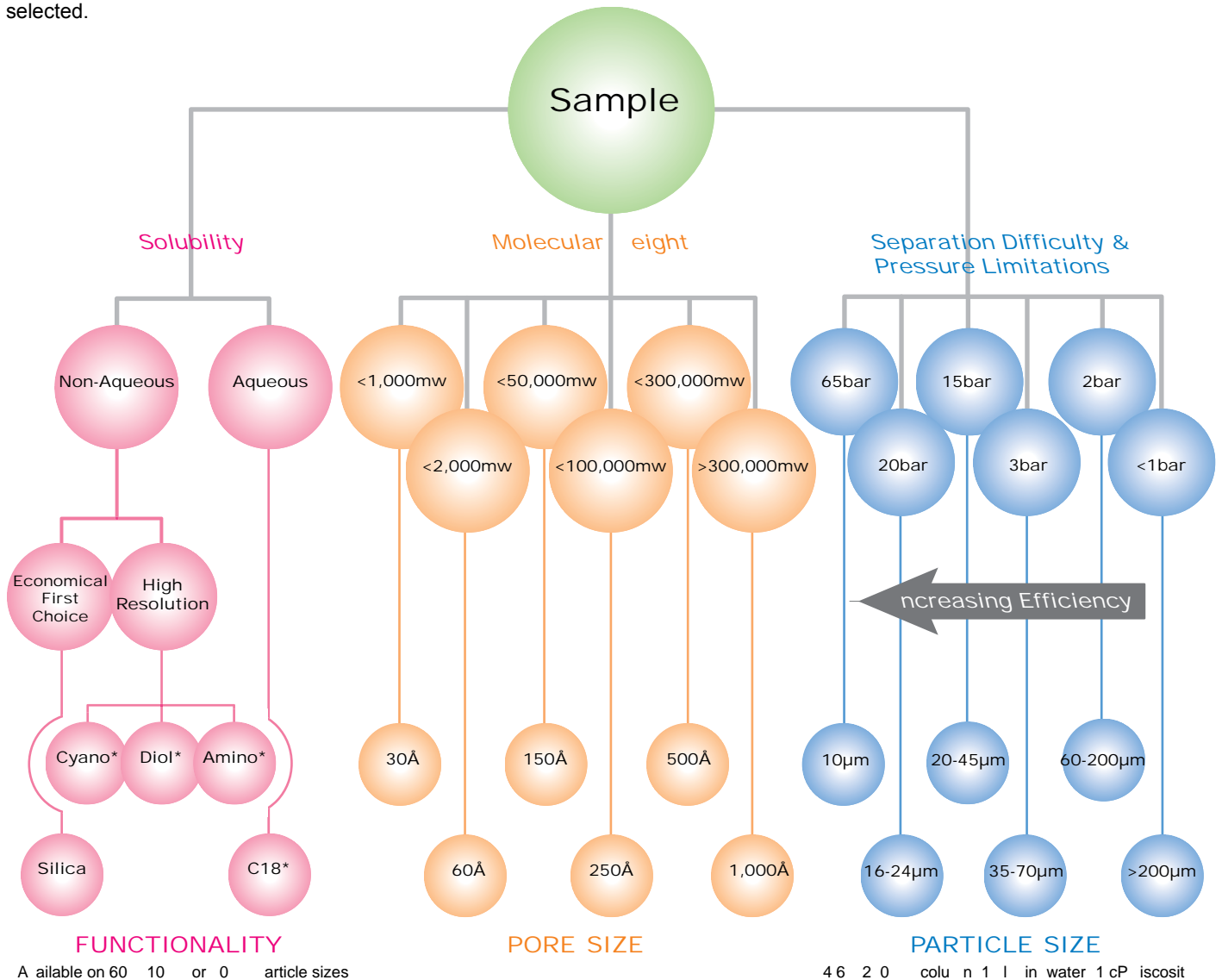
To assist customers, Grace is prepared to provide advice, assistance or laboratory trials, for intended process-scale use. Our field representatives can arrange for such support when required, as well as discuss our ability to customize grades tailored to your requirements.



Selection Guide

Many types of column packings are suitable for a given application. The diagram below is intended for general guidance to the chromatographer. By following each of the three paths in sequence, the proper packing medium is selected.

It should be noted that Grace offers other media to complement the Davisil® media packings in many of these applications.

