

Purification of Structural Isomers, SepaFlash® HP Fusion column -- the best of the two worlds, high performance with low cost

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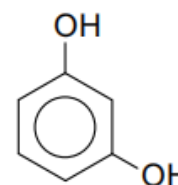
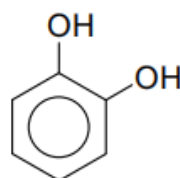
Santai Science Inc.

Chromatography Application Note ANSS-012



Our best seller normal phase Santai SepaFlash S-5101 with irregular silica gel at the standard particle size of 40 - 63 μm is usually sufficient to meet the need of regular purification. However, for samples that are difficult to separate, such as structural isomers, higher purification solution is required. The common practices are to use columns that are packed with spherical silica such as our HP Platinum (SW-2101) or well-known golden colored columns. The high cost of those spherical silica columns is one of the limiting facts.

To solve this dilemma, Santai science has developed SepaFlash Fusion columns (irregular silica, SW-5102), that combine the best of the two worlds. SW-5102 high-performance separation column is made of high-purity irregular silica gel with smaller particle size (25~40 μm), which provides great separation capacity for organic chemists. We did the compared of 4 type of normal phase silica columns for the separation of a pair of structural isomers catechol (**A**, benzene-1,2-diol) and resorcinol (**B**, benzene-1,3-diol).



Four types of normal phase silica columns were tested for their purification capacity on SepaBean™ machine 2 system. The separation of mixtures of catechol and resorcinol was investigated, using n-hexane and ethyl acetate as mobile phases, all separations were carried out on a 40 g SepaFlash® normal phase separation columns.



SepaBean™ Machine 2.0		
Columns	Figure 1 SepaFlash® Standard Series (irregular, 40 - 63 μm , 60Å, SW-5101-040)	
	Figure 2 SepaFlash® HP Fusion column (irregular, 25 - 40 μm , 60Å, SW-5102-040-IR)	
	Figure 3 SepaFlash® HP Platinum (Spherical, 20 - 45 μm , 70 Å, SW-2102-040-SP)	
	Figure 4 A well-known golden column (Spherical, 20 - 40 μm , 60 Å)	
Wavelength	275 nm; 280 nm	
Mobile Phase	Solvent A: Hexane Solvent B: Ethyl acetate	
Flow rate	40 mL/min	
Sample loading	150mg	
Gradient	Time (min)	Solvent B (%)
	0	0
	15	100

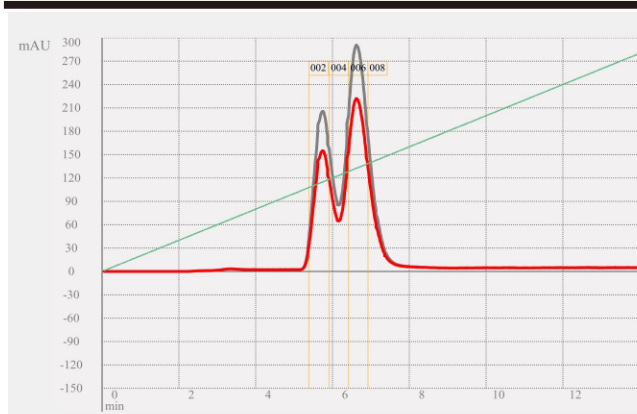


Figure 1. The separation of **A** and **B** by SepaFlash® Standard column (irregular, 40 - 63 μm , 60 \AA , S-5101-040)



Figure 3. The separation of **A** and **B** by SepaFlash® HP Platinum (Spherical, 20 - 45 μm , 70 \AA , SW-2102-040-SP)

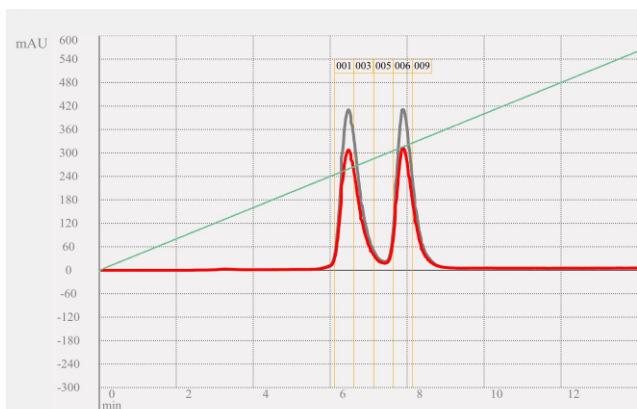


Figure 2. The separation of **A** and **B** by SepaFlash® HP Fusion column (irregular, 25 - 40 μm , 60 \AA , SW-5102-040-IR)

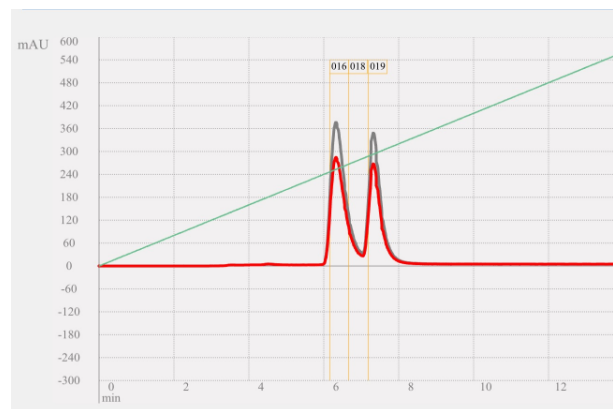


Figure 4. The separation of **A** and **B** by a well-known brand golden column 40 g (Spherical, 20 - 40 μm , 60 \AA)

They are the comparison of the separation effect of S-5101-040, SW-5102-040-IR, SW-2102-040-SP, and a 40g separation column of a competing product. Under the same separation conditions, the three separation columns achieved good separation effects on the two compounds. Among them, HP Fusion column, SW-5102-040-IR has the same separation capacity as the two spherical silica gel separation columns SW-2102-040-SP and the competing 40g separation column. As we all know, the price of spherical silica gel is much higher than that of amorphous silica gel. When the separation capacity is close, HP Fusion SW-5102-040-IR is the most economical choice.

§ Acknowledgment. We appreciate our industrial partners Francois Deschamps, Synthèse AptoChem Inc (7171 Rue Frederick Banting, Saint-Laurent, QC H4S 1Z9) who have provided valuable advice and suggestions.

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