

Title: An apple-to-apple comparison of Luknova standard silica column with competitors by client using their undisclosed samples

Background

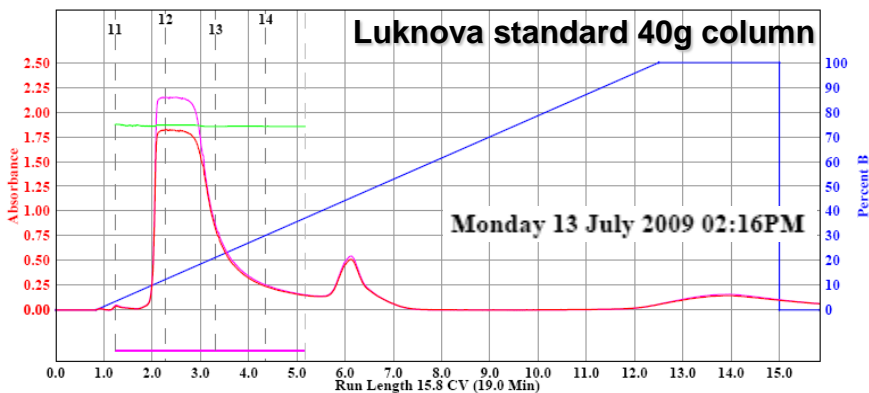
Luknova normal phase silica gel columns are designed for flash purification of organic compounds with sample loading up to 10% of packed mass. The columns are disposable and reusable. Quality silica gel with narrow particle size distribution and high purity enables significant improvement in purification efficiency, resolution, and column reproducibility. Narrow pH range prevents the compound decomposition at room temperature.

Separation is the most important factor that determine the flash column performance and purification efficiency. In this application note, Luknova standard silica column was compared with competitor's RF and Gold silica columns under the same conditions to reveal the difference in the purification performance.

Experimental

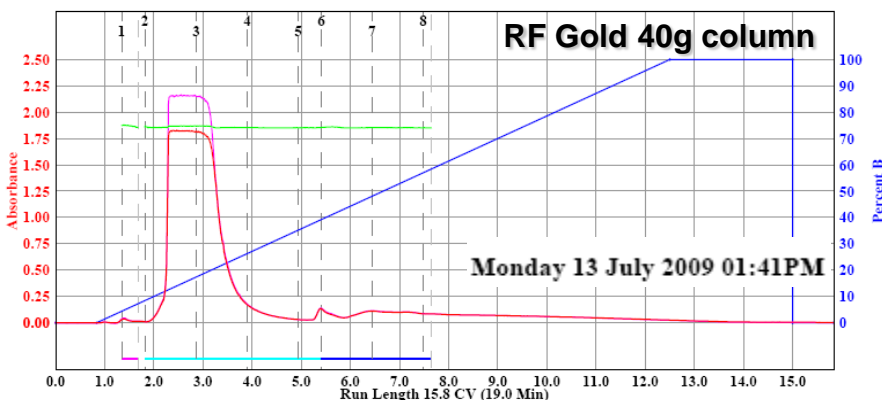
A 40g Luknova standard silica column, a 40g RF Gold silica column, and a 120g RF silica column were compared by client in Cambridge, Massachusetts. An equal amount of undisclosed sample was injected into the 40g flash columns and more sample in 120g columns that were wetted under the standard conditions. For experimental information in detail, please refer to Page 2-4.

Results and Discussion



Detection Wavelength (red): 330 nm
Monitor Wavelength (purple): 254 nm
Flow Rate: 40 ml/min
Equilibration Volume: 5.0 CV
Initial Waste: 0.0 CV
Air Purge: 1.0 min
Run Notes:

Peak Tube Volume: Max.
Non-Peak Tube Volume: Max.
Loading Type: Liquid
Peak Detection Width: 2 min
Peak Detection Threshold: 0.20 AU
Solvent A: A1 Heptane/EtOAc=1/1
Solvent B: B1 Heptane/EtOAc/MeOH(45/45/10)



Compared to RF Gold column,
Luknova column offers:

- Similar performance
 - for the 1st peak
- Better resolution
 - Slight higher signal intensity
 - 0.50 against 0.10 for the 2nd peak
- Better peak shape for the 3rd peak
 - 12-15 mins against 6-14 mins

Luknova standard 40g silica column

SampleName: Acid-LuKnova

Monday 13 July 2009 02:16PM

Luknova column: 40g Silica

Detection Wavelength (red): 330 nm

Monitor Wavelength (purple): 254 nm

Flow Rate: 40 ml/min

Equilibration Volume: 5.0 CV

Initial Waste: 0.0 CV

Air Purge: 1.0 min

Run Notes:

Peak Tube Volume: Max.