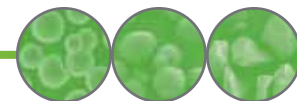


Typical Physical and Chemical Characteristics

Exact specifications for each grade are available for download at: www.discoverysciences.com/prep

Characteristic	Nominal Pore Size							
	30Å	60Å	150Å	250Å	500Å	1000Å	1500Å	2500Å
Surface Area (m ² /g)	700	550	330	285	80	40	25	17
Pore Volume (ml/g)	0.4	0.9	1.2	1.8	1.1	1.1	1.1	1.1
pH (5% suspension)	4	7.3	7.3	7.5	8.0	9.0	9.0	9.0
H ₂ O (weight %) [†]	<6%	<6%	<6%	<6%	<6%	<6%	<6%	<6%
Bulk Density (kg/m ³)	720	530	350	210	370	370	370	370

[†]Moisture content (% H₂O) can be tailored (increased or decreased) to meet customer requirements.



Ordering Information

Unbonded Silica				
APS (Å)	Particle (µm)	Davisil® Silica Grade	Pkg Size	Part No.
30	50-100	921	25kg	5101737
			25kg	5138973
	75-150	923 ¹	5lb	5139002
			72 x 10g	5139003
			576 x 10g	5139001
75-700	12 ²	25kg	5139180	
250-500	15 ³	25kg	5101744	
60	10	710NW	20kg	5136220
	16-20	631	25kg	5101778
	35-60	633N	25kg	5136961
	35-60	633NAT (ultra pure)	25kg	5138971
	40-63	LC60Å 40-63µm	25kg	5054993
			5kg	5098468
	60-200	LC60Å 60-200µm	1kg	5134312
			25kg	5007446
			5kg	5134295
	75-150	634	25kg	5101761
			25kg	5101762
150-250	635	25kg	5022298	
200-500	LC60Å 200-500µm	25kg	5022298	
150	16-24	LC150Å 16-24µm	25kg	5018962
	35-70	LC150Å 35-70µm	25kg	5057993
			5kg	5134294
	60-200	LC150A 60-200µm	1kg	5134299
			25kg	5134770
			5kg	5134293
	75-250	62	25kg	5134298
			1kg	5134298
	75-250	62	25kg	5101781
	250-500	646	25kg	5101768
250	40-63	LC250A 40-63µm	15kg	5134301
			2.5kg	5134292
	60-200	LC250A 60-200µm	15kg	5134300
500	35-70	XWP500Å 35-70µm	20kg	5030057
			5kg	5108711
	90-130	XWP500Å 90-130µm	20kg	5058842
			5kg	5134305
100-300	XWP500Å 100-300µm	20kg	5057050	
1000	16-24	XWP1000Å 16-24µm	20kg	5134302
			5kg	5016756
	35-70	XWP1000Å 35-70µm	20kg	5034754
			5kg	5134304
90-130	XWP1000Å 90-130µm	20kg	5093501	
		5kg	5134303	
1500	16-24	XWP1500Å 16-24µm	18kg	5070159
	90-130	XWP1500Å 90-130µm	18kg	5045916
2500	90-130	XWP2500Å 90-130µm	5kg	5107451

ASTM or EPA Method

¹Grade 923

ASTM D1319: Petroleum Products by FIA
ASTM D2549: Aromatics/Non-Aromatics from Oils
EPA Method 1664: N-Hexane Extraction Method

²Grade 12

ASTM D2007: Rubber Extender/ Processing Oils

³Grade 15

EPA Method 601/624: Purgeable Halocarbons



Bonded Silica					
APS (Å)	Bonded Phase	Particle (µm)	Davisil® Silica Grade	Pkg Size	Part No.
60	C18	10	710NC18E	250g	5135418
				1kg	5135305
		35-70	633NC18E	250g	5135414
				1kg	5134095
	Cyano	10	710NCNE	250g	5135419
				1kg	5134223
		35-70	633NCNE	250g	5135415
				1kg	5134224
	Diol	10	710N2OH	250g	5135417
				1kg	5135303
		35-70	633N2OH	250g	5135413
				1kg	5135302
Amino	10	710NNH2	250g	5135420	
			1kg	5134682	
	35-70	633NNH2	250g	5135416	
			1kg	5134096	

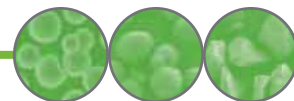
Matching Davisil® Silica TLC plates for easy method development

Davisil® Silica TLC Plates			
Description	Layer Thickness	Qty.	Part No.
Hard Layer, Organic Binder, Fluorescent Indicator, 254nm			
Scored, 4, 5x20cm Sections			
20x20cm	250µm	25	8617580
Scored, 8, 2.5x10cm Sections			
10x20cm	250µm	25	8617610

Column Hardware & Packing Equipment Also Available

Contact Grace for more information.





Greater Selection

A wide range of Davisil® silica grades are available to meet your performance and economic requirements. The selection guide in this brochure will help you choose the best grade for your application.

- Available in both normal phase bare silica and various bonding chemistries (C18, Amino, Diol, Cyano) for alternative selectivity.
- Wide selection of distinct pore diameters (30Å – 2500Å) for separation of various MW sizes.
- Available from 500g to multi-ton quantities.



Look for this icon on products from Grace using Davisil® silica, such as TLC plates and SPE/Flash cartridges, to experience the same great performance.



Chemical Synthesis Intermediates

Davisil® normal phase silica functions through hydrophilic interactions, with more polar compounds generally retained longer. This makes it ideally suited for purification of:



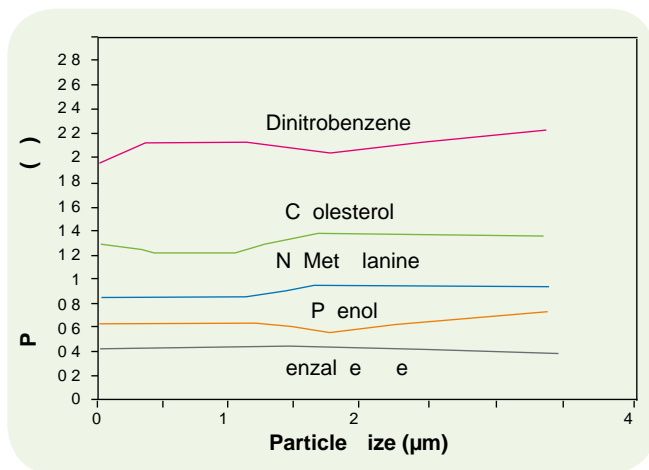
Oils and Fats



Natural Products (vitamins, flavors, fragrances, etc.)

Predictable Scale-Up

Today we manufacture hundreds of tons of Davisil® chromatographic silica per year in multi-ton lots. Our manufacturing is at scale, so your manufacturing can be at scale. In scaling up, you can be confident that Davisil® chromatographic silica will yield consistent performance as particle size is increased.

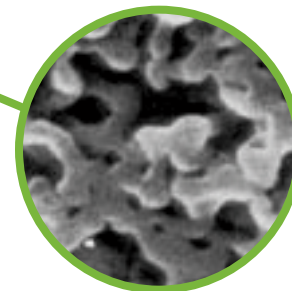


Uniform capacity (k') and selectivity (k'') factors across all particle sizes for predictable scale-up

Unbeatable Product Reliability

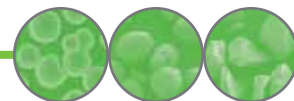
Manufactured for over 25 years, Davisil® chromatographic silica is one of the world's most widely used chromatography sorbents.

Surface Area & Pore Volume: +/-10% lot to lot



Produced at two ISO-9001 certified facilities under strict QC controls from raw material to finished product insures high lot-to-lot reproducibility.

Contact Information



GRACE

Grace Davison Discovery Sciences

Request more information about Grace's preparative and process chromatography products by visiting:

www.discoverysciences.com/prep

Or contact a local or regional Grace sales office for your personalized chromatography solution:

Regional Headquarters

In the United States:

2051 Waukegan Rd.
Deerfield, IL 60015
Tel: 847-948-8600
Fax: 847-948-1078

In Europe:

Brandstraat 12
B-9160 Lokeren, Belgium
Tel: +32 (0)9-340-65 65
Fax: +32 (0)9-340-65 60

In Asia:

19th Floor, K.Wah Center
1010 Huai Hai Zhong Road
Shanghai 200031 PRC
Tel: 86-21-5467 4678
Fax: 86-21-5403 3245

In Australia/New Zealand:

PO Box 6005
Baulkham Hills Business Center
New South Wales 2153, Australia
Tel: +61 2 9865 7177
Fax: +61 2 9899 2977

Grace Davison Discovery Sciences Locations



Global Reach, Expert Support

With 20 facilities around the globe and over 30 years of chromatography experience, you can count on Grace for timely delivery and expert technical support.

**Davisil® Silica
Manufacturing
Locations**

Key Manufacturing Sites:

Baltimore MD, USA
Camforth, UK
Deerfield IL, USA
Hesperia CA, USA
Pune, India
State College PA, USA
Worms, Germany



Visit www.discoverysciences.com to find the office nearest you or to request more information about our full line of chromatography columns, accessories and instruments.