Non-Peak Tube Volume: Max.

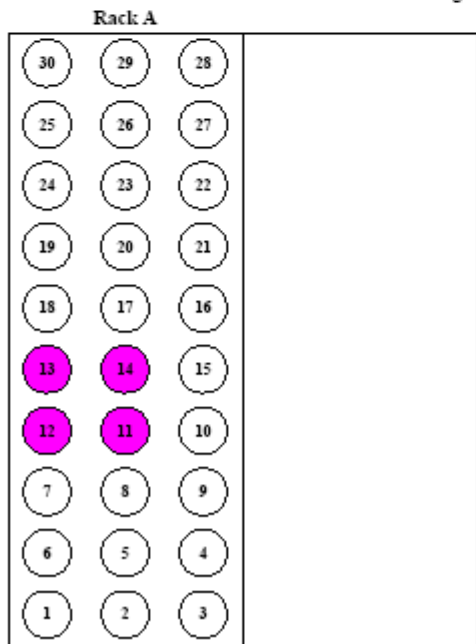
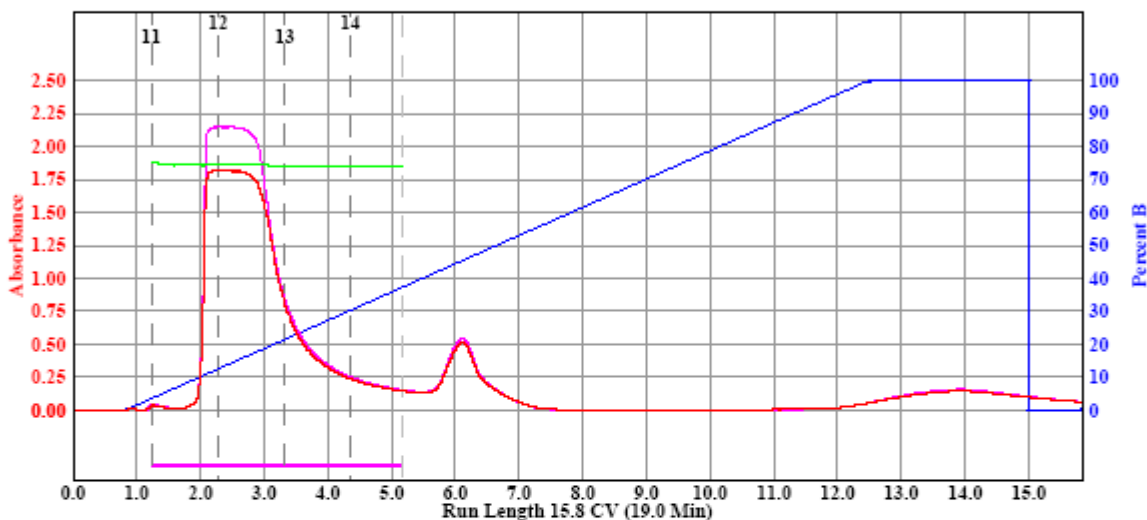
Loading Type: Liquid

Peak Detection Width: 2 min

Peak Detection Threshold: 0.20 AU

Solvent A: A1 Heptane/EtOAc=1/1

Solvent B: B1 Heptane/EtOAc/MeOH(45/45/10)



Peak #	Start Tube	End Tube
1	A:11	A:14

Duration	Percent B	Solvent B
0.0	0.0	B1 Heptane/EtOAc/MeOH(45/4
0.8	0.0	B1 Heptane/EtOAc/MeOH(45/4
11.7	100.0	B1 Heptane/EtOAc/MeOH(45/4
2.5	100.0	B1 Heptane/EtOAc/MeOH(45/4
0.0	0.0	B1 Heptane/EtOAc/MeOH(45/4
0.8	0.0	B1 Heptane/EtOAc/MeOH(45/4

25 mm x 150 mm Tubes

40g RF Gold silica column

SampleName: Acid-GOLD

Monday 13 July 2009 01:41PM

RediSep Column: 40g Silica

Peak Tube Volume: Max.