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Vydac® Media

300Å RP Protein Purification Pioneer

Pioneered by Grace and produced by a unique process based on purified oranosilicate starting materials, Vydac® silicas are well defined, high purity, totally porous separation media that meet the most demanding needs of preparative and process scale users. Proven in over two decades of applications for protein, peptide, and nucleic acid separations, Vydac® 300Å reversed-phase media have excellent selectivity and reproducibility. Bulk Vydac® adsorbents incorporate bonded phase chemistries identical to those in Vydac® brand analytical and prep HPLC columns, thereby assuring economical method development and reliable, dependable scale-up for preparative and process chromatographic applications.



Vydac® TP 300A Silica Specifications	
Pore Size:	300Å
Pore Volume:	0.6mL/g
Surface Area:	90m ² /g
Particle Shape:	Spheroidal

Vydac® 300Å Media

	MS			TP					
	Butylsilane C4	Octylsilane C8	Octadecylsilane C18	Butylsilane C4	Octylsilane C8	Octadecylsilane C18	Octadecylsilane C18 monomeric	Diphenylsilane	Silica
Bonded Chemistry	214MS	208MS	218MS	214TP	208TP	218TP	238TP	219TP	101TP
10–15µm Particles	214MSB1015	208MSB1015	218MSB1015	214TPB1015	208TPB1015	218TPB1015	238TPB1015	219TPB1015	101TPB1015
15–20µm Particles	214MSB1520	208MSB1520	218MSB1520	214TPB1520	208TPB1520	218TPB1520	238TPB1520	219TPB1520	101TPB1520
20–30µm Particles	214MSB2030	208MSB2030	218MSB2030	214TPB2030	208TPB2030	218TPB2030	238TPB2030	219TPB2030	101TPB2030

Available in 10g increments.

tech tip

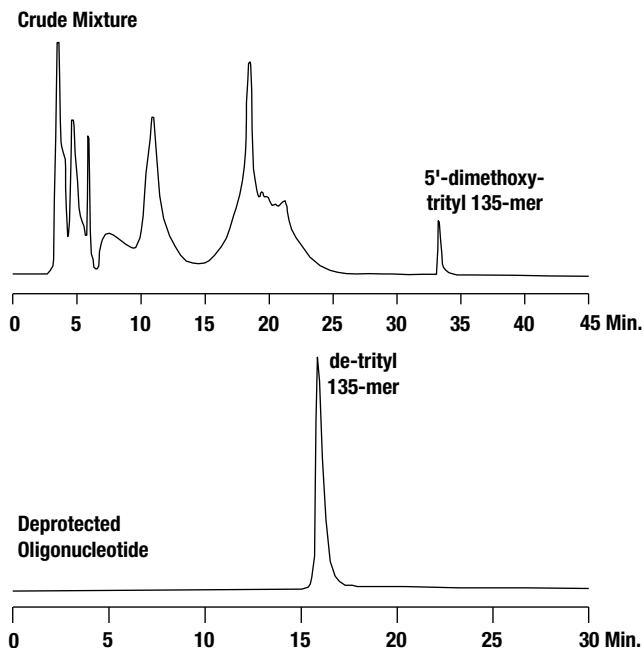
Vydac® MS vs. Vydac® TP

Both phases are based on the same high purity 300Å silica. However, MS undergoes an additional treatment prior to bonding that reduces the residual polar activity of the silica surface. For many applications this results in improved resolution and an increase in protein recovery.

Two-Stage Purification of a Synthetic 135-mer

Although generally recommended for oligonucleotides up to 75 bases, Vydac® 214TP columns have been used to purify much longer synthetic oligonucleotides. Here a 135-mer is purified by two stages of chromatography on a 214TP column—the first with the 5'-dimethoxytrityl protecting group still attached, causing strong retention, and the second after removal of the trityl group.

Column: Vydac® 214TP1010 C4, 10µm, 10 x 250mm
 Flow Rate: 5mL/min
 Mobile Phase: A: 0.1 M Triethylammonium Acetate, pH 7.0
 B: Acetonitrile
 Gradient: Crude: 0 to 60% B from 5 to 40min
 Deprotected: 0 to 20% B from 5 to 25min
 Detector: UV at 260nm



Data courtesy of Joseph Kosmoski and Dr. Michael Smerdon, Dept. of Biochemistry and Biophysics, Washington State University, Pullman, WA, USA

related products

Looking for Vydac® analytical columns?
 See pages 84–95.