Detection Wavelength (red): 330 nm

Non-Peak Tube Volume: Max.

Monitor Wavelength (purple): 254 nm

Loading Type: Liquid

Flow Rate: 40 ml/min

Peak Detection Width: 2 min

Equilibration Volume: 5.0 CV

Peak Detection Threshold: 0.20 AU

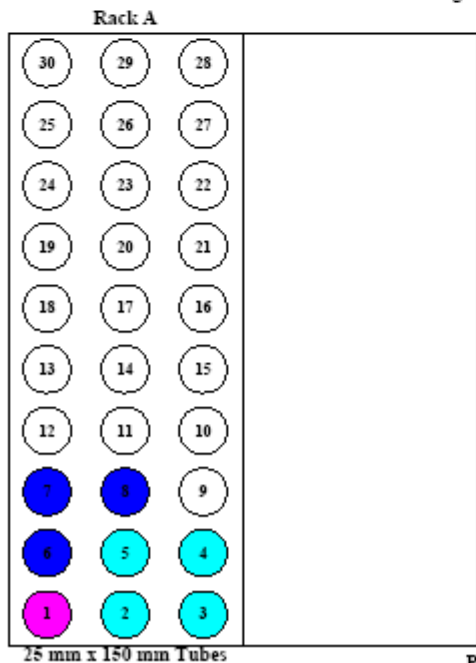
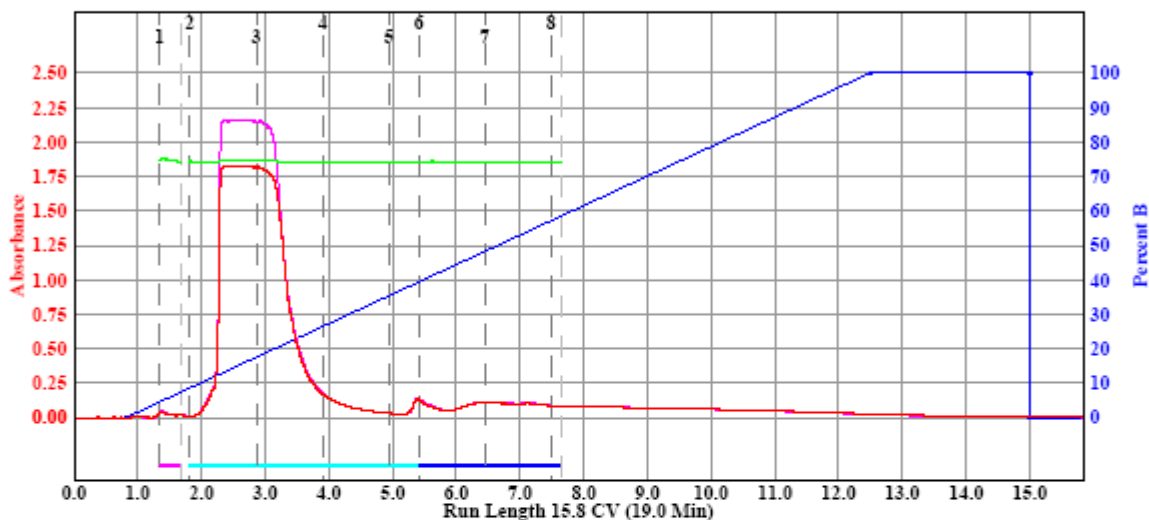
Initial Waste: 0.0 CV

Solvent A: A1 Heptane/EtOAc=1/1

Air Purge: 1.0 min

Solvent B: B1 Heptane/EtOAc/MeOH(45/45/10)

Run Notes:



Peak #	Start Tube	End Tube
1	A:1	A:1
2	A:2	A:5
3	A:6	A:8

Duration	Percent B	Solvent B
0.0	0.0	B1 Heptane/EtOAc/MeOH(45/4
0.8	0.0	B1 Heptane/EtOAc/MeOH(45/4
11.7	100.0	B1 Heptane/EtOAc/MeOH(45/4
2.5	100.0	B1 Heptane/EtOAc/MeOH(45/4
0.0	0.0	B1 Heptane/EtOAc/MeOH(45/4
0.8	0.0	B1 Heptane/EtOAc/MeOH(45/4

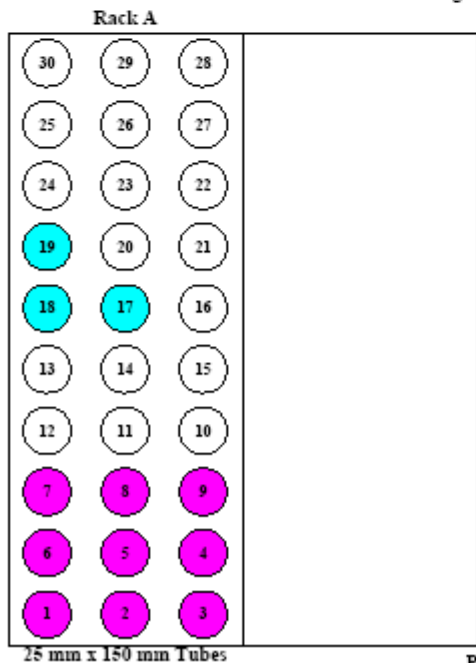
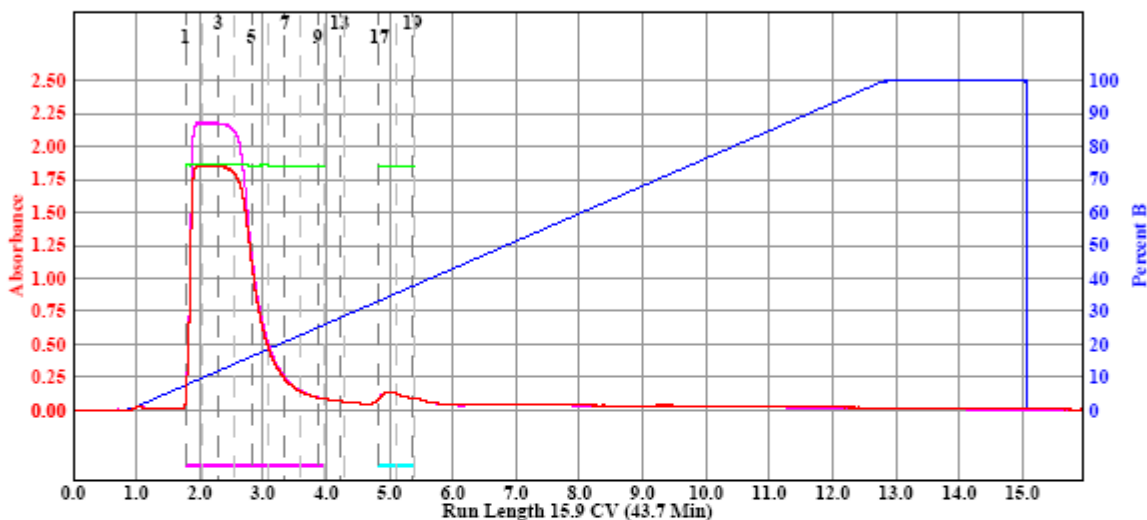
Regular 120g RF silica column

SampleName: Acid-Regular

Monday 13 July 2009 04:03PM

RediSep Column: 120g Silica
 Detection Wavelength (red): 330 nm
 Monitor Wavelength (purple): 254 nm
 Flow Rate: 70 ml/min
 Equilibration Volume: 3.0 CV
 Initial Waste: 0.0 CV
 Air Purge: 1.5 min
 Run Notes:

Peak Tube Volume: Max.
 Non-Peak Tube Volume: Max.
 Loading Type: Liquid
 Peak Detection Width: 4 min
 Peak Detection Threshold: 0.20 AU
 Solvent A: A1 Heptane/EtOAc=1/1
 Solvent B: B1 Heptane/EtOAc/MeOH(45/45/10)



Peak #	Start Tube	End Tube
1	A:1	A:9
2	A:17	A:19

Duration	Percent B	Solvent B
0.0	0.0	B1 Heptane/EtOAc/MeOH(45/4
0.9	0.0	B1 Heptane/EtOAc/MeOH(45/4
12.0	100.0	B1 Heptane/EtOAc/MeOH(45/4
2.2	100.0	B1 Heptane/EtOAc/MeOH(45/4
0.0	0.0	B1 Heptane/EtOAc/MeOH(45/4
0.9	0.0	B1 Heptane/EtOAc/MeOH(45/4



Standard normal phase silica flash columns

Luknova normal phase silica gel columns are designed for flash purification of organic compounds with sample loading up to 10% of packed mass. The columns are disposable and reusable. Quality silica gel with narrow particle size distribution and high purity enables significant improvement in purification efficiency, resolution, and column reproducibility. Narrow pH range prevents the compound decomposition at room temperature.

Compatible with most organic solvents and all systems
 Keep dry and room temperature
 Column pre-equilibrium is highly recommended.

Technical Specifications

Normal phase high purity silica gel
 230-400 mesh particle size
 50 μm averaged particle size
 Pore size 60 angstroms
 Pore volume 0.75 ml/g
 Surface area 500 m^2/g
 pH range 6.8-7.2
 Positive testing up to 200 psia
 Polypropylene construction
 Compatible with all common solvents

Silica Column Size and Flow Selection Guide

Column size	Sample size	Flow rate (mL/min)
4g	4-400mg	15-20
12g	12mg-1.2g	20-40
25g	25mg-2.5g	25-50
40g	40mg-4g	30-60
80g	80mg-8g	40-80
120g	0.12-12 g	60-120
240g	0.24-24 g	70-180
330g	0.33-33g	80-180
750g	0.75-75g	100-300
1500g	1.5-150g	300-500

Luknova Standard Silica flash Columns

Column Size	Catalog No.	Description
4g	FC003004	4g silica, 40/pkg.
	FC003004-0	4g silica, 480/pkg.
12g	FC003012	12g silica, 30/pkg.
	FC003012-0	12g silica, 360/pkg.
25g	FC003025	25g silica, 25/pkg.
	FC003025-0	25g silica, 300/pkg.
40g	FC003040	40g silica, 20/pkg.
	FC003040-0	40g silica, 240/pkg.
80g	FC003080	80g silica, 10/pkg.
	FC003080-0	80g silica, 80/pkg.
120g	FC003120	120g silica, 8/pkg.
	FC003120-0	120g silica, 64/pkg.
240g	FC003240	240g silica, 4/pkg.
	FC003240-0	240g silica, 32/pkg.
330g	FC003330	330g silica, 4/pkg.
	FC003330-0	330g silica, 32/pkg.
750g	FC003750	750g silica, 4/pkg.
1500g	FC0031500	1500g silica, 3/pkg.

Empty Solid Load Cartridges (ISCO-type)

Size	Catalog No.	Description
5g	SPE05-80	5g, empty, 80/PK.
	SPE05-960	5g, empty, 960/PK.
25g	SPE25-20	25g, empty, 20/PK.
	SPE25-240	25g, empty, 240/PK.

Prepacked Solid Load Cartridges (ISCO-type)

Size	Catalog No.	Description
1g-Silica	SPE05A1	5g, preloaded 1g silica, 80/PK.
2g-Silica	SPE05A2	5g, preloaded 2g silica, 80/PK.
5g-Silica	SPE05A5	5g, preloaded 5g silica, 80/PK.
	SPE05A5-0	5g, preloaded 5g silica, 960/PK.
10g-Silica	SPE25A10	25g, preloaded 10g silica, 20/PK.
	SPE25A10-0	25g, preloaded 10g silica, 240/PK.
20g-Silica	SPE25A20	25g, preloaded 20g silica, 20/PK.
	SPE25A20-0	25g, preloaded 20g silica, 240/PK